

# Corporate Responsibility

2017/2018  
CUSTOMIZED REPORT



**MSD**

INVENTING FOR LIFE

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# Our Approach

We are working to address global health challenges, protect the environment, support our communities and develop our employees.

For more than a century, our company has been inventing medicines and vaccines for many of the world's most challenging diseases. We have always been and always will be inventing, and we do it for the single greatest purpose: Life.

Our corporate responsibility approach is aligned with our company's focus on invention, and underscores our commitment to overcoming the greatest obstacles to health and well-being, developing and rewarding our employees, protecting the environment, and operating with the highest standards of ethics and transparency.

Reflecting our commitment to managing environmental, social and governance issues, we continue to focus our approach to corporate responsibility in four primary areas that are of greatest relevance to our business and society.



## ACCESS TO HEALTH

We aspire to improve access to health by discovering, developing and providing innovative products and services that save and improve lives.



## EMPLOYEES

We recognize that our ability to excel depends on the integrity, knowledge, imagination, skill, diversity and teamwork of our employees.



## ENVIRONMENTAL SUSTAINABILITY

A healthy planet is essential to human health and the sustainability of our business.



## ETHICS & TRANSPARENCY

Through our unwavering commitment to ethics and transparency, we earn the trust and confidence of our stakeholders.

## Our Commitment

Our commitment to corporate responsibility is reflected in:

- Our **policies and practices**
- The **commercial models and initiatives** we employ to build and sustain our business and expand access to health
- The **philanthropic programs** that support our mission and contribute to society
- Our **engagement and communication with our stakeholders** including customers, suppliers, shareholders, employees and communities

## Governance

We believe good governance is integral to achieving long-term shareholder value. We are committed to governance policies and practices that serve the interests of our company and its many shareholders.

In exercising our fiduciary duty to our shareholders, we take a long-term perspective on shareholder value that takes into account both our company's relationship with society as a whole and the interests of our many diverse stakeholders.

Our company's Board Governance Committee is responsible for advising the company's Board of Directors and management on company policies and practices that pertain to the company's responsibilities as a global corporate citizen, its special obligations as a health care company whose products and services affect health and quality of life around the world, and its commitment to the highest standards of ethics and integrity in all of its dealings.

## Awards & Recognition

We have been recognized for our commitment to corporate responsibility.



## Corporate Responsibility Materiality

Understanding and prioritizing the corporate responsibility issues that are most important to our business and our external stakeholders enables us to focus on the right issues and report on them effectively.

In 2018, we initiated a new materiality assessment. The results of this assessment will help identify corporate responsibility relevant opportunities and risks to enable us to better prioritize our efforts to address the issues of greatest significance to stakeholders and to our company's future success.

### Sustainability Accounting Standards Board (SASB)



Beginning with our 2017/2018 report, we now disclose information to investors using the SASB Standards.

## The UN Sustainable Development Goals

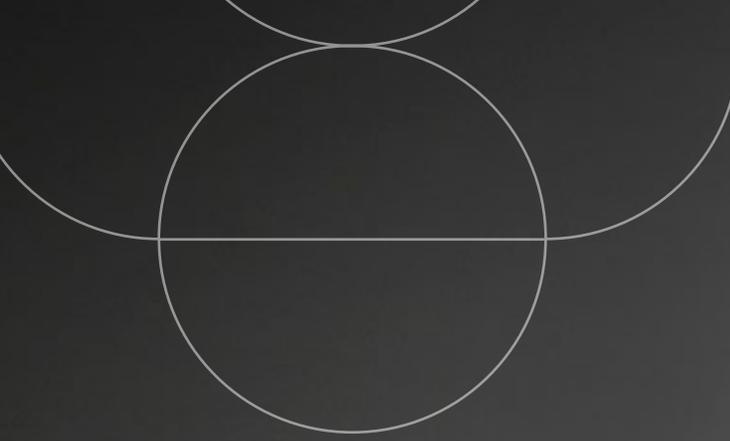
We are committed to helping achieve the 17 Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 to help end poverty, protect the environment and ensure prosperity.

As a global health care company that is committed to improving health and well-being around the world, SDG 3

(Good Health and Well-Being) is at the core of our business and aligned with our mission to save and improve lives.

While we realize that all of the SDGs are essential to fostering sustainable development, we have prioritized eight global goals as those where we are positioned to have the biggest impact.





# Letter from our CEO

Our company's mission is to discover and develop important medicines and vaccines that help solve the world's greatest health care challenges.

For more than a century, we have considered it our responsibility to create value for our stakeholders while also contributing to societal objectives. Our 2017/2018 Corporate Responsibility Report reviews our progress in line with our commitment and global goals. It focuses on our four corporate responsibility priority areas: expanding access to our medical breakthroughs, building a robust and resilient workforce, promoting environmental sustainability, and operating on a foundation of ethical, transparent behavior.

Invention is responsible for some of the largest strides in public health—but we can't save lives unless patients have access to our discoveries. Over the course of 2018, we collaborated with the World Health Organization (WHO) and other partners to supply and support the administration of our investigational Ebola vaccine in response to outbreaks in the Democratic Republic of Congo and other areas. We began developing this vaccine following the Ebola epidemic of 2014–2016, which was the most deadly to date, taking more than 11,000 lives. In 2018, in response to another Ebola outbreak, public health officials began using our experimental vaccine and have called it a “game changer,” helping them to save lives and prevent the spread of the disease. Ebola remains a serious threat, but the investigational vaccine offers great value to society as a potential tool to better fight this deadly virus.

Our mission of saving and improving lives means we have an important role to play in achieving the UN Sustainable Development Goals (SDGs). One way we contribute is through our *MSD for Mothers* program, which is focused on fighting maternal mortality around the world—a key SDG 3 indicator. Over the past six years, *MSD for Mothers* has improved access to quality care and modern contraception for more than 6 million women in over 30 countries. In 2018, together with the WHO and Ferring Pharmaceuticals, *MSD for Mothers* announced study results—published in the *New England Journal of Medicine*—of an investigational drug that could prevent postpartum bleeding, the leading direct cause of maternal mortality. The drug doesn't require refrigeration, offering a potential new option for low- and lower-middle-income countries that have a high burden of maternal mortality. *MSD for Mothers* is working with partners to make it available and affordable in those places.

As part of our commitment to access, we continue to price our products responsibly and find innovative solutions to ensure patients can obtain the medicines they need. As part of that work, we published our second Pricing Action Transparency Report in the United States and we continue to participate in Access Accelerated, a cross-industry effort to improve prevention, treatment and care for non-communicable diseases in low- and middle-income countries.

We are a company with a large global manufacturing footprint, and we embrace the responsibilities and opportunities this creates for environmental stewardship. Through our own actions and our engagement with partners, we continue to make progress on our goals regarding the environmental impact of our operations, supply chain, products and packaging. For example, we signed a virtual power purchase agreement that advances our progress toward our 2025 goal of having more than 50 percent of our purchased electricity come from renewable sources.

Our ability to deliver on our mission depends on the diverse talent of our employees. We have a responsibility to develop our workforce in line with the goals of our company. Our efforts to promote diversity and inclusion make us a stronger company, and our support for workplace wellness programs helps us maintain a healthier workforce of nearly 70,000 people.

In 2017, we experienced a number of challenges including a cyber-incident and multiple natural disasters that tested the resiliency of our employees and the communities in which we operate. In response to the cyber-incident, we are pursuing an enterprise-wide effort to enhance our resiliency, strengthening our ability to maintain supplies of our life-saving and medically significant medicines and vaccines. And while Hurricane Maria disrupted our manufacturing capabilities and displaced many of our employees

in Puerto Rico, I'm proud of our people who went home to ensure the safety of their fellow employees and their families, and then pushed forward in resuming critical manufacturing. As part of our comprehensive response to Hurricane Maria, we contributed tens of millions of dollars in financial support and relief supplies to Puerto Rico and other affected areas in the Caribbean.

There is increasing interest and a growing belief that a company's ethical impact can serve as a barometer for its value and long-term sustainability. We welcome this focus. This report reflects our commitment to external, objective reporting standards that reflect key environmental, social and governance issues, including the SDGs. We also reiterate our support for the 10 universally accepted principles of the UN Global Compact. In 2018, we initiated a new corporate responsibility materiality assessment to identify, understand and report on issues that matter most to our stakeholders and are most related to the success of our operations. Through these frameworks and stakeholder engagement, we continue to evolve and fine tune our efforts to strengthen and support the company's long-term sustainability.

Over the course of the last century, our purpose in the world has not changed. By looking ahead to the next century, we can ensure that we can continue to fulfill our mission, balance the needs of the many stakeholders we serve and contribute to making this a better, healthier world for all. Future generations are counting on us.

Sincerely,



**KENNETH C. FRAZIER**

Chairman and Chief Executive Officer

**“Our company has an important role to play in tackling some of humanity’s greatest challenges. By fostering a long-term, strategic approach to our business and our contributions to society, we can not only strengthen our future as a company but also fulfill our commitments to make this a better, healthier world for all.”**



Since the release of our first corporate responsibility report, our company has been committed to using established frameworks to report our performance on environmental, social and governance (ESG) issues.

#### RESOURCES

[GHG + Water Assurance Letter](#)  
[Performance Data \(Excel\)](#)

Our 2017/2018 Corporate Responsibility report has been prepared in accordance with the [Global Reporting Initiative \(GRI\) Standards](#) and considers the [UN Global Compact \(UNGC\)](#), the [UN Sustainable Development Goals \(SDGs\)](#), and the [Sustainability Accounting Standards Board \(SASB\)](#) as additional frameworks to guide our reporting.

### **Sustainability Accounting Standards Board (SASB)**

We continue to evaluate and aim to improve our approach to reporting, including looking at existing, globally recognized reporting frameworks. Established in 2011, SASB is an independent, standards-setting organization dedicated to improving the effectiveness and comparability of corporate disclosure on (ESG) factors. Beginning with this report, we now include a table that cross-references the SASB metrics with where that information can be found within our report.



While our Corporate Responsibility Report serves as the primary channel for publicly disclosing our ESG performance, we also voluntarily participate in various questionnaires, including [CDP](#).



**This report references the Global Reporting Initiative (GRI) Sustainability Standards.**

The [GRI Standards](#) represent global best practices for reporting publicly on a range of economic, environmental and social impacts.

We believe that this report provides an inclusive picture of our material topics, their related impacts, and how they are managed.

Throughout this report, flags denote which GRI disclosures are relevant to the text, where applicable. Roll over a flag to see a brief description of the disclosure.

**ASSURANCE**

[WSP Environment & Energy](#), one of the world’s leading engineering and professional services consulting firms, conducted an independent third party review of our 2017 greenhouse gas and water inventories, and provided limited assurance for the data that we submit to CDP and for the corporate responsibility report. This data can be found on our [Water](#) and [Climate Change & Energy Use](#) pages. Please see WSP’s limited assurance of our environmental data [here](#).

The table below summarizes where the disclosures can be found throughout this report.

Index #	Description	Report Location/Direct Answer
<b>Foundation</b>		
GRI 101: REPORTING PRINCIPLES		
GRI 101	Defining report content and quality	About This Report Stakeholder Engagement Water Materiality

**General Disclosures**

GRI 102: ORGANIZATIONAL PROFILE

GRI 102-1	Organization name	Merck & Co., Inc. Kenilworth, N.J., USA
GRI 102-2	Primary brands, products, and services	Our Business 2017 Form 10-K (pages 1–3)
GRI 102-3	Headquarters location	Kenilworth, N.J., USA
GRI 102-4	Location of operations	We have operations in more than 140 markets around the globe.  MSD worldwide
GRI 102-5	Ownership and legal form	2017 Form 10-K (cover, page 33)
GRI 102-6	Markets served	Our Business 2017 Form 10-K (pages 9, 126)
GRI 102-7	Scale of the organization	Economic Impact Positive Work Environment  2017 Form 10-K (pages 1, 17, 30, 35, 40)  2018 Proxy Statement (page 29)
GRI 102-8	Information on employees and other workers.	As of December 31, 2017, the Company had approximately 69,000 employees worldwide, with approximately 26,700 employed in the United States, including Puerto Rico.
GRI 102-9	Supply chain	Manufacturing & Supply Chain Sourcing & Supplier Relations
GRI 102-10	Organizational changes during the reporting period	About This Report
GRI 102-11	Precautionary principle	Product Stewardship
GRI 102-12	External initiatives	Reporting Frameworks Access Principles Water Human Rights
GRI 102-13	Membership associations	Public Policy

GRI 102: STRATEGY

GRI 102-14	CEO Letter	Letter from Our CEO
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GRI 102: ETHICS & INTEGRITY

GRI 102-16	Values, principles, standards, and norms of behavior	Code of Conduct
GRI 102-17	Mechanisms for advice and concerns about ethics	Office of Ethics
GRI 102: GOVERNANCE		
GRI 102-18	Governance structure of the organization	Corporate Governance Corporate Responsibility Governance Leadership
GRI 102-20	High-level accountability for sustainability topics.	Corporate Responsibility Governance
GRI 102-21	Access to the board	Corporate Responsibility Governance
GRI 102-22	Composition of the board and its committees	Leadership
GRI 102-23	Chair of the highest governance body	Kenneth C. Frazier is both the chairman of the board and the chief executive officer. Corporate Governance 2018 Proxy Statement (pages 17–18)
GRI 102-24	Board nomination and selection processes	Policies of the Board
GRI 102-25	Board conflicts of interest	Policies of the Board
GRI 102-26	Board and executive roles	Corporate Governance Corporate Responsibility Governance
GRI 102-29	Board identification of ESG impacts, risks and opportunities	Corporate Responsibility Governance Board of Directors
GRI 102-30	Board ESG review of risk management processes	Corporate Responsibility Governance Governance Committee Charter
GRI 102-31	Frequency of board review	The Governance Committee shall meet no less frequently than twice each year. Meetings may be called by the Chairperson of the Committee or upon the vote of a majority of the Board.
GRI 102-32	Report review	Governance Committee of the Board
GRI 102-33	Board communication	2018 Proxy Statement (pages 25–26)
GRI 102-35	Remuneration policies for the board and senior executives	2018 Proxy Statement (pages 28–29, 39–70)
GRI 102-36	Process for determining remuneration	2018 Proxy Statement (pages 39–70)
GRI 102-37	Remuneration shareholder resolutions	2018 Proxy Statement (page 42)

GRI 102: STAKEHOLDER ENGAGEMENT

GRI 102-40	Stakeholder engagement	Stakeholder Engagement
GRI 102-41	Union representation	Positive Work Environment
GRI 102-42	Stakeholder identification	Stakeholder Engagement
GRI 102-43	Approach to stakeholder engagement	Stakeholder Engagement Engaging Our Employees

GRI 102: REPORTING PRACTICE

GRI 102-45	Entities included in financial statements	About This Report Data regarding employees who are part of underrepresented ethnic groups are provided for the U.S. only.
GRI 102-46	Defining report content and topic boundaries	About This Report  Materiality
GRI 102-47	Material Aspects included	Materiality
GRI 102-48	Restatements	Any restatements of information are included in the footnotes beneath the specific performance data tables.
GRI 102-49	Reporting changes	None
GRI 102-50	Reporting period	January 1, 2017–December 31, 2017
GRI 102-51	Date of most recent report	Released in November 2017, covering 2016 programs and data
GRI 102-52	Reporting cycle	Annual
GRI 102-53	Report contact	Contact Us
GRI 102-54	Claims of reporting in accordance with the GRI Standards	While many of the disclosures are in alignment with the Core level, this is a GRI-referenced report.
GRI 102-55	GRI content index	GRI Index
GRI 102-56	External assurance	FAQ

**Economic**

GRI 201: ECONOMIC PERFORMANCE

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Economic Impact  2017 Form 10-K (pages 1–8, 17–18, 35)  Climate Change & Energy Use
GRI 201-1	Direct economic value generated and distributed	Economic Impact Community Community Investment Financial Well-Being 2017 Form 10-K (page 35)
GRI 201-2	Financial implications and other risks and opportunities due to climate change	Climate Change & Energy Use Water  2017 Form 10-K (page 17–18) CDP Climate Change (CC5.1–CC5.1c, CC6.1–CC6.1c)
GRI 201-3	Benefit plan coverage	Financial Well-Being 2017 Form 10-K (pages 111–117)

GRI 203: INDIRECT ECONOMIC IMPACTS

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Pricing & Commercialization  Access Principles
GRI 203-1	Infrastructure investments and services supported	Community Community Investment
GRI 203-2	Indirect economic impacts	Pricing & Commercialization U.S. Patient Assistance Programs Key Initiatives UN SDGs

GRI 205: ANTI-CORRUPTION

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Code of Conduct  Sourcing & Supplier Relations
GRI 205-2	Communications and training on anti-corruption	Code of Conduct Sourcing & Supplier Relations Compliance Health Care Professionals

GRI 206: ANTI-COMPETITIVE BEHAVIOR

Management Approach	Explanation of the material topic, its boundary,	Sales & Marketing
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Approach	how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Code of Conduct
GRI 206-1	Anti-competitive behavior	2017 Form 10-K (pages 101–108)

## Environmental

### GRI 301: MATERIALS

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Materials & Waste Packaging Green & Sustainable Science Nanotechnology
GRI 301-2	Recycled inputs	Materials & Waste

### GRI 302: ENERGY

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Climate Change & Energy Use
GRI 302-1	Energy consumption within the organization (Scopes 1 + 2)	Climate Change & Energy Use
GRI 302-4	Energy reductions	Climate Change & Energy Use

### GRI 303: WATER

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Water
GRI 303-1	Water withdrawals by source	Water CDP Water (W1.2a, W5.1a)
GRI 303-2	Water sources affected by withdrawals	CDP Water (W2.6, W3.2a, W5.1)

### GRI 305: EMISSIONS

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Air Emissions Climate Change & Energy Use
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GRI 305-1	Direct GHG emissions (Scope 1)	Climate Change & Energy Use CDP Climate Change (CC9.1a)
GRI 305-2	Indirect GHG emissions (Scope 2)	Climate Change & Energy Use CDP Climate Change (CC10.1a)
GRI 305-3	Other indirect GHG emissions (Scope 3)	Climate Change & Energy Use CDP Climate Change (CC14.1)
GRI 305-5	Reduction of GHG emissions	Climate Change & Energy Use
GRI 305-6	Ozone-depleting substances (ODS)	Air Emissions
GRI 305-7	NOx, SOx and other emissions	Air Emissions
<b>GRI 306: EFFLUENTS &amp; WASTE</b>		
Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Materials & Waste Pharmaceuticals in the Environment Product Stewardship
GRI 306-1	Water discharge	CDP Water (W0.3, W1.2, W1.2b)
GRI 306-2	Waste by type and disposal method	Materials & Waste
GRI 306-3	Significant spills	EHS Management & Compliance
<b>GRI 307: ENVIRONMENTAL COMPLIANCE</b>		
Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	EHS Management & Compliance Product Stewardship
GRI 307-1	Non-compliance with environmental laws and regulations	EHS Management & Compliance 2017 Form 10-K (pages 108–109)
<b>GRI 308: SUPPLIER ENVIRONMENTAL ASSESSMENT</b>		
Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Sourcing & Supplier Relations
GRI 308-1	New suppliers screened using environmental	Sourcing & Supplier Relations

criteria

## Social

### GRI 401: EMPLOYMENT

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Positive Work Environment Employee Well-Being Learning & Development Office of Ethics Sourcing & Supplier Relations Human Rights
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GRI 401-1	New employee hires and turnover	Positive Work Environment
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GRI 401-2	Benefits provided to full-time employees	Employee Well-Being Financial Well-Being
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### GRI 403: OCCUPATIONAL HEALTH & SAFETY

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Employee Safety EHS Management & Compliance
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GRI 403-2	Rates of injury, occupational disease, lost days, absenteeism, and work-related fatalities	Employee Safety
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GRI 403-3	Workers with high risk of diseases related to their occupation	Employee Safety
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### GRI 404: TRAINING & EDUCATION

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Learning & Development
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GRI 404-1	Average hours of employee training	Learning & Development
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GRI 404-2	Programs for upgrading employee skills and transition assistance programs	Learning & Development
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GRI 404-3	Percentage of employees receiving regular performance reviews	Learning & Development
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GRI 405: DIVERSITY & EQUAL OPPORTUNITY

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Global Diversity & Inclusion Employee Diversity
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GRI 405-1	Diversity of governance bodies and employees	Global Diversity & Inclusion
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GRI 407: FREEDOM OF ASSOCIATION & COLLECTIVE BARGAINING

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Human Rights
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GRI 407-1	Operations and suppliers in which the right to freedom of association may be at risk	Human Rights Sourcing & Supplier Relations
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GRI 409: FORCED OR COMPULSORY LABOR

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Human Rights
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GRI 409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	Human Rights Sourcing & Supplier Relations
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GRI 412: HUMAN RIGHTS ASSESSMENT

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Human Rights Sourcing & Supplier Relations
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GRI 412-2	Employee training on human rights policies and procedures	Code of Conduct
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GRI 414: SUPPLIER SOCIAL ASSESSMENT

Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Sourcing & Supplier Relations
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GRI 414-1	New suppliers screened using social criteria	Sourcing & Supplier Relations
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GRI 415: PUBLIC POLICY

Management Approach	Explanation of the material topic, its boundary,	Public Policy
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Approach	how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	
GRI 415-1	Political contributions	Public Policy
GRI 416: CUSTOMER HEALTH & SAFETY		
Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Manufacturing & Supply Chain Product & Patient Safety
GRI 416-1	Assessment of the health and safety impacts of product and service categories	Quality & Safety Standards Manufacturing & Supply Chain
GRI 416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Quality & Safety Standards
GRI 417: MARKETING & LABELING		
GRI 417-1	Requirements for product and service information and labeling	Product & Patient Safety
GRI 417-2	Incidents of non-compliance concerning product and service information and labeling	Sales & Marketing
GRI 417-3	Incidents of non-compliance concerning marketing communications	Sales & Marketing
Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Sales & Marketing
GRI 418: CUSTOMER PRIVACY		
GRI 418-1	Substantiated complaints regarding breaches of customer privacy and losses of customer data	Global Privacy Program
Management Approach	Explanation of the material topic, its boundary, how the topic is managed, and mechanisms for evaluating the effectiveness of the company's strategy.	Global Privacy Program



Established in 2011, the Sustainability Accounting Standards Board (SASB) is an independent, standards-setting organization dedicated to improving the effectiveness and comparability of corporate disclosure on material environmental, social and governance (ESG) factors.

Beginning with this report, the table below cross-references the SASB Standards for the Pharmaceuticals sector with where that information can be found in this report.

Index #	Description	Report Location/Direct Answer
ACCESS TO MEDICINES		
HC0102-01	Description of initiatives to promote access to health care products in priority countries as defined by the Access to Medicine Index.	Access Principles Health HIV/AIDS Key Initiatives Pricing & Commercialization Product Donations Product Registration Vaccines Women's Health
HC0102-02	List of products on the WHO List of Prequalified Medicinal Products as part of its Prequalification of Medicines Programme (PQP).	Product Registration
DRUG SAFETY & SIDE EFFECTS		
HC0102-03	List of products listed in the FDA's MedWatch	We do not currently disclose this information.

Safety Alerts for Human Medical Products (Drugs and Therapeutic Biological Products) database, including those products with Potential Signals of Serious Risks or that have New Safety Information identified by the FDA Adverse Event Reporting System (FAERS). See link below for related information.  
Product & Patient Safety

HC0102-04 Number of fatalities associated with products as reported in the FDA Adverse Event Reporting System. We do not currently disclose this information.

HC0102-05 List of products recalled. Quality & Safety Standards

HC0102-06 Description of product stewardship initiatives to promote take-back and redistribution or safe permanent disposal of unused product at the end of its lifecycle. Where applicable: (1) amount of direct funding for such initiatives and (2) amount of product (by weight) accepted for take-back, reuse, or disposal. Product Stewardship  
Public Policy Statement: Responsible Disposal of Medicines in the Household  
Public Policy Statement: Pharmaceuticals in the Environment

#### SAFETY OF CLINICAL TRIAL PARTICIPANTS

HC0102-07 Discussion, by world region, of management process for ensuring quality and patient safety during clinical trials, including those conducted with third-party clinical research organizations (CROs). Description of processes for obtaining informed consent, of incentives offered to participants, and of any clinical trials terminated due to failure to follow good clinical practice standards. Clinical Research  
Product & Patient Safety  
Clinical Trials Website

HC0102-08 Number of FDA Clinical Investigator Inspections of investigators used for clinical trials during the past year that resulted in: (1) Voluntary Action Indicated (VAI) and (2) Official Action Indicated (OAI). Clinical Research  
Clinical Trials Website

HC0102-09 Description of legal and regulatory fines and settlements associated with clinical trials in World Bank Low-income and Lower-middle-income Countries (LICs and LMICs) and UN HDI Medium-High Development Countries (MHDCs) that are not captured by the World Bank's LIC or LMIC rankings. Dollar amount of fines and settlements and a description of corrective actions implemented in response to events. Clinical Research

#### AFFORDABILITY & FAIR PRICING

HC0102-10 Number of settlements of Abbreviated New Drug Application (ANDA) litigation that involved We disclose all settlements of ANDAs to the U.S. Federal Trade Commission (FTC) and U.S.

payments and/or provisions to delay bringing an authorized generic product to market for a defined time period. Department of Justice, as is required by law.

HC0102-11	Ratio of weighted average rate of net price increases (for all products) to the annual increase in the U.S. Consumer Price Index.	Pricing & Commercialization
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ETHICAL MARKETING

HC0102-12	Description of legal and regulatory fines and settlements associated with false marketing claims, including Federal Food, Drug, and Cosmetic Act violations for off-label marketing prosecuted under the False Claims Act. Dollar amount of fines and settlements and a description of corrective actions implemented in response to events.	Sales & Marketing
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HC0102-13	Description of code of ethics governing promotion of off-label use of products, including mechanisms to ensure compliance.	Sales & Marketing
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EMPLOYEE RECRUITMENT, DEVELOPMENT & RETENTION

HC0102-14	Description of talent recruitment and retention efforts for scientists and other research and development (R&D) personnel, such as mentorship and career development programs, leadership training, or unique incentive structures.	Learning & Development Engaging Our Employees
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HC0102-15	Training and development expenditures per full time employee by: (1) expenditures for industry or professional qualification and advanced industry education; (2) all other.	We do not currently disclose this information. See link below for related information. Learning & Development
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HC0102-16	Employee turnover by voluntary and involuntary for: Executives/Senior Managers, Mid-level Managers, Professionals, All others (EEO-1 categories: technicians, sales, admin support, service workers).	Positive Work Environment
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EMPLOYEE HEALTH & SAFETY

HC0102-17	Total Injury Rate—(Number of recordable injuries and illnesses/Hours Worked)*200,000.	Employee Safety
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HC0102-18	Days Away, Restricted, or Transferred (DART) rate—(Number of recordable injuries and illnesses resulting in days away from work, restricted work activity, or job transfers/Hours Worked)*200,000.	Employee Safety
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HC0102-19	Laboratory-acquired infection (LAI) rate—LAIs per 1000 employees in human and animal diagnostic laboratories.	We do not currently disclose this information.
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COUNTERFEIT DRUGS

HC0102-20	Description of methods and technologies used to maintain traceability of products throughout the supply chain and prevent counterfeiting.	Manufacturing & Supply Chain Anti-Counterfeiting
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HC0102-21	Description of process for alerting end customers and business partners of potential or known risks associated with counterfeit products.	Anti-Counterfeiting
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HC0102-22	Number (and description) of actions that led to raids, seizure, arrests, and/or filing of criminal charges related to counterfeit products.	Anti-Counterfeiting
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ENERGY, WATER & WASTE EFFICIENCY

HC0102-23	Total annual energy consumed (gigajoules) and percentage renewable (e.g., wind, biomass, solar).	Climate Change & Energy Use
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HC0102-24	Total water withdrawals and percentage in water-stressed regions—High or Extremely High Baseline Water Stress as defined by the WRI Water Risk Atlas; percentage of process water recycled.	Water
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HC0102-25	Overall Process Mass Intensity (PMI) and PMI broken down for water and organic solvents, where PMI = quantity of raw materials input (kg) / quantity of active pharmaceutical product (API) output (kg).	We do not currently disclose this information. See link below for related information. Green & Sustainable Science
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HC0102-26	Amount of waste (metric tons); percentage that is recycled, incinerated (including for energy recovery), and landfilled.	Materials & Waste
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CORRUPTION & BRIBERY

HC0102-27	Description of legal and regulatory fines and settlements associated with bribery, corruption, or other unethical business practices, including violations of the Foreign Corrupt Practices Act and those associated with providing kickbacks to physicians. Dollar amount of fines and settlements and a description of corrective actions implemented in response to events.	Transparency Disclosures Sales & Marketing
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HC0102-28	Description of code of ethics governing interactions with health care professionals, including mechanisms to ensure employee compliance.	Code of Conduct  Office of Ethics  Sales & Marketing  Sales & Marketing Website
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MANUFACTURING & SUPPLY CHAIN QUALITY MANAGEMENT

HC0102-29	Description of FDA enforcement actions taken in response to violations of current good manufacturing practices (cGMP), including: product deemed adulterated, form 483s, suggested recall (Class I, II, III), Warning Letters, Border Alerts, license suspension or revocation, product seizure, Consent Decrees, criminal prosecution. Description of corrective actions implemented in response to actions.	Quality & Safety Standards
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HC0102-30	Percentage of facilities and Tier I suppliers participating in the Rx-360 International Pharmaceutical Supply Chain Consortium audit program or equivalent third-party audit programs for integrity of supply chain and ingredients (e.g., APIs, chemical, raw material, excipients, etc.).	Manufacturing & Supply Chain  Human Rights  Sourcing & Supplier Relations  Business Partner Code of Conduct
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The Sustainable Development Goals represent the international community’s plan of action for “people, planet and prosperity.”

#### RESOURCES

[Performance Data Spreadsheet \(Excel\)](#)  
[United Nations Website](#)

On September 25, 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development which includes a set of 17 Sustainable Development Goals (SDGs) to end poverty, fight inequality and injustice, and tackle climate change by 2030.

The United Nations has called for broad-based support of the SDGs, including active involvement by the private sector. We are committed to helping facilitate industry engagement and to identifying ways to work creatively to have an impact on people’s lives while achieving our company’s business objectives.

Throughout this report, you’ll see SDG icons highlighting how our work is aligned to help meet these goals.

## Our Priorities

As a global health care company that is committed to improving health and well-being around the world, SDG 3 (Good Health and Well-Being) is at the core of our business and is aligned with our mission to save and improve lives.

In addition, while we realize that all of the SDGs are essential to fostering sustainable development, we have prioritized eight global goals as those where we are positioned to have the biggest impact.

For our eight priority SDGs, we have identified existing metrics that enable us to quantitatively demonstrate our progress in support of the global goals.

The UN has identified subtargets for all of the global goals, against which corporate and governmental progress can be measured. While there are 169 targets in all, we have identified 11 targets for our priority SDGs that most closely align with our business.

## SDG 3: Good Health and Well-Being



As a global health care company, we believe we have an important role and responsibility in improving access to medicines and vaccines, and in helping to reduce the burden of disease around the world.

**UN Target 3.1:** Reduce the global maternal mortality ratio to less than 70 per 100,000 live births.

PROGRESS ON TARGET 3.1	2017
Women with improved quality of care through MSD for Mothers	2,900,355
Women with access to modern contraception through MSD for Mothers	3,775,907

LEARN MORE

**UN Target 3.7:** Ensure universal access to sexual and reproductive health care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes.

PROGRESS ON TARGET 3.7	2017
Women potentially reached in FP2020 countries <sup>1</sup>	4,066,477

Note: To learn more about the Family Planning 2020 (FP2020) initiative, visit <http://www.familyplanning2020.org/>.

1. Number represents potential number of women who could be reached based on number of products provided.

LEARN MORE

**UN Target 3.B:** Support the research and development of vaccines and medicines for the communicable and noncommunicable diseases that primarily affect developing countries, and provide access to affordable essential medicines and vaccines.

PROGRESS ON TARGET 3.B	2013	2014	2015	2016	2017
Products that are supported with differential pricing <sup>1,2</sup>	24	35	35	40	42
Countries where inter- and/or intra-country pricing has been implemented <sup>3</sup>	70	114	121	123	125

1. Differential pricing intended to facilitate access for the at-need population.

2. Products include HIV treatments, vaccines and other patented products.

3. Countries as defined by World Bank 2013 GNI classification; includes UN-defined least developed countries.

LEARN MORE

## SDG 5: Gender Equality



Our company promotes and values global diversity and inclusion at every level of the organization.

**UN Target 5.5:** *Ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life.*

PROGRESS ON TARGET 5.5	2013	2014	2015	2016	2017
Women on the Board	17%	17%	21%	23%	23%
Women in executive roles <sup>1</sup>	31%	31%	34%	31%	32%
Women in the workforce	47%	48%	48%	48%	48%
New hires that were female	46%	49%	50%	51%	49%

Note: Our company has publicly disclosed EEO-1 information since 1999. Our 2017 data is available [here](#).

1. "Executive" is defined as the chief executive officer and two structural levels below.

LEARN MORE

## SDG 6: Clean Water & Sanitation



Our business, suppliers, communities and customers all need access to clean water, and we are committed to managing the environmental impacts of our products throughout their life cycles—from discovery through manufacturing, use and disposal.

**UN Target 6.4:** By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

PROGRESS ON TARGET 6.4	2016	2017
Total water use (million m <sup>3</sup> )	20.6	19.5
Water use in extremely-high-risk areas (million m <sup>3</sup> )	3.0	2.9
Water use in high-risk areas (million m <sup>3</sup> )	3.4	3.0

**Our Environmental Goals:** By 2020, we will develop water conservation plans for sites in “high water risk” locations. By 2025, we will maintain global water use at or below 2015 levels.

[LEARN MORE](#)

## SDG 7: Affordable & Clean Energy



We believe the private sector has an increasingly important role to play to ensure that we meet the goal of access to affordable, reliable and sustainable energy for all by 2030. We have made a commitment to reduce GHG emissions and other associated air pollutants by driving energy efficiency improvements and purchasing more electricity from renewable sources of energy, such as wind and solar.

**UN Target 7.2:** By 2030, increase substantially the share of renewable energy in the global energy mix.

PROGRESS ON TARGET 7.2	2016	2017
Purchased electricity from renewable sources <sup>1</sup>	1%	6%

1. We have defined “purchased electricity” as electricity sourced from external suppliers as well as renewable electricity that was generated and utilized on-site where we retained the renewable attributes or where we have obtained renewable attributes through contract.

**Our Environmental Goals:** By 2025, 50 percent of our purchased electricity will come from renewable sources. By 2040, 100 percent of our purchased electricity will come from renewable sources.

[LEARN MORE](#)

## SDG 8: Decent Work & Economic Growth



Our company is dedicated to actively promoting opportunities for people regardless of race, gender, ethnicity, culture, age, disability, religion, gender identity, gender expression or veteran status.

**UN Target 8.5:** *Achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value.*

PROGRESS ON TARGET 8.5	2013	2014	2015	2016	2017
New hires that were members of underrepresented ethnic groups (U.S.)	25%	22%	33%	37%	36%

Note: Our company has publicly disclosed EEO-1 information since 1999. Our 2017 data is available [here](#).

LEARN MORE

## SDG 12: Responsible Consumption & Production



Our product stewardship programs focus on identifying, and either preventing or minimizing, potential safety and environmental hazards throughout a product's life cycle.

**UN Target 12.4:** *By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed upon international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.*

PROGRESS ON TARGET 12.4 <sup>1</sup>	2013	2014	2015	2016	2017
Nitrogen oxides (NOx) (MT)	535	495	475	435	454
Sulfur oxides (SOx) (MT)	49	48	47	36	36
Volatile organic compounds (VOCs) (MT)	516	511	454	439	377

Note: Previously reported data have been restated per our methodology, which includes adding facilities that have been acquired and removing facilities that have been sold as operating sites. 1. Data are estimated using conservative assumptions and factors, not measured or weighed.

[LEARN MORE](#)

**UN Target 12.5:** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

PROGRESS ON TARGET 12.5	2013	2014	2015	2016	2017
Operational waste sent to landfills and incineration	26%	24%	28%	30%	29%
Landfill	10%	10%	15%	10%	10%
Incineration	16%	14%	13%	20%	19%
Hazardous waste generated (MT)	50,781	44,120	30,345	35,246	35,652
Non-hazardous waste generated (MT)	45,475	39,612	39,511	37,353	36,773

Note: Totals may be slightly off due to rounding.

**Our Environmental Goals:** By 2025, 20 percent of our global operational waste will be sent to landfills and incinerators, and 50 percent of sites will send zero waste to landfill.

[LEARN MORE](#)

## SDG 13: Climate Action



We support science-based, international and national actions to address the challenges presented by climate change, including economic incentives for researching, developing and deploying low-carbon and renewable-energy technologies.

**UN Target 13.1:** Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

PROGRESS ON TARGET 13.1	2013	2014	2015	2016	2017
Scopes 1 and 2 GHG emissions (MT CO <sub>2</sub> e)	1,639,700	1,530,800	1,456,100	1,398,100	1,264,100
Scope 3 GHG emissions (MT CO <sub>2</sub> e)	N/A	5,760,000	5,586,300	7,975,100	6,586,100

Note: Tracking of all of our Scope 3 emissions began in 2014. In accordance with the Greenhouse Gas Protocol, prior-year data have been adjusted to add or remove facilities that have been acquired or sold. Adjustments also reflect changes in methodology to ensure consistency from year to year. Scopes 1 and 2 emissions are calculated using the market-based approach.

**Our Environmental Goal:** By 2025, we will reduce global Scope 1 and market-based Scope 2 GHG emissions  $\square$ 40 percent from 2015 levels.

[LEARN MORE](#)

## SDG 17: Partnerships for the Goals



Given the immensity of the challenge of discovering smart, sustainable ways to expand access to health care, especially in areas with limited infrastructure and resources, it is only by working with others that we can we make the strongest contribution.

**UN Target 17.17:** Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships.

PROGRESS ON TARGET 17.17	2013	2014	2015	2016	2017
Health care workers trained through our major programs and partnerships <sup>1</sup>	22,000	137,000	19,000	32,000	74,000
Investment in partnerships for activities that address underlying barriers to health, such as health-system strengthening and capacity-building (in millions) <sup>1</sup>	\$24	\$32	\$31	\$28	\$40
People reached through our major programs and partnerships (in millions)	302	267	188	293	311

1. Includes investments by the Office of Corporate Responsibility, MSD for Mothers and our company's Foundation.

[LEARN MORE](#)

PROGRESS ON TARGET 17.17	2013	2014	2015	2016	2017
Total recorded volunteer hours <sup>1</sup>	NA	109,932	80,585	214,862	114,903

1. 2017 figures are based on employee self-recorded volunteer hours and volunteer hours communicated directly to the Office of Corporate Responsibility for certain countries. 2015 marked the first year in which volunteer hour reporting was based solely on employee self-reporting. Prior years included estimates for unrecorded volunteer hours.

[LEARN MORE](#)

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“We are honored to play a role in the global efforts to achieve the SDGs. Through our ongoing commitments to address important health challenges, we are mobilizing the best of our company to help save and improve lives around the world.”

KENNETH C. FRAZIER, CHAIRMAN AND CEO, MSD

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## SDG Index

While we have prioritized eight of the SDGs, our company is working toward all of the 17 global goals in some capacity. See below for links to information on our activities for each of the SDGs.

**SDG 1: NO POVERTY**

Community Investment

**SDG 2: ZERO HUNGER**

Supporting a Sustainable Food Supply

**SDG 3: GOOD HEALTH & WELL-BEING**

Access to Reproductive Health  
Air Emissions  
Community  
Community Investment  
Health  
Infectious Diseases  
Materials & Waste  
MSD Fellowship for Global Health  
MSD for Mothers  
Pricing & Commercialization  
Product Stewardship  
Research & Development  
Vaccines  
Water  
Women's Health

**SDG 4: QUALITY EDUCATION**

Protecting Animal Health  
Community

**SDG 5: GENDER EQUALITY**

Access to Reproductive Health  
Global Diversity & Inclusion  
Human Rights

**SDG 6: CLEAN WATER & SANITATION**

Pharmaceuticals in the Environment  
Water

**SDG 7: AFFORDABLE & CLEAN ENERGY**

Climate & Energy Use  
Environmental Goals

**SDG 8: DECENT WORK & ECONOMIC GROWTH**

Global Diversity & Inclusion  
Human Rights  
Manufacturing & Supply Chain  
Sourcing & Supplier Relations

**SDG 9: INDUSTRY, INNOVATION & INFRASTRUCTURE**

Manufacturing & Supply Chain  
MSD Fellowship for Global Health  
Research & Development

**SDG 10: REDUCED INEQUALITIES**

Global Diversity & Inclusion  
Human Rights  
Manufacturing & Supply Chain

**SDG 11: CITIES & COMMUNITIES**

Community  
Medical Outreach Program  
Product Donations

**SDG 12: RESPONSIBLE CONSUMPTION & PRODUCTION**

Materials & Waste  
Air Emissions  
Environmental Goals  
Packaging  
Sourcing & Supplier Relations  
Product Stewardship

**SDG 13: CLIMATE ACTION**

CDP Climate Change  
Climate Change & Energy Use  
Public Policy Position Statement: Climate Change  
Community

**SDG 14: LIFE BELOW WATER**

Pharmaceuticals in the Environment  
Supporting a Sustainable Food Supply  
Community

**SDG 15: LIFE ON LAND**

Environmental Goals  
Materials & Waste  
Packaging  
Water  
Community

**SDG 16: PEACE, JUSTICE & STRONG INSTITUTIONS**

Corporate Responsibility Governance  
Human Rights

**SDG 17: PARTNERSHIPS FOR THE GOALS**

Community Investment  
Foundation  
Health  
Manufacturing & Supply Chain  
MSD Fellowship for Global Health  
Neglected Tropical Diseases  
Priorities & Performance  
Product Donations

To learn more about all 17 SDGs, please visit the United Nations' [website](#).





Understanding and prioritizing the corporate responsibility (CR) issues that are most important to our business and our external stakeholders enables us to focus on the right issues and report on them effectively.

The materiality matrix shown below represents the issues that internal and external stakeholders have identified as having significant financial, operational or reputational impact on the company and illustrates where our company can have a significant impact on society and the environment.



# Materiality Update

Our 2014 corporate responsibility materiality assessment involved extensive desktop research and consultative interviews with internal and external stakeholders.

Currently, we are in the process of conducting a new assessment to review and update the issues that are of greatest priority to our stakeholders and our company's long-term success.

We are adopting a data-driven approach to that process, incorporating the use of Datamaran, a business intelligence tool that leverages big data and artificial intelligence (AI) for non-financial issues analysis. This will enable us to expand the scope of our analysis and derive evidence-based results to strengthen our process. Datamaran provides insights and analysis based on industry-focused best practices, peer activity, regulatory and reporting initiatives, and reputational risk to help understand the importance of the latest environmental, social and governance issues to stakeholders.

To supplement and validate the data-driven analysis, we will be engaging with a wide range of external stakeholders to determine the issues that are most important to the groups they represent. Internally, we will engage with senior executives from across our business units and functions to identify the issues that have the greatest impact on our business.

The results of this assessment will help identify corporate responsibility-relevant opportunities and risks to enable us to better prioritize our efforts to address the issues of greatest significance to stakeholders and to our company's future success.

## Definitions

### ACCESS TO HEALTH

#### Animal-Based Research

- Internal standards
- Transparent reporting
- Consideration of alternatives to animal testing
- Training

[Learn more.](#)

#### Anti-Counterfeiting

- Strategy and operations
- Monitoring and evaluation
- Supply chain security

[Learn more.](#)

#### Bioethics

- Genetic resources
- Stem cells
- GMOs
- Nanotechnology

[Learn more.](#)

### Capacity Building

- Training and educational programs
- Local infrastructure improvements
- Skills and technology transfer to emerging countries

[Learn more.](#)

### Clinical Trials

- Gender balance
- Enrolling diverse patient populations
- Development of trial sites outside the U.S.
- Post-trial access (including compassionate use)
- Transparent management of clinical trial data
- Global standards to ensure ethics in R&D
- Sharing of data within the scientific community

[Learn more.](#)

### Community Relations

- Engagement and dialogue with external stakeholders (including local communities, NGOs, local governments, academia, etc.)

Learn more on our [Stakeholder Engagement](#) and [Community](#) pages.

### Continuity of Supply

- Assurance of manufacturing
- Inventory tracking
- Pandemic readiness

[Learn more.](#)

### Disease Focus

- Development of medications/treatments based on health needs rather than lifestyle

[Learn more.](#)

### Health Adherence

- Engagement with patients and health care providers to promote adherence to medication/treatment regimens

[Learn more.](#)

### Health Literacy

- The degree to which individuals have the capacity to obtain, communicate, process and understand basic health information and services to make appropriate health decisions

[Learn more.](#)

### **Intellectual Property**

- Patent protections and flexibility
- Licensing agreements
- Generics policies

[Learn more.](#)

### **Local Development**

- Contribution to local economic development

[Learn more.](#)

### **Philanthropy**

- Foundation
- Cash donations
- Product donations
- Disaster relief

[Learn more.](#)

### **Pricing and Commercialization**

- Pricing strategies
- Differential pricing
- Affordability
- Availability
- Registration
- Pricing transparency
- Reimbursement strategies

[Learn more.](#)

### **Product Quality**

- Compliance
- Trusted products

[Learn more.](#)

### **Product Safety**

- Management standards
- Post-market surveillance

[Learn more.](#)

### **Research & Development**

- Research in unmet medical needs
- Driving innovation that creates value for society (not simply “me too” drugs)

[Learn more.](#)

## EMPLOYEES

### Diversity and Inclusion

- Employee diversity and inclusion
- Prevention of discrimination
- Equal opportunity

[Learn more.](#)

### Employee Volunteerism

- Employee volunteer programs

[Learn more.](#)

### Labor Practices

- Management-worker relationships
- Freedom of expression and association
- Right to collective bargaining

[Learn more.](#)

### Occupational Health and Safety

- Hazard minimization precautions
- Promotion of employee health, safety and well-being
- Assessments
- Provision of personal protective equipment
- Emergency response plans

[Learn more.](#)

### Restructuring

- Workforce reduction
- Reorganization

[Learn more.](#)

### Talent Development and Recruitment

- Training and development
- Recruitment
- Leadership development
- Retention
- Career management and promotion
- Compensation and benefits

[Learn more.](#)

#### **Work-Life Balance and Wellness**

- Employee well-being
- Employee safety
- Rewards and incentives
- Positive work environment

[Learn more.](#)

## **ENVIRONMENTAL SUSTAINABILITY**

#### **Climate and Energy (Climate)**

- Energy management practices
- Carbon footprint reductions (Scopes 1, 2 and 3)
- Renewable energy projects

[Learn more.](#)

#### **Ecosystem Impacts**

- Use of natural substances (e.g., plants and animals) and materials
- Biodiversity preservation

[Learn more.](#)

#### **Green Chemistry**

- Use of substances and processes that are more environmentally beneficial
- Avoidance of chemicals of concern

[Learn more.](#)

#### **Non-GHG Emissions**

- Air emissions such as VOCs, SO<sub>x</sub>, NO<sub>x</sub>, etc.

[Learn more.](#)

#### **Packaging**

- Impact of design, materials, processing and disposal: the full product life cycle

[Learn more.](#)

#### **Pharmaceuticals in the Environment**

- Biological waste from patients/animals
- Unused/expired medicines

[Learn more.](#)

### **Waste Management**

- Handling, management and disposal of both hazardous and non-hazardous waste

[Learn more.](#)

### **Water Use and Management**

- Influent and effluent parameters, including source, scarcity, recharge rates, quality, treatment and impacts on local communities

[Learn more.](#)

## **ETHICS & TRANSPARENCY**

### **Corporate Governance**

- Corporate management
- Board structure
- Board independence
- Risk management
- Executive compensation
- Accountability

[Learn more.](#)

### **Distribution of Profits**

- Distribution of revenue
- Value sharing
- Tax strategy
- Investments in local markets

[Learn more.](#)

### **Ethics in Sales and Marketing**

- Brand management and promotion
- Ethical marketing
- Competitive behavior
- Prevention of anti-competitive practices
- Compliance with regulatory authorities
- Anti-corruption/anti-bribery

[Learn more.](#)

### **Human Rights**

- Human rights
- Supply chain
- Health as a human right

[Learn more.](#)

#### **Internal Controls**

- Policies
- Standards
- Code of conduct
- Audits

[Learn more.](#)

#### **Lobbying**

- Lobbying
- Political contributions
- Public policy
- Market influence

[Learn more.](#)

#### **Privacy of Patient Data**

- Policies
- Standards
- Procedures
- Training

[Learn more.](#)

#### **Responsible Procurement**

- Supply chain policies
- Sourcing guidelines
- Auditing
- Sustainable materials guidelines
- Design for the environment practices
- Social/environmental criteria to tender requests
- Alternative methodologies or inputs to reduce the environmental impact

[Learn more.](#)

#### **Transparency and Reporting**

- Transparency disclosures
- Sustainability reporting (GRI, CDP, etc.)

[Learn more.](#)



Our company believes good governance is integral to achieving long-term shareholder value.

#### RESOURCES

[2018 Proxy Statement](#)  
[Corporate Governance Documents](#)  
[Code of Conduct](#)

We are committed to governance policies and practices that serve the interests of the company and its shareholders. Our reporting and governance structure is an integral part of this commitment.

Our corporate responsibility performance is dependent on all of our employees—from our chairman and CEO to staff in each business unit, subsidiary, manufacturing plant and research laboratory. All employees are informed of our corporate responsibilities through our company's [Code of Conduct](#), but we also recognize that a central coordinating function is necessary in order to ensure a comprehensive approach to corporate responsibility.

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Six independent directors constitute our company's Board Governance Committee.

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## THE OFFICE OF CORPORATE RESPONSIBILITY

The Office of Corporate Responsibility coordinates the development, implementation and communication of our global approach and, with strategic guidance from the Public Policy and Responsibility Council (PPRC), is responsible for reporting on our company's performance. The Office of Corporate Responsibility works with business units and functional areas to integrate our corporate responsibility principles into business policies, strategies and practices, and brings the voice of external stakeholders into decision-making processes.

The Office of Corporate Responsibility, which supports the company's business strategy, is accountable for publishing the annual corporate responsibility report. To contact the Office of Corporate Responsibility, please [click here](#).

## THE CORPORATE RESPONSIBILITY REPORT WORKING GROUP

The members of the Corporate Responsibility Report Working Group, a diverse selection of employees from all divisions of the company, serve as subject matter experts in their respective areas and work closely with the Office of Corporate Responsibility to help set goals and develop metrics that support and measure our overall corporate responsibility strategy and objectives. Individual members have been chosen to be active advocates for corporate responsibility within their respective areas.

## THE PUBLIC POLICY AND RESPONSIBILITY COUNCIL

The PPRC is a high-level forum for strategic input and guidance on our social business investments, corporate responsibility approach and public policy issues and positions. The diverse, cross-functional membership of the PPRC provides vision, leadership and cross-divisional input and alignment on policy and responsibility strategy, issues and initiatives.

Specifically, the company's PPRC enables policy and corporate responsibility issue identification and debate; makes decisions on policy and corporate responsibility issues or makes recommendations to the Executive Committee, the company's top leadership, as necessary; informs policy and corporate responsibility strategy; and reviews performance and reporting against defined objectives. Overall, the PPRC promotes further integration of corporate responsibility and policy considerations into our business activities.

## ENVIRONMENT, HEALTH AND SAFETY COUNCIL

Our company's Environmental, Health and Safety Council drives enterprise-wide excellence in environmental, health and safety management and performance to protect, enhance and create business value for the company.

## BOARD GOVERNANCE COMMITTEE

Six independent directors constitute our company's [Board Governance Committee](#). Chaired by Leslie A. Brun, the company's lead independent director, the committee is responsible for advising the company's Board of Directors and management on company policies and practices that pertain to the company's responsibilities as a global corporate citizen, its special obligations as a health care company whose products and services affect health and quality of life around the world, and its commitment to the highest standards of ethics and integrity in all of its dealings.

Additionally, the committee is responsible for taking a leadership role in shaping the corporate governance of the company, including the development of a set of corporate governance guidelines for Board approval.

In addition to the Governance Committee, other [Board committees](#) oversee issues indirectly related to corporate responsibility, such as audit and compliance, executive compensation and research.

## RISK OVERSIGHT

Our company's Board of Directors has two primary methods of overseeing risk. The first method is through its Enterprise

Risk Management (“ERM”) process which allows for full Board oversight of the most significant risks facing the company. The second is through the functioning of the Board committees.

Management has established an ERM process to ensure a complete company-wide approach to evaluating risk over five distinct but overlapping core areas:

- Responsibility and Reputation Risks that may impact the well-being of the company, its employees, customers, patients, communities or reputation
- Strategy Macro Risks that may impact our ability to achieve long-term business objectives
- Operations Risks in operations and cybersecurity that may impact our ability to achieve business objectives
- Compliance Risks related to compliance with laws, regulations and Company policies
- Reporting Risks to maintaining accurate financial statements and timely, complete financial disclosures

The goal of the ERM process is to provide an ongoing process, implemented across each business unit and corporate function, to identify and assess risk, and to monitor risk and agreed-upon mitigating action. Furthermore, in the event of a risk materializing into an incident, the ERM process ensures that effective response and business continuity plans are in place. Where the ERM process identifies a material risk, it will be elevated through the CEO and the Executive Committee of the Company to the full Board of Directors for its consideration.



We recognize that we can't address major health, environmental and economic challenges alone, so we collaborate with others who share our commitment and who bring their own unique expertise to the table.

We conduct stakeholder engagement at both the corporate and the local level, depending on the issue. We engage with industry, governments, policy makers, nongovernmental organizations (NGOs), opinion leaders, patient groups, academic organizations, our employees, and others to inform our policies, our practices, and the development of our products. Our intention is to build lasting relationships with our stakeholders; to understand their objectives, their expectations of our company, and the potential for collaboration; and to enhance mutual trust and understanding.

We strive to exchange information, views and recommendations; to share activities and progress toward key goals; and to work in partnership toward common objectives. Engagement may take the form of one-on-one meetings, expert-input forums, roundtable discussions, industry coalitions, or formal partnerships.

## Stakeholder Groups

We engage with a diverse group of stakeholders to more fully understand their needs and expectations, and to gain insights that can inform our efforts to improve access to health care and foster progress toward solutions that benefit society and support our business.

### PATIENTS AND CAREGIVERS

We embrace the opportunity to engage with individual patients, patient advocacy organizations, and caregivers to better understand their health care journeys, expected outcomes and decision-making considerations. For more information on our work with patient groups, please [click here](#).

## HEALTH CARE PROFESSIONALS

We are committed to providing appropriate and balanced information to physicians and other health care providers about our medicines, vaccines and ongoing research. For more information on our interactions with health care professionals, please [click here](#).

## PAYERS

We work with payers worldwide to inform their understanding of the relationship between the prices of our products and the true value they deliver to patients and health care systems. [Learn more](#) about our access initiatives.

## GOVERNMENTS, MULTILATERAL ORGANIZATIONS AND REGULATORS

We work with policy makers, legislators, multilateral organizations, and governments worldwide to ensure that policy and regulatory environments globally, nationally, and locally foster patient access to medicines and vaccines, and that they are conducive to ethical business practices, science and innovation. [Learn more](#) about our public policy and advocacy positions.

## SHAREHOLDERS

We strive to create shareholder value by identifying opportunities to meet customer needs and by managing our business responsibly to achieve superior financial results over the long term. [Learn more](#) about how we engage with shareholders.

## INTERNATIONAL AND LOCAL ORGANIZATIONS

We work hard to identify the best organizations and individuals to collaborate with in order to address societal challenges and to inform debate on pressing issues. For more information about how we collaborate with others, please [click here](#).

## LOCAL COMMUNITIES

We work toward developing culturally appropriate mechanisms to engage and build relationships with our local community stakeholders. For more information on our contributions to communities, please [click here](#).

## ENVIRONMENTAL STAKEHOLDERS

We work to reduce the environmental effects of our operations and products and to promote sustainable environmental practices within the company, among our partners, and throughout our supply chain. For more information on our environmental performance, please [click here](#).

## EMPLOYEES

We strive to foster a positive and inclusive working environment for our employees by providing resources to improve their health and that of their families, opportunities to further their professional development, and ways to get more involved in the communities where they live. For more information on our employee relations, please [click here](#).

## SUPPLIERS AND BUSINESS PARTNERS

We strive to engage a diverse supplier base and to encourage responsible approaches on the part of suppliers regarding labor, employment, human rights, health and safety, ethics, diversity, and protection of the environment. For more information on our approach to procurement and supplier relations, please [click here](#).

## TRADE AND INDUSTRY ASSOCIATIONS

We engage with stakeholders through membership in numerous organizations. Within these groups, we aim to inform relevant debates in ways that are constructive and that ultimately foster improved patient access to medicines and vaccines globally. For more information, please [click here](#).

We welcome your comments, questions and feedback to help guide the development of our programs, our reporting efforts and our corporate responsibility website. [Contact us](#).

# Patient Engagement

Our company's mission is to continue to improve people's health through the discovery, development and marketing of innovative products that contribute to the quality of life.

Our company's mission is to continue to improve people's health through the discovery, development and marketing of innovative products that contribute to the quality of life.

We embrace the opportunity to engage with individual patients, patient advocacy organizations, and caregivers to better understand their health care journeys, expected outcomes and decision-making—particularly as it relates to how they take medication—and the challenges they may encounter when taking several medications or treating multiple conditions. We feel that listening to patients is critical to inspiring effective and relevant medical and scientific innovation.

Julie Gerberding, M.D., M.P.H., was appointed chief patient officer in June 2016. In this role, Dr. Gerberding leads the company's efforts to engage with patients and patient organizations to bring their perspectives into the company and help inform company decisions, and represents our company globally on patient-related matters.

We are committed to learning from the patient's perspective and to empowering patients, caregivers and health care professionals by making public the results of clinical trials in a timely manner, whether the outcomes are positive or negative. [Learn more](#).

We have a strong commitment to health literacy, and we believe that clear, simple information about clinical trials, diseases and medicine should be made easily available to people across a range of health-literacy levels. [Learn more](#).

Because of the gaps in patient care and changes to health policy in such areas as vaccination, oncology, heart disease, HIV, hepatitis C infection, and other chronic conditions, there is a compelling need for the pharmaceutical industry to work more closely with patient organizations and other key stakeholders to better understand outcomes from the patient's point of view, and to improve access to therapies, validate measurement tools, and increase awareness of diseases. We have a long history of collaboration with patient groups and health-related charities, including work aimed at improving knowledge and understanding of diseases and treatment options, resulting in informed decision-making among consumers in health care.



We are committed to participating constructively and responsibly in the political process, and to providing clarifying analysis and information regarding the issues that affect our business and patient care.

#### RESOURCES

[Public Policy Position Statements](#)

A major element of our corporate responsibility approach is our public policy advocacy work and our outreach to stakeholders. Our outreach helps to advocate for public policies that foster research into innovative medicines and that improve access to medicines, vaccines and health care. We believe this engagement is also fundamental to our understanding of—and response to—society’s expectations of our company. Our engagement with stakeholders guides our business strategy and decisions, and strengthens stakeholders’ understanding of—and trust in—our business.

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The company’s advocacy priorities are presented annually to the members of our Executive Committee and the Governance Committee of the Board of Directors, with periodic updates throughout the year.

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We recognize that our outreach can help highlight and address important issues, leveraging the expertise of all our stakeholders to develop sustainable solutions to such challenges as disease, lack of education, environmental challenges and corruption. We continue to pioneer far-reaching programs and partnerships, the results of which demonstrate that more can be achieved by working together than by individual stakeholders working alone—and that we can make a sustainable difference.

#### ENGAGING RESPONSIBLY

Government proposals to regulate the health care system may directly affect our business and our incentives for pharmaceutical innovation. Important policy initiatives can also increase patient access to medicines and vaccines and to health care insurance coverage—particularly for patients in disadvantaged communities and regions.

Consequently, the company has chosen to help inform the debate on these issues in the U.S. and other countries. Our participation in the political process is guided by the following principles:

- Improve patient access to health care, including medicines and vaccines
- Encourage innovation by protecting intellectual property rights, advocating for government support of basic research, and supporting efficient and effective regulatory systems, among other issues

Our company's [Executive Committee](#) has overall governing responsibility for our public policy strategy, as guided by the [Governance Committee of the Board of Directors](#). Our Global Public Policy Leadership Team leads the development and communication of policy positions on major issues. Statements summarizing our position on key public policy issues are posted on our [corporate headquarters' website](#).

## HOW WE ENGAGE

We engage in public policy debates primarily by communicating information to government officials and policy makers.

Our U.S. Federal Policy and Government Relations office in Washington, D.C., is responsible for advocacy activities with the U.S. Congress and other bodies of the federal government. Advocacy at the state level is managed by our State Government Affairs & Policy organization. Outside the U.S., advocacy activities are managed at the regional, country or local level, with support from regional and corporate policy staff.

To assist in our advocacy and policy analysis work, our company and our affiliates contract with a range of private firms specializing in government affairs advocacy. These firms employ government affairs consultants with particular expertise on issues of importance to our company. Our U.S. Action Network also informs our U.S.-based employees and retirees about important legislative issues, and serves as a conduit through which they can communicate with their representatives in Congress.

All of our employees must abide by our global corporate [Code of Conduct](#), "Our Values and Standards," which applies to our interactions with government officials and to advocacy activities on public policy issues. This code is intended to ensure that all information provided to government entities is complete and accurate to the best of an employee's knowledge and belief. In the U.S., there are also important federal and state lobbying-registration and disclosure laws with which we comply.

Our corporate policy on ethical business practices includes guidelines conforming to the U.S. anti-kickback laws and Foreign Corrupt Practices Act, making clear that no illegal payments of any kind (monetary or otherwise) are to be offered or made to individuals or entities—including local, state or federal government or political party officials or candidates in the U.S.; government or political party officials or candidates of any other nation; or officials of public international organizations—at any time or under any circumstances.

To improve access to information about our advocacy activities, we disclose costs associated with lobbying in the EU and the U.S. [Click here](#) for our 2017 reporting to the EU Transparency Register. Costs reflect the pro rata salary costs of MSD staff and the proportion of employee time and outsourcing spent on initiatives involving interest representation to European institutions.

In the U.S., in compliance with the [Lobbying Disclosure Act](#) we file quarterly reports with the U.S. Congress disclosing the issues we are lobbying about and the amount of money we spend each quarter. These reports incorporate the expenses associated with lobbying the federal government, including those incurred by our U.S. Federal Policy and Government Relations office, and the portion of our trade association dues associated with federal lobbying.

## OUR TOP LOBBYING ISSUES

In the U.S. in 2017, the top issues at the federal level for which our company lobbied were:

- Defense of Medicare Part B
- Defense of Medicare Part D
- The 340B drug pricing program
- Comprehensive tax reform
- Patent reform
- The Trans-Pacific Partnership

In the U.S. in 2017, our company lobbied at the state level for these key issues:

- Market-based solutions for access to innovative pharmaceutical, vaccine and biologic products
- Support for strong immunization infrastructure
- Access to animal health products
- Maintaining a strong business environment for U.S. operations in the states

In Europe in 2017, our advocacy focused on:

- Fostering a framework for a sound pricing and procurement regime in and across diverse EU member state economies
- Support for government vaccination, hepatitis and diabetes programs
- Launch dialogue for sustainable models to fund future cancer care
- Standards for health technology assessment and health literacy
- Science-based policies for biological medicines

## Political Contributions

Where permitted by law in the U.S., Canada and Australia, our company makes corporate political contributions, primarily to the electoral campaigns of individual candidates.

Our U.S. employees can also participate in the political process by joining a nonpartisan political action committee through which they can pool their financial resources to support federal and state candidates. Except for administrative expenses, our company's [Employees Political Action Committee \(PAC\)](#) is funded completely by voluntary contributions from eligible employees. The PAC supports legislators from both major parties who understand and appreciate the work we do to discover and develop medicines and to make them available to the patients who need them.

In addition to our corporate policy governing corporate and PAC contributions, we have developed [Principles Governing Corporate and Political Action Committee Spending](#). These principles are modeled on provisions in the [Model Code for Spending](#), established by the [Center for Corporate Political Accountability](#), and are intended to promote corporate accountability.

Our company was recognized as trendsetter by the Center for Political Accountability's 2017 CPA-Zicklin Index of Corporate Political Disclosure and Accountability. The CPA recognized trendsetters as S&P 500 companies achieving scores of 90 percent or above for political disclosure and accountability procedures. The CPA report can be accessed [here](#).

Our formal [PAC Contributions Committee](#) makes decisions on spending for the PAC. This committee also makes decisions

on our company's corporate political contributions. The committee is chaired by our executive vice president and includes senior managers representing different divisions and corporate functions. The executive vice president approves contribution recommendations, following review and approval by the committee.

To ensure compliance with our company policy and federal and state law, outside legal experts provide periodic guidance to our company on required disclosure of its political activities. We also perform periodic audits to assess and enforce compliance with our policy governing our corporate and PAC contributions, and we require those individuals who recommend corporate political contributions in the U.S. to certify their knowledge of and adherence to our corporate Policy and Principles Governing Corporate Political and Political Action Committee Contributions.

As required by our company policy and procedures, our executive vice president sends an annual report on the company's corporate political contributions for the previous year to [our company's Board of Directors](#). The report discloses contributions made in the U.S., Australia and Canada, including the name of each candidate, committee or event contributed to and the amount disbursed. It also includes all trade association dues spent on lobbying and political activity in the U.S. that are greater than \$25,000. We also submit a midyear report on corporate political contributions to the Board for its review. In addition, our contributions, policies and practices are reviewed and overseen by the [Governance Board Committee](#). We invite comments and questions on both reports, which also describe any changes in our policies.

To improve access to information about our corporate political and PAC contributions in the U.S., we post them semiannually to this website, categorized by state, candidate and amount.

## OUR CORPORATE POLITICAL CONTRIBUTIONS

In 2017, we spent a total of \$657,250. These contributions supported the campaigns of 533 candidates for state-level offices in 23 states plus the District of Columbia. They also supported state legislative leadership committees of both parties, industry-affiliated PACs, and a number of national organizations representing elected state officials. These organizations meet periodically to discuss policy issues. Two examples are the Republican Governors Association and the Democratic Governors Association. Information on all contributions can be accessed [here](#). Our representatives involved in state-government-affairs activities made the recommendations for specific contributions. These recommendations were reviewed and approved by the Corporate Political Contributions Committee, which mirrors our company's PAC Contributions Committee in membership and oversight procedures. Outside legal counsel conducted a thorough review of all proposed contributions to ensure that they were permitted under state law. Final approval was provided by the executive vice president of our company.

To view a listing of our corporate and PAC contributions made within the U.S. during 2017, please [click here](#).

We also provide grants to organizations whose role is to represent elected officials in support of public policy advocacy. State Government Affairs & Policy reviews its grants and corporate memberships on an annual basis to decide which of them may be considered for the upcoming calendar year, considering budget constraints and policy priorities. We disclose all [public policy grants](#) as part of our general grants disclosure.

The only other countries in which we provide corporate contributions to candidates or political parties are Canada and Australia. These contributions are subject to the same policies and governance procedures discussed above. To view our company's contributions made in Canada during 2017, please [click here](#). To view our company's contributions made in Australia during 2017, please [click here](#).

Archived corporate political contribution reports are available [here](#).

## Industry Associations

Our company is a member of numerous industry and trade groups.

We work with these groups because they represent the pharmaceutical industry and business community in debates led by governments and other stakeholders, and because they help the industry reach consensus on policy issues.

When our trade associations actively lobby on our core business issues, we seek to align their positions with our own. There are times, however, when we may not share the views of our peers or associations—both on issues that are central to our business and on those that, while important, are not directly material to our mission. With representatives on the boards and committees of industry groups and trade associations, we can voice questions or concerns we may have about policy or related activities. We may even recuse ourselves from related trade association or industry group activities when appropriate.

Our executive vice president sends an annual report to our company's Board of Directors on trade association dues greater than \$25,000 that were spent in the previous year on lobbying and political activity in the U.S. The Governance Committee of the Board of Directors has ongoing oversight of the company's membership in trade associations and grassroots lobbying activities.

For a list of industry and trade groups of which we are a member, and our trade association dues (those greater than \$25,000) that are used for political purposes, please [click here](#).

Through our top three trade associations (listed below), we engaged on the following policy issues in 2017:

- **Pharmaceutical Research and Manufacturers of America (PhRMA):** Protecting incentives for innovation; defense of Medicare Part D; implementation of the Affordable Care Act; patent reform; and the Trans-Pacific Partnership
- **S. Chamber of Commerce:** Defense of Medicare Part D; corporate tax reform; the Trans-Pacific Partnership; and Trade Promotion Authority
- **Biotechnology Industry Organization (BIO):** Protecting incentives for innovation; defense of Medicare Part D; patent reform; and the Trans-Pacific Partnership



We are inspired by a shared vision and mission to save and improve lives.

#### RESOURCES

[10-K](#)

[Product Pipeline](#)

[Company Fact Sheet](#)

With a steady focus on innovation and sound science, we work to deliver vaccines, medicines, and animal health products that can help millions around the world.

Our core product categories include diabetes, cancer, vaccines and hospital acute care. We continue to focus our research on conditions that represent some of today's most significant health challenges—like cancer, HIV, HPV, hepatitis C, cardio-metabolic disease, antibiotic-resistant infection and Alzheimer's disease, and we are on the front lines in the fight against emerging global pandemics, such as Ebola.

We also devote extensive time and energy to increasing access to medicines and vaccines through far-reaching programs that donate and deliver our products to the people who need them.

We're applying our global reach, financial strength and scientific excellence to doing more of what we're passionate about: improving health and improving lives.

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“Our company is built on the simple premise that great medicines change the world. We believe that a research-driven enterprise dedicated to world-class science can create medicines and vaccines that will make a difference for society and deliver value to shareholders at the same time.”

KENNETH C. FRAZIER  
CHAIRMAN AND CEO, MSD

## PRODUCTS

We are a global health care company that delivers innovative health solutions through our prescription medicines, vaccines, biologic therapies, and animal health products.

### PRESCRIPTION PRODUCTS

Our core business is the discovery and development of prescription medicines for diseases and conditions that impact millions of people.

We invest billions of research dollars to find medicines that can help improve lives. Today, our company has more than 50 prescription products in key therapeutic areas such as cardiovascular disease, respiratory disease, oncology, neuroscience, infectious disease, immunology and women's health.

To learn more, [click here](#).

### VACCINES

Vaccines are one of the greatest public health success stories in history, and our company has played its part in that story.

We have been working to discover and develop vaccines for more than a century. Our unique vaccines have helped prevent a number of diseases, including some never thought to be preventable. Today, we remain dedicated to the complex business of researching and producing vaccines.

To learn more, [click here](#).

### ANIMAL HEALTH

Our Animal Health business is a global leader in the research, development, manufacturing and sale of veterinary medicines, offering one of the widest range of veterinary pharmaceuticals, vaccines and health management solutions and services.

To learn more, [click here](#).

### PIPELINE

Our company has a robust pipeline, with a wide range of product candidates across each phase of development. [View the pipeline](#).

### SENIOR LEADERSHIP

Kenneth C. Frazier, chairman of the board, president and chief executive officer

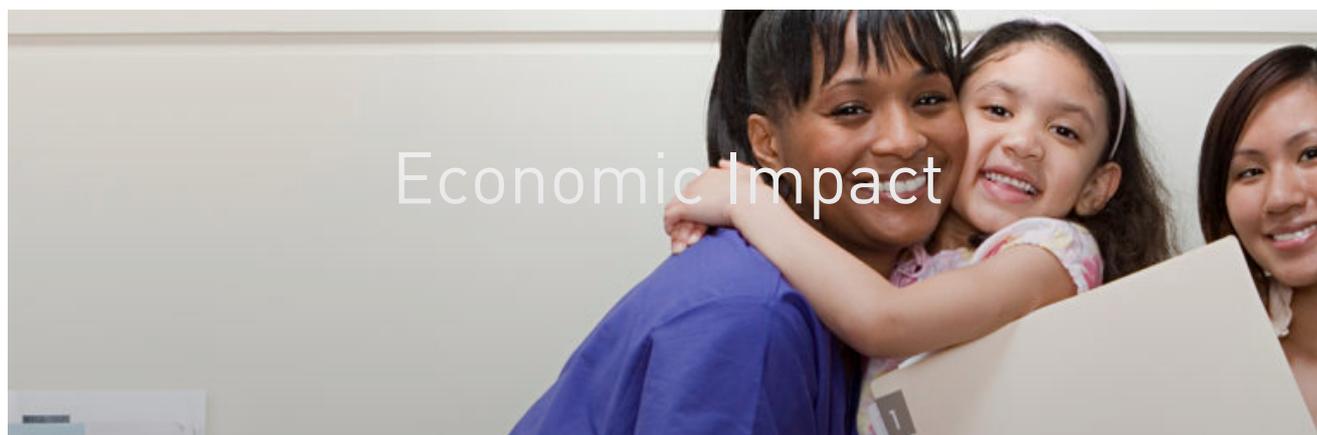
View the list of [Executive Committee](#) members.

View the list of [Board Members](#).

## NAME

The company, Merck & Co., Inc., Kenilworth, N.J., USA, is known as MSD outside the United States and Canada and is listed on the New York Stock Exchange under the symbol "MRK."

Visit our corporate [website](#).



Long-term business success depends on making relevant, quality products through sustainable and ethical practices.

#### RESOURCES

[Investor Relations](#)

Globalization and the expanding reach of firms during the past decade have increased expectations that multinational enterprises will create more social value, beyond just regulatory compliance and philanthropic contributions. Corporate responsibility has evolved to be an important element of the private sector’s response to these expectations.

While it can be seen either as a way to improve corporate reputation or simply as a response to a moral imperative to do good, we believe that corporate responsibility is critical to our business success and can provide us with new opportunities to create shared, or integrated, value—that is, addressing social issues through business solutions. At the most basic level of delivering integrated value, our principal economic contribution to society is made through the discovery, development, manufacturing and marketing of our products, which directly improve and maintain the health of individuals and communities around the world, helping them to lead more productive lives.

For additional information about our business and economic performance, please see our [Form 10-K](#) for the year ended December 31, 2017.

## Performance

FINANCIAL INFORMATION	2013	2014	2015	2016	2017
Sales (in millions)	\$44,033	\$42,237	\$39,498	\$39,807	\$40,122
Research and development expenses (in millions) <sup>1</sup>	\$7,503	\$7,180	\$6,704	\$10,124	\$10,208
Number of employees (approximate)	76,000	70,000	68,000	68,000	69,000
Number of stockholders on record	149,400	142,000	135,500	129,500	121,700
Annual cash dividend paid per share	\$1.73	\$1.77	\$1.81	\$1.85	\$1.89
Global tax expense as reported on income statement (in millions)	\$1,028	\$5,349	\$942	\$718	\$4,103

1. Excludes restructuring and merger-related expenses.



Our company contributes substantial economic and social value to the countries and local communities in which we operate.

As of December 31, 2017, Merck & Co. Inc., Kenilworth, N.J., USA (including its Banyu subsidiary in Japan), had a physical presence in 76 countries, with 383 active (occupied) research, manufacturing, sales and administrative sites. In all of these locations, we recognize that our success depends in large part on our relationships and interactions with local communities, including elected officials, business and community leaders, charitable organizations, neighbors, educators, local media and our own employees.

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We have a presence in 76 countries, with 383 active research, manufacturing, sales and administrative sites.

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We aspire to have a positive effect on the communities in which we operate worldwide, and we recognize our responsibility toward those affected directly or indirectly by our operations and activities. We rely on local communities not only for our workforce, but also for some of our suppliers and for our ability to do business. Through ongoing engagement and dialogue, we work to understand the concerns and needs of our communities, and we seek to respond by addressing local challenges in ways that build stronger communities and support the sustainability of our business.

We contribute to our communities in three key ways:

- Making direct and indirect economic contributions, such as employment, training, support of local suppliers and local R&D, and paying taxes
- Managing our community impact—for example, by ensuring confidence in our environmental and safety performance and by respecting human rights

Underlying our community approach is our commitment to respecting human rights. As a signatory to the [United Nations Global Compact](#), we are committed to protecting and promoting fundamental human rights not only within our immediate workforce but also within our broader sphere of influence, including our local communities. [Learn more](#) about our commitment to protecting and promoting fundamental human rights.

## COMMUNITY ENGAGEMENT

Our community engagement program reflects the priorities that we share with the local community. Established in the 1990s, our Neighbor of Choice (NOC) program fosters partnerships with local nonprofit organizations whose mission is to promote the well-being of community residents.

The program is designed to help build strong and vibrant communities by promoting a healthier society and preserving the environment in localities where we have a major site presence. The program provides financial support and [enables our employees to contribute](#) to the well-being of their communities through volunteering.

In 2017, a total of \$3.1 million in grants was awarded to 130 local community organizations in support of a wide range of environmental and health services initiatives through the NOC program.

We take seriously the shared responsibility of helping to improve the quality of life of neighbors in need. [Learn more.](#)



As part of our commitment to being transparent about our corporate responsibility initiatives, including our business activities and operations, we publish an annual corporate responsibility report.

#### RESOURCES

[2017/2018 Corporate Responsibility Overview](#)  
[Performance Data Spreadsheet \(Excel\)](#)  
[GRI Index](#)

In this 2017/2018 Corporate Responsibility Report, all of the quantitative data covers the calendar year from January 1 to December 31, 2017, unless otherwise noted. To ensure that readers have the most up-to-date information, some of the narrative in the report is about decisions and initiatives that took place in 2018. We also regularly report updated information about our transparency initiatives and performance [here](#).

We use several external guidelines and measurement frameworks to inform the scope of our reporting. These include the [Global Reporting Initiative \(GRI\)](#), the [UN Sustainable Development Goals](#), the 10 principles of the [UN Global Compact](#), and the [Sustainability Accounting Standards Board \(SASB\)](#).

The [materiality matrix](#) in this report represents the issues that internal and external stakeholders identified as having significant financial, operational or reputational impact on the company and illustrates where our company can have a significant impact on society and the environment. Currently, we are in the process of conducting a new assessment to review and update the issues that are of greatest priority to our stakeholders and our company's long-term success. [Learn more](#).

This report covers our company's global operations, including those of subsidiaries, unless stated otherwise. It includes activities at all facilities, owned and leased, over which we have operational control, unless otherwise noted. The basis for reporting on other matters specific to the operations of our business—including joint ventures, subsidiaries, leased facilities, outsourced operations and other entities that can affect comparability from period to period—can be found in our [2017 Form 10-K](#), which is filed with the United States Securities and Exchange Commission and is also available in the "Financial Reports" section of our [corporate website](#).

There have been no significant changes from previous reporting periods in the scope, boundary or measurement methods applied in this report. Acquisitions and divestitures are thoroughly discussed in our [2017 Form 10-K](#).

We have sought to provide a comprehensive view of how our company operates, and have focused on what is most important to our business success as well as to our external stakeholders. Wherever possible, we have guided readers to sources of more information, including [our corporate website](#) and our [annual finance reports](#). We plan to publish our next comprehensive corporate responsibility report in 2019.



Over the years, we have received numerous awards and recognition for our comprehensive approach to corporate responsibility.

The following is a selection of awards and recognition received throughout 2017 and 2018.

## GLOBAL RECOGNITION

### Corporate Knights

Our company ranked #13 among *Corporate Knights*' 2018 Global 100 Most Sustainable Corporations in the World. We were one of three U.S. pharmaceutical companies to make the list, which was announced during the Annual Meeting of the World Economic Forum in Davos, Switzerland. (January 2018)

### Corporate Responsibility Magazine

*Corporate Responsibility Magazine* ranked our company #22 on its 19th annual 100 Best Corporate Citizens list. The list recognizes environmental, social and governance (ESG) performance of public companies across the United States. (May 2018)

### Dividend Channel

Our company was named a Top Socially Responsible Dividend Stock by *Dividend Channel*, signifying a stock with above-average "Dividend Rank" statistics, including a strong 3 percent yield, as well as being recognized by prominent asset managers as being a socially responsible investment, through analysis of social and environmental criteria. (January 2018)

### Forbes

Our company was listed as #191 on the *Forbes* Global 2000, a list that includes publicly-traded companies from 60 countries, collectively accounting for \$39.1 trillion in sales, \$3.2 trillion in profit, \$189 trillion in assets and \$56.8 trillion in market value. (June 2018)

### Fortune Magazine

In *Fortune* magazine's latest "Change the World" list, a ranking of 57 companies that are doing well by doing good, our company was ranked #2 on the list for our leadership role in the fight against Ebola. (August 2018)

Ken Frazier, our company's chairman and CEO, was named to the #5 spot on *Fortune*'s World's Greatest 50 Leaders list. (April 2018)

Our company ranked #1 among our peers for innovation and #2 overall across the industry on *Fortune* magazine's World's Most Admired Companies list. Companies are rated on nine criteria from investment value and quality of management and products to social responsibility and ability to attract talent. (January 2018)

### **FTSE4Good Index**

Our company remains a constituent of the FTSE4Good Index. The FTSE4Good Index series measures the performance of companies that meet globally recognized corporate responsibility standards. We have been a part of this leading index since 2008. (August 2018)

### **Institutional Shareholder Services Inc.**

Our company received the highest E&S QualityScore from Institutional Shareholder Services Inc. (ISS). The E&S QualityScore measures a company's understanding of its environmental and social risks; preparedness to face and mitigate those risks; and an indication of the company's commitment to being held accountable to those risks. (June 2018)

### **Investor Without Borders**

MSD in Poland received the prestigious 'Investor Without Borders' award during the European Economic Congress (EEC) in Katowice. The Investor Without Borders title recognizes companies whose investment is perceived as helping the economic growth in Poland. MSD was recognized for the R&D investment in clinical trials as well as the establishment of a Data Management Center with 300 highly skilled employees supporting MSD clinical trials and pharmacovigilance operations around the globe.

### **ISS-OKEOM**

Our company received "Prime Status" on the *ISS-oekom Corporate Rating*, one of the world's leading ESG research and rating agencies for sustainable investments.

### **JUST Capital**

*Forbes*—in partnership with Just Capital—analyzed nearly 1,000 U.S. publicly-traded companies to determine which have the best and most just business behavior. As a result, our company was named to the 2018 Just 100 List. The rankings provide a comprehensive measurement of how U.S. companies perform on the issues Americans care about most. (December 2017)

### **MSCI Global Sustainability Index Series**

We remain a top 10 constituent of MSCI Inc., a leading provider of global benchmark indexes that has over 500 equity and fixed-income ESG indexes. The family of MSCI Global Sustainability Indexes includes the MSCI World ESG Index, the MSCI EM ESG Index and the MSCI ACWI ESG Index. (May 2017)

### **Sustainable Greece 2020**

MSD in Greece was named as one of the most sustainable companies in Greece. Sustainable Greece 2020 is an initiative of the Quality Net Foundation that aims to create a development model ensuring a sustainable economy and society in Greece. (March 2018)

### **TIME**

*TIME* Magazine named Ken Frazier, our company's chairman and CEO, to the 2018 *TIME* 100, its annual list of the most influential people in the world. The list, now in its fifteenth year, recognizes the activism, innovation and achievement of the world's most influential individuals. (April 2018)

### **Wall Street Journal**

Our company ranked #42 on the *Wall Street Journal's* Management Top 250 List. The ranking of U.S. companies by the Drucker Institute, measures performance on customer service, employee engagement and development, innovation, social responsibility and financial strength. (December 2017)

## **ACCESS TO HEALTH**

### **Association of Strategic Alliance Professionals**

MSD in the Gulf, along with Alliance partner Julphar, were named a 2018 winner of the prestigious Alliance Excellence Award, which is sponsored by the Association of Strategic Alliance Professionals. The award celebrates advancements in the increasingly critical practice of executing strategic alliances. (March 2018)

#### **BioPharma**

Our company was conferred “Best 2017 Immuno-oncology Breakthrough” for KEYTRUDA® (pembrolizumab) and “Best 2017 Vaccine Breakthrough” for our Ebola vaccine at the 8th Annual BioPharma Industry Awards 2018 celebrated in Singapore on March 1, 2018. BioPharma Awards recognize organizations and individual contributions to innovation and standards of excellence in Asia’s biopharma industry, with all finalists determined through industry votes. (March 2018)

#### **Frost & Sullivan Manufacturing Leadership Council**

Our company was named the recipient of a 2018 Manufacturing Leadership Award from Frost & Sullivan for “Engineering & Product Technology: Design, Evaluation, and Implementation of Single-Use Components for Ebola Zaire Vaccine Drug Substance Manufacturing.” The awards are part of Frost & Sullivan’s Manufacturing Leadership Council, recognizing those that are shaping the future of global manufacturing across all industries. (March 2018)

#### **Infortambo Magazine**

The MSD Animal Health Ruminants business team in Chile won a prestigious award as “The Best Animal Health Company” in Chile from the agricultural magazine, *Infortambo*. Companies were judged by criteria such as service in field, trust, innovation, professionalism, customer service and added value. (June 2018)

## **EMPLOYEES**

#### **American Heart Association**

The American Heart Association (AHA) announced its 2018 [Workplace Health Achievement Index](#) and recognized our company at the gold level for taking significant steps to build a culture of health in the workplace. In addition to our 2018 gold achievement, we received AHA silver recognition in 2017. (August 2018)

#### **American Indian Science and Engineering Society**

Our company was named to the 2018 list of Top 50 Places to Work for Native American STEM Professionals by the American Indian Science and Engineering Society (AISES) in the spring edition of *Winds of Change*. AISES represents American Indians, Alaska Natives, Native Hawaiians, Pacific Islanders, First Nations and other indigenous peoples of North America in science, technology, engineering and math (STEM) studies and careers. (Spring 2018)

#### **National Association of Asian MBAs (AscendNAAMBA)**

Our company was recognized with the “Employer of Choice Award for High Achieving Pan Asian Millennials” at the AscendNAAMBA 7th Annual Conference and Career Exposition. (September 2017)

#### **Best Employer in China**

MSD China was awarded the 2017 Best Employer in China Award from Aon Hewitt, a global leader in human resources solutions. This is third consecutive year that MSD has been honored with this award. (August 2017)

#### **Black Enterprise**

Our company was named to *Black Enterprise’s* Best Companies for Diversity List. *Black Enterprise* and The Executive Leadership Council, the preeminent organization of black global senior managers, continues to recognize the 50 Best Companies for Diversity, identifying those companies creating pathways to more dynamic workforces, representative corporate governance, expansive supplier pools and inclusive management. (January 2018)

#### **CAREERS & the disABLED Magazine**

We were ranked #14, up from #17 in 2017, on the “Readers’ Choice 2018 Top 50 Employers” list by *CAREERS & the*

*disABLED* magazine, the nation's first and only career-guidance and recruitment magazine for people with disabilities. The list honors corporations for creating a progressive environment for people with disabilities, as reported by readers of the magazine. (February 2018)

#### ***DIVERSEability Magazine***

Our company was recognized as a Top Disability-Friendly Company by *DIVERSEability Magazine*. (August 2018)

#### **Disability Equality Index®**

Our Company was recognized for earning a perfect 100% score on the 2018 Disability Equality Index® and named as a "Best Place to Work" for Disability Inclusion. The index is aimed at promoting inclusivity and understanding of people with disabilities in the workplace. (July 2018)

#### **Diversity Best Practices**

Our company was named as a member of the Diversity Best Practices 2017 Inclusion Index. Results from the Diversity Best Practices Inclusion Index provide information to help companies understand gaps in demographic representation, and target their efforts to find and implement diversity and inclusion strategies and solutions. (December 2017)

#### ***Equal Opportunity Magazine***

Our company ranked #3 in the 17th annual "Top 50 Employers 2018 Readers Choice Awards" in *Equal Opportunity* magazine. Readers selected the top companies in the country for which they would most prefer to work or that they believed would provide a positive working environment for members of minority groups. (March 2018)

#### ***G.I. Jobs Magazine***

Our company earned "Gold" Military Friendly® Employer designation from Victory Media, publisher of *G.I. Jobs*® and *Military Spouse*. The Military Friendly® Company survey investigates and identifies the organizations whose commitment to serving the military and veteran community is comprehensive in scope and meaningful in terms of actual outcomes and impact. (November 2017)

#### **Great Place to Work**

MSD in Turkey has been recognized as a Great Place to Work® for fostering a high-trust, high-engagement culture based on transparency, respect and continuous development where employees feel they are being heard and take pride in the company's success. (May 2018)

#### **Healthcare Businesswomen's Association**

Healthcare Businesswomen's Association (HBA) recognized Dr. Julie Gerberding, MD, MPH, executive vice president for strategic communications, global public policy and population health and chief patient officer as the 2018 Woman of the Year. The award honors a senior executive female whose accomplishments have resulted in significant contributions to the health care industry. (May 2018)

#### **Human Resource**

MSD in Singapore garnered two silver awards at the 2017 Human Resources Asia Recruitment Awards event, organized by Human Resource, Asia's only regional HR media and events organization. In recognition of the staffing team's unique ability to help MSD build a world-class data science team within a year, awards were received in the categories of "Best Recruitment Innovation by a Corporate HR Team" and "Best In-house Recruitment Team." (March 2018)

#### **Human Rights Campaign (HRC) Foundation**

Our company scored 100 percent and earned the designation as a 2018 Best Place to Work for LGBT Equality on the HRC Corporate Equality Index. This HRC Index is the national benchmarking tool on corporate policies and practices pertinent to lesbian, gay, bisexual and transgender employees. (January 2018)

#### ***LATINA Style Magazine***

We were selected by *LATINA Style Magazine* as one of the Top 50 Companies of the Year for Latinas to work, in the 2017 annual *LATINA Style* 50 report. This annual study recognizes companies that encourage training, mentoring and promoting

of Latinas, as well as opportunities for Hispanic women. (September 2017)

#### ***Military Times Magazine***

Our company ranked #13, up from #16 in last year's rankings, on the *Military Times* magazine list of prestigious top 75 "Best for Vets: Employers 2018" for the many initiatives underway across the company to attract, select, engage and retain employees with past military service. Our company is being recognized for the third consecutive year, and we are the only pharmaceutical company to receive this distinction. (May 2018)

#### **Montreal's Top 100 Employers**

Our company was recognized as one of Montréal's Top Employers. This special designation recognizes the employers in Greater Montréal that lead their industries in offering exceptional places to work. (February 2018)

#### **National Association for Female Executives**

For the sixteenth time, the National Association for Female Executives (NAFE) named our company one of its 2018 Top Companies for Executive Women. The award recognizes U.S. corporations where women have significant clout to make the decisions that affect their company's future and its bottom line. The NAFE Top 70 Companies are featured in the April/May issue of *Working Mother*. (March 2018)

#### **National Business Group on Health**

The National Business Group on Health, a nonprofit association of 425 large U.S. employers, recognized our company for having one of the best workforce well-being programs in the nation. We were among 55 U.S. employers that received the 2017 Best Employers for Healthy Lifestyles® award. (September 2017)

#### **National Organization on Disability**

Our company received the 2017 Leading Disability Employer Seal. The Seal recognizes companies that demonstrate exemplary employment practices for people with disabilities. (September 2017)

#### ***Professional Woman's Magazine***

*Professional Woman's Magazine* once again named our company to its "Best of the Best" list of Top Healthcare, Pharmaceutical & Biotech Companies in 2018. The magazine polled hundreds of *Fortune* 1000 companies for its 2018 Best of the Best evaluations. (July 2018)

#### **Top Employers Institute**

We were awarded the distinction of 2018 "Top Employer" by Top Employers Institute, a global certifier recognizing excellence in employee conditions. (February 2018)

#### ***U.S. Veterans Magazine***

Our company was listed among those recognized in *U.S. Veterans Magazine's* 2018 evaluation of the nation's Best of the Best Top Veteran-Friendly Companies. The annual review is an evaluation of the nation's employers, initiatives, government agencies and educational institutions. (May 2018)

#### ***Working Mother Magazine***

For the 15th year in a row, *Working Mother* magazine has named our company to its list of Working Mother 100 Best Companies. Our company received recognition for strong leadership in creating progressive programs in the areas of advancing women, flexibility, childcare and paid parental leave. This year marks the 31st time that we have made the magazine's Best Companies list. (October 2017)

#### **Workplace Gender Equality Agency**

For the third year in a row, MSD Australia was recognized as an Employer of Choice for Gender Equality by the Workplace Gender Equality Agency (WGEA). (February 2018)

## ENVIRONMENTAL SUSTAINABILITY

### Newsweek

We ranked #33 on *Newsweek*'s "2017 Global 500 Green Rankings" list and #19 on the 2017 U.S. 500 list. The 2017 *Newsweek* rankings measure the environmental performance of large public companies using eight key performance indicators, including energy use, greenhouse gas emissions, water use and waste generation. (May 2018)

### Pennsylvania Environmental Council

Our company was awarded a 2018 Governor's Award for Environmental Excellence from the Pennsylvania Environmental Council. These awards highlight the best in environmental innovation and expertise throughout the Commonwealth. (March 2018)

### U.S. Environmental Protection Agency (EPA)

Our company's Research Laboratories, in Rahway, New Jersey was presented with the 2017 Green Chemistry Challenge Award for successfully applying green chemistry design principles to Letermovir, an antiviral drug candidate that is currently in Phase III clinical trials. This award is given to companies turning potential environmental issues into business opportunities, spurring innovation and economic development. (June 2017)

### U.S. Environmental Protection Agency (EPA)

Merck has been an ENERGY STAR partner since 1995 and recognized by the EPA for 13 consecutive years, two times as Partner of the Year and now an 11th time for Sustained Excellence. (April 2018)

## ETHICS & TRANSPARENCY

### Billion Dollar Roundtable

Our company was certified as a member of the Billion Dollar Roundtable (BDR), a top-level corporate advocacy organization that promotes excellence in supply chain diversity. We were accepted into the BDR for our demonstrated leadership in economic inclusion and supplier diversity. (March 2018)

### Bioethics International

Our company ranked #5 in the Top 5 Clinical Trial Transparency Good Pharma Scorecard by Bioethics International. The Good Pharma Scorecard, ranks new drugs and pharma companies on their clinical trial transparency and data-sharing performance. (December 2017)

### CPA-Zicklin Index

We were recognized by the Center for Political Accountability (CPA) as a "trendsetter" for corporate disclosures related to political spending. The CPA-Zicklin Index of Corporate Political Disclosure and Accountability provides a comprehensive portrait of how S&P 500 companies are navigating political spending around disclosure and board oversight. (September 2017)

### Women's Business Enterprise National Council (WBENC)

We were named one of the WBENC's Top Corporations for Women-Owned Businesses in 2017 for our work in enabling growth and reducing barriers for women-owned businesses. (March 2018)

## PHILANTHROPY

### **American Journey Award**

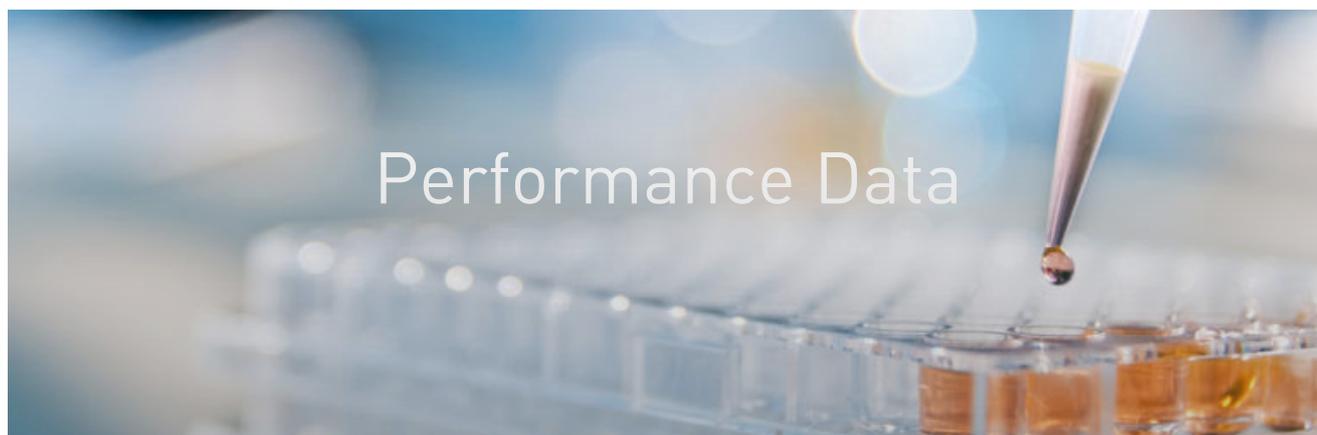
The Ronald H. Brown American Journey Award was awarded to our chairman and CEO, Ken Frazier, in 2018 for his inspiring professional path, as well as his work to improve the lives of children. This award was established in 2009 to honor outstanding Americans who exemplify the vision and transformative ideals of Ronald H. Brown (1941–1996). The Awards are granted to individuals who have developed opportunities and fostered the achievements of others. (March 2018)

### **CECP: The CEO Force for Good**

A leading study on corporate social engagement, “CECP: The CEO Force for Good,” in association with The Conference Board, ranked our company in the top quartile of respondent companies for total giving in their annual *Giving in Numbers: 2017 Edition* report. (October 2017)

### **FORTUNE Magazine**

Our company was ranked number four in *Fortune’s* 50 Best Workplaces for Giving Back in 2018. (February 2018)



Below are key performance indicators (KPIs) for each of our four focus areas (Access to Health, Employees, Environmental Sustainability, and Ethics & Transparency), as well as links to the performance data tables found throughout this site.

RESOURCES

- [Performance Data \(Excel\)](#)
- [CDP Website](#)
- [2017/2018 Corporate Responsibility Overview](#)

These KPIs serve as baseline measurements for our corporate responsibility activities, are measured globally unless otherwise noted, and cover all of [our business units](#) with the exception of joint ventures.

## Access to Health

**Key Performance Indicators (KPIs)**

RESEARCH & DEVELOPMENT	2013	2014	2015	2016	2017
Top 20 global burdens of disease addressed by our products and pipeline <sup>2</sup>	88%	88%	88%	88%	88%
GCP/PV audits by regulatory agencies or clinical trial investigators that led to significant fines, penalties, warning letters or product seizures <sup>1</sup>	-	0	0	-	0
Established significant external licenses and collaborations <sup>3</sup>	40	35	64	57	55
Narrative of compounds provided to product-development partnerships <sup>4</sup>					<a href="#">Online</a>

MANUFACTURING & SUPPLY	2013	2014	2015	2016	2017
Annual percentage of units manufactured/sold and recalled during a given year (recall rate globally) <sup>5, 6</sup>	0.11%	0.22%	0.07%	0.01%	0.01%
Number of local and regional manufacturing partnerships to enable access	68	104	179	179	153
Number of products available by local and regional partnerships <sup>7</sup>	354	499	1,157	941	765

REGISTRATION	2013	2014	2015	2016	2017
New product and device registrations <sup>8, 9, 10</sup>	179	176	156	143	143
Local regulatory agency GCP/PV training requests fulfilled that will help strengthen agency capabilities with their GCP/PV compliance oversight role <sup>11</sup>					<a href="#">Link</a>
Products submitted that have achieved WHO prequalification	11	11	11	11	13

PRICING & COMMERCIALIZATION	2013	2014	2015	2016	2017
Number of products which are supported with differential pricing <sup>12, 13</sup>	24	35	35	40	42
Number of countries where inter- and/or intra-country pricing has been implemented <sup>14</sup>	70	114	121	123	125
Investment in patient- and provider-education programs (in millions)	\$61	\$52	\$80	\$80	\$90

COMMUNITY INVESTMENT	2013	2014	2015	2016	2017
Health care workers trained through major programs and partnerships <sup>15</sup>	22,000	137,000	19,000	32,000	74,000
Investment in partnerships for activities to address underlying barriers to health, such as health-system strengthening and capacity building (in millions) <sup>15</sup>	\$24	\$32	\$21	\$28	\$40
People reached through major programs & partnerships (in millions) <sup>15</sup>	302	267	188	293	311

COMMUNITY INVESTMENT	2013	2014	2015	2016	2017
Health care workers trained through major programs and partnerships <sup>15</sup>	22,000	137,000	19,000	32,000	74,000
Investment in partnerships for activities to address underlying barriers to health, such as health-system strengthening and capacity building (in millions) <sup>15</sup>	\$24	\$32	\$21	\$28	\$40
People reached through major programs & partnerships (in millions) <sup>15</sup>	302	267	188	293	311

NA: Not available.

Note: Unless otherwise stated, data for Access to Health are reflective of our Human Health business only; information on our company's Animal Health is reported separately.

1. Complete response letter received for Sugammadex (MK-8616) in 2013, and the complete response letter received for Januvia (sitagliptin; MK-0431) in 2016.

2. As defined by the Institute for Health Metrics and Evaluation (IHME), which replaces the previously used WHO chart of leading causes of disease, condition or injury.

3. Starting in 2014, this metric no longer includes select early licenses and research collaborations that were included in the metric for previous years.

4. For information on product-development partnerships, visit our [Research & Development](#) page.

5. Definition of Recall Classifications: <http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm049070.htm#RecallClassifications>.

6. Starting in 2014, product recalls include data from our Animal Health business.

7. Increase represented in 2015 is due in part by better visibility to global partner information.

8. Data includes new products and new indications.

9. For information on new registrations by region, visit our [Clinical Research](#) section.

10. Data for all years have been updated based on a tracking system upgrade that corrected miscounts in prior years.

11. For information on local regulatory agency GCP/PV training requests, visit our [Clinical Research](#) section.

12. Differential pricing intended to facilitate access for the at-need population.

13. Products include HIV treatments, vaccines and other patented products.

14. Countries as defined by the World Bank 2017 GNI Classification, including UN-defined Least Developed Countries.

15. Includes investments by the Office of Corporate Responsibility, *MSD for Mothers* and/or our company's Foundation.

## PERFORMANCE DATA

- [Access to Reproductive Health](#)
- [Animal Health](#)
- [Anti-Counterfeiting](#)
- [Clinical Research](#)
- [Community Investment](#)
- [Manufacturing & Supply Chain](#)
- [MECTIZAN® Donation Program](#)
- [Medical Outreach Program \(MMOP\)](#)
- [U.S. Patient Assistance Programs](#)
- [MSD for Mothers](#)
- [Pricing & Commercialization](#)
- [Product Registration](#)
- [Research & Development](#)
- [Registration & Prequalification](#)

# Employees

## Key Performance Indicators (KPIs)

DIVERSITY & INCLUSION	2013	2014	2015	2016	2017
Women in executive roles <sup>1</sup>	31%	31%	34%	31%	32%
Women on the Board	17%	17%	21%	23%	23%
Members of underrepresented ethnic groups on the Board	25%	25%	21%	23%	23%
Members of underrepresented ethnic groups in executive roles (U.S.)	20%	20%	20%	23%	23%
Members of underrepresented ethnic groups in the workforce (U.S.)	24%	24%	26%	26%	26%

WELL-BEING	2013	2014	2015	2016	2017
Response rate to the Voice Survey	77%	78%	NA	85%	NA
Employees who completed a health assessment (U.S.)	62%	57%	58%	57%	70%
Lost-time incident rate (LTIR)	0.28	0.20	0.22	0.13	0.13
Recordable injury rate (RIR)	0.62	0.58	0.48	0.35	0.33

VOLUNTEERISM	2013	2014	2015	2016	2017
Employees who took release time according to the global policy on employee volunteerism <sup>2</sup>	NA	12.5%	9.0%	21.0 %	7.0%
Total recorded volunteer hours <sup>3</sup>	NA	109,932	80,585	214,862	114,903

NA: Not available.

1. "Executive" is defined as the chief executive officer and two structural levels below.

2. Where specific data is not available, data has been estimated.

3. 2017 figures are based on employee self-recorded volunteer hours and volunteer hours communicated directly to the Office of Corporate Responsibility for certain countries. 2015 marked the first year in which volunteer hour reporting was based solely on employee self-reporting. Prior years included estimates for unrecorded volunteer hours.

## PERFORMANCE DATA

- [Global Diversity & Inclusion](#)
- [Financial Well-Being](#)
- [Employee Safety](#)
- [Engaging Our Employees](#)
- [Positive Work Environment](#)

- [Learning & Development](#)
- [Leadership](#)

## Environmental Sustainability

### Key Performance Indicators (KPIs)<sup>1</sup>

	2013	2014	2015	2016	2017
Greenhouse gas emissions (Scope 1 & 2) (MT CO <sub>2</sub> e) <sup>2</sup>	1,639,700	1,530,800	1,456,100	1,398,100	1,264,100
Water usage (m <sup>3</sup> )	28.4	26.9	23.9	20.6	19.5
Operational waste generated (MT)	96,256	83,732	69,856	72,599	72,426

1. Includes facilities worldwide.

2. In accordance with the Greenhouse Gas Protocol, prior-year data have been adjusted to add or remove facilities that have been acquired or sold. Adjustments also reflect changes in methodology to ensure consistency from year to year.

## PERFORMANCE DATA

- [Air Emissions](#)
- [Climate Change & Energy Use](#)
- [EHS Management & Compliance](#)
- [Materials & Waste](#)
- [Water](#)

## Ethics & Transparency

### Key Performance Indicators (KPIs)

	2013	2014	2015	2016	2017
Employees trained on our Code of Conduct	99%	99%	99%	100%	100%
Ratio of substantiated allegations to concerns/issues raised	58%	60%	58%	55%	60%
Reported concerns that were substantiated regarding privacy practices, breaches of privacy and losses of personal data and devices. <sup>1,2</sup>	26%	18%	96%	98%	98%

1. Privacy concerns include all concerns escalated to our Privacy Office about the company's privacy practices. Substantiated concerns are those that are determined to be inconsistent with our privacy standards or that involve the loss of, theft of or unauthorized access to personal data.

2. In 2015, because of the scope of lost or stolen devices known to be encrypted, we ceased inclusion of lost or stolen MSD devices in our incident metrics.

## PERFORMANCE DATA

- [Corporate Governance](#)
- [Global Privacy Program](#)
- [Office of Ethics](#)
- [Sourcing & Supplier Relations](#)
- [Sales & Marketing](#)

## Our Giving

### PERFORMANCE DATA

- [Grants & Contributions](#)
- [Community Contributions](#)
- [Disaster Relief](#)
- [Employee Giving](#)
- [Neighbor of Choice](#)
- [Product Donations](#)
- [MSD Fellowship for Global Health Impact](#)

## Economic Impact

### PERFORMANCE DATA

- [Financial Information Summary](#)
- [2017 Form 10-K](#)

# Access to Health

We aspire to improve access to health by discovering, developing and providing innovative products and services that save and improve lives.

As a global biopharmaceutical company, we are focused on inventing and developing innovative medicines and vaccines that tackle diseases and improve the lives of people and the well-being of animals around the world.



We have an important role and responsibility in improving access to medicines, vaccines and quality health care worldwide, thereby helping to reduce the burden of disease around the world.

We also recognize that barriers to quality care and medical treatment—such as a lack of trained health care professionals, weak infrastructure, political uncertainty, civil strife, and a shortage of safe water in many parts of the world—make even basic health care delivery difficult at best.

These challenges go well beyond what we can directly address alone, so we work in partnership with a range of stakeholders to improve the global health ecosystem.

## Access to Health Statement of Guiding Principles

Various stakeholders are calling on the global pharmaceutical industry to provide greater transparency regarding the impact of access strategies and initiatives, as well as evidence of how access strategies are integrated into an overall business strategy.

In response, we continue to employ our *Access to Health Statement of Guiding Principles* to inform our worldwide approach to access.

A close-up image of a laboratory glass vial with a red cap and a pipette tip.	<b>RESEARCH &amp; DEVELOPMENT</b>
A pair of hands wearing blue nitrile gloves, holding a white cylindrical object.	<b>MANUFACTURING &amp; SUPPLY</b>
A portrait of a smiling woman with dark hair.	<b>REGISTRATION</b>
A group of people in white lab coats walking through a laboratory or hospital hallway.	<b>COMMERCIALIZATION</b>
A portrait of a smiling woman with dark hair.	<b>COMMUNITY INVESTMENT</b>

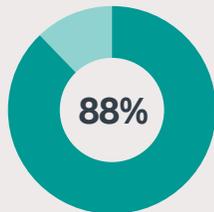
## Research & Development

For more than a century, our company has been inventing medicines and vaccines for many of the world's most challenging diseases. We embrace our responsibility to address the health needs of patients and society by inventing for life through world-class science.

We prioritize our R&D efforts on advancing candidates that we believe represent the next areas of breakthrough science that will make a difference and deliver value for patients, physicians and payers.

To develop important new products that improve the quality of life and satisfy customer needs, our company is poised where invention and the burden of disease meet. Our products and research priorities are aligned with the current and projected global burden of disease as defined by the WHO, as well as with the increasing need for new therapies targeted at diseases such as cancer, HIV/AIDS, Alzheimer's disease and antibiotic-resistant infections, and in disease prevention through vaccine development.

Our company is addressing an estimated 88 percent of the top 20 global burdens of disease with our products and pipeline.



## Vaccines

Vaccines are one of the most valuable public health innovations of modern times, according to the WHO, the U.S. Centers for Disease Control and Prevention and other leading health authorities.

We remain one of the few companies dedicated to the complex business of researching and producing vaccines to help address the public health burden of infectious diseases for people around the world.

Our company is working with a number of collaborators, including global and national health organizations, to discover and develop breakthrough vaccines that target diseases of global significance, such as pneumococcal disease, respiratory syncytial virus, cytomegalovirus and Ebola.

## Awards & Recognition

We have been recognized for our commitment to improve access to health around the world.



*MSD for Mothers* is our 10-year, \$500 million global initiative to create a world where no woman dies giving life. Contributing our scientific and business expertise, as well as our financial resources, we are working to ensure that women have access to two of the most powerful means to end preventable maternal deaths: quality maternity care and modern contraception.

Over the past six years, *MSD for Mothers* has reached more than 6 million women in over 30 countries around the world, contributing to the global effort to save women's lives, strengthen health systems and meet the UN SDGs.





Various stakeholders are calling on the global pharmaceutical industry to provide greater transparency regarding the impact of access strategies and initiatives, as well as evidence of how access strategies are integrated into an overall business strategy.

#### RESOURCES

[Access to Health Statement of Guiding Principles](#)  
[NCD Infographic](#)

In response, we continue to employ our [Access to Health Statement of Guiding Principles](#) to inform our worldwide approach to access.

## ACCESS TO HEALTH GUIDING PRINCIPLES

### [Research & Development](#)

We will engage in R&D to provide medicines and vaccines that address vital global health needs.

### [Manufacturing & Supply](#)

We are committed to providing patients and customers with high-quality products and a reliable supply of safe and effective medicines and vaccines.

### [Registration](#)

We will register our products in a timely fashion in markets where they are needed.

### [Commercialization](#)

We will commercialize our products in a way that develops our company's business and meets local needs in a responsible and efficient manner.

### [Community Investment](#)

We recognize that we cannot address complex public health challenges on our own; therefore, we will engage in community investment to address the barriers to access where we believe we can make the strongest contribution.

Because of our leadership in this area, our Access Principles and key performance indicators informed the global health work of the Interfaith Center on Corporate Responsibility (ICCR) and the development of its [Statement of Principles and Recommended Corporate Practices to Promote Global Health](#), and also informed an industrywide effort through the Business for Social Responsibility (BSR) Healthcare Working Group to develop its [Guiding Principles on Access to Healthcare \(GPAH\)](#).

## INSTITUTIONAL BUSINESS AFRICA (IBA) PRINCIPLES

We also have a group dedicated to ensuring access to essential medicines in Africa, called the Institutional Business Africa (IBA) unit. IBA consists of a dedicated team of public health and medical specialists based across sub-Saharan Africa that fosters strategic collaborations and provides policy and technical guidance to countries focused on the areas of family planning and vaccines to achieve sustainable benefits for people and communities in Africa.

IBA is guided by four important principles, represented by the abbreviation PASS:

**P:** Public health outcomes, guided by leading global alliances focused on reproductive health (RHSC, FP2020) and immunizations (GAVI), aligned with country public health goals

**A:** Affordability, focusing on economic levels and optimization of available funding

**S:** Sustainability for countries, ensuring that a long-term perspective is in place for country programs using our products

**S:** Sustainability for our business, ensuring that we can maintain our commitment to long-term partnerships that leverage our innovative products and services

To further embed the IBA approach in the region, the IBA business unit was recently aligned with the English and Portuguese Africa business unit to form the sub-Saharan Africa combined business unit, which is managed out of our South Africa office.

Our IBA approach continues to help expand patient access. For example, in 2015, we introduced our HPV vaccine in two countries, Rwanda and Uganda, and vaccinated 1 million girls. By 2016, we had conducted demonstration projects for HPV vaccination in 25 countries. We are committed to doing our part to help [Gavi, the vaccine alliance](#), reach its HPV vaccination goals.

Measuring how we're doing is a challenging but important component of our access strategy, as it enables us, through relevant quantitative indicators, to demonstrate our progress in implementing our Access Principles and to measure the effectiveness of our efforts.

## ACCESS ACCELERATED



*Moving NCD Care Forward*

As one example of how our efforts align with our Access Principles, we joined 21 other biopharmaceutical companies to launch [Access Accelerated](#), a global initiative to advance access to noncommunicable disease (NCD) prevention and care in low- and lower-middle-income countries. The [announcement](#) was made during the 2017 annual meeting of the World Economic Forum. Building on long-standing individual company investments in global health, Access Accelerated brings together partners focused on a variety of access barriers to NCD prevention, treatment and care. Efforts are being evaluated with the support of independent experts at Boston University to establish a framework for progress, measure effectiveness and deliver ongoing reporting, with the first evaluation report expected in mid-2018.

## INTEGRATING SOCIAL AND BUSINESS VALUE

To further embed access strategies in our business, in 2017 we launched the new Integrated Value Toolkit, an internal resource to enhance our focus on using business solutions to address social issues of importance to customers and stakeholders. Using lenses such as [CR materiality](#) and the [UN Sustainable Development Goals](#), the Integrated Value Toolkit complements existing planning and strategy tools as a way to encourage the exploration and deployment of business solutions that can address health-related social concerns and other development challenges. In 2018, we will continue to deploy the Toolkit throughout the company to enable the creation of integrated business and social impact.



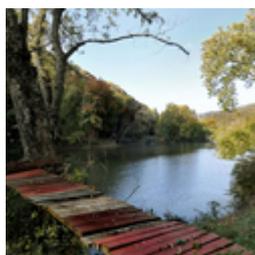
We believe we have an important role and responsibility in improving access to medicines, vaccines and quality health care worldwide, helping to reduce the burden of disease in the parts of the world that need it most.

We work in collaboration with local communities, governments, donors, patient organizations, health care professionals, nongovernmental organizations (NGOs), multilateral organizations, and others in the private sector to contribute our expertise and knowledge.

## Active Programs

The programs highlighted below are examples of our ongoing efforts.

### ADDRESSING THE OPIOID CRISIS IN WEST VIRGINIA



Our company's Foundation is supporting a new initiative with [Marshall Health](#) through a \$2 million grant over four years (2018–2021) to establish the *Great Rivers Regional System for Addiction Care*—a comprehensive program to address the opioid crisis in West Virginia. [Learn more.](#)

### ALLIANCE TO ADVANCE PATIENT-CENTERED CANCER CARE



In 2017, our company's Foundation launched the Alliance to Advance Patient-Centered Cancer Care. The Alliance aims to increase timely access to patient-centered care and reduce disparities in cancer care, especially for vulnerable and underserved populations in the United States. [Learn more.](#)

## BRIDGING THE GAP: REDUCING DISPARITIES IN DIABETES CARE



Our company's Foundation launched Bridging the Gap in 2017 to improve access to high-quality diabetes care and to reduce health disparities among vulnerable and underserved populations with type 2 diabetes in the United States. [Learn more.](#)

## IMPROVING ALZHEIMER'S CARE IN THE U.S.



In 2018, our company's Foundation launched several new programs that aim to improve the health and well-being of vulnerable individuals living with Alzheimer's and their caregivers in the United States. [Learn more.](#)

## MECTIZAN® DONATION PROGRAM



The MECTIZAN® (ivermectin) Donation Program is the longest-running disease-specific drug donation program and public-private partnership of its kind, and is widely regarded as one of the most successful public-private health collaborations in the world. [Learn more.](#)

## MEDICAL OUTREACH PROGRAM



Our company's Medical Outreach Program was established in 1958. It is the primary mechanism through which our company donates its pharmaceuticals and vaccines for humanitarian assistance in the developing world and in support of disaster relief and emergency situations worldwide. [Learn more.](#)

## MSD FOR MOTHERS



*MSD for Mothers* is a 10-year, \$500 million initiative focused on improving the health and well-being of mothers before, during and after pregnancy and childbirth.

Working together with committed partners, we believe we can help make pregnancy and childbirth a safe, healthy and joyful experience for women. [Learn more.](#)

## PROJECT ECHO



To help build health care capacity and expand access to specialty care for complex or chronic conditions among underserved populations in Asia, our company's Foundation established a new partnership with [Project ECHO](#) (Extension for Community Healthcare Outcomes) to expand the replication of Project ECHO in India and Vietnam. [Learn more.](#)

## U.S. PATIENT ASSISTANCE PROGRAMS



More than 55 years ago, our company created our first U.S. patient assistance program (PAP) to keep affordable medicines within patients' reach. Today, our patient assistance offerings include several programs. [Learn more.](#)

## Completed Programs

The programs highlighted below are examples of our past programs and initiatives.

## AFRICAN COMPREHENSIVE HIV/AIDS PARTNERSHIPS



Together with our company's Foundation and the Bill & Melinda Gates Foundation, we established the African Comprehensive HIV/AIDS Partnerships (ACHAP) in 2002 to support Botswana, a country disproportionately affected by HIV/AIDS. [Learn more.](#)

For lessons from ACHAP's contributions to the fight against HIV/AIDS in Botswana, [click here.](#)

## ALLIANCE TO REDUCE DISPARITIES IN DIABETES



To address the growing problem of health care disparities related to type 2 diabetes in the U.S. among low-income and underserved adult populations, our company's Foundation launched the [Alliance to Reduce Disparities in Diabetes](#), with a commitment of \$15 million. [Learn more.](#)

## CHINA-MSD HIV/AIDS PARTNERSHIP



Our company's Foundation committed \$36 million to establish the China-MSD HIV/AIDS Partnership (C-MAP). C-MAP was the first large-scale public-private partnership between the Chinese government and a multinational company to focus on HIV/AIDS prevention and control. [Learn more.](#)

## HIV CARE COLLABORATIVE



In 2012, to help address remaining barriers to HIV care, especially among underserved populations, our company's Foundation launched the HIV Care Collaborative for Underserved Populations in the U.S. with the goal of connecting more people living with HIV to the care they need to stay healthy. [Learn more.](#)

## GARDASIL<sup>®</sup> ACCESS PROGRAM



Through the GARDASIL<sup>®</sup> [Human Papillomavirus Quadrivalent (Types 6, 11, 16, 18) Vaccine, Recombinant] Access Program, we pledged to donate at least 3 million doses of GARDASIL for use in smaller-scale human papillomavirus (HPV) vaccination projects in eligible lowest-income countries around the world. [Learn more.](#)

## MCAN



MCAN, a U.S.-based organization established in 2005, was the only private foundation focused solely on addressing the complex and growing problem of childhood asthma within the United States. MCAN's mission was to enhance the quality of life of children with asthma and their families, and to reduce the burden of the disease on them and on society. This program concluded in 2015.



In 2017, the U.S. Department of Health and Human Services declared a nationwide public health emergency regarding the opioid crisis.<sup>1</sup> Each day, according to the Centers for Disease Control and Prevention (CDC), it is estimated that more than 140 Americans die from drug overdoses, 91 specifically due to opioids.<sup>2</sup>

#### RESOURCES

[Tackling the Opioid Crisis in West Virginia Backgrounder](#)

West Virginia is one of the states hardest hit by the opioid epidemic. According to the CDC, West Virginia has the highest overdose death rate in the United States,<sup>3</sup> with opioids responsible for most overdose deaths in the state.<sup>4</sup> The state also ranks first nationally for rates of hepatitis B and second for rates of hepatitis C.<sup>5</sup> The growing opioid epidemic may lead to a rise in the number of people contracting other infectious diseases such as HIV and hepatitis C.<sup>6</sup>

## OUR RESPONSE TO THE OPIOID EPIDEMIC IN WEST VIRGINIA

To help address the opioid crisis in West Virginia, our company's Foundation is supporting a new initiative with [Marshall Health](#) through a \$2 million grant spread over four years (2018–2021) to establish the *Great Rivers Regional System for Addiction Care* (the System). This comprehensive, integrated program will respond to the opioid crisis in the Great Rivers Region of West Virginia. It also will help develop a model for others working to tackle the challenges of the opioid epidemic and the spread of infectious diseases associated with the epidemic.

## THE GREAT RIVERS REGIONAL SYSTEM FOR ADDICTION CARE

The System will serve as a hub that coordinates the efforts of all program partners to help reduce opioid addiction, improve access to substance abuse prevention and treatment services, and help reduce the rising rates of HIV and hepatitis C infections.

The System includes comprehensive public health harm-reduction programs; quick response teams (featuring a medical provider, a law enforcement officer, and a treatment-and-recovery provider) that visit individuals following an overdose incident; care centers that connect individuals with addiction to recovery resources and treatment services; and community engagement and substance abuse prevention education.

## PROGRAM GOALS

Given the substantial need to combat the opioid epidemic in West Virginia, the *Great Rivers Regional System for Addiction Care* has four overarching goals:

- Reduce opioid overdoses and overdose deaths
- Increase access to and retention in substance abuse treatment
- Enhance access to care for viral hepatitis and HIV
- Improve public health education to increase awareness and prevention of substance abuse and addiction

An independent evaluator will assess the impact and outcomes of the System, and help Marshall Health and its program partners identify the most effective community-based programs to combat the opioid crisis. This assessment will aid in creating a potential model that can be adapted by local health care and public health systems in other states or regions to improve their own responses to this public health crisis.

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1. Department of Health and Human Services. "Determination That a Public Health Emergency Exists."

<https://www.hhs.gov/sites/default/files/opioid%20PHE%20Declaration-no-sig.pdf> accessed July 2018.

2. Department of Health and Human Services. "HHS Acting Secretary Declares Public Health Emergency to Address National Opioid Crisis."

<https://www.hhs.gov/about/news/2017/10/26/hhs-acting-secretary-declares-public-health-emergency-address-national-opioid-crisis.html> accessed July 2018.

3. Centers for Disease Control and Prevention. "Drug Overdose Data." <https://www.cdc.gov/drugoverdose/data/statedeaths.html> accessed July 2018.

4. Centers for Disease Control and Prevention. "Increases in Drug and Opioid Overdose Deaths—United States, 2000–2014."

<https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6450a3.htm> accessed July 2018.

5. Centers for Disease Control and Prevention. "Surveillance for Viral Hepatitis—United States, 2016."

<https://www.cdc.gov/hepatitis/statistics/2016surveillance/index.htm> accessed July 2018.

6. Centers for Disease Control and Prevention. "Increases in Hepatitis C Virus Infection Related to Injection Drug Use Among Persons Aged ≥30 Years—Kentucky, Tennessee, Virginia, and West Virginia, 2006–2012 Weekly."

[https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6417a2.htm?s\\_cid=mm6417a2\\_w](https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6417a2.htm?s_cid=mm6417a2_w) accessed July 2018.



An estimated 30 million Americans—about 9 percent of the population—are living with diabetes, according to the U.S. Centers for Disease Control and Prevention.

#### RESOURCES

- [Bridging the Gap Backgrounder](#)
- [Bridging the Gap Infographic](#)
- [Bridging the Gap Partners](#)
- [Bridging the Gap in Diabetes Care: Website](#)

Vulnerable and underserved populations bear a disproportionate burden of diabetes and its related complications. These populations also experience persistent inequities in access to high-quality diabetes care.

Promoting health equity among people with diabetes requires a multifaceted approach that improves the delivery of health care while addressing the complex array of interrelated factors that influence health. Multi-sectoral collaborations can reduce health disparities by integrating high-quality medical care with resources drawn from the social and environmental sectors, such as food, housing, and neighborhood and physical environments. For example, multi-sectoral collaborations can help improve access to nutritious food and increase options for physical activity, both of which are important to better health outcomes.

#### GOALS

In late 2017, our company's Foundation launched *Bridging the Gap: Reducing Disparities in Diabetes Care (Bridging the Gap)*. This initiative aims to improve access to high-quality diabetes care and reduce disparities in health outcomes among vulnerable and underserved populations with type 2 diabetes in the United States. The Foundation has committed \$16 million over five years (2017–2021) to support *Bridging the Gap* and its program partners in selected communities across the country.

*Bridging the Gap* aims to:

- **Build sustainable partnerships** between the health care sector and other sectors to address the medical and social factors that influence health
- **Redesign health care systems**, particularly primary care, to improve the delivery of diabetes care for vulnerable and underserved populations
- **Improve health outcomes** for individuals with type 2 diabetes through measures such as better glucose and lipid control
- **Disseminate key findings** and lessons learned to advance cross-sector approaches that improve population health and reduce diabetes disparities

## BRIDGING THE GAP PROGRAM SITES

Through grants to eight organizations, our company's Foundation is supporting evidence-based, multi-sector approaches to promote sustainable improvements in the delivery of diabetes care.

- [Alameda County Public Health Department](#) (Oakland, California)
- [Clearwater Valley Hospital and St. Mary's Hospitals and Clinics](#) (Orofino, Idaho)
- [La Clínica del Pueblo](#) (Washington, DC)
- [Marshall University](#) (Huntington, West Virginia)
- [Minneapolis Health Department](#) (Minneapolis, Minnesota)
- [Providence Health and Services](#) (Portland, Oregon)
- [Trenton Health Team](#) (Trenton, New Jersey)
- [Western Maryland Health System](#) (Cumberland, Maryland)

[The University of Chicago](#) (Chicago, IL) serves as the National Program Office for *Bridging the Gap*. It supports the program efforts of the grantee organizations and provides leadership in building a national public-private partnership to help reduce disparities in diabetes care.

## APPROACH

*Bridging the Gap* programs will:

- Use multi-sectoral collaborations to address factors inside and outside the health care system that influence diabetes outcomes
- Transform the delivery of primary care, including team-based, coordinated care tailored to the patient's level of risk for complications from diabetes and social factors that can complicate treatment and care management
- Engage multiple levels of the health care system, such as the patient, family support system, health care team, and health care organization levels

The Foundation will assess the impact of *Bridging the Gap* and its programs through an independent cross-site evaluation. The findings and program results will be widely disseminated to advance multi-sectoral collaborations that will help improve diabetes care and reduce health disparities in the United States.



Alzheimer's disease is a progressive neurodegenerative condition that often leads to a serious emotional, physical and financial burden on both people living with the disease and their primary caregivers, usually family members. An estimated 5.7 million Americans are currently living with Alzheimer's, which is now the sixth leading cause of death in the United States.<sup>1</sup>

#### RESOURCES

[Improving Care for Alzheimer's Patients and their Caregivers Backgrounder](#)

Given the complexity of the disease, patients and their caregivers often require multidisciplinary care that may involve physicians, nurses and social workers, as well as community-based service providers. Effectively coordinating this care, including referrals for social support, can improve patient and caregiver outcomes, enhance overall quality of life, and reduce disparities in care.<sup>2,3</sup>

## INVESTING IN PROGRAMS TO SUPPORT ALZHEIMER'S PATIENTS AND CAREGIVERS

To help improve the health and well-being of people living with Alzheimer's and their caregivers in vulnerable U.S. communities, our company's Foundation has committed \$5 million through 2021 to support programs that strengthen care coordination and navigation. Program partners are implementing evidence-based programs to help:

- Increase access to needed care and provide support for people living with Alzheimer's disease and their caregivers
- Foster collaboration across the health and social service sectors to address the medical and social needs of patients and their caregivers
- Improve patient and caregiver outcomes, including quality of life

## PROGRAM PARTNERS

## ALZHEIMER'S ASSOCIATION, MASSACHUSETTS/NEW HAMPSHIRE CHAPTER

In 2018, our company's Foundation announced a \$1.5 million, four-year (2018–2021) grant to the [Alzheimer's Association, Massachusetts/New Hampshire chapter](#) to expand its Dementia Care Coordination program in Massachusetts and take it to Maine, New Hampshire and Rhode Island. The program increases access to care and support for people who are living with Alzheimer's disease and their caregivers in underserved urban and rural areas.

As part of this evidence-informed model, a health care provider or payer refers the caregiver for a consultation with a memory specialist, who develops an individualized care plan. The plan is designed to help manage the patient's symptoms and behaviors, connect caregivers to needed resources in the community, and overcome barriers to care and support.

To provide ongoing support for patients and caregivers, the program also includes:

- New and more frequent forms of follow-up with patients and families, including telephone calls, emails, texts and chats that increase the likelihood of reaching caregivers
- Telephone support groups for patients and caregivers
- Interactive webinars that provide education for patients and caregivers
- Collaboration with clinical partners to provide appropriate training and support to allied health care professionals and relevant nonclinical staff

The Alzheimer's Association's health system and insurance partners, recognizing the potential financial savings of coordinating patient care, assume a portion, or all, of the cost associated with their participation in the program, helping to ensure sustainability.

## HEALTHPARTNERS CENTER FOR MEMORY AND AGING, MINNEAPOLIS, MINNESOTA

Our Foundation is supporting efforts to strengthen care coordination for people with dementia and their caregivers in rural areas with limited access to specialty care. In 2018, the Foundation provided a \$1.5 million, four-year (2018–2021) grant to support [HealthPartners \(HP\) Center for Memory and Aging](#) and its partner, the University of California, San Francisco (UCSF), to implement UCSF's Care Ecosystem program in Minnesota.

The Care Ecosystem expands the ability of dementia specialists to address the unmet needs of patients and their caregivers by providing support, education, care coordination, and linkages to community-based resources. As part of adopting this model, which has demonstrated strong results in California, UCSF will provide ongoing training to the HP clinical team and care team navigators.

The program includes:

- Deploying Care Team Navigators, who serve as the primary point of contact for patients and their caregivers as they navigate the challenges of living with dementia and develop personalized care plans
- Delivering tailored information and resources that are appropriate for the stage of the disease to patients and caregivers and providing follow-up phone support
- Establishing and testing new billing mechanisms to increase reimbursement for dementia care services, helping ensure sustainability

UCSF will evaluate HP's adoption of the Care Ecosystem in three areas: (1) the impact of the program on patient access to dementia care services; (2) the projected value of the program in reducing emergency-related health care costs; and (3) the potential for HP to receive reimbursement for the nonclinical care and services it provides to patients with dementia.

## NORTH CAROLINA A&T STATE UNIVERSITY CENTER FOR OUTREACH IN ALZHEIMER'S, AGING AND COMMUNITY HEALTH, GREENSBORO, NORTH CAROLINA

Our Foundation is supporting the North Carolina A&T State University [Center for Outreach in Alzheimer's, Aging and Community Health \(COAACH\)](#) with a \$2 million, four-year (2016–2019) grant to implement several programs for communities affected by Alzheimer's disease in rural North Carolina.

To help improve access to community resources and support for vulnerable communities, these programs include:

- **Caregiver College**, which provides support, education and training for caregivers of family members living with Alzheimer's disease to help improve awareness, care management, and coping strategies
- **Lay Health Advisors** from local faith-based institutions, who help raise disease awareness and provide information about community resources to assist patients with Alzheimer's and their families
- **Family Navigation** to help families of people living with Alzheimer's overcome barriers to timely screening, diagnosis, treatment and supportive care

COAACH has a strong community focus and has organized events during 2017 to raise awareness about Alzheimer's disease across many rural communities, providing valuable information to an estimated 20,000 individuals.

In 2018, COAACH launched its Caregiver College and trained 20 lay health advisors from 10 faith-based institutions in a variety of topics related to Alzheimer's and associated conditions to improve awareness of the disease in their communities. The Family Navigation program, which also began in 2018, provides a Web-based hub where families, including long-distance caregivers, can find support and community resources to help them navigate the challenges of Alzheimer's disease.

## ADVANCING BEST PRACTICES IN ALZHEIMER'S CARE

By investing in these innovative programs, the Foundation hopes to identify effective models that demonstrate strong potential for replication. We also aim to disseminate best practices to help advance Alzheimer's care and support for vulnerable patients and their caregivers.

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1. Alzheimer's Association. 2018 Alzheimer's Disease Facts and Figures. 2. Brown, A.F., Vassar, S.D., Connor, K.I., Vickrey, B.G. "Collaborative Care Management Reduces Disparities in Dementia Care Quality for Caregivers with Less Education." *Journal of the American Geriatrics Society*. 2013;61(2):243–251. doi:10.1111/jgs.12079.

3. Callahan, C.M., Boustani, M.A., Unverzagt, F.W., Austrom, M.G., Damush, T.M., Perkins, A.J., Fultz, B.A., Hui, S.L., Counsell, S.R., Hendrie, H.C. "Effectiveness of Collaborative Care for Older Adults with Alzheimer Disease in Primary Care: A Randomized Controlled Trial." *JAMA*. 2006;295(18):2,148–2,157. doi:10.1001/jama.295.18.2148.



One of the most significant initiatives undertaken by our company to help improve access to medicines in developing countries is the MECTIZAN® (ivermectin) Donation Program.

In 1987, we announced that we would donate MECTIZAN, our medicine for the treatment of onchocerciasis (also known as river blindness), to all who needed it, for as long as needed. The MECTIZAN Donation Program is the longest-running disease-specific drug donation program and public-private partnership of its kind.

To facilitate the donation and delivery of MECTIZAN, we established a multi-sectoral partnership involving the World Health Organization (WHO), the World Bank, ministries of health, nongovernmental organizations (NGOs), and local communities. In 1988, we established the [MECTIZAN Donation Program](#) at the [Task Force for Global Health](#), as well as the MECTIZAN Expert Committee to provide technical and scientific advice on the implementation of the program.

In 1998, the MECTIZAN Donation Program was expanded to include mass treatment for the elimination of lymphatic filariasis (LF) in African countries where onchocerciasis and lymphatic filariasis are co-endemic. In 2017, [the donation of MECTIZAN was once again expanded](#) to provide an additional 100 million treatments per year through 2025 to support the elimination of LF globally, in countries where onchocerciasis is not endemic. The most recent expansion was approved to support the WHO's [new guidelines](#) for the elimination of LF with annual treatments of a combination of ivermectin, diethylcarbamazine citrate (DEC), and albendazole, known as "IDA" triple therapy, to at-risk populations.

## ONCHOCERCIASIS

More commonly known as river blindness, onchocerciasis is transmitted through the bite of certain black flies that live near rivers, and can cause intense itching, disfiguring dermatitis, eye lesions and, eventually, blindness. At the inception of the program, the disease was one of the leading causes of preventable blindness worldwide, and approximately 130 million people were at risk for the disease.

MECTIZAN relieves the agonizing itching that accompanies the disease and halts progression toward blindness—thereby addressing characteristics of the disease that dramatically affect people's quality of life and productivity. MECTIZAN is well suited for distribution in remote areas by community health workers through mass distribution programs. It is the only well-tolerated drug known to halt the development of river blindness.

To date, WHO has verified that river blindness has been eliminated in Colombia, Ecuador, Guatemala and Mexico. In Latin America, there remains only one area in the Amazonian jungle, on the border of Venezuela and Brazil, where disease transmission continues.

In Africa, the disease is now well controlled as a public health problem. People no longer suffer the burden and symptoms associated with the eye and skin diseases attributed to river blindness. Under the guidance of national onchocerciasis elimination committees, African countries are taking steps to eliminate the disease through capacity-building,

improvement of treatment coverage rates, monitoring and evaluation of progress, and intercountry collaboration. The disease has been interrupted in sub-national areas of Ethiopia, Nigeria, Sudan and Uganda, with more than 5 million people no longer requiring MECTIZAN treatment.

## LYMPHATIC FILARIASIS

Lymphatic filariasis (LF) is a devastating parasitic infection spread by mosquitoes. It is caused by threadlike parasitic worms that damage the human lymphatic system. The main symptoms are swollen limbs with thickened, hard, rough and fissured skin, a condition known as elephantiasis, and, in men, swelling of the scrotum, called hydrocele. An annual single dose of MECTIZAN, administered together with a second drug, albendazole (donated by GlaxoSmithKline), is the recommended treatment in countries where onchocerciasis coexists with LF. The two diseases coexist in 29 African countries and in Yemen. In countries where onchocerciasis is not co-endemic there are several treatment options, including the IDA triple therapy of MECTIZAN, DEC, and albendazole.

Togo was the first country in Africa to be validated by WHO as free of LF. In addition, treatment for LF has stopped in endemic districts in 11 other countries, with more than 100 million people no longer needing MECTIZAN treatment.

## RESPONSIBLE DONATIONS AND ADVERSE-EXPERIENCE MONITORING AND REPORTING

While side effects following treatment with MECTIZAN are rare, we have developed a rigorous program for monitoring and reporting any adverse experiences (AEs) in the field. With the help of local NGOs, all community drug distributors and health professionals are trained in AE detection, management and reporting. All AEs must be reported to the company, which then reports them to drug safety and regulatory agencies in the U.S. and internationally.

The MECTIZAN Expert Committee, WHO and ministries of health also play key roles in making sure that best practices are applied for the surveillance and management of AEs at all levels. The AE reporting form itself has been revised several times throughout the program's history to streamline and standardize reporting.

While much has been achieved in the efforts to control and eliminate onchocerciasis and LF, there remain a number of additional challenges that we and our partners are committed to actively addressing.

## PRODUCT DONATION COMMITMENT

To ensure a continued supply of MECTIZAN to support the activities of our program partners, we remain committed to continuing to donate as much MECTIZAN as is necessary to eliminate river blindness globally, and to eliminate LF in Yemen and in the African countries where the diseases coexist. This commitment was expanded in 2017, when we committed an additional 100 million treatments per year through 2025 to accelerate the elimination of LF in countries where onchocerciasis and LF are not co-endemic. In 2017 alone, 300 million treatments were approved and shipped to endemic countries for the elimination of river blindness and LF.

## FINANCIAL COMMITMENT

Since 1987, we have provided financial support for the MECTIZAN Donation Program, housed at the Task Force for Global Health. Our funding covers the activities of the program's secretariat and includes support of the MECTIZAN Expert Committee for the technical and scientific oversight of the donation program.

To help provide the necessary ongoing technical support for country-led neglected tropical disease (NTD) programs, including support for onchocerciasis and LF elimination programs in Africa, in 2016 WHO launched the [Expanded Special Program to Eliminate NTDs \(ESPEN\)](#). Our company provided \$250,000 in financial support to ESPEN, and worked with other partners to design the strategy which is focused on providing technical and financial support to country-led NTD elimination programs.

In 2016, our company and the MECTIZAN Donation Program made a donation of [\\$1 million to the END Fund](#) in support of a new initiative to foster country-led efforts in Africa to determine when treatment for river blindness can be safely stopped. The END Fund activities that we supported concluded in 2017 and resulted in expanded in-country capacity to select and implement the most relevant coverage survey methodologies and analyses needed to assess readiness to stop treatment and monitor ongoing transmission.

In further support of monitoring and evaluation efforts, and specifically to aid national programs in determining where to treat and in mapping regions where the disease has been eliminated, the company joined a consortium of partners to fund the supply of a new LF diagnostic test. Our support consisted of a five-year, \$650,000 grant awarded to WHO in 2016 for the deployment of the LF test strips in countries that are actively monitoring and evaluating their progress toward elimination of the transmission of LF.

Finally, to commemorate the 30th anniversary of the MECTIZAN Donation Program, in 2017 the company provided grants totaling \$300,000 to NGO partners working in conjunction with country-led efforts toward elimination of onchocerciasis and LF.

## PARTNERSHIP COMMITMENT

Beyond addressing river blindness and LF, the MECTIZAN Donation Program is a key component of the growing trend toward integrated programs addressing neglected tropical diseases (NTDs). The integration of onchocerciasis and LF efforts via the MECTIZAN Donation Program, beginning in 1998, set the foundation for many of these initiatives, and we will remain engaged with key stakeholders to help with integration of the programs where feasible. Examples of our commitment to partnership in onchocerciasis, LF, and overall NTD efforts are noted below.

Since 2000, the company has participated in the Global Alliance to Eliminate LF (GAELF), serving in the capacity of observer and providing annual financial support to ensure productive coordination of efforts among the various partners in the effort to eliminate LF.

Our company is an original signatory of the [London Declaration](#), a collaborative effort to accelerate progress toward eliminating or controlling 10 NTDs by the end of this decade. We joined 12 other global pharmaceutical companies and many other stakeholders, including endemic-country governments, the WHO, the Bill & Melinda Gates Foundation, USAID, the U.K. Department for International Development (DFID), NGOs, and other organizations in this effort. Together with several other pharmaceutical companies, we committed to continuing or increasing our donations of medicines to treat or prevent these diseases; donors committed financial resources, and NGOs agreed to support implementation needs. The partners came together in an initiative called Uniting to Combat NTDs to track progress and identify gaps (e.g., in NTD research and additional funding) that need to be addressed in order to reach the goals of the London Declaration. In April 2017, to mark the fifth anniversary of the London Declaration, our company and other members of Uniting to Combat NTDs were recognized by the *Guinness Book of World Records* for achieving a new record for the most medicines donated in a 24-hour period. [Learn more](#) about the London Declaration.

Representatives from the company and the MECTIZAN Donation Program attended the 67th WHO-AFRO regional committee meeting in 2017 to discuss progress toward fighting NTDs and to advocate for a new World Health Assembly resolution calling for the elimination of the transmission of onchocerciasis.

For more information on our neglected tropical disease (NTD) research, visit [Infectious Diseases](#).

## MILESTONES AND IMPACT

An estimated 40,000 cases of blindness are prevented by the MECTIZAN Donation Program annually. In addition, the donation of MECTIZAN led to the development of CDTI (community-directed treatment with ivermectin) programs, through which trained community volunteers distribute medicines, a critical element in effective mass-treatment programs in remote areas that often lack trained health care workers. The system is currently used to distribute other health interventions including the provision of vitamin A, cataract identification, bed nets, and immunizations and treatment for other NTDs.

WHO has verified that in Latin America, river blindness has been eliminated in Colombia, Ecuador, Guatemala and Mexico. The remaining two affected countries in Latin America, Brazil and Venezuela, are continuing treatment in an area in the Amazon jungle shared by the two countries where transmission continues.

In Africa, national onchocerciasis elimination committees (NOECs) have been established in 16 of the 29 endemic countries. Under the guidance of the NOECs, MECTIZAN treatment has stopped in 15 of the 17 focus areas in Uganda, two states in Nigeria, two focus areas in Sudan, and one focus area in Ethiopia. In total, more than 5 million people no longer need treatment for onchocerciasis in these areas, which are currently completing three years of post-treatment surveillance, as recommended by the WHO.

For LF, in 2017 Togo received validation from WHO that the disease had been eliminated as a public health problem. Two other countries, Malawi and Yemen, have stopped treatment with MECTIZAN in all endemic communities and are currently conducting the post-treatment surveillance necessary for validation. In addition, more than 100 million people in sub-national regions of nine other countries no longer need MECTIZAN treatment for LF, as the transmission of the disease has been interrupted.

## Performance

	2013	2014	2015	2016	2017
Direct investment in the MECTIZAN® (ivermectin) Donation Program (in millions) <sup>1</sup>	\$5.50	\$5.50	\$5.80	\$3.74	\$3.10
Total treatments approved (in millions)	295	257	176	283	300
Treatments approved for river blindness (in millions)	128	39	55	64	97
Treatments approved for lymphatic filariasis (LF) (in millions)	127	147	94	141	89
Treatments approved for joint river blindness and LF programs (in millions)	40	71	27	78	114
Countries where elimination of LF has been validated by the World Health Organization (target: 30)	0	0	0	0	1
Latin American countries where the elimination of river blindness has been verified by the World Health Organization (target: 6)	2	3	3	4	4

1. Total investment decreased due to successful completion of 8-year grant in support of the African Program for Onchocerciasis Control.



## Medical Outreach Program

The MMOP (MSD Medical Outreach Program) marks its 60th year in 2018. The MMOP is the primary means through which the company donates its pharmaceuticals and vaccines for humanitarian assistance in the developing world and in support of disaster relief worldwide.

Managed by our Office of Corporate Responsibility, the MMOP is one mechanism through which we help to expand access to our products, particularly in developing countries. Through this program, we donate pharmaceuticals and vaccines to a limited number of qualified, U.S.-based nongovernmental organization (NGO) partners. The scope of the program varies from year to year and is influenced by changing medical needs in developing countries, the quantity of our medicines available for donation, and the unpredictable nature of emergencies or disasters.

Donations of our medicines are made primarily through these qualified NGOs:

- [AmeriCares](#)
- [The Catholic Medical Mission Board \(CMMB\)](#)
- [Direct Relief](#)
- [MAP International](#)
- [Project HOPE](#)

Each NGO has a long-standing relationship with the company, demonstrates integrity of purpose, provides assurance that our products will be securely warehoused, and has well-established programs for the ill and needy in developing countries. With each participating NGO, we maintain a contract designed to ensure the proper distribution and handling of our medicines, as well as to outline procedures for reporting potential adverse reactions. The contract also follows the [World Health Organization \(WHO\) Guidelines for Drug Donations](#), which establish quality-assurance standards for responsible product donations. For example, we donate only products with adequate dating to ensure that they can be administered appropriately prior to their expiration date.

The MMOP comprises three components:

### ANNUAL ALLOTMENT PROGRAM

Each year, the participating NGOs can order fully dated medicines of their choice from the company's current product line, up to an annually authorized amount. Through this approach, the partners can receive a sustained and predictable supply of needed medicines, crucial to the effective planning of ongoing humanitarian programs. The most commonly requested medicines help treat diabetes, high blood pressure, and fungal or bacterial infections in developing countries where people don't otherwise have access to these medications.

## ONGOING DONATIONS OF PHARMACEUTICALS & VACCINES

Donations of our pharmaceuticals and vaccines are also made throughout the year in response to requests from our partners to address some additional needs of specific programs around the world. We also offer products to our partners proactively, based on available supply, for use in their ongoing humanitarian programs.

## DISASTER & EMERGENCY RELIEF

Through the MMOP, we may also donate pharmaceuticals and vaccines in response to, or in preparation for, major disasters and emergency recovery efforts. We respond to those requests based on the relief agency's firsthand assessment of need. We also may provide financial support for our NGO partners' disaster-relief efforts when appropriate.

## CAPACITY-BUILDING

Beyond donated medicines, we seek ways to add value to our NGO partner organizations by providing both financial assistance and technical support. Beginning in 2016, the company has awarded yearly operational cash grants to assist with shipping and logistics. In addition, in 2018, to commemorate the 60th anniversary of the program, the company awarded \$300,000 (\$60,000 each) in cash grants to our NGO partners for general operations and capacity-building efforts.

Finally, we conduct periodic, collaborative site assessments of our NGO partners' warehouse facilities to strengthen their overall operations and optimize supply chain effectiveness. Collaborative site assessments occur every five years or less, depending on whether previous assessments have resulted in recommended corrective actions to address measures to improve the safety, security and storage of our medicine. Such recommendations have included enhancing storage-rack inspection and maintenance, strengthening delivery receipt procedures, and improving material-handling procedures.

We are also a member of the [Partnership for Quality Medical Donations \(PQMD\)](#), an alliance of NGOs and medical product manufacturers dedicated to raising the standards of medical donations in order to meet the needs of underserved populations and disaster victims around the world. Members of PQMD are committed to bringing measurable health impact by setting quality standards, disseminating knowledge and influencing policy.

## IMPACT

Throughout 2017, the donations of our medicines and vaccines provided immediate and ongoing assistance to those affected by hurricanes, earthquakes and other disasters in Mexico, Peru, the Caribbean, and the United States (including Puerto Rico and the U.S. Virgin Islands). In addition, we supported partner emergency preparedness and medical mission programs, and supplied medical aid to hundreds of thousands of people in need through the disaster response and ongoing medical programs of the NGOs with which we work. Our product donation program enabled our NGO partners to help local health care workers in developing countries treat chronic conditions and acute diseases through community health services worldwide.

## Performance

MEDICAL OUTREACH PROGRAM (MMOP)	2013	2014	2015	2016	2017
Countries and territories reached by the MMOP	86	91	72	55	62
Estimated number of people reached <sup>1,2</sup>	NA	433,624	78,555	109,398	376,304
Disaster relief (product) contributions (in millions) <sup>3</sup>	\$2.40	\$8.50	\$4.70	\$13.41	\$19.91

1. Estimated figures, which assume all product reached patients, are based on converting volume of medicines and vaccines donated in 2017. Conversion factors for this estimate were developed using a combination of QuintilesIMS SMART Data and U.S. product information found on our company's product website.

2. Inhalation brands were analyzed differently in 2017 as compared to previous years. Prescriber Information dosing information was used to calculate total doses for one year for chronic asthma patient and assumes splitting inhalers.

3. We set the value of our product donations based on the U.S. wholesale acquisition cost.





According to the American Cancer Society, an estimated 1.7 million people in the United States receive a cancer diagnosis each year, and this number is projected to grow as the population ages.

#### RESOURCES

[Alliance to Advance Patient-Centered Cancer Care Profile](#)

[Delivering High-Quality Cancer Care: Charting a New Course for a System in Crisis](#)

[Alliance Website](#)

While the past decade has marked significant advancements in cancer treatment, many cancer patients still do not receive timely, patient-centered care. Additionally, cancer care is often fragmented and poorly coordinated.

In its landmark 2013 publication, *Delivering High-Quality Cancer Care: Charting a New Course for a System in Crisis*, the Institute of Medicine (now the National Academy of Medicine) highlighted important gaps in the delivery of cancer care in the United States. In particular, the IOM underscored the need to strengthen patient-centered care and reduce disparities in care for underserved and vulnerable populations.

#### GOALS

In response to these needs, our company's Foundation established the [Alliance to Advance Patient-Centered Cancer Care](#) (the Alliance) to increase timely access to patient-centered care and to reduce disparities in cancer care for vulnerable and underserved populations in the United States. The Foundation has committed \$15 million over five years (2017–2021) to support the Alliance and its program partners in selected communities across the country.

The Alliance aims to:

- Promote evidence-based, multifaceted interventions that:
  - Improve care coordination and integration
  - Enhance patient-provider communication
  - Empower patients to actively engage in their health care and treatment planning
  - Offer psychosocial support and other support services
  
- Reduce disparities in access to high-quality cancer care for vulnerable and underserved populations
- Improve patients' satisfaction with their care and quality of life
- Build sustainable community partnerships that advance patient-centered cancer care

- Identify and disseminate best practices in patient-centered cancer care

## ALLIANCE PROGRAM SITES

Through grants to six organizations, our company's Foundation is supporting evidence-based, multifaceted programs to promote sustainable improvements in the delivery of cancer care. The program sites are:

- [Georgia Cancer Center for Excellence at Grady Health System](#)  
(Atlanta, Georgia)



- [The Johns Hopkins University School of Medicine](#)  
(Baltimore, Maryland)



- [Massachusetts General Hospital Cancer Center](#)  
(Boston, Massachusetts)



- [Northwestern University Feinberg School of Medicine](#)  
(Chicago, Illinois)



- [Ohio State University Comprehensive Cancer Center](#)  
(Columbus, Ohio)



- [The University of Arizona Cancer Center](#)  
(Tucson, Arizona)



The [University of Michigan's School of Nursing](#) (Ann Arbor, Michigan) serves as the Alliance's National Program Office (NPO). The NPO provides technical assistance to the program grantees, fosters collaboration among grantees and community partners to share lessons learned, and leads efforts to disseminate information to policy makers and other key stakeholders.

## APPROACH

The Alliance programs will:

- Strengthen patient-centered cancer care by implementing interventions in three critical areas:
  1. Coordination of cancer care and its integration with primary care and other specialty care
  2. Patient-provider communication and patient engagement in care
  3. Psychosocial care and other supportive care
- Implement cross-cutting interventions that address multiple cancer types
- Integrate components at different levels of the health care ecosystem:
  1. Patient
  2. Health care provider / health care team
  3. Health care system
- Collaborate with community partners to foster sustainable programs to improve the delivery of cancer care

### Cross-Site Evaluation

The Foundation is working with the University of Michigan Schools of Nursing and Social Work to conduct a cross-site evaluation of the Alliance and its programs. The cross-site evaluation will examine how patient-centered cancer care outcomes across program sites change over the course of the five-year Alliance. The [RE-AIM Implementation Science framework](#) guides the evaluation.<sup>1</sup> This framework examines a program's Reach, Effectiveness, Adoption, Implementation, and Maintenance. Through both quantitative and qualitative methods, the evaluators will assess changes in patient- and system-level outcomes over the course of the Alliance sites' interventions. Key measures that will be captured in the cross-site evaluation are outlined below. The evaluation findings and program results will be widely disseminated to help advance patient-centered cancer care in the United States.

## KEY MEASURES

### Reach

1. **Metric:** Number and percentage of eligible patients who completed interventions supported through the Alliance  
**Objective:** To determine the extent to which patients who were eligible for services were exposed to those services
2. **Metric:** Number and percentage of eligible patients who received navigator services supported through the Alliance  
**Objective:** To determine the extent to which patients who were eligible for patient navigation services received those services
3. **Metric:** Number and percentage of patients (out of those screened for psychosocial needs) who received psychosocial services  
**Objective:** To determine the extent to which patients for whom psychosocial services were clinically indicated received those services

### Effectiveness

1. ACCESS TO CARE  
**Metric:** Time between the scheduling and attending of patients' first appointment with a cancer provider  
**Objective:** To show a reduction or improvement in the time between the scheduling and first oncology appointment over time
2. ENGAGEMENT IN CARE  
**Metric:** Percentage of patients who report they were actively engaged in the management of their cancer treatment and symptoms  
**Objective:** To show improved patient engagement in health care over time
3. COMMUNICATION WITH HEALTH CARE PROVIDERS  
**Metric:** Percentage of patients who report "feeling heard" by providers in decisions about their care  
**Objective:** To show improvement in patient communication with health care providers over time

4. ADHERENCE TO CARE

**Metric:** Percentage of missed appointments by patients

**Objective:** To show a decrease in the number and rate of missed appointments over time

5. UTILIZATION OF HEALTH CARE

**Metric:** Percentage of patients with emergency department (ED) visits for cancer-related issues

**Objective:** To show more efficient utilization of health care services

6. QUALITY OF LIFE

**Metric:** The proportion of patients who report positive health-related quality of life

**Objective:** To show an increase in the proportion of patients that report positive quality of life

## ADOPTION, IMPLEMENTATION AND MAINTENANCE

The evaluators will also explore with program staff, providers and community partners:

1. The extent to which program sites are succeeding in delivering their interventions, as planned
2. Factors that promote or inhibit program implementation and how sites have adapted to challenges and capitalized on successes
3. Plans to help ensure that programs can be sustained into the future

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1. R E Glasgow, T M Vogt, and S M Boles, Evaluating the public health impact of health promotion interventions: the RE-AIM framework, American Journal of Public Health, 1999 September, 89(9): 1322-1327.



Throughout Asia, many patients have difficulty accessing the health services they need, particularly for chronic or complex conditions. This situation is due to many factors, including an insufficient number of skilled or adequately trained health care professionals.

#### RESOURCES

[Project ECHO Fact Sheet](#)

According to the World Health Organization, countries in Southeast Asia and South Asia have significantly fewer doctors, nurses and midwives per capita than developed nations. These regions also have limited access to specialty services, making it challenging for many communities and residents to obtain specialty care for complex or chronic conditions, such as mental health illnesses, tuberculosis, HIV, hepatitis C, cancer and diabetes.

In rural areas of these regions, much of the health care workforce is composed of primary care providers, community health workers (CHWs) and other grassroots health networks that focus mainly on basic primary care. These frontline health workers often have insufficient knowledge and skills to provide their patients with the right care at the right place and the right time. Without the necessary training and ongoing support that a wide range of health workers need to treat patients with complex diseases, providing patients with best-practice care is difficult or impossible.

### **PARTNERSHIP WITH PROJECT ECHO®**

To help build health care capacity and expand access to specialty care for complex or chronic conditions among underserved populations in Asia, our company's Foundation established a new partnership with [Project ECHO](#) (Extension for Community Healthcare Outcomes) through a \$7 million commitment over five years (2017–2021) to expand the replication of Project ECHO in India and Vietnam. [The ECHO Model™](#) provides the necessary knowledge and tools to health care providers in their own communities so they can become a critical frontline health care workforce while maintaining responsibility for managing their complex patients. Primary care providers and CHWs trained through the ECHO model can together provide care that is safe and effective, thereby increasing access to high-quality health care in these remote communities.

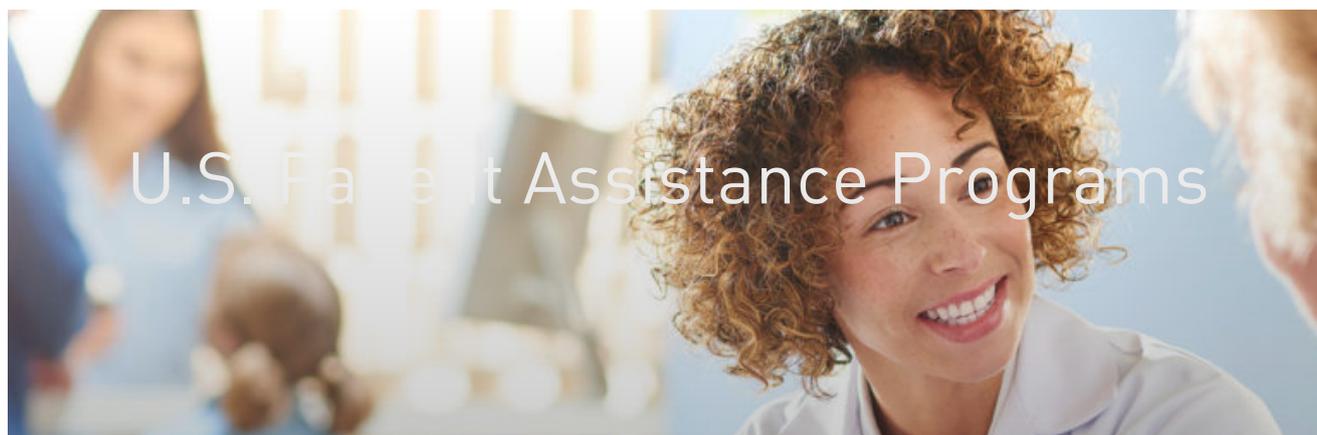
Project ECHO is a tele-mentoring model that links multidisciplinary medical specialist teams at an academic hub with multiple primary care providers (PCPs) through virtual teleECHO™ programs around the world. These programs allow experts to mentor and share their expertise via case-based learning across a virtual network, training PCPs to treat patients with complex conditions in their own communities.

## PROGRAM GOALS

Given the substantial need to improve the delivery of health care throughout India and Vietnam, Project ECHO has four goals over the next five years:

- Further develop ECHO superhubs (training sites) in India to provide technical assistance for ECHO projects throughout Southeast and South Asia
- Develop and expand ECHO hubs across India and Vietnam in targeted disease areas: hepatitis C, tuberculosis, HIV, diabetes, mental health illnesses, and other noncommunicable diseases
- Establish ECHO hubs in India and Vietnam for developing and implementing training programs for CHWs to further improve the quality and availability of treatment and care
- Document the effectiveness of the ECHO model in improving access to specialty care for patients in rural and underserved areas in India and Vietnam

Project ECHO plans to evaluate the impact and outcomes of the ECHO model to determine its success in improving access to best-practice specialty care for patients—particularly those with complex or chronic conditions—in rural and underserved areas in India and Vietnam. This evaluation will aid in the continued improvement of the replication of the ECHO model in India and Vietnam and around the world.



We believe that no one should go without the medicines or adult vaccines they need.

Consequently, our company provides several of our medicines and adult vaccines free to people who do not have prescription drug or health insurance coverage and who, without our assistance, could not afford these medicines and vaccines. This approach is consistent with our company's commitment to improve access to our medicines and adult vaccines for people who need them.

More than 56 years ago, our company created our first U.S. patient assistance program (PAP) to keep affordable medicines within patients' reach. Through these programs, we have provided more than 39.5 million free prescriptions and adult vaccines, representing a total value (at wholesale acquisition cost) of more than \$6.01 billion.

[Learn more](#) about our U.S. patient assistance programs, including eligibility requirements.

## COMMUNICATING OUR PROGRAMS TO DOCTORS AND CONSUMERS

We work to raise awareness of our patient assistance programs among doctors and eligible patients via brochures and enrollment forms posted on our [website](#) and other company communications, including social media. All toll-free phone lines for our medicines and/or vaccines include an option for patients to learn about our patient assistance programs.

## PARTNERSHIP FOR PRESCRIPTION ASSISTANCE

We also participate in the [Partnership for Prescription Assistance](#) (PPA), a pharmaceutical industry initiative. The initiative brings together America's pharmaceutical companies, as well as doctors, patient advocacy organizations and civic groups, to help low-income, uninsured patients get free or nearly free brand-name medicines. The PPA does this through a single website that provides information for and access to more than 475 public and private patient assistance programs, including approximately 200 programs offered by biopharmaceutical companies. To date, the PPA has helped millions of Americans get free or reduced-cost prescription medicines.

Our participation in PPA underscores our commitment to helping low-income, uninsured patients gain access to our medicines and adult vaccines. [Learn more](#) about the Partnership for Prescription Assistance.

## Performance

PATIENT ASSISTANCE PROGRAMS SUMMARY	2013	2014	2015	2016	2017
Patients utilizing our U.S. Patient Assistance Programs (in thousands) <sup>1</sup>	400	301	293	306	244
30-day prescriptions filled (in millions)	1.2	1.6	1.6	1.7	2.1

1. Totals represent 2012–2017 volumes of our U.S. Patient Assistance Program.

Changes within the patient and prescription volumes for 2014–2017 are a result of periodic changes in the products covered in the U.S. Patient Assistance Program. Product changes are due, in part, to the inclusion of new products, and as a result from company divestitures, introductions of competing products, and the availability of generic alternatives.



Our Global Population Health organization focuses on the complex intersections between the world's health needs and our company's priorities and expertise.

Our vision is to make a difference in the lives of people globally through our innovative medicines, vaccines and animal health products.

Because our medicines and vaccines target important health problems that affect millions of people on a global basis, we are heavily involved in global population health.

Improving population health is an overarching goal for many health care stakeholders: countries, payers, and providers who are seeking better prevention; population health management; and community interventions to protect and promote good health. Because of our unique and differentiated reach, and our science and capabilities that can be leveraged in collaboration with partners, we are able to contribute to significant population health improvements.

Our major priorities are:

1. Deliver on strategic antimicrobial stewardship imperatives in education, implementation, research and advocacy
2. Advance health literacy for patients and serve as a catalyst for policy change
3. Support our company's global efforts to execute population health initiatives and deliver sustainable shared value
4. Optimize employee health promotion and prevention while building a culture of well-being

In support of these priorities, we work across different business units to develop sustainable models of population health management and high-impact initiatives to improve population outcomes at scale, with a focus on reducing disparities, building capacity and skills, and measuring impact.

The examples below highlight our population health engagement on antimicrobial stewardship, health protection, employee population health, and health literacy. Other focus areas include animal health, cancer, diabetes, emergency preparedness, vaccine-preventable disease, and women's health.

To learn more, you can read a perspective piece by Cathryn Gunther, associate vice president, Global Population Health, [here](#).

## ANTIMICROBIAL STEWARDSHIP (AMS) TO IMPROVE HEALTH OUTCOMES

According to the World Health Organization, antimicrobial resistance is a major global threat to population health, with

significant associated morbidity, mortality and costs. Recognizing the need to address this global health threat, our company is committed to working with health care providers, patients and governments to promote antimicrobial stewardship (AMS)—the appropriate use of antimicrobials—through education, implementation, research and advocacy initiatives across both human and animal health, with an emphasis on patient outcomes, population health, and value of care. We made significant progress toward this goal in 2017. [Learn more.](#)

Education is foundational to AMS, and our company has helped support a variety of educational offerings through independent grants to international, national, regional and state organizations, including those with an infectious diseases-based membership as well as other subspecialty and generalist organizations. We provided an independent grant to support the development and implementation of Web- and in clinic-based patient education strategies on AMS and antimicrobial resistance (AMR) for the urgent-care setting in order to improve health literacy regarding AMR/AMS and patient satisfaction.

We also provided an independent grant to support the development and maintenance of a comprehensive, high-quality AMS Web resource that engages a diverse international audience and covers topics related to clinical practice, infection control and prevention, policy, clinical research and animal health. [Learn more.](#)

Outside the United States, we provide preceptorships and workshops for health care providers to learn firsthand from other providers practicing AMS.

Implementation is required for AMS action and impact. In 2017, we completed a two-year collaborative project with the CDC, the CDC Foundation, and the Duke Antimicrobial Stewardship Outreach Network to develop standardized metrics and an outcomes-assessment tool for AMS programs related to patient safety and quality of care. [Learn more.](#)

Outside the United States, our company supports AMS implementation in over 1,000 hospitals, providing training to more than 10,000 health care providers, and 575 clinical pathways have been developed based on local-hospital microbiological data.

Research is needed to build and disseminate evidence regarding AMS best practices and their impact on patients and population health. Our company supports an investigator-initiated research grant program specific to AMS and has funded more than 30 studies since 2013. Additionally, we provided an independent grant to support an annual two-day research conference implemented by the Society for Healthcare Epidemiology of America, with the goal of improving the quality of AMS research. [Learn more.](#)

Advocacy for continued antimicrobial innovation, appropriate AMS and sustainable access is vital to the fight against antimicrobial resistance. We are active in a number of policy and legislative discussions and initiatives, and had several representatives on the [European Innovative Medicines Initiative \(IMI\)](#) driving reinvestment in research and development and responsible antibiotic use ([DRIVE-AB](#)) work packages.

DRIVE-AB was tasked with defining the responsible use of antibiotics, identifying antibiotic-related population health priorities, calculating the societal value of having new antibiotics available for these priorities, and developing economic models to promote the desired antibiotic innovation and the sustainable use of the resulting novel antibiotics. The [final report](#) from the DRIVE-AB initiative was released in 2017.

We provide support to the [Global Antibiotic Resistance Partnership \(GARP\)](#) to assist low- and middle-income countries in developing country-led national action plans for AMR in support of the World Health Organization goals. The GARP will result in:

1. Situation analyses of human and animal antibiotic use and resistance, infectious disease burden, health indicators, the pharmaceutical supply chain and pertinent regulations
2. Individualized national action plans
3. Implementation plans for each country involved

## HEALTH PROTECTION MODELS—ZIKA

In August 2016, we entered into a partnership with the CDC Foundation whereby our company agreed to improve access to long-acting reversible contraceptives for eligible local providers and women of childbearing age who live in Puerto Rico.

This agreement supported Z-CAN, or the [Zika-Contraceptive Access Network](#). Z-CAN is a multi-sector public health initiative spearheaded by the CDC Foundation, in partnership with other local agencies and organizations such as the Puerto Rico Department of Health and the Puerto Rico Obstetrics and Gynecology Association, in response to the Zika epidemic.

The goal of the partnership was to give women who want to delay or avoid pregnancy an effective means of doing so, and the option to prevent the devastating, lifelong consequences of severe birth defects the Zika virus can cause.

Our Medical Affairs team worked with colleagues in Puerto Rico to support the training of 150 local health care providers in counseling, insertion and removal of our contraceptives. In 16 months, 28,000 women received services, 95 percent the same day. All women were counseled on the full range of reversible contraception options.

## EMPLOYEE POPULATION HEALTH

We have the opportunity to apply the principles that support population health to our own employee population—including dependents and, potentially, other members of our communities. We strive to offer services and programs and create work environments that address the continuum of population health management—for those who are well, those at risk, those with acute or chronic illnesses, and those requiring highly complex care.

We are actively collaborating in and integrating programs and policies that share the common goals of improving employee health and safety, reducing injury and illness, and improving workforce productivity. Our goal is twofold:

1. Improve the health of our employee population in targeted areas such as cardiometabolic risk, improve routine vaccination rates and screenings, and reduce stress
2. Establish a workplace culture of well-being that promotes health and wellness and emphasizes daily habits

These goals include increasing physical movement/activity, expanding access to healthier foods, providing education and tools to help mitigate the effects of stress, enhancing policies to eliminate tobacco within our campuses, and collaborating with our Environmental, Health & Safety teams to build a culture of health in addition to our long-standing commitment to a culture of safety.

Learn more about our programs, please visit our [Employee Well-Being](#) and [Employee Safety](#) pages.<sup>1</sup>

## HEALTH LITERACY

As part of our commitment to improving global population health, we work to empower patients by advancing health literacy. We have identified opportunities to communicate more clearly with patients, from clinical trials and patient education to packaging. We are also helping health care providers address health literacy, and are influencing policies concerning health literacy at the national and the international level. For additional details, please visit the section on health literacy, which highlights the problem and our commitment, as well as specific activities in the United States and throughout the world.

Learn more about [Health Literacy](#).

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1. <https://cdcfoundation.org/blog/lancet-public-health-highlights-impact-zika-contraception-access-network>.



For more than a century, our company has been inventing medicines and vaccines for many of the world's most challenging diseases. We embrace our responsibility to address the health needs of patients and society by inventing for life through world-class science.

#### RESOURCES

[Pipeline](#)

[Access to Health Statement of Guiding Principles](#)

We are committed to addressing unmet medical needs through innovative research and development (R&D). R&D expenses were \$10.2 billion in 2017, \$10.1 billion in 2016, and \$6.7 billion in 2015 (which included restructuring costs and acquisition- and divestiture-related costs in all years). The talent of our scientists, combined with scientific and technological advances that enable the rapid invention of expanding classes of therapeutics and higher resolution translational medicine studies, are transforming the way we conduct research.

Our pipeline programs are prioritized based on medical need, scientific opportunity and commercial potential.

We are committed to advancing the most promising research and clinical development strategies to bring forward new medicines and vaccines that will make a meaningful difference in patients' lives.

For instance, we are able to develop biomarkers—those characteristics that can be objectively measured and evaluated as indicators (or markers) of normal biologic processes, disease processes or responses to therapy. Since biomarkers provide critical information in the drug discovery and development processes, our intent is to apply them very early in the development of novel therapeutic candidates to enhance the efficiency of drug development by providing preliminary evidence of a drug candidate's potential benefit before proceeding with further research.

The use of biomarkers is one part of our integrated approach to drug development. Coupled with the application of novel quantitative approaches that harness the power of mathematical modeling to analyze preclinical experiments to inform our clinical trial designs, we can optimize the next phase of clinical trials and, importantly, make pivotal decisions earlier and more confidently, increasing productivity and the efficient use of our resources. By eliminating likely failures sooner and focusing on those mechanisms that appear more promising, we believe we can bring innovative products to patients faster and more efficiently, while still maintaining a rigorous focus on scientific excellence and patient safety.

We recognize that real-world evidence has an increasing role in how medicines and vaccines are developed and evaluated. Through the contributions of epidemiologists, health economists, health outcomes researchers, data specialists and health-policy researchers across our company, we strive to comprehensively assess the best available information on the value of our medicines and vaccines that we develop and commercialize.

## PEDIATRIC R&D

To address unmet clinical needs in children, we include pediatric development programs in the company's new drug and vaccine development strategies worldwide.

When appropriate, we will develop and seek approval for pediatric indications and develop age-specific formulations. We rely on an internal Pediatric Development Committee that pools pediatric expertise across disciplines and therapeutic areas to review and provide input into pediatric development strategies. The Committee serves as a Center of Excellence within our company to consult on pediatric development issues and key pediatric policy questions.

For example, ISENTRESS® (raltegravir), our integrase inhibitor, in combination with other antiretroviral agents, is approved for the treatment of HIV-1 infection in pediatric patients weighing at least 2 kg. In addition, EMEND® (aprepitant) capsules can now be used in patients 12 to 17 for the prevention of acute and delayed nausea and vomiting associated with cancer chemotherapy.

## Our Pipeline

We prioritize our R&D efforts on advancing candidates that we believe represent the next areas of breakthrough science that will make a difference and deliver value for patients, physicians and payers.

To develop important new products that improve the quality of life and satisfy customer needs, our company is poised where invention and the burden of disease meet. Our products and research priorities are aligned with the current and projected [global burden of disease](#) as defined by the World Health Organization (WHO), as well as with the increasing need for new therapies targeted at diseases such as cancer, HIV/AIDS, Alzheimer's disease and antibiotic-resistant infections, as well as in disease prevention through vaccine development.

[Our research pipeline](#) illustrates the progress of our R&D efforts. An update on our R&D activities can be found in our [Form 10K](#) or on our [corporate website](#).

## External Collaboration

We support academic and community-based physicians and researchers in expanding clinical and scientific knowledge, and in improving understanding of the appropriate use of our products.

Our Investigator Studies Program exemplifies our efforts to advance science and improve patient care. Through this program, we provide medicines, vaccines and/or funding for peer-reviewed research that is initiated, designed, implemented and sponsored by external investigators. This program fosters collaboration with researchers throughout the world who are active in emerging research areas of interest, and has established a track record for scientific exchange through presentations and the publication of findings in peer-reviewed journals.

We are active participants within the scientific community providing support to many professional associations, including the American Association for the Advancement of Science, the U.S. National Institutes of Health, the U.S. National Science Foundation (NSF), the World Medical Association and the Council for International Organizations of Medical Societies. In addition to promoting dialogue and the exchange of ideas in research, we sponsor research conferences—such as selected

Gordon Research Conferences, an international forum in which researchers discuss advances in biologic, chemical and physical science.

## PUBLIC-PRIVATE RESEARCH PARTNERSHIPS

We recognize that individuals or companies cannot successfully develop drugs single-handedly. Most cases of true innovation come from robust and honest collaboration among individuals and organizations with diverse backgrounds and capabilities, brought together by the idea of changing the course of human health.

As part of our R&D strategy, we pursue opportunities to establish external alliances that complement our internal research capabilities, including research collaborations and [licensing agreements](#) for preclinical and clinical therapeutic candidates that have the potential to drive both near- and long-term growth.

We recently expanded our agreement with Eiger BioPharmaceuticals (Eiger) to include the commercial and distribution rights for the treatment of Hutchinson-Gilford Progeria Syndrome, a rare and fatal genetic condition characterized by accelerated aging in children. Eiger will provide the investigational candidate lonafarnib for ongoing clinical trials and expanded access in Progeria and be responsible for any potential filing of an NDA for the Progeria indication based on The Progeria Research Foundation (PRF) data. Our company will not receive any milestone payments for the development of lonafarnib for the treatment of Progeria, and has waived royalty obligations from Eiger for a specified quantity of lonafarnib, estimated to supply the worldwide population of children with Progeria on an annual basis. Concurrently, Eiger announced that it has completed a [collaboration agreement](#) with PRF.

### Innovative Medicines Initiative—Accelerating Research

Within Europe, we participate in a number of Innovative Medicines Initiative (IMI/IMI2) projects. IMI, Europe's largest public-private initiative aiming to speed drug development and improve safety, supports collaborative research projects and builds networks of industrial and academic experts to boost pharmaceutical innovation.

## DRUG DISCOVERY COLLABORATIONS

One recently completed project, [DRIVE-AB](#) (Driving Re-investment in research and development for antibiotics and advocating their responsible use) brought together a consortium of 23 partners including pharmaceutical companies, academic institutions, and public health organizations, to develop new economic models and recommendations to promote antibiotic innovation and the sustainable use of the resulting, novel antibiotics.

[ADAPT SMART](#) (Accelerated Development of Appropriate Patients Therapies, a Sustainable, Multi-stakeholder Approach from Research to Treatment-outcomes), is another project that we recently concluded. ADAPT SMART is an enabling platform for the coordination of Medicines Adaptive Pathways to Patients (MAPPs) activities. MAPPs seeks to foster access to beneficial treatments for the right patient groups with high unmet medical needs at the earliest appropriate time in the product life-span in a sustainable fashion. A key component of MAPPs is stakeholder collaboration throughout development and market access in an iterative manner. We recently started a new project called [PARADIGM](#) that is co-led by the European Patients' Forum and Industry and aims to advance meaningful patient engagement in the life cycle of medicines for better health outcomes.

## BIOMARKER COLLABORATIONS

### Accelerating Medicines Partnership—New Diagnostics & Therapies

We are a member of the [Accelerating Medicines Partnership](#), a venture among the National Institutes of Health, 10 biopharmaceutical companies and several nonprofit organizations to transform the current model for developing new diagnostics and treatments by jointly identifying and validating promising biological targets of disease. The ultimate goal is

to increase the number of new diagnostics and therapies for patients and reduce the time and cost of developing them.

#### **Biomarkers Consortium—Biomarker-Based Technologies**

The Biomarkers Consortium, in which we participate, is a public-private biomedical research partnership managed by the [Foundation for the National Institutes of Health \(FNIH\)](#). To date, the Biomarkers Consortium has launched 10 projects in areas as diverse as Alzheimer's disease, cardiovascular disease, osteoporosis and breast cancer. A number of other promising projects are also moving toward implementation. Our company contributes to a number of FNIH projects within this consortium.

#### **Multi-Regional Clinical Trials Center of Brigham and Women's Hospital and Harvard**

We are a participating member of the [Harvard Multi-Regional Clinical Trials \(MRCT\) Center](#). The MRCT Center develops guidance, training resources and tools that promote safe and ethical clinical trials. We perform our work by convening representatives from industry, not-for-profit organizations and academia, as well as investigators, patients and patient advocacy groups, to create practical resources for the ethical design and conduct of multiregional clinical trials.

The MRCT has been working with global leaders to promote regulatory convergence and internationally accepted best practices; developing guidance and tools to promote safe and ethical trials; and training regulatory and clinical trial professionals with a particular focus on low- and middle-income countries. New programs focus on increasing diversity in clinical trial enrollment and study conduct, and a project to evaluate the utility and limitations of observational data.

#### **National Institutes of Health Alzheimer's Disease Neuroimaging Initiative**

We continue to participate in the [National Institutes of Health Alzheimer's Disease Neuroimaging Initiative \(ADNI\)](#), the largest public-private partnership in Alzheimer's disease research. This study, which is designed to gain new insights into the onset and progression of Alzheimer's disease, has now expanded to ADNI3, with the goal of improving clinical trial design and aiding drug development. ADNI3 will seek to identify and track early changes in the brain before the onset of Alzheimer's symptoms by using imaging techniques, including the newly developed tau PET ligands, and biomarker measures in blood and cerebrospinal fluid.

#### **Predictive Safety Testing Consortium—Safety-Testing Methods**

We are a member of the [Predictive Safety Testing Consortium \(PSTC\)](#), a unique public-private partnership led by the nonprofit Critical Path Institute (C-Path). The PSTC brings together pharmaceutical companies to share and validate their safety-testing methods under the advisement of the U.S. Food and Drug Administration (FDA) and the European Medicines Agency (EMA).

The 18 corporate members of the consortium share internal experiences with preclinical and clinical safety biomarkers in kidney, liver, skeletal muscle, testicular toxicity, vascular injury and cardiac hypertrophy. All biomarker research programs have a strong translational focus to select new safety tools that are applicable across the drug-development spectrum. Advancing the science and use of biomarkers in drug development is a critical area of focus for our company.

The following are notable PSTC achievements:

- The FDA and EMA qualified seven new urine tests that signal kidney injury
- The PSTC opened a biomarker-qualification process with the FDA for new biomarkers of drug-induced liver and skeletal muscle injury
- The Japanese Pharmaceuticals and Medical Devices Agency qualified new biomarker laboratory tests that signal kidney injury

## **CLINICAL COLLABORATIONS**

#### **Clinical Trials Transformation Initiative/Duke University—FDA**

We continue to focus efforts on improving the way in which clinical trials are recruited and conducted. To further those efforts, we are an active member of the [Clinical Trials Transformation Initiative \(CTTI\)](#), a public-private partnership led by FDA and the Duke Clinical Research Institute. CTTI works with industry and academic partners to identify and promote practices that will increase the quality and efficiency of clinical trials, and will foster a high-quality clinical trial system that is patient-centered and efficient, enabling reliable and timely access to evidence-based prevention and treatment options.

Recent CTTI projects have focused on patient-informed consent processes and standards, Investigational New Drug safety reporting and on best practices for Data Monitoring Committees.

We remain committed to developing partnerships and ideas to help improve care and access to medicines around the world. [Read more](#) about Business Development & Licensing.

## INDUSTRY CONSORTIA

We also collaborate with external researchers and other members of the biopharmaceutical industry through participation in selected scientific consortia. Consortia are an important mechanism by which researchers can work together in a precompetitive manner to address complex scientific challenges common to all parties.

### **TransCelerate BioPharma Inc.**

We are an active member of [TransCelerate BioPharma Inc.](#) (TransCelerate). TransCelerate is a nonprofit organization with the mission to collaborate across the global biopharmaceutical research and development community to identify, prioritize, design and facilitate implementation of solutions designed to drive the efficient, effective, and high-quality delivery of new medicines.

TransCelerate works in three strategic priority areas: Improving the Patient and Site Experience, Harmonizing Process & Sharing Information, and Enhancing Sponsor Efficiencies & Drug Safety. Our colleagues contribute across all strategic priority areas in a broad range of responsibilities. These include serving on the Board of Directors, Oversight Committee and Pharmacovigilance Steering Committee, as well as both leading and contributing roles within the portfolio of projects.

## Compliance

The stated objective of the Compliance Committee Charter within our research laboratories is to ensure ongoing compliance with applicable laws and requirements in all business areas through appropriate management structure, processes and training.

In order to manage compliance, the Compliance Committee is composed of members of the Research Leadership Team. As a result, compliance efforts encompass the entire division and go beyond simply addressing the conduct of clinical trials.

The Compliance Committee also promotes ethical science and provides guidance to our employees within the research organization on our company's standards and corporate policies, as well as necessary education related to specific requirements applicable to the research community.

## Performance

RESEARCH & DEVELOPMENT	2013	2014	2015	2016	2017
Research and development expenses (in billions)	\$7.5	\$7.2	\$6.7	\$10.1	\$10.2
Employees involved in research activities	12,300	11,400	11,900	12,300	12,700
New products approved <sup>1</sup>	0	7	2	3	4
Products in the pipeline and under regulatory review	35	33	31	39	26
Top 20 global burdens of illness addressed by our products and pipeline <sup>2</sup>	88%	88%	88%	88%	88%
Established significant external licenses and collaborations	40	35	64	57	55
Filed U.S. patent applications	159	125	185	195	190

1. Candidates in our company's research pipeline or under regulatory review as reported in the United States Securities and Exchange Commission Form 10-K, page 6-7, filed on February 27, 2018. Approval of new products only. This does not include approvals for supplemental indications. When candidates attain regulatory approval they are removed from this pipeline view.

2. As defined by the Institute for Health Metrics and Evaluation (IHME) using GBD2015 data.



We recognize that when people take our medicines and vaccines they must have confidence in their efficacy and safety.

Our company's medicines and vaccines are widely tested before they are approved for marketing. This testing is governed by a comprehensive regulatory scheme and by our research policies. We assess the safety of our products in rigorous nonclinical and clinical trials before marketing them. Following approval of our drugs, vaccines or devices, the company continues to monitor their safety profiles. [Learn more](#) about our clinical trials.

Our company's chief medical officer holds overall responsibility for the benefit/risk of our pipeline and marketed products, provides medical oversight for all clinical programs, supervises the development and implementation of medical policies (including those related to data transparency and the sharing of clinical data), and has responsibility for the design, execution and implementation of pre-registration expanded access ("compassionate use") programs.

Our company's Global Clinical Safety and Pharmacovigilance function manages a global system for the collection, review and reporting of adverse experience (AE) reports received by our company worldwide, and for the continuous assessment of product safety. Our company's chief safety officer holds overall responsibility for the safety of our products.

## MONITORING & QUALITY ASSURANCE

MRL Quality Assurance (QA) provides independent oversight to assure subject safety and research integrity throughout the drug development life cycle. The scope of the MRL QA oversight function includes Animal Welfare, Clinical Supply, Good Laboratory Practices (GLP), Good Clinical Practices (GCP), Good Pharmacovigilance Practice (GVP), Technology Vendor and Processes (TVP) and Global Medical Affairs (GMA).

MRL QA is also responsible for creating and carrying out a comprehensive, risk- based audit strategy that encompasses a broad range of assessments including, but not limited to, clinical investigator sites, country operations, third-party vendors and business partners, computerized systems and technology, and internal process/system audits.

MRL QA is responsible for monitoring and maintaining the MRL Quality Management System, which includes assessing the strength of our company's pharmacovigilance system.

## CLINICAL SAFETY & RISK MANAGEMENT

Clinical Safety and Risk Management (CSR) leads the Risk Management & Safety teams for all products, from the beginning of Phase IIb through the end of the product life cycle. CSR is responsible for the development of a proactive

clinical safety risk-management strategy, including the Risk Management Plan, which is a regulatory requirement in many countries for marketed drugs and vaccines.

Development of the overall risk-management strategy incorporates all available internal information (e.g., basic research data and animal and human studies with the product and/or related products) and external information (e.g., literature and public data related to the class of drugs and/or therapeutic target) that contribute to the overall risk-benefit assessment of the product. The strategy focuses on activities needed to identify, evaluate and manage potential patient-safety risks. The Risk Management & Safety teams address patient safety using product labeling, physician and patient educational programs, and other risk-minimization strategies, as appropriate. The Risk Management & Safety teams also implement strategies to determine the effectiveness of these interventions, as appropriate.

**SafetyMatters Initiative:** The goal of our company's SafetyMatters Initiative is to explore and implement the appropriate use of emerging technologies and methods for the identification and evaluation of health outcomes of interest (HOIs), and to further improve post-licensure monitoring and evaluation of our marketed products. A cornerstone of SafetyMatters is the proactive development and utilization, as needed, of disease cohorts (i.e., groups of patients identified as having specific conditions of interest) based on data contained in large medical claims and electronic health-record databases licensed by our company.

As of May 1, 2018, our company's Pharmacoepidemiology and Database Research Unit had successfully created and utilized 30 SafetyMatters disease cohorts in 18 product-specific areas. The proactive development of these cohorts greatly facilitates our ability to effectively and promptly respond to many internal or external inquiries about the epidemiology of these diseases and their treatment.

**Product label reviews:** The ongoing oversight and monitoring of our product labels are a major focus of our safety efforts. Our label review teams monitor information on our products and work with our product Risk Management & Safety teams to develop or update product labeling. We communicate relevant information regularly to regulatory agencies worldwide.

**Innovation in Medical Evidence Development and Surveillance (IMEDS):** The IMEDS program is a public-private partnership within the Reagan-Udall Foundation for the Food and Drug Administration (FDA). The aims of IMEDS are to advance the science and tools necessary to support post-marketing evidence generation on regulated products, including safety surveillance and evaluations, and to facilitate the utilization of a robust secondary electronic health care data platform for generating better evidence on the safety and effectiveness of regulated products in post-market settings. Partners in IMEDS include the FDA, pharmaceutical companies, academia and patient organizations.

Our company supports IMEDS by providing an annual grant as a founding member to support its mission as well as through representation on the Scientific Advisory Committee of IMEDS. In 2018, we signed a Confidential Disclosure Agreement (CDA) with IMEDS to explore the use of the FDA Sentinel Data System for a safety study. We will continue to explore synergies and linkages between IMEDS and our own SafetyMatters Initiative to establish standards for the use of modern epidemiology data sources and analytic techniques for evaluating product safety in observational claims and electronic health-record databases.

## PRODUCT SAFETY

We rigorously study our products, and work with regulators and health care professionals over many years to characterize their safety profiles. Initially, test compounds are evaluated in the laboratory. If they pass stringent laboratory tests, the compounds move into [next-stage testing in animals](#). Only a few compounds ever make it that far. If the compound makes it through the animal-testing stage, we then begin [clinical development](#), during which multiple studies are conducted over several years.

Clinical testing initially involves the detailed analysis of the effects of a test compound in small numbers of people including evaluation of dose levels. In subsequent trials, the safety and efficacy of a therapeutic candidate are rigorously evaluated in increasingly large clinical studies. If the clinical studies provide evidence of benefit, we submit extensive documentation and data to regulators in a product-licensing application. Before approving a

medicine or vaccine for use, regulators scrutinize these extensive data and analyses. Active safety monitoring of our products continues after approval, including through post-marketing studies. If we identify safety issues following a product's approval, we work closely with the regulatory authorities to communicate promptly and appropriately with health care professionals and patients.

## COMMUNICATING ABOUT PRODUCT RISKS

The information leaflets in our product packaging contain information on possible side effects and, if appropriate, how to avoid some potential problems. We include contact details on our corporate website for patients, caregivers and health professionals to report adverse experiences in the United States. Outside the United States, adverse events are reported in accordance with global and any additional local laws and practices.

Depending on label changes and their context, we may determine, in consultation with regulatory agencies, that more extensive communications are appropriate. In such cases, we work with regulatory authorities to contact health care professionals in a timely manner, so that they can communicate these findings to patients through appropriate mechanisms. Contacting health care professionals might include "Dear Health Care Provider" letters and media releases.

## Adverse Experience Reporting

Global Pharmacovigilance manages a global system for the collection, evaluation and reporting of adverse experience (AE) reports received by our company worldwide.

Although regulations vary by country, most countries require drug manufacturers to promptly review AE information they receive from any source, domestic or foreign, relating to the use of their products. Manufacturers are also required to have written procedures in place for evaluating and reporting adverse experiences.

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### REPORTING AN "ADVERSE EXPERIENCE" IN THE U.S.

To speak with one of our health care professionals about our company's products, or to report an adverse experience with a specific product, please call our company's National Service Center at 800-444-2080 in the U.S. The Center can assist you Monday through Friday from 8 a.m. to 7 p.m., Eastern Time.

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In accordance with global regulatory reporting requirements, we have a written procedure and associated training to provide personnel worldwide (including all contractors) with a consistent and thorough process for identifying and reporting AEs occurring in association with the use of our products. Additional detail is provided in procedures covering the reporting of AEs originating in clinical studies and those associated with the use of marketed products, and the analysis of

these events for safety issues. Adherence to these procedures ensures timely and accurate monitoring of the safety profile of our investigational and marketed products globally.

In addition to the submission of individual AE reports to regulatory authorities in accordance with global and local timelines, we also produce both development and post-marketing aggregate safety reports as required by global regulations or local regulatory authorities, for as long as we develop and market a product, for submission to regulatory authorities.

Our Risk Management & Safety teams review adverse experience information received from all sources (foreign or domestic, clinical trials or published literature, or post-marketing) for our products and determine what actions may need to be taken with reference to the evolving safety profile of those products. These teams include physicians and epidemiologists who are trained to review this type of data.

It can be difficult to determine the exact cause of an adverse experience because many patients have more than one condition and may be taking multiple products. Our Global Pharmacovigilance staff takes great care to make sure that AE reporting is as accurate as possible. We review the data to determine if there are any patterns or emerging trends that need additional surveillance or action.

Employees responsible for reporting and monitoring adverse experiences undergo rigorous training. New employees within our research laboratories and Human Health division, including all contract personnel, undergo training on our AE policies when they join the company and annually thereafter. Individuals dealing with clinical research and safety analysis and communication undergo further specialized training. All other employees are trained in AE reporting procedures as part of our [Code of Conduct](#) training.



## Clinical Research

We conduct clinical trials worldwide to evaluate the safety and efficacy of our products.

### RESOURCES

[Public Policy Position Statement: Clinical Trial Ethics](#)  
[Clinical Trials Website](#)

These trials are fundamental to the development of innovative medicines and vaccines that treat and prevent illness in humans.

Pharmacokinetics refers to what the body does to the drug, while pharmacodynamics refers to what the drug does to the body. If initial testing of these is favorable, additional, larger studies are initiated to determine the effectiveness of an investigational compound in the affected population, to define appropriate dosing for the compound and to identify any adverse effects that could limit the compound's usefulness.

If data from the Phase II trials are satisfactory, companies will invest in large-scale Phase III trials to rigorously evaluate the compound's safety and efficacy. Upon satisfactory completion of those trials, companies submit regulatory filings for marketing approval with the appropriate regulatory agencies around the world to have the product candidate approved for marketing.

In accordance with our [public policy position statement](#), all investigational studies in human subjects are conducted in a manner consistent with laws, regulations and guidelines for the protection of human subjects, including those issued by the [International Conference on Harmonisation Good Clinical Practice \(ICH GCP\)](#). However, individual country regulations and guidelines should remain the primary determinant of specific requirements for the conduct of medical research.

In keeping with the trend in the pharmaceutical industry, significantly more than half of the patients participating in our clinical trials are enrolled outside the U.S., in more than 50 countries. We have a commitment, where appropriate, to the study of diverse patient populations, including minorities, women and children, in our clinical trials in all regions of the world. As a result, we strive to obtain information among diverse populations, ensuring a thorough evaluation of the safety and efficacy of our medicines and vaccines. These efforts allow us to seek regulatory approvals throughout the world and thereby offer our medicines globally to patients who need them.

## Clinical Trials

Our company is committed to the timely registration of clinical trial information and the disclosure of trial results—regardless of their outcome.

We comply with all applicable laws and regulations associated with the registration of clinical trials in publicly accessible registries and subsequent posting of the results from these trials. We have put into place the processes necessary for compliance with the Food and Drug Administration Amendments Act of 2007 and the European clinical trial Directive 2001/20/EC, including those related to clinical trial registration and posting results.

Registration provides patients and physicians with information about clinical trials that are open and are recruiting patients. The registration of trials and posting of results after trials are completed enable medical researchers to have timely information about our medicines and vaccines.

## CLINICAL TRIAL REGISTRATION

We believe that clinical trial registries serve an important function for patients and their health care providers by enabling them to learn about and gain access to relevant clinical trials of experimental treatments or preventive agents. We continually assess changing global requirements for clinical trial registration, and update our clinical processes and practices to make sure the company is compliant with them.

For those who analyze, report or publish the results of clinical trials, a clinical trial registry also provides information on trials in progress and the ability to track such trials over the course of development. We register clinical trials in patients of investigational and marketed products, in which treatment is assigned, that we sponsor and conduct on [www.clinicaltrials.gov](http://www.clinicaltrials.gov), [www.clinicaltrialsregister.eu](http://www.clinicaltrialsregister.eu) and [www.encepp.eu](http://www.encepp.eu) at trial initiation.

For our position on clinical trial registries, [click here](#).

## DISCLOSURE OF CLINICAL TRIAL RESULTS

Our company has long been committed to sharing the results of our clinical trials, regardless of their outcome, in a timely manner. If a clinical trial of a marketed product is terminated early for safety reasons, we will promptly disclose medically important information to regulatory authorities and the public, update the status on [clinicaltrials.gov](http://clinicaltrials.gov) within 30 days, and submit a manuscript to a journal (or post a summary online) within 12 months after the last patient's last visit occurs. If the trial was terminated for efficacy reasons, the results will be disclosed within 12 months after the last patient's last visit occurs. Summaries of terminated trials will provide information about patient disposition, safety and adverse experiences, as well as an explanation as to why the trial was terminated early.

For many years, our company has been committed to publishing the results of hypothesis-testing trials in the peer-reviewed medical literature. Our [Publication Guidelines](#) have been in place since 2003 and are posted online, with periodic updates to incorporate any changes in good publication practices for industry-sponsored clinical trials. These guidelines describe our commitment to publishing complete, balanced and accurate information about the results of our registered clinical trials, regardless of their outcome.

How we work with external investigators in order for our clinical trials to produce high-quality manuscripts is also outlined in our Publication Guidelines. We adhere to the [International Committee of Medical Journal Editors \(ICMJE\)](#) recommendations for authorship, requiring that authors meet all of the following criteria:

- Make substantial contributions to study conception and design, or to acquisition, analysis, or interpretation of data for the work
- Draft the article or revise it critically for important intellectual content
- Give final approval of the version to be published
- Be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Our company adheres to the authorship criteria of respected biomedical journals if their criteria differ from those of the

ICMJE. In addition, individuals who do not meet the criteria for authorship, but who provide support, are recognized in acknowledgments when the manuscript is published. Our staff or the contract writers we hire may facilitate the development of a manuscript when the lead author provides oversight and direction; the efforts of the writers will then be acknowledged in the publication.

Our company also adheres to ICMJE or journal-specific guidelines for disclosure of potential conflicts of interest, including both financial and nonfinancial conflicts, for the full author team. Our Protocol Transparency Initiative, a voluntary practice of providing the clinical study protocol to biomedical journals upon submission of a manuscript reporting clinical trial results, allows journal editors and peer reviewers to use this protocol in their evaluation of the manuscript for publication. If the journal accepts the manuscript, we then allow the journal—at its sole discretion—to post key sections of the protocol on its website when the manuscript is published.

## ACCESS TO OUR CLINICAL TRIAL DATA

In addition to disclosing the results of clinical trials, we respond to requests from external researchers to share our clinical trial data. We have multiple clinical trial databases that are of high value to the external clinical research community. We evaluate each request based on criteria that balance the need to advance science with the need to protect intellectual property and confidential information. Our evaluations comply with applicable privacy and data-protection laws, rules and regulations. We are committed to the [PhRMA/EFPIA Principles for Responsible Clinical Trial Data Sharing](#).

Learn more about our policies and perspectives on data sharing:

- [Procedure on Access to Clinical Trial Data](#)
- [Procedure on CSR Synopsis Posting](#)
- [External Scientific Review Board \(ESRB\) Charter](#)

Scientific and medical researchers who wish to submit a proposal for access to our data may send an inquiry by clicking [here](#).

## Clinical Trial Design

All of our clinical trials are designed, conducted and monitored in accordance with the same global standards, whether they take place in the U.S. or elsewhere around the world.

We consider many factors when we design a clinical trial:

- **Our questions and objectives:** Clinical study designs vary according to the specific objectives of the study. For example, the design of a study to assess the efficacy of a medicine in treating a particular condition is different from that of one seeking to determine the optimal dose of a medicine in a particular group of people.
- **Statistical appropriateness and feasibility of conducting the study:** To make sure that trial results are statistically meaningful, it is necessary before the trial begins to determine the number of patients needed to participate. It is also necessary to assess the feasibility of successfully conducting the trial.
- **Acceptability of the trial design by regulatory agencies:** When necessary, our Research Laboratories consult with regulatory agencies on design issues
- **Ethical perspectives:** We enable patient diversity in our clinical trials to broaden the knowledge of the safety and efficacy of a new drug across different patient populations

All of our company studies, regardless of the study design, use a standard format:

- The study objectives and endpoints (i.e., measurements) must be clearly stated before the study begins
- The hypothesis or scientific question being asked by the study must be clearly defined
- A plan for the analysis of the data must be developed before the trial begins, and finalized before the trial is completed

The benefits of this format include strengthening the scientific credibility and regulatory acceptability of the results, and ensuring the timely data analysis and publication of results.

## CLINICAL TRIAL SITE MONITORING DESIGN, CONDUCT AND OVERSIGHT

In addition to complying with our company's global standards, the conduct of our clinical trials adheres to the [International Conference on Harmonisation Good Clinical Practice \(ICH GCP\)](#) standards and to the principles that have their origin in the Declaration of Helsinki.

We seek input from local clinical investigators and external consultants with specific, relevant experience when designing our clinical trials. For clinical trials in Phase II, studies are monitored on an ongoing basis by the clinical director and study team; when appropriate, an internal standing data-monitoring committee (DMC) of MRL senior managers reviews unblinded data from ongoing trials in a pre-specified, scientifically acceptable manner. The goals of the DMC are to protect the safety of trial participants and assess whether the risk-benefit profile is favorable. The DMC's recommendations are communicated internally to relevant scientists and can be distributed externally to clinical investigators, review boards or regulatory agencies, as appropriate.

For all Phase III and other clinical trials intended to support registration, studies are monitored by the clinical director and study team. In addition, if unblinded data will need to be monitored to ensure patient safety or to make decisions about continuing a study, a DMC composed of external experts independent of our company is assembled to review and make recommendations to us about the further conduct of the study.

In addition, it is our policy to establish scientific advisory committees composed of both external scientific leaders and our own scientists. With the participation of these committees, we can obtain expert advice on the design of a trial, provide for transparent review and discussion of data, and foster a collaborative approach to the publication and presentation of findings. We also have established a companywide, global approach for assessing clinical safety by implementing internal organ-specific safety boards to support the evaluation and management of organ-specific safety issues.

All protocols and related documents are reviewed and approved by external and independent Institutional Review Boards (IRBs) or Ethical Review Committees (ERCs). We require assurance that patients involved in trials, and/or their legal representatives, understand the procedures and the use and disclosure of personal health information, the use of biological samples and the risks/benefits involved in a clinical study. A consent form, approved by both our company and the IRB/ERC and translated into a language familiar to the study subject, must be carefully reviewed and signed by all participants to document that their participation in the study is voluntary and informed.

Informed consent is obtained prior to the initiation of any clinical study procedures, including those performed solely to determine eligibility for participation in the trial. In accordance with General Data Protection Regulation (GDPR) requirements, patients are also permitted to withdraw consent at any time and their information is then discarded. In circumstances in which patients receive payment or reimbursement for trial participation, the compensation is appropriate for the cost and inconvenience incurred and is clearly outlined in the consent form for full transparency. The consent procedures conform to applicable legal statutes and government regulations concerning research in human subjects and the privacy and security of medical information. If a prospective study participant cannot read the consent form, a patient advocate may read it, with consent documented and witnessed.

In accordance with ICH GCP guidelines, trial sponsors should appoint clinical trial monitors who are trained to monitor the trial adequately. Accordingly, ICH GCP training is mandatory for all of our clinical research associates (CRAs) who monitor clinical trials, as well as for all contract research organizations (CROs) that monitor clinical trials on behalf of our company.

CRAs monitoring on behalf of our company will visit sites throughout the study to ensure that:

- The principal investigator and site staff are qualified and have adequate facilities and equipment to conduct clinical research throughout the duration of the study
- Site staff are adequately trained on the protocol, procedures and equipment
- Site staff adhere to protocol requirements, sponsor's development procedures (DPs) and ICH guidelines
- Clinical supplies are stored and dispensed, per protocol
- Regulatory file documents are accurate and maintained per ICH guidelines and sponsor's DPs
- Source documentation, including drug accountability logs, is maintained per ALCOA (Attributable, Legible, Contemporaneous, Original and Accurate) guidelines
- Subject safety is maintained through review of source documentation, including drug accountability logs
- Data reported to the sponsor are accurate and reported per sponsor requirements

## PROTECTING PERSONAL HEALTH INFORMATION

We are a member of the [International Pharmaceutical Privacy Consortium \(IPPC\)](#), an association of research-based pharmaceutical companies formed in 2002 that has worldwide responsibility for the protection of personal health information and other types of personal data. We have been actively involved in the IPPC since 2006, in order to engage in a constructive dialogue with European data-protection authorities and other regulators on privacy standards for biomedical research.

## CONTRACT RESEARCH ORGANIZATIONS

Our company's primary clinical trial operating model includes the use of clinical research organizations (CROs) on a limited basis. The use of CROs is generally reserved for circumstances such as:

- A company acquisition that includes clinical trial work already outsourced to CROs
- Clinical trial work that requires a large, rapid and global deployment of resources for a finite period of time
- A need for access to development markets that fall outside our company's own development footprint
- Therapeutic indications that draw on a CRO's specific development expertise in areas where our company does not have specific development execution experience (this is infrequent, given our breadth and depth)

When engaging a CRO, we perform rigorous capability assessments to ensure that the CRO has procedures, infrastructure and expertise that are adequate to ensure compliance with Good Clinical Practice (GCP) standards, and are aligned with our own [Code of Conduct](#).

Due diligence is performed and the appropriate remediation (if any) activities are implemented on CROs previously working for a company that is then acquired by our company. Clinical trial teams within our company oversee the studies being run by CROs, and periodic audits are performed on CROs with which we do business. If and when we identify violations of the contract or GCP standards, we work with the CRO on a corrective action plan.

If improvements are not made within a defined period of time, or if repeat violations are noted and unsatisfactorily remediated, we will limit and possibly cease future award opportunities with the CRO until the issues have been fully remediated. Importantly, our expectations of the performance of CROs we engage with are no different from the expectations we have of our internally managed projects.

## Post-Marketing

We regularly monitor the effectiveness and safety profiles of our marketed products and conduct formal post-marketing studies to evaluate signals of serious safety concerns about our products, including those requested by regulatory agencies.

We conduct several types of studies after approval, as appropriate:

- **Commitments to regulatory authorities:** For some products, regulatory authorities require companies to conduct additional interventional or non-interventional studies after the product is approved. A study could be required for multiple reasons, such as obtaining further information on the safety of the product. We work closely with regulatory authorities to design a study that will fulfill the specific requirement.
- **Epidemiological studies:** We have a long history of working closely with external experts in pharmacoepidemiology to understand the types of patients utilizing our products, as well as to examine the effectiveness and safety profiles of many of our marketed products as they are used in clinical practice in health care systems based in several different populations
- **Pregnancy registries:** For some products, we have systems of active data collection that can facilitate the early detection of teratogenicity, or interactions that alter normal embryonic development, and other serious adverse experiences in patients who, inadvertently or purposefully, use a particular drug during pregnancy. Useful information about the effects of exposure in pregnancy can best be obtained by the careful collection and analysis of post-marketing surveillance data. Reports of the aggregate data in each registry are updated annually and shared with regulatory authorities.

### POST-MARKETING SAFETY STUDIES

We monitor the use and safety of our products, and we have a long history of conducting post-marketing safety studies to examine our products as they are used in clinical practice.

We also work closely with external experts in pharmacoepidemiology and drug utilization to examine the utilization and safety of our marketed products as they are used in health care systems based in several populations. These include Kaiser-Permanente (KP) Southern California, KP Northern California, UnitedHealthcare, Pennsylvania and New Jersey Medicare, Harvard Pilgrim Health Care, Nordic Country Registries, the Clinical Practice Research Database, and Mayo Clinic Olmsted County, Minnesota.

To see select post-marketing safety studies, please [click here](#).

## Performance

NUMBER OF NEW PRODUCT & DEVICE REGISTRATIONS	2013	2014	2015	2016	2017
Asia Pacific	39	31	43	38	34
Central & Eastern Europe, Middle East & Africa	60	63	49	54	55
European Economic Area	28	22	22	8	11
The Americas	50	52	39	40	39
United States	2	8	3	3	4

GCP/PV INSPECTIONS <sup>1</sup>	2013	2014	2015	2016	2017
GCP/PV inspections by regulatory agencies of the company or clinical trial investigators that led to significant fines, penalties, warning letters or product seizures	-	0	0	-	0

1. Complete response letter received for Sugammadex (MK-8616) in 2013; complete response letter received for Januvia (sitagliptin; MK-0431) in 2016.

PHASE II-V CLINICAL TRIALS PATIENTS BY REGION	2013	2014	2015	2016	2017
Asia Pacific	35%	49%	21%	25%	15%
Central & Eastern Europe, Middle East & Africa	8%	7%	7%	12%	7%
European Economic Area	33%	21%	22%	36%	43%
The Americas	10%	7%	5%	10%	6%
United States	14%	16%	46%	17%	29%

TRIAL DISCLOSURE ACTIVITIES	2013	2014	2015	2016	2017
Manuscripts of clinical trial results and related papers submitted to peer-reviewed journals	137	146	216	152	133
Number of GCP/PV inspections conducted by regulatory agencies worldwide	149	99	119	103	128



Laboratory animal research is indispensable to the discovery and development of innovative medicines that treat and prevent disease.

Our company is dedicated to the ethical and responsible treatment of all animals used in the development of medicines and vaccines. Decisions regarding animal care, use and welfare are made by balancing scientific knowledge and regulatory requirements with consideration of ethical and societal values.

It is important to note that a large variety of nonanimal (in vitro, or test tube) studies are performed at our company prior to or instead of animal studies. Research animals are used only to address important scientific questions or to fulfill a regulatory requirement. Animals involved in research within our company's research laboratories are all bred specifically for research purposes.

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To promote our commitment, we subscribe to the 3 Rs—replacement, reduction and refinement—for animal-based research.

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The care and use of laboratory animals in biomedical research is highly regulated. In general, the regulations govern housing, feeding, veterinary care and research project review conducted by the Institutional Animal Care and Use Committee (IACUC)/Ethical Review Committee (ERC), as well as unannounced government inspections. Our animal facilities are staffed with veterinarians and animal care technicians trained and certified as research animal experts. In our research laboratories, 96 percent of the research animals are rodents.

## ANIMAL RESEARCH OVERSIGHT

Animal research is highly regulated and monitored by health authorities. Internally, it is the focus of our Quality Assurance (QA) Animal Welfare department, which includes a comprehensive, risk-based audit and oversight program designed to ensure that the Animal Care and Use Program at each research site meets relevant local standards and is in compliance with all applicable legal requirements covering animal research.

Additionally, all relevant sites have active and engaged IACUCs or ERCs who review, approve and monitor research studies. The committee membership includes veterinarians and scientists knowledgeable in animal-based research and, often, nonscientists and community members. Committees review proposed animal studies and animal care facilities and

investigate, as appropriate, any research-animal welfare concerns. The IACUCs/ERCs regularly communicate with and provide status reports to our company's institutional officials regarding animal welfare compliance.

For some diseases, genetically modified (transgenic) animals are important to model disease processes and are a powerful tool in our company's search for treatments and cures. We are responsible for ensuring that all recombinant DNA research conducted at or sponsored by our company is compliant with the National Institutes of Health (NIH) Guidelines for Research Involving Recombinant DNA. This includes oversight by institutional biosafety committees and such work is always conducted in accordance with local laws and regulations.

Global policies and guidelines governing appropriate animal research practices are in place and are kept up to date. These standards for the care and use of animals in studies meet or exceed applicable local, national and international laws and regulations.

U.S. regulations and annual inspection results can be found [here](#).

The European Directive 2010/63/EU can be found [here](#).

As further evidence of our commitment to the highest level of animal care, our research sites voluntarily secure a third-party review and accreditation of our animal research programs and facilities by the [Association for Assessment and Accreditation of Laboratory Animal Care International \(AAALAC International\)](#), an external, independent organization.

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**As of the end of 2017, all of our MRL research facilities are accredited by AAALAC International.**

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Our scientists whose work involves research animals are trained to perform the duties required. Training includes review of regulations and policies, instruction on how to search for animal research alternatives, explanation of the role of the IACUCs/ERCs and training on how to raise concerns about misconduct. Qualified veterinarians work with the scientific staff to consult on and assist with all animal-related research projects. Our company places a high value on its animal welfare stewardship responsibility; violation of these policies is grounds for employee disciplinary action, up to and including dismissal.

## **CONTRACT RESEARCH**

All agreements with contract laboratories include terms regarding our company's expectations for animal care and use as well as regulatory compliance. We perform due diligence on and monitor contract laboratories that perform animal studies on our behalf to ensure that our company's expectations for animal care and use, and regulatory compliance are met. Additionally, animal research conducted at contract laboratories is subject to protocol review by our IACUC/ERC or an equivalent committee. Noncompliance with regulations or standards can lead to termination of the relationship.

## **SUPPORT FOR ANIMAL SCIENCE AND RESEARCH ANIMAL WELL-BEING**

We advocate for the development of best practices and dissemination of information by supporting and participating with nongovernmental organizations to foster a greater understanding of biomedical research, advancements in research-animal science and the development of alternatives to animal use.

## REPLACEMENT, REDUCTION AND REFINEMENT

We are committed to the philosophy of using the best scientific methodologies and animal alternatives whenever possible or permissible by law. To promote this commitment, we subscribe to the 3 Rs—replacement, reduction and refinement—for animal-based research.

**Replacement**—using nonanimal systems or less-sentient species (e.g., cell cultures, computer modeling, bacterial assays, and fly or worm models). Our scientists have access to specialized software that searches the scientific literature for viable alternatives to animal research. In addition, the company employs information specialists in our research library, trained by the Animal Welfare Information Center of the U.S. National Agricultural Library, to assist our scientists in identifying potential animal alternatives. We also have extensive in vitro expertise and investments, including an in vitro department that develops and utilizes nonanimal research methods (cell cultures) in the discovery and development of new medicines and therapies, and experts in computer modeling and simulation.

**Reduction**—using the minimum number of research animals necessary to obtain valid scientific data. Sophisticated animal models that yield precise data, such as telemetric monitoring models that monitor ECG and blood pressure, reduce the number of animals needed. In addition to state-of-the-art data collection and sharing systems, we have statisticians on staff who advise on study design and analysis in order to minimize the number of animals included in a study.

**Refinement**—minimizing distress or discomfort. Our scientists conduct extensive literature reviews to choose the best scientific models and design the most effective studies. When animals are required for a study, anesthetics, analgesics and tranquilizers are used whenever possible to minimize or eliminate potential pain or distress.

Our company's Animal Welfare group collects, promotes and internally disseminates information on the principles and practice of the 3 Rs. Training on the 3 Rs is part of staff orientation for animal research. It is our responsibility to use the most appropriate methodology and to aggressively seek scientifically valid 3-R approaches to animal research. As an example of the third R, refinement, we have created a world-class imaging department that allows scientists to view cancers and other pathologic diseases in animals and monitor the long-term effectiveness of new treatments in a noninvasive manner. In addition, we have voluntarily made the decision not to use chimpanzees (nor to fund their use directly or indirectly in studies by external research partners) in biomedical research in the foreseeable future.

## INTERNAL ANIMAL ALTERNATIVE AWARD

Since 1994, in support of the 3-R philosophy, we have presented an Animal Alternative Award annually to the team or teams of our company's scientists that develop new techniques to support the alternative principle and publish their work to share innovations with the greater scientific community. Awards have been given for developing and utilizing an in vitro liver toxicity screening assay, reducing the number of animals used by employing sophisticated telemetric monitoring, replacing a dog model with a guinea pig model and applying imaging techniques such as MRI to reduce the number of animals needed for tumor studies.



## We're collaborating with academia, globally, to educate tomorrow's doctors about biopharmaceutical development.

The rigorous medical school curriculum is designed to give future physicians the information and skills they will need to begin clinical practice. For most, clinical practice will inevitably mean prescribing a medicine or vaccine to a patient. Yet few medical students are trained to understand the drug development process or how pharmaceutical research can be applied to patient care. In 2010, our company collaborated with the Yale School of Medicine to help bridge this knowledge gap.

Our Drug Development Program, in partnership with Yale University, is a comprehensive, seven-module, 10-hour Web-based course established for second-year medical students and graduate students in health sciences, and includes a new module on vaccine development and clinical vaccinology.

Authored by our company's scientists and medical professionals, and approved by Yale faculty, the program has been implemented by more than 85 academic institutions in 20 countries. It consists of an interactive course that takes students through the development process, from target identification and validation through clinical trials, the regulatory review process and post-approval monitoring.

A second course, the Principles of Clinical Research and Design (PCRD), was developed in 2011 in response to a call for action from the then newly created National Center for Advancing Translational Sciences' Clinical and Translational Science Awards (CTSA) program to foster new collaborations between academia and industry.

Additionally, many universities outside of the U.S. requested information to help them better understand how clinical studies are designed and implemented. The course includes topics addressing both interventional and non-interventional studies, and addresses the concepts of bias and confounding, randomization and blinding, among others.

Today, these courses are part of the Global Scientific Education Initiative in our Global Center of Scientific Affairs, within our company's research laboratories. The Web-based initiative focuses on working with academia to develop and share high-quality, balanced, unbranded education on translational science topics.

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**“We are very pleased to continue supporting the Global Scientific Education Initiative, which is a unique platform for students and investigators to learn about the drug development process.”**

SEAN P. CURTIS, MD  
HEAD, GLOBAL SCIENTIFIC AFFAIRS

Since the Global Scientific Education Initiative was first introduced, the courses have been translated from English into six additional languages (Spanish, Mandarin Chinese, Japanese, Turkish, Vietnamese and Russian). The program has been expanded to serve students in other health disciplines and graduate programs. At the University of Texas Graduate School of Biomedical Sciences, the courses are open to all students interested in potential careers in biotechnology and the pharmaceutical industry.

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“The students like the interactivity and big-picture approach of this translational educational material and how it explains the complexity of drug development.”

ZHIQIANG AN, PH.D.  
PROFESSOR AND ROBERT A. WELCH DISTINGUISHED UNIVERSITY CHAIR IN CHEMISTRY  
UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON

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The courses are provided at no charge to degree-granting institutions, and faculty members have unrestricted access to the materials to augment their curricula. For more information about the program, contact [request@msds-science.com](mailto:request@msds-science.com).





The rapid development of new technologies that interrogate variability in human DNA and RNA, combined with powerful computing hardware and software, has made it practical to investigate genetic and genomic determinants for risk of human disease or predictors of human response to drugs.

Our company conducts genetic and genomic research within our own clinical trials and in collaboration with external organizations that have collected human genetic and genomic samples and health data.

Collecting genetic and genomic samples is a critical foundation for human genetic research strategies. We collect genetic and genomic samples in our clinical trials, primarily to understand how genetic and genomic variation impacts patient response to medicines. This enables us to communicate information to regulatory authorities and prescribers that will improve the use of our medicines. It also enables us to understand how genetics contribute to the underlying disease, which has the potential to identify new drug targets for that disease. We also collect genetic and genomic samples outside of our clinical trials, often in collaboration with academic institutions or pre-competitive consortia. This is an important way of leveraging many of the large-scale “biobanking” efforts that are underway globally.

During clinical trials, we obtain appropriate subject consent for use of the genetic and genomic samples in accordance with the ethical principles of human subjects research, which have their origins in the Declaration of Helsinki, U.S. FDA requirements (21 CFR 50.20, 50.25 and 50.27), the International Conference on Harmonisation (ICH) E6 Good Clinical Practices guidelines and the 1997 UNESCO Declaration on the Human Genome and Human Rights. We apply the ethical principles for research involving human subjects to the collection and use of genetic and genomic samples. This includes respect for persons/autonomy, beneficence and justice.

When collaborating with external organizations, we ensure that consent has been obtained by individuals who have contributed DNA or RNA and/or health-related data to the organization via these same standards.



We are building our biologics pipeline and delivering high-quality biosimilar products to help meet the growing needs of patients and health care systems worldwide.

#### RESOURCES

[Public Policy Position Statement: Biosimilars and Originator Biologics](#)

Biologics have revolutionized the treatment of patients suffering from some of the most debilitating and life-threatening diseases, and the potential for discovering novel biological therapies remains high.

In addition to our robust and expanding pipeline of originator biotherapeutic candidates designed to address unmet medical needs, we believe high-quality biosimilars that are functionally and physically equivalent to existing biotherapeutics can facilitate access to these lifesaving biological medicines for patients across the globe, while respecting the intellectual property rights of the originator. A biosimilar product is highly similar to its approved reference product, with no clinically meaningful differences in terms of the safety, purity and potency of the product.

## PORTFOLIO AND PARTNERSHIPS

We are developing a diversified portfolio of innovative biotherapeutic candidates targeting several important clinical indications, including oncology (building on our expertise in immune-oncology), infectious diseases, neurobiology, cardiovascular and metabolic disease.

In February 2015, we entered into a broad strategic collaboration with [NGM Biopharmaceuticals, Inc. \(NGM Bio\)](#) to discover, develop and commercialize novel biologic therapies across a wide range of therapeutic areas. The collaboration includes multiple therapeutic candidates currently in preclinical development at NGM Bio, including NGM282, which is being evaluated for the treatment of diabetes, obesity and nonalcoholic steatohepatitis (NASH). Most recently, NGM Bio announced the results from a Phase II study of NGM282 in NASH patients, which demonstrated clinically significant improvements in liver histology after 12 weeks.

In 2013, we entered into an agreement with [Samsung Bioepis Co., Ltd.](#) to develop and commercialize multiple biosimilar candidates in our partnered territories. Since that time, this partnership has made significant progress on a portfolio that includes biosimilar candidates in immunology and oncology, with a number of biosimilars either already approved or expected to be filed with regulatory authorities in our territories. Through April 2018, RENFLEXIS (infliximab) has been approved in Australia, Canada and the United States; BRENZYS (etanercept) has been approved in Australia and Canada; and ONTRUZANT (trastuzumab) has been approved in the European Union.

## **PUBLIC POLICY**

Our advocacy position on biologics and biosimilars is built upon a foundational objective of seeking to improve health outcomes while maintaining patient safety. All of our policies associated with biologics, biosimilars or any other drug regulation are motivated first and foremost by our focus on the patient.

Our advocacy recognizes the complexity of all biologic products, both innovator biologics and biosimilars, and seeks to establish sound policy parameters for the development and use of biologics to ensure that patients have access to high-quality, safe and effective medicines. Our policies regarding biologics and biosimilars are based on science, and reflect a balanced approach consistent with our status as a developer of both biosimilars and originator biologics.



Through a systematic and critical evaluation of our capabilities and an analysis of unmet medical needs, we prioritize our research and development efforts and focus on therapeutic candidates that we believe represent breakthrough science that will make a difference for patients and payers.

Our current pipeline and list of marketed products are aligned with major global burdens of disease, based on the [Global Burden of Disease 2016 \(GBD 2016\)](#) study.

As defined by the GBD2010 Visualization tools developed by the [Institute for Health Metrics and Evaluation \(IHME\)](#), the diseases that we address rank high on the list of worldwide causes of death. Our research into vaccines and infectious diseases addresses major burdens of disease that are prevalent in all countries, and our preventive treatments could have the greatest impact in the developing world, where health care infrastructure is weak or nonexistent. Considering [our pipeline](#) and the list of products we currently market, we estimate that our company is seeking to address 88 percent of the top 20 global burdens of disease as defined by the IHME, excluding road injury, self-harm and preterm birth complications.



Our vision is to be the most trusted and competitive supplier of pharmaceuticals, animal health products, vaccines and biologics to the world's patients and customers.

Our company is committed to providing patients and customers with a reliable supply of high-quality, safe and effective medicines and vaccines. Our global supply strategy leverages both our internal manufacturing capabilities and those of external manufacturers that provide specialized skills, expertise and various types of manufacturing services.

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We manufacture and package products that we distribute to more than 163 markets around the world.

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Our facilities, along with our external contractors, suppliers and partners, make up an integrated, interdependent global manufacturing network that is committed to delivering compliant, reliable supply to customers and patients on time, all the time and every time.

## OUR COMMITMENTS

- We will maintain strict quality standards and effective supply-chain management to ensure the efficacy, safety and supply of our products no matter where they are manufactured
- We will sustain an interdependent, flexible supply chain to take into account global and local market supply needs
- We will engage and invest in local and regional partnerships to enable market access

Our product quality and safety processes and procedures are broad in scope and include stringent standards as well as compliance education and training. We also support industry and regulatory efforts to develop and optimize quality and manufacturing standards worldwide. Our commitments in this area are unequivocal, and are essential to our role as a global health care leader.

We seek to develop the capacity and capability to serve a significant proportion of the world's population. Our

manufacturing division has undertaken an ambitious program to reduce the cost of production by reducing underutilized capacity, increasing efficiency through Lean and Six Sigma projects at manufacturing sites, reducing procurement spending and improving supply performance, including on-time deliveries and the reduction of supply shortages.

We have entered into manufacturing and supply agreements with local manufacturing partners to broaden access to our products in local markets. We strive to forge relationships with partners that meet our standards for quality manufacturing and distribution, and today have 136 external manufacturing sites, 32 Corporate Alliances and 94 Regional Alliances that we engage with to provide access to our products.

We manufacture approximately 9,425 product size finishes, and in 2017 produced approximately 90 billion doses of animal health vaccines.

Our global supply-chain strategy is designed to ensure that we are operating a lean and efficient network while complying with rigorous quality, safety and environmental standards.

We remain committed to the development and commercialization of our products and to ensuring that we are a reliable global supplier of quality vaccines and medicines. In 2017, we launched new products in major regions with 22 filings and 10 launches with sustained supply. We are implementing continuous manufacturing for small-molecule products with planned submissions in 2019 and beyond.

We continue to optimize our manufacturing capacity for most vaccines, including, as appropriate, redundancy in our supply chain for certain vaccines, so that we eliminate supply disruptions when temporary issues arise in manufacturing.

In 2016 we launched our new “Manufacturing the Future” strategy to continue our mission of achieving world-class manufacturing and supply status by 2020: Delivering uninterrupted, unconstrained, highest-quality supply at the lowest cost and with the shortest lead times. In this strategy, we will maintain our priorities of compliance, supply, profit plan and people, embracing a mantra of “Safety First. Quality Always.”

There are five principal elements to the strategy:

- **Stability:** Striving for safety, regulatory compliance and reliable supply
- **Responsiveness:** Advancing agile end-to-end supply chains, best-in-class cost of goods sold (COGS) and working capital
- **Innovation:** Demonstrating excellence in key technologies and novel approaches to operations and customers
- **Biologics:** Building our large-molecule capacities and mind-sets
- **Diverse Talent:** Developing new and enhanced capabilities in all Manufacturing Division people

In 2017 we received approval to have our facility in Carlow, Ireland, approved to fill GARDASIL<sup>®</sup>9 (Human Papillomavirus 9-valent Vaccine, Recombinant), our 9-valent HPV vaccine.

In addition, we remain on track to upgrade and expand our manufacturing operations. In Elkton, Virginia we are continuing our investment to upgrade plant infrastructure, add manufacturing-related facilities and equipment, and undertake a personnel-training initiative to support the bioprocessing environment. Specifically, we will be building a new biologics manufacturing plant to support KEYTRUDA<sup>®</sup> (pembrolizumab), an anti-PD-1 immunotherapy to help fight certain cancers.

We continue to focus on internal and external strategies that reduce cost and increase capacity to meet growing supply needs around the world.

## SUPPLY CHALLENGES IN 2017: COMMITMENT TO OUR PATIENTS AND EMPLOYEES

### Cyber Incident

In June of 2017, our company experienced a sophisticated cyber-attack that propagated rapidly through our environment, impacting global operations across research and development, manufacturing, commercial and corporate functions.

Recovery from the attack was guided by a set of established priorities, founded on principles of maintaining patient safety and access, quality and regulatory compliance. The company used controlled shutdown of GMP plant utility systems to avert any safety incident for our 50 manufacturing sites affected in 21 countries serving 160 countries.

Within two days of the cyber-attack, the company had a view of our global inventory and within five days a prioritized production and shipment plan focused on medically significant, lifesaving, and priority products to begin shipping. We communicated with Regulatory Authorities, external manufacturing and logistics partners throughout the recovery process and enlisted their input to support patient supply priorities. All critical processes and systems were brought to a safe state, verified safe and restarted by the end of August 2017.

**Hurricane Maria**

On September 20, 2017, Hurricane Maria went across Puerto Rico from southeast to northwest with winds of about 155 mph (250 km/h) for an unforgettably long 18 hours. The center of the hurricane passed extremely close to our company’s Las Piedras manufacturing facility and to several of our contract manufacturing partners causing flooding, and destruction to roads, housing and infrastructure. Immediate impact to Puerto Rico included 100 percent of the people on the island losing electricity, over 90 percent losing access to potable water, over 90 percent losing phone/internet communications, and widespread severe damage to the island’s overall infrastructure and property.

Our company immediately stepped in to provide support and supplies for basic daily living to current and past employees as well as employees of our external partners on the island. Charter planes were sent filled with water, food, basic medical supplies, and generators to be distributed to those in need on the island.

An emergency recovery team was put in place at our Las Piedras site to distribute much needed supplies to people impacted by the hurricane. In addition, technical resources were deployed to set up emergency communication systems and restart manufacturing capacity at the Las Piedras facility within weeks of the destructive hurricane.

## Performance

MANUFACTURING & SUPPLY SUMMARY	2013	2014	2015	2016	2017
Number of local and regional manufacturing partnerships to enable access	68	104	179	179	153
Number of products available through local and regional partnerships	354	499	1,157	941	765



In everything we do—from research and development to the manufacturing and distribution of our medicines, vaccines and other products—safety, quality and efficacy are our primary considerations.

Our quality strategy is focused on ensuring reliable, compliant supply to our customers, assuring that our products are there when people need them, and having an engaged and capable workforce to ensure and sustain future success.

We apply and adhere to a strict set of quality standards, and we have policies and procedures in place to identify, measure, control and sustain product-quality excellence. We continuously strive to improve these standards in order to enhance procedures and ensure ongoing compliance with [Current Good Manufacturing Practices \(CGMPs\)](#).

We provide appropriate and ongoing training on quality and CGMPs for our employees, so they are prepared to perform their duties effectively. Our system not only ensures that all applicable employees are trained, but also monitors the effectiveness of training.

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**We maintain strict quality standards no matter where our products are manufactured.**

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All manufacturing facilities that we own and operate, and any company from which we purchase formulated pharmaceuticals, active ingredients or sterile products, must comply with CGMPs. These standards include requirements for incoming materials and the manufacturing, storage, handling and distribution of products.

Counterfeit products are a growing global problem and a serious threat to public health. We believe that maintaining the integrity of our supply chain is of paramount importance. Our corporate global anti-counterfeiting program has three primary goals: securing the supply chain; deterring, rapidly detecting and responding to counterfeit activity; and raising public awareness of the risks posed by counterfeits. To learn more about our anti-counterfeiting program, [click here](#).

## **SUPPLIER SELECTION**

We maintain strict quality standards no matter where our products are manufactured. Once we have made a decision to engage an external manufacturer, that manufacturer is required to comply with our business requirements set forth in the contract, regardless of geography.

We conduct audits of every potential new supplier of active pharmaceutical ingredients or formulated products and sterile products, to determine its acceptability and compliance with CGMPs. We review the systems that the potential supplier uses to purchase materials in order to ensure the quality of the products the supplier hopes to provide to us. Only if a supplier meets our stringent criteria, which include a review of the company’s regulatory inspection and outcome history, will we then negotiate a commercial agreement. These agreements include detailed provisions relating to the quality standards we require suppliers to uphold in order for them to manufacture a product for our use. To learn more about how we work with external suppliers, [click here](#).

## AUDITS AND INSPECTIONS

Our manufacturing facilities are inspected by international health authorities. In 2017, we had 96 regulatory inspections at our human health and animal health facilities, 92 of which concluded with satisfactory outcomes. With respect to the remaining four inspections (all of which involved the same health authority), we have already addressed several of the observations. We are continuing to engage in activities to achieve successful resolution of the remaining observations.

We conduct periodic audits to further ensure that suppliers continue to meet CGMPs. Through such audits, we evaluate the continued acceptability of the facility from a quality assurance and regulatory compliance perspective.

The frequency of quality auditing depends on a number of factors, including:

- The nature and complexity of the product being manufactured (e.g., whether it is a formulated pharmaceutical, active ingredient or sterile product) and how it is used by our company
- The compliance history of the supplier and previous audit results

Quality tests are performed on all drug substance that we manufacture or purchase as part of our overall supplier-qualification process, and further tests are performed during subsequent stages of manufacturing. Quality tests are performed on all formulated products before we release them to the marketplace.

Testing of raw materials or excipients used in the manufacturing of our products is conducted in accordance with our specifications, which in many cases include the applicable pharmacopeia standards (e.g., the United States Pharmacopeia [USP], the European Pharmacopeia [EUP] and the Japanese Pharmacopeia [JP]).

## Performance

QUALITY & PRODUCT SAFETY	2013	2014	2015	2016	2017
Number of product recalls in the United States <sup>1,2</sup>	2	3	3	1	0
Annual percentage of units manufactured/sold and recalled during a given year (our global recall rate) <sup>1,2</sup>	0.11%	0.22%	0.07%	0.01%	0.01%

NR: Not reported.

1. Definition of Recall Classifications:

<http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm049070.htm#RecallClassifications>.

2. Beginning in 2014, product recalls include data from our Animal Health business.



We invest in an industry-leading, rigorous, intelligence-led anti-counterfeiting strategy that is solely focused on protecting patients from the harm associated with counterfeit, diverted and other illicit medicines.

#### RESOURCES

[Public Policy Position Statement: Counterfeiting of Medical Products](#)

Producing, distributing, marketing and/or selling counterfeit pharmaceutical products are serious criminal offenses, and the threat of these actions has become a real and significant risk to global public health. Counterfeit pharmaceuticals can include the wrong doses of an active ingredient, no active ingredient or, in some cases, harmful or poisonous ingredients.

We define a counterfeit medicine as a product that exhibits an unauthorized use of trademark, trade name, other identifying mark, imprint or device, or any likeness thereof, to adulterate, falsely purport or falsely represent a product's or material's identity, source or history. As counterfeiters have become more sophisticated, counterfeit products have become so similar in appearance to authentic products that, without laboratory testing, it is often difficult to tell the authentic from the counterfeit medicines.

We have launched a global Forensic Services program that significantly enhances our capacity and capability for the robust forensic analysis of suspect counterfeit, diverted and illicit medicines. The Forensic Services program focuses on both the identification and characterization of illicit medicines, and will further support our efforts in the detection, characterization, and enforcement of criminal enterprises engaged in the manufacture and distribution of illicit medicines. The global Forensics Services capacity will be supported by three laboratories, the first of which became operational in 2017, with the remaining two set to be operational in 2018. These labs follow international standards and best practices for forensic testing, including the WHO Guidance on Testing of Suspect Falsified Medicines and ISO 17025.

The threat to patient safety from counterfeit medicines is not specific to our company. Consequently, we work with industry peers and proactively share anti-counterfeiting intelligence with other pharmaceutical companies as a way of protecting the public and raising awareness.

#### COMMITMENTS

- Execute a proactive, worldwide, corporate anti-counterfeiting strategy focused on securing the supply chain, detecting and responding to counterfeit events, and raising awareness of the risks of counterfeit pharmaceutical products
- Take proactive measures to identify, assess and mitigate threats to our patients associated with counterfeit and other fraudulent products
- Take actions to raise public awareness of the risks posed by counterfeits and advocate for increased enforcement to

shape relevant regulatory requirements

- Maintain the capability and capacity to provide robust forensic analysis of suspect counterfeit, diverted, and illicit medicines. To this end, we have invested in a global forensic laboratory capability that facilitates more innovation and significantly increases our capacity to identify and characterize suspect products and support enforcement actions.
- Train key stakeholders and business partners in the identification of suspicious activities and/or suspected counterfeit products
- Partner with industry groups to provide advocacy on high-priority anti-counterfeiting policy initiatives, and explore new partnership opportunities with patients and other external stakeholders
- Develop metrics to gauge the impact of specific actions to ensure that resources remain focused on the areas that can have the greatest benefit
- Advance advocacy efforts to support the development of a standardized system to identify and code medical products, following the passage of the Drug Quality and Security Act (DQSA) in the U.S.
- Develop data analytics and intelligence management capabilities to enhance threat detection and mitigation activities associated with counterfeit and other illicit events, including increased levels of intelligence-sharing within the Pharmaceutical Security Institute (PSI) and other public and private partnerships
- Comply with all DQSA reporting requirements and associated actions regarding suspect and illegitimate products impacting the U.S. patient population, as set forth in the regulation

Our company's Global Security Group oversees the global anti-counterfeiting strategy, and leads its execution. The overall strategy is supported by a cross-functional team comprised of senior leaders from Global Human Health, Quality, Manufacturing, and Global Security. These areas are responsible for marketing and selling our products worldwide, investigating suspected counterfeit events, testing suspected counterfeit products, implementing innovative security measures and preparing investigative reports.

Other functional areas involved in our anti-counterfeiting efforts include the Office of General Counsel, which manages trademarks and other forms of intellectual property and provides Global Security with information necessary to assist law enforcement and regulators in enforcement efforts; Global Public Policy, which coordinates our advocacy activities to support stronger anti-counterfeiting laws; and Compliance, which liaises with federal regulators in relation to the management of controlled substances.

## ANTI-COUNTERFEITING STRATEGY

Ensuring product efficacy and patient safety and protecting our reputation are paramount. We maintain a comprehensive, worldwide anti-counterfeiting strategy and operational program that has three primary strategic deliverables.

### Product & Supply Chain Security

Our Product & Supply Chain Security strategy enables product protection through the use of sophisticated product-security features and supply chain security measures. In 2016, we expanded our capacity to provide product protection services with additional resources dedicated to this area of focus, and have continued to build this strategy out in 2017.

### Investigations & Enforcement

The Investigations & Enforcement pillar of our strategy is focused on deterring, detecting and responding to suspected and/or confirmed counterfeit activity in ways that mitigate risks to patient safety. While we support the entire company product portfolio, in 2016, we chose certain products for increased focus, specifically: BELSOMRA® (suvorexant), GARDASIL® [Human Papillomavirus Quadrivalent (Types 6, 11, 16, and 18) Vaccine, Recombinant], JANUVIA® (sitagliptin), KEYTRUDA® (pembrolizumab), and ZEPATIER® (elbasvir and grazoprevir).

These products were chosen due to threat to patients if counterfeited or sold outside of the regulated supply chain. We continued to focus on these products for proactive investigative work throughout 2017.

### Advocacy, Engagement & Awareness

Our efforts in the area of Advocacy, Engagement & Awareness involve raising public and stakeholder awareness of the risks posed by counterfeits, and advocate for increased enforcement to shape relevant regulatory requirements. In 2017, we continued our commitment to increasing our focus in this area and have strategically enhanced our ability to make a

long-term impact on patient safety through various education campaigns.

## ANTI-COUNTERFEITING OPERATIONS

In keeping with our long-standing commitment to providing high-quality, safe and effective medicines and vaccines to patients who need them, we have executed a comprehensive Anti-Counterfeiting Operations Program that delivers on our three primary strategic deliverables.

### Product & Supply Chain Security

We carefully manage our supply chain through strict policies and procedures designed to keep the legitimate drug distribution system safe and secure. In the U.S., for example, we require customers to purchase our products directly from our company or from distributors authorized by our company. In addition, we publish the names of authorized distributors on our corporate [website](#). We conduct risk-based audits of our distributors to ensure compliance with our policies and procedures. Proactive threat assessments are also completed for facilities and supply routes identified to be at risk of cargo thefts and other illicit activity.

Product-security features deployed on our products are a key measure taken to protect patients who use our products. Our pharmaceutical products are protected with best-in-class product-security features, uniquely applied on the basis of a global, risk-based assessment methodology. Our key focus in this assessment is the patient-safety threat should a counterfeit or illegally diverted product of our company be introduced into the supply chain.

Each of our new medicines and vaccines is assessed for risk using this methodology prior to regulatory approval. The risk level assigned to a new product is used to determine which product-security features will be included on the product and packaging prior to the product's market release. A complementary threat assessment is also performed on marketed products for which a credible counterfeit threat has been identified and for which updates to packaging security features may be required.

These product-security features, along with our advanced forensic detection capabilities, enable us to accurately authenticate all finished products in our portfolio.

## SERIALIZATION

Serialization—or putting a unique identification number on each package that goes to market—is one of the tools we are investing in to secure our supply chain and prevent counterfeiting. A serial number on individual packages enables anyone along the supply chain—from a distributor to a pharmacist to a patient—to scan the code and authenticate it as a genuine product of our company.

Serialization adds a robust layer to the company's product-security platform. It provides the ability to uniquely identify and rapidly authenticate individual packs. When associated with a regulatory mandate that specifies effective implementation, this method of product tracking can become a more meaningful product-security tool.

Many jurisdictions around the world are requiring serialization on pharmaceutical packages or are considering such mandates. Serialization is required today in China, Turkey, Argentina, South Korea, Nigeria and India, and will soon be required in Saudi Arabia, Brazil, the U.S. and Europe. Unfortunately, each country's regulations are different, making it very challenging for our packaging sites and distribution networks to meet these diverse and complex requirements.

We responded by launching the Global Product Serialization Initiative in 2012, with the goal of meeting these varying requirements in a robust, standardized and effective way. We are working with industry associations and regulatory authorities to help shape these new requirements, and advocate for simple, standardized and common-sense regulations that can be effective at protecting against counterfeit medicines.

## INVESTIGATION & ENFORCEMENT

Our company's anti-counterfeiting operations are driven by intelligence-led decisions to identify, prioritize and aggressively pursue criminal enterprises responsible for the manufacture and distribution of counterfeit and other illicit medications, and to identify and enable meaningful enforcement actions against those offenders.

Suspected counterfeit products are reported to our company by patients, providers and from internal and other healthcare stakeholders. We respond to every notification of suspected counterfeit or illicit medicine, in alignment with local regulatory requirements and in support of our global patient-safety mission. We also proactively conduct threat assessments and other risk-based operations to identify offenses that threaten the health and safety of patients. These proactive activities are intended to identify, assess and develop effective enforcement actions for high-value targets engaged in illegal activities involving our products that have the potential for negative patient-safety impact.

In 2017, the biggest risks to patient safety involved counterfeit versions of our company's products sold in multiple countries, some involving the legitimate supply chain. Several incidents of both inter-market and intra-market diversion of our pharmaceutical products, and multiple cargo thefts and product thefts from MSD or third-party facilities, were also a concern.

Global Security addressed approximately 1,000 events in a total of 79 countries in 2017 involving counterfeiting, diversion, product theft/loss (including cargo theft), tampering and brand security (non-company, unapproved generic products), which led to 108 arrests and the seizure of more than 25,000 units of counterfeit or illicit versions of company products.

Another key aspect of investigations is the forensic analysis of suspect products. This forensic testing is aimed at concluding whether a suspect product is counterfeit, diverted, or otherwise illicit. Counterfeit products are characterized in order to gain further intelligence and understanding of the counterfeiters and the threats to public health. Our company also has forensic detection devices in the field to analyze and detect counterfeits in regions around the world. As counterfeiters improve their skills and techniques, our forensic scientists have pioneered the use of several analytical tools for pharmaceutical-counterfeits detection, and continue to explore new analytical tools that would increase their forensic testing capabilities. Lab findings are shared with regulatory and/or law enforcement agencies, and may be used to support subsequent enforcement actions and legal proceedings. There were approximately 1,425 unique suspect samples received as evidence and prepared for forensic testing in relation to active events in 2017, which represents almost a 300 percent increase in samples from 2016.

To support and enable enforcement actions, we partner with law enforcement agencies to detect and respond to threats due to counterfeit products. This includes working with U.S. authorities on the importation of counterfeit pharmaceuticals and with EU authorities on the importation and/or trans-shipment of counterfeit pharmaceuticals through the EU. Working with customs authorities, we have helped identify high-risk ports, borders and postal depots, and have provided a framework of action for use by customs authorities to detect and respond to counterfeit activities. This training enables customs agents to identify suspicious pharmaceutical shipments and take appropriate actions to detain suspicious shipments and/or have suspect products analyzed.

## ADVOCACY, ENGAGEMENT AND AWARENESS

We are committed to cooperating with relevant government agencies, other pharmaceutical manufacturers, wholesalers, distributors, health professionals, consumer groups and key related organizations in fighting the problem of counterfeit pharmaceutical products and in educating the public about the risks of counterfeit products and how to protect against them.

This effort includes a multi-pronged approach to communicating the threat that counterfeit medicines pose and to mitigating this threat as effectively as possible, while recognizing that it cannot be entirely eliminated.

Collaboration and information-sharing in order to raise public and stakeholder awareness of the issue and risks are a crucial focus of our anti-counterfeiting program. Through active partnerships with other pharmaceutical companies, and with organizations focused on security, patient safety and public health, we provide effective advocacy on high-priority anti-

counterfeiting policy initiatives.

Highlights of our 2017 activities include:

- Assisted in the development and distribution of the Asia-Pacific Economic Cooperation (APEC) Regulatory Harmonization Steering Committee (RHSC) “Roadmap to Promote Global Medical Product Quality and Supply Chain Security” with direct engagement on the Online Pharmacy Best Practices Toolkit and Internet Pharmacy Survey, the Center of Excellence Pilot Program for Global Medical Product Quality and Supply Chain Security, and the Center of Excellence for Product Quality & Supply Chain Pilot Program: Securing Medical Product Quality Through the Supply Chain
- Actively participated in the US Pharmacopeia-Council of Experts Review of Surveillance and Screening Technologies for the Quality Assurance of Medicines Expert Panel
- Contributed to multiple educational campaigns regarding the dangers of imported and counterfeit medicine sold through online pharmacies that reached thousands of health care providers, caregivers and older Americans in 2017, including coverage by major media outlets
- Supported a global Best Practices Guide for IP Enforcement that was distributed to thousands of stakeholders
- Sponsored a joint program focused on improvement of policy and enforcement of pharmaceutical crime in Latin America
- Launched an educational program focused on the link between importation and counterfeit medicine
- Our Global Security staff trained more than 4,000 law enforcement and customs officials worldwide
- Launched internal Company trainings focused on Supply Chain Security and Reporting of Counterfeit, Diversion and Tampering Events

In keeping with our mission to protect global public health, we actively collaborate with international law enforcement agencies that prioritize the investigation, prosecution and disruption of counterfeit medicines and associated criminal enterprises.

We further support efforts to educate the public about the risks of counterfeit drugs and how to protect against them, as well as efforts to develop industry collaborations to support a unified response to the threat of counterfeit medicines. We have deep partnerships and/or leadership positions with the following organizations:

- [Pharmaceutical Security Institute \(PSI\)](#)
- [Association of Industrial Manufacturers Anti-Counterfeit Workstream \(ANDI\)](#)
- [Alliance for Safe Online Pharmacies—Global \(ASOP Global\)](#)
- [International Chamber of Commerce’s Business Action to Stop Counterfeiting and Piracy \(BASCAP\)](#)
- [International Anti-Counterfeiting Coalition \(IACC\)](#)
- [International Trademark Association Anti-Counterfeit Committee \(INTA ACC\)](#)
- [International Federation of Pharmaceutical Manufacturers \(IFPMA\) Fight the Fakes partnership](#)
- [U.S. Chamber of Commerce’s Global Intellectual Property Center \(GIPC\)](#)
- [Partnership for Safe Medicines \(PSM\)](#)
- [Quality Brands Protection Committee of China Association of Enterprises with Foreign Investment \(QBPC\)](#)
- [Rx360 Consortium](#)

These collaborative efforts support the production of reports, white papers and data-circulation initiatives, as well as promoting the intelligence-sharing necessary to combat threats from counterfeit medicines.

## Public Policy

We support the increased enforcement of existing anti-counterfeiting laws and the adoption of new public policies to strengthen existing laws and enforcement

## programs, including increased criminal and civil penalties for counterfeiters.

We advocate for such change in a number of ways:

- As board members of the [Alliance for Safe Online Pharmacies—Global](#) and [ASOP-EU](#) we support initiatives and advocacy in the U.S., Europe and Asia to raise awareness about the dangers of illegal online drug sellers and to steer patients to safe sources of medicines
- As a member of the [Global Intellectual Property Center](#), we support the White House’s Intellectual Property Enforcement Coordinator as well as policy matters related to anti-counterfeiting and enforcement in Congress and with federal agencies
- As a member of the Pharmaceutical Distribution Security Alliance (PDSA), we supported the passage of the Drug Quality and Security Act (DQSA), U.S. legislation that creates a national system and uniform standards for tracking products across the pharmaceutical supply chain. PDSA includes over 20 partners in the domestic pharmaceutical distribution supply chain working to achieve a national solution toward product tracking.
- We support the [Anti-Counterfeiting Trade Agreement](#), which increases protection against a wide range of intellectual property infringements
- Together with other pharmaceutical companies we created the [Pharmaceutical Security Institute \(PSI\)](#) to develop global security strategies focused on both prevention and enforcement in order to ensure public safety and product integrity. We continue to be an active participant in this organization, and are advocating for increased levels of intelligence sharing among the members.
- Our company supported the SAFE DOSES Act, which was signed into law in the U.S. in October 2012. The bipartisan legislation modernizes the U.S. Criminal Code to increase criminal penalties for medical-product cargo theft and provides law enforcement tools to deter this criminal behavior and take down the organizations that are perpetrating it.
- Our company supported the Trade Facilitation and Enforcement Act, which was signed into law in February 2016. Known as the Customs Reauthorization Act, this bill provides additional resources to Customs and Border Protection (CBP), and formalizes the capacity for public-private partnership to strengthen intellectual property enforcement.

## Performance

### In 2017 our company addressed approximately 1,000 active product-integrity events.

More than 40 percent of these events have been proactively investigated by Global Security to identify new or emerging product-integrity threats, or to further characterize and mitigate known product-integrity threats.

When a new product-integrity event is initially reviewed, it is assigned to one of five categories:

- Product Theft/Loss
- Brand Security
- Diversion
- Tampering
- Counterfeiting

The following table details the number of new Suspected and Substantiated Counterfeit events in 2017, as well as the number of events introduced in previous years and the subsequent outcome for these events. The category for any event can change as the event develops and further information is collected, typically as a result of forensic testing or other review of associated samples: the data below reflects the current status of each event as of May 2018.

ANTI-COUNTERFEITING <sup>1</sup>	2013	2014	2015	2016	2017
Investigations of suspected counterfeit products	182	326	146	210	247
Substantiated cases of counterfeit products	48	172	71	92	91

1. Prior-year data have been adjusted to reflect the current status of each event as of May 2018.





We are working to find new ways to bring our medicines and vaccines to more people around the world than ever before, and to make them as accessible and affordable as possible for the patients who need them.

#### RESOURCES

[Access to Health Statement of Guiding Principles](#)  
[Our Pricing Practices: Under the Microscope](#)

To that end, we strive to commercialize our products in a way that both develops our business and meets local needs in a responsible and efficient manner.

## OUR COMMITMENTS

- We will price our products through differential pricing frameworks, taking into consideration the level of economic development, the distribution channel and the public health need
- Across and within countries, we will seek to identify innovative and sustainable strategies for differential pricing or other commercial approaches that allow for greater flexibility to better reach at-need segments, pursuing partnerships with private, government or nonprofit resources and distribution channels
- We will evaluate and address public health needs by working with local health care providers globally to increase knowledge of product need and use; we will invest in activities to improve patient awareness and education

In many countries, public and private health insurance plans are able to negotiate significant rebates and discounts with pharmaceutical manufacturers that enable patients to obtain health care and medicines at competitive prices.

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**We have differential pricing for 42 of our products, and 125 countries have implemented inter- or intra-country pricing for at least one of them.**

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We recognize that in developing-world markets, access to and funding for health care can be limited. Therefore, we

develop and support various sustainable strategies to improve access, including directing differential pricing to patient sub-segments. Currently, we have differential pricing for 42 of our products, and 125 countries have implemented inter- or intra-country pricing for at least one of our products. As an example, initiatives expanding innovative concession program offers for our women's health product portfolios in low- and middle-income markets demonstrate our commitment to differential pricing. We remain committed to continued growth in identifying and implementing opportunities to support access through differential pricing.

In developing-world markets, our pricing strategies include directing differential pricing to at-need patient sub-segments, either directly through national or local programs or indirectly through third-party health care funding sources that demonstrate reasonable and secure product distribution to intended patient segments and subject to applicable legal requirements.

For example, we are engaged with stakeholders within the family planning community, including the [United Nations Population Fund \(UNFP\)](#), [Marie Stopes International \(MSI\)](#), [Population Services International \(PSI\)](#) and the [United States Agency for International Development \(USAID\)](#), to support advocacy of the "Total Market Approach (TMA)" in key markets to help governments better target subsidized products, help the public sector focus on the poorest segments of the population, increase the ability of the private sector to serve middle-income tiers of the population, and decrease overall donor funding dependency. TMA leverages market efficiencies, helps expand equitable access and encourages intra-country price tiers based on economic population segments.

We believe that providing support through grants to third-party medical, scientific and patient organizations is an important way to advance mutual objectives to improve health and advance patient care. We have robust standards and policies in place to ensure that our grants support a full range of research and activities important to health care improvement. [Learn more.](#)

We will continue to champion innovative programs and partnerships to help increase the availability and accessibility of our medicines and vaccines for those who need them.

## Pricing and Access

We understand that people are concerned about the costs associated with health care in general, and prescription drugs in particular.

After all, we're patients too. That's why we are committed to doing our part to help more patients obtain and afford the medicines and vaccines they need.

In keeping with George W. Merck's timeless wisdom that "medicine is for the people," we price our products to support access for patients today while also promoting the critical investments that will empower our scientists to invent the cures and treatments of tomorrow.

We approach pricing our medicines and vaccines from the perspective of value. And while value can mean different things to different people, to us it means maximizing our ability to provide something priceless—better health—to as many patients as possible. It also means doing as much as we can to prevent the problems, from lengthy hospital stays to long-term care, that are a financial burden to so many families, communities and public institutions.

Many factors go into the pricing of drugs, and every medicine is somewhat different, but in simple terms we consider the **Three Ds** of pricing: the **Demand** in society, all that goes into **Development**, and how well a medicine **Delivers**. The societal demand means we look at how critical the condition or need is in society and how many treatments, if any, currently exist. Development means we need to price medicines to pay for research, discovery and clinical trials. How well a medicine delivers means we look at the benefits of our drug, including how it can improve the lives of patients and their families, and how it can prevent other issues or the need for hospitalization.

While striving to maintain a consistent global approach to pricing, we also consider the national, competitive and regulatory conditions within each market, including the ability and willingness of various customers—such as national, regional or

local institutional payers, physicians, employers and patients—to pay for our products. The prices of our medicines and vaccines also reflect government regulation and currency fluctuation effects, and prices paid by consumers can be affected by duties and tariffs imposed on imported medicines and vaccines, as well as price markups by intermediaries, including wholesalers and pharmacies.

In the private sector, particularly in developed countries like the United States, price competition has been spurred by private health insurance plans. These payers, as well as large government institutions, are able to negotiate significant rebates and discounts with pharmaceutical companies that can enable payers to lower premiums for their members.

In January 2017, we began disclosing the average annual list and net price changes across our product portfolio in the United States to increase transparency about our pricing practices, including the amount of rebates and discounts that we provide to payers. These data, which are posted in the [Transparency Disclosures](#) section of this report, show that our average annual net price changes (after rebates and discounts) across our U.S. human health portfolio have been in the low to mid-single digits since 2010. Additionally, our weighted average annual discount rate has been steadily increasing over time.

As health care systems in many developed markets are moving to a value-based care model, we are working with payers and other stakeholders to find flexible approaches to pricing. These include the use of quality- and performance-based contracts where payment is linked to quality metrics or improved health outcomes.

We recognize that in developing-world markets, access to and funding for health care, particularly pharmaceuticals, can often be limited. In many of these markets, most or all of the cost of treatment is borne by the patient. We actively work to develop and support various sustainable strategies to improve access, particularly for economically at-risk patient segments. In terms of pricing, these strategies can include directing differential pricing to patient sub-segments, either directly through national or local programs □ or indirectly through third-party health care funding sources that demonstrate reasonable and secure product distribution to intended patient segments.

Our willingness to provide differential pricing strategies is evident for many of our products, including some of the best-in-class innovative brands in our HIV, hepatitis C virus (HCV), women's health and vaccine-franchise areas. Our differentiated pricing specifically supporting eligible low- or lower-middle-income markets is applicable whether supply is through a direct purchase from our company or through one of our contracted distributors. Several recent initiatives illustrate our commitment to expanding access and availability:

- We extended our current Gavi prices for GARDASIL<sup>®</sup> [Human Papillomavirus Quadrivalent (Types 6, 11, 16, and 18) Vaccine, Recombinant] and ROTATEQ<sup>®</sup> (Rotavirus Vaccine, Live, Oral, Pentavalent) for 10 years, through 2025, to Gavi-graduated countries with Gross National Income (GNI) per capita not exceeding \$3,200
- Several of our vaccines [i.e., GARDASIL, PNEUMOVAX23 (Pneumococcal Vaccine Polyvalent), MMR-II<sup>®</sup> (Measles, Mumps, and Rubella Virus Vaccine Live), VARIVAX<sup>®</sup> (Varicella Virus Vaccine Live) and VAQTA<sup>®</sup> (Hepatitis A Vaccine, Inactivated)] are provided at a reduced price through our agreement with PAHO, which targets access to low- and middle-income patients in Latin America
- Within the scope of our ongoing partnership arrangement with Gilead, we continue to provide reduced pricing for ATRIPLA<sup>®</sup> (efavirenz 600mg/emtricitabine 200mg/tenofovir disoproxil fumarate 300mg) for 94 countries
- To assist patients in China not covered by the National Free Antiretroviral Program and needing access to our anti-retroviral medicine ISENTRESS<sup>®</sup> (raltegravir), MSD in China partnered with the HIV Medical Association to initiate a series of scientific educational programs to raise disease and treatment knowledge and awareness
- We continue to engage with governments on shaping expanded HCV micro-elimination programs. For example, in 2017, we secured commitments for expanded access to ZEPATIER<sup>®</sup> (elbasvir and grazoprevir) for patients in several lower- and middle-income markets, including Indonesia and Vietnam, supported with reduced pricing

However, in some countries, our ability to bring innovative pricing and access solutions to market is constrained by the pricing regulatory framework. In these instances, we continue to work with governments, regulators and medical insurers to innovate while remaining compliant. We know there is more that needs to be done, and we want to do our part to help more patients obtain and afford the treatments they need. We are committed to continuing our efforts to develop access solutions, including flexible pricing programs, targeted as appropriate to address the cost burden for patients at need throughout the world.

## Performance

PRICING & COMMERCIALIZATION	2013	2014	2015	2016	2017
Number of products that are supported with differential pricing <sup>1,2</sup>	24	35	35	40	42
Number of countries where inter- and/or intra-country pricing has been implemented <sup>3</sup>	70	114	121	123	125
Investment in patient- and provider-education programs (in millions)	\$61	\$52	\$80	\$80	\$90

NOTE: We have realized a notable increase in both products (+46%) and geographic scope (+63%) supported with differentiated pricing intended for at-need populations. Year-over-year differential pricing performance metrics can be impacted based on the timing of local-market or third-party contract renewals and/or product life-cycle introductions or deletions. Therefore, increases or decreases in these pricing metrics should not be interpreted as anticipating the level of trend growth in future years. 1. Differential pricing intended to facilitate access for the at-need population.

2. Products include HIV treatments, vaccines and other patented products.

3. Countries as defined by the World Bank 2017 GNI Classification, including UN-defined Least Developed Countries.



We recognize that we cannot address complex public health challenges on our own, but must address the barriers to access where we believe we can make the strongest contributions.

#### RESOURCES

[Access to Health Statement of Guiding Principles](#)

## OUR COMMITMENTS

We know that strengthening health systems and building health workforce capacity are important to improve access to quality health care and to help address underlying barriers to health. Through innovative approaches and partnerships, we invest our expertise, human resources, financial resources, products and market-based solutions to:

- Support capacity-building, including health care professional training, to deliver health care solutions
- Address underlying barriers to health, such as health-system strengthening
- Pursue programs to provide direct access to our medicines and vaccines when market-based solutions are inadequate or unavailable

Despite efforts to develop and implement effective business and philanthropic strategies to help remove barriers to access, challenges remain due to the complex and multifaceted nature of the problem. To address these challenges, the international community must pool its resources and expertise to strengthen health care systems, ensure adequate financing for health and help build local health care capacity. Even in developed countries, challenges remain to reach groups of underserved populations.

## IMPACT INVESTING

We engage in innovative financing mechanisms as a way to advance sustainable global health solutions in line with the company's overall objectives. Through impact investing, we are able to deploy financial resources in ways that may generate not only improved access to health care for underserved populations, but also financial returns and commercial opportunities—all while growing a sustainable global health ecosystem and attracting additional capital and partners.

For example, in 2014 we invested in the [Global Health Investment Fund \(GHIF\)](#), a social impact investment fund that

supports the development of innovative medicines and other health interventions for patients in low- and middle-income countries. The GHIF portfolio companies are already making an impact, delivering more than 6.5 million doses of a cholera vaccine and 200,000 malaria tests through sustainable commercial models.

In 2016, we invested in the [Abraaj Growth Markets Health Fund \(AGHF\)](#). AGHF is developing hospital and clinic networks in high-growth countries in Africa and Asia. The sustainable business model of AGHF is developing commercial solutions to provide needed health services to reach patients who currently lack adequate health care and medical support. In addition to monitoring the financial return on investment, a high-caliber team of public health experts guides the monitoring and evaluation of the social and health impact. As of year-end 2017, 71 health facilities in the AGHF portfolio had provided health services for 1.8 million patient episodes in four countries.

In 2018, we joined [UNICEF Bridge Fund](#) by making a five-year loan to this novel investment vehicle that accelerates the provision of critical health care commodities to benefit vulnerable children in limited-resource settings, including for disaster relief. By providing a fixed rate of return to investors, the Bridge Fund combines timely, high-impact health assistance with sustainable deployment of our company's financial resources.

We continue to evaluate impact investing opportunities that are aligned with our corporate responsibility priorities and business objectives.

For additional examples of our support for health care capacity-building and health-system-strengthening activities, please visit the [Key Initiatives](#), [Giving—Health](#), [Women's Health](#) and [Vaccines](#) pages.

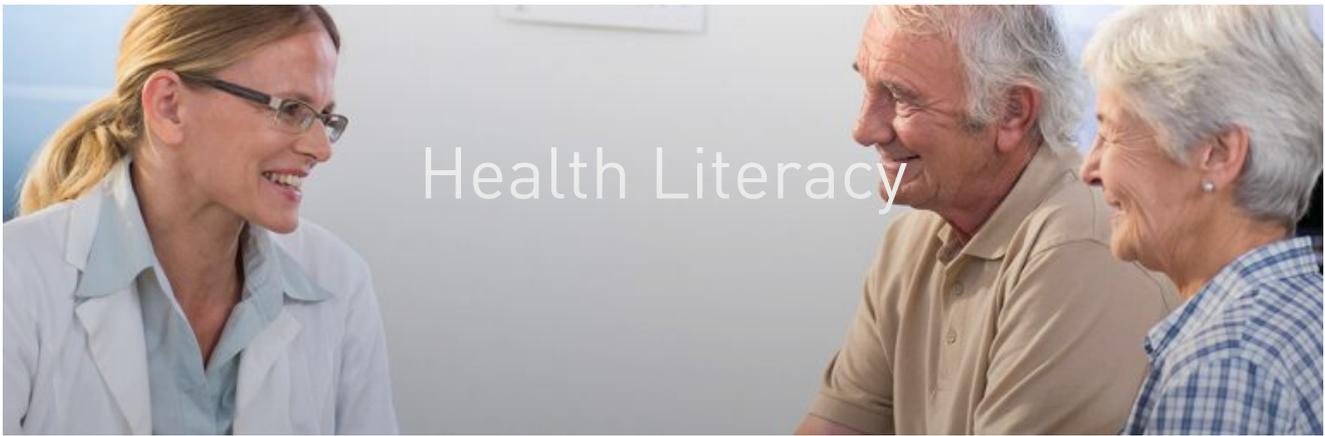
We also recognize that adequate solutions are not always available when patients need them. And while we do not believe that donating medicines alone is a sustainable, long-term solution to the global challenge of access to medicines, we recognize that millions of patients need medicines now. For that reason, we remain committed to donating our medicines and vaccines through organized programs, as appropriate.

The primary programs involving donations of our products are: our [Medical Outreach Program](#), the [MECTIZAN® \(ivermectin\) Donation Program](#) and our U.S.-based [Patient Assistance Programs](#).

## Performance

COMMUNITY INVESTMENT	2013	2014	2015	2016	2017
Health care workers trained through our major programs and partnerships <sup>1</sup> (estimate)	22,000	137,000	19,000	32,000	74,000
Investment in partnerships for activities that address underlying barriers to health, such as health-system strengthening and capacity building (in millions) <sup>1</sup>	\$24	\$32	\$21	\$28	\$40
People reached through our major programs and partnerships (in millions) <sup>1</sup>	302	267	188	293	311

1. Includes investments by the Office of Corporate Responsibility, *MSD for Mothers* and our company's Foundation.



We are committed to improving health literacy as part of our mission to save and improve lives.

#### RESOURCES

##### Perspective: Clear Communication Must Be Part of the Care...and the Cure

Health literacy is vital for health, be it living healthy, disease prevention or to achieve the best possible results from medical care. We must partner with patients to promote their understanding of their medical condition or disease, the reasons they are being treated, and the appropriate use of their medications and other treatments.

Since its inception in 1891, our company has pushed the boundaries of science with the hope and expectation that advancing scientific knowledge will lead to major advances in health. Our commitment to improving patient health outcomes extends to our commitment to health literacy.

Health literacy can affect a person's ability to access health care services, use services appropriately, adopt health-promoting behaviors, manage chronic conditions, navigate the health care system, and act on health-related news and information.<sup>1,2</sup>

Health literacy challenges can affect people of all ages, races, incomes and educational levels. Some population groups in the U.S. are more vulnerable to low health literacy. They include the elderly, people with less than a high school education, people living in poverty, racial and ethnic minorities, and people with limited English proficiency.<sup>3</sup>

Those with limited health literacy are more likely to have chronic conditions and are less able to manage them effectively.<sup>4</sup> More than 77 million U.S. adults have basic or below basic health literacy skills.<sup>5</sup> In Europe, nearly half of all Europeans have inadequate and problematic health literacy skills according to the [European Health Literacy survey](#) financed by the European Commission.

#### KEY DEFINITION

**Health literacy:** Health literacy is linked to literacy and entails people's knowledge, motivation and competence to access, understand, appraise and apply health information in order to make judgments and take decisions in everyday life concerning health care, disease prevention and health promotion, to maintain or improve quality of life during the life course.<sup>6</sup> Put simply, it is a person's ability to obtain, communicate, process, and understand health information.<sup>7</sup>

## POOR HEALTH LITERACY IS A SERIOUS CHALLENGE

According to the World Health Organization (WHO), people with strong health literacy skills enjoy better health and well-being; while those with weaker skills tend to engage in riskier behavior and have poorer health.<sup>8</sup> Patients require health literacy skills in order to understand and navigate the health care system, talk to providers, engage in self-management, exercise basic numeracy skills, adopt healthy behaviors, and act on news and information.<sup>4,5</sup> Self-management with the support of health care providers led to better outcomes in various chronic disease areas such as asthma, diabetes or arthritis.<sup>9</sup>

Health literacy also has an impact on the efficient use of health care resources. According to a systematic review, limited health literacy costs health systems three to five percent of their budget.<sup>10</sup> Low health literacy has been estimated to cost the U.S. economy between \$106 billion and \$236 billion annually.<sup>1</sup>

Our company recognizes the potential we have to help improve millions of lives by improving how we communicate as we shepherd discoveries from the lab to patients. It will take a multifaceted effort focused on public policy, engaging diverse stakeholders and new ways of communicating. We are calling government agencies, health care providers, patient advocacy groups and health care companies to work together to increase patient understanding of health care and treatment plans.

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Our goal is to demonstrate scientific and policy leadership and innovation in health literacy. We publicly share best practices in national and global forums. In 2018, we are beginning six publications about health literacy in several disease areas, as well as broader regional perspectives.

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## U.S. Initiatives

### ACTIVE ENGAGEMENT IN THE EXTERNAL ENVIRONMENT: SHARING BEST PRACTICES

Beyond individual skills, there is a need to reduce the complexity of the health care system. Many organizations share our commitment to addressing these issues, including the U.S. Food and Drug Administration (FDA), payers, integrated health systems, large medical groups, civic organizations and patient advocates.

We proudly participate in both the National Academies' Health Literacy Roundtable and the Roundtable on the Promotion of Health Equity and the Elimination of Health Disparities. In November, 2017, we shared our company's perspective on the importance of health literacy at the Health Literacy Roundtable workshop. We are currently involved in a pharmaceutical collaborative of the Health Literacy Roundtable, as well as a Public-Private Partnership Health Literacy workgroup. Over time, both groups plan to publish documentation, for the purpose of sharing best practices.

We have made important strides in developing health-literate patient labeling for new molecules, and share these efforts nationally and internationally as a potential model for the FDA and others in industry. Development includes significant input from people across a range of health literacy levels. In November, 2017, we were invited by the FDA to present

[“Incorporating Health Literacy into the Development and Testing of Patient Labeling”](#) at a labeling conference, with over 2,000 registered attendees in 42 countries.

We also shared this approach at the Health Literacy Annual Research Conference in October 2017.

Over the past few years, we have had five health-literate labels approved by the FDA. In 2018, our Product Labeling Group formalized a standard operating process document for the development of patient labeling for new molecules, an example of an increased focus on health literacy at our company.

In 2016, our manufacturing division began to apply a similar process to the development of an “Instructions for Use” (IFU) guide—labeling which accompanies combination products. In 2017, our first IFU using this approach was approved.

At the Institute for Healthcare Advancement health literacy conference in May 2018, we led a breakout session, “Convincing Leaders to Commit to Health Literacy,” reinforcing the importance of pilots to demonstrate impact, alignment to company mission and senior sponsorship. At the same meeting, our market research director received the research award for his co-leadership of the Health Literacy Initiative of Intellus Worldwide, looking at health literacy from the lens of patients and other stakeholders.

## CHANGING OUR CULTURE: COMMITMENT ACROSS THE ENTERPRISE

In addition to have a person dedicated full-time to health literacy at our company, there are dozens of champions across our global organization, who work to apply health literacy principles to patient communications. They include representatives from manufacturing, clinical research, marketing, policy and global population health. In 2017, there were three special assignments in health literacy, focusing on early clinical research, clinical trial diversity and health literacy and diversity and inclusion.

We work to educate our own employees about creating health-literate communications in various ways. In 2017, over 450 employees across divisions participated in day-long health literacy training sessions. Through our online training program, we provide clear instructions on how to implement health literacy best practices.

A committee within our company’s Investigator Studies Program is focused on patient engagement, diversity and health literacy. We have funded external research on an annual basis since 2015.

## Global Initiatives

At the European Union level, the role of health literacy is recognized by high-level decision-making bodies. Both the conclusions of the Council of the European Union and the “Riga Roadmap”—a joint declaration by industry, civil society and patient organizations—refer to the importance of health literacy.<sup>11, 12</sup>

We collaborate with various stakeholders in policy development for health literacy and support programs that improve the health literacy levels of citizens and patients. In Europe, we do so together with European associations of physicians, patients, universities and policy makers from the European Parliament and other EU institutions.

Throughout 2017, we expanded our engagement to advance health literacy within the field of cancer. Patients with higher health literacy levels are better able to navigate and access the health system, understand the importance of cancer prevention, seek earlier diagnosis and adhere better to treatment.<sup>8</sup> To that end, we supported the “Biomarker Literacy” initiative of the European Cancer Patient Coalition that aims to create awareness and to improve patients’ knowledge about biomarkers.<sup>13</sup>

We developed infographics showing the importance of health literacy in the context of biomarker testing for cancer therapy. We [supported a survey](#) among gastric cancer patients which assessed their knowledge and experience of treatment. These findings may improve these conditions and treatments for other patients. Health literacy was also recognized as an important component to improved cancer care by [All.Can](#), a multi-stakeholder platform to foster sustainable cancer care, of which our company is a member.<sup>14</sup>

Our U.S. health literacy efforts to create more health-literacy friendly labels are also now beginning to have an impact in Europe. Patient labeling which is developed and approved in the U.S. often forms the foundation for patient leaflets in Europe. The process used to develop and test health-literate patient labeling for new molecules was shared as a best practice in May at a European labeling conference in Denmark.

Also, the European Medicines Agency (EMA) recently approved an updated IFU, based on our U.S. approach to include health literacy principles.

In 2015–2016, in advance of an EU requirement to publish a public summary of each clinical trial beginning in 2019, two of our employees were invited to participate in an EMA Task Force. Patient representatives were also part of this task force. As an input to support simple, clear summaries, MSD created and tested a sample lay summary, published in 2018: [“Clinical Trial Results Summary for Laypersons: A User Testing Study.”](#)

The final EMA guidance was issued in 2017, and reflects health literacy, numeracy, and readability principles. The MSD testing was also presented during an oral session of the Health Literacy Annual Research Conference in 2017. The user testing will also be presented at the International Pharmaceutical Federation (FIP) Congress in Scotland in September 2018.

Looking ahead, we have a leadership role in a multi-stakeholder project about health literacy in clinical trials at the Multi-Regional Clinical Trials Center of Brigham and Women’s and Harvard. The work of the group will be available by 2019.

Specific efforts in Europe include:

## BELGIUM

MSD Belgium has given annual awards to recognize and reward health literacy projects. For the five-year celebration of the “Well Done MSD Health Literacy Awards,” there was a Health Literacy Day at the Belgian Federal Parliament. This day consisted of three major components: a debate with all stakeholders, the Health Literacy award session and an exposition of the award winners of the last five years.

## ITALY

MSD Italy supports Patient Academy, a network of over 30+ patient associations focused on training to support patient engagement and empowerment. Examples include: communicating with the media, interacting with policy stakeholders, leveraging social media, improving communication with physicians and improved digital health use and understanding.

MSD Italy also supports improved health literacy in many ways, including:

- “Shortness of breath” movie highlighting the impact of pulmonary hypertension on daily quality of life
- SITA Campaign on Antimicrobial Resistance (AMR)
- HCV Zero, an awareness project in collaboration with the patient advocacy group Epac
- “Let’s focus on HIV,” an awareness campaign focused on HIV prevention
- Several cancer awareness campaigns, focusing on prevention, impact of quality of life, and other resources
- LOVE YOURSELF, a consumer campaign aimed at increasing awareness on menopause

## FRANCE

MSD France supports the project “University of Patients” (Université des patients). Through this project, France will become the first country to train patients to become experts in managing their disease, transforming their experience into expertise for health care systems. MSD is the first pharmaceutical company to support such an initiative.

The Ritu’elles initiative is a prevention campaign model dedicated to women’s health. In 2018, this village gathered more than 10 partners (patient associations and learned societies). The gathering was supported by local policy makers. By reinforcing women’s empowerment and promoting prevention, MSD France supports the Health Minister’s priorities.

## HUNGARY

One of every two Hungarians has insufficient health literacy levels. Under the leadership of MSD, the Association of Innovative Pharmaceutical Manufacturers (AIPM) created a working group on health literacy to close this gap and advance health literacy on the public health agenda. Projects include:

- It speaks to me! Health Literacy Award 2017: Submissions came from health care and educational institutions, healthcare professionals, patient organizations, social public and business organizations
- Academy for Patient Organizations: The AIPM conducts lecture series and provides online materials to help Hungarian patient organizations improve their skills. More than 60 groups have joined.
- Academy of PAGs Expo of 2017: This is the first Hungarian knowledge exchange among patient organizations. The goal is to bring together medical professionals and representatives of patient organizations to enhance health literacy.

## IRELAND

MSD Ireland partners with the National Adult Literacy Agency (NALA) to promote increased health literacy across the country. In 2017, efforts focused on the Crystal Clear Mark—a national programme that offers pharmacies and general practices the opportunity to gain a unique quality mark. Developed by The Irish Pharmacy Union (IPU), MSD and NALA, it recognizes pharmacies and general practices for health-literate care. Participants must have a literacy policy and procedures to help patients find and use health information. Nine additional pharmacies were accredited in 2017.

## GERMANY

MSD Germany supports the German Coalition for Patient Safety (“Aktionsbündnis Patientensicherheit”). This is an association of organizations and individuals interested in strengthening health literacy. Working groups develop patient safety recommendations, open-access documents distributed within health care institutions for free.

The BAGSO (Bundesarbeitsgemeinschaft für Seniorenorganisationen) is the largest umbrella organization of elderly people. In 2017, MSD Germany sponsored the BAGSO-Expert forum “Strengthen Patients and Accompany Them.”

MSD Germany supports a number of projects of patient organizations at the federal and regional level to address and improve health literacy. MSD actively participates in a pharmaceutical consortium to implement a digital system of user-friendly materials for patients.

## POLAND

In collaboration with public and private partners, MSD Poland's Women's Health Foundation (WHF) promoted women's health, including HPV infection and cardiovascular disease prevention.

Other initiatives include:

- "Choose Life—First Step" (school-based HPV prevention)
- "Don't Pay for Mistakes—Better Prevent!" (HPV prevention and screening in disenfranchised women)
- "Women's Health Promotion Forum" and "Vital Polish Women" campaign

## SPAIN

In 2017, MSD Spain initiated a number of programs, including:

- MSDsalud (a website to improve health literacy of citizens, patients and caregivers)
- Patient organization projects (more than 30 projects in health literacy developed by patient organizations in the areas of cancer, HIV, Hepatitis C, Diabetes, Alzheimer's, Arthritis, Inflammatory Bowel Disease and rare diseases)
- In 2017, MSD Spain supported the first Spanish Patients Congress focused on improving members' knowledge of health literacy

MSD Spain also supports the initiatives of Plataforma de Organizaciones de Pacientes (Patients Organizations Platform), the most important patient organization in Spain. In 2017, they organized the first Spanish Patients Congress focusing on improving members' level of knowledge of health literacy.

## New Global Efforts

Our company is expanding its footprint and commitment in health literacy beyond the U.S. and Europe. In Latin America, our Global Medical Affairs group has been working to highlight the importance of health literacy in anti-microbial stewardship and anesthesia. The group published 12 principles to remember before starting an antibiotic.

We have also demonstrated a commitment to health literacy in Asia. In 2017 we conducted a plenary address at the Asia Health Literacy Association conference and in 2018 we had the opportunity to speak about health literacy at a conference in Singapore.

1. U.S. Department of Health and Human Services (HHS). Quick Guide to Health Literacy. <http://health.gov/communication/literacy/quickguide/Quickguide.pdf>. Accessed June 22, 2016.
2. HHS. Quick Guide to Health Literacy. Fact Sheet. Health Literacy. Basics. <https://health.gov/communication/literacy/quickguide/factsbasic.htm>. Accessed: July 9, 2018.
3. HHS. Office of Disease Prevention and Health Promotion. National Action Plan to Improve Health Literacy. Washington, D.C.: 2010. [https://health.gov/communication/hlactionplan/pdf/Health\\_Literacy\\_Action\\_Plan.pdf](https://health.gov/communication/hlactionplan/pdf/Health_Literacy_Action_Plan.pdf). Accessed October 13, 2017.
4. HHS. Quick Guide to Health Literacy and Older Adults. <http://health.gov/communication/literacy/olderadults/literacy.htm>. Accessed June 22, 2016.
5. Kutner M, Greenberg E, Jin Y, Paulsen C. The health literacy of America's adults: Results from the 2003 National Assessment of Adult Literacy (NCES 2006-483). U.S. Department of Education. Washington, D.C.: National Center for Education Statistics, 2006. <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2006483>. Accessed October 13, 2017. <https://www.ahrq.gov/downloads/pub/evidence/pdf/literacy/literacyup.pdf>. Accessed October 13, 2017.
6. Sorensen K, Van den Broucke S, Fullam J, et al. Health literacy and public health: A systematic review and integration of definitions and models. *BMC Public Health*. 2012;12:80. <https://doi.org/10.1186/1471-2458-12-80>. Accessed October 13, 2017.
7. U.S. Department of Health and Human Services. 2000. Healthy People 2010. Washington, DC: U.S. Government Printing Office. Originally developed for Ratzan SC, Parker RM. 2000. Introduction. In National Library of Medicine Current Bibliographies in Medicine: Health Literacy. Selden CR, Zorn M, Ratzan SC, Parker RM, Editors. NLM Pub. No. CBM 2000-1. Bethesda, MD: National Institutes of Health, U.S. Department of Health and Human Services.
8. WHO Europe. Health literacy: The solid facts. Kickbusch I, Pelikan JM, Apfel F, Tsouros AD, eds. 2013. <http://www.euro.who.int/en/publications/abstracts/health-literacy.-the-solid-facts>. Accessed December 31, 2015.
9. Bodenheimer T, Lorig K, Holman H, Grumbach K. Patient self-management of chronic disease in primary care. *JAMA* [Internet]. 2002 Nov 20 [cited 2017 Jan 18];288(19):2469-75. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/12435261>.
10. Eichler K, Wieser S, Bruegger U. The costs of limited health literacy: A systematic review. *Int J Public Health*. 2009;54(5):313. <https://doi.org/10.1007/s00038-009-0058-2>. Epub 2009 Jul 31.
11. Council of the European Union (2015/C 421/03). Council conclusions on personalised medicine for patients. *Official Journal of the European Union*, C 421/2. [http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015XG1217\[01\]](http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52015XG1217[01]). Accessed October 13, 2017.
12. The Riga Roadmap. Investing in Health and Wellbeing for All. 2015. <http://rigahealthconference2015.eu/wp-content/uploads/2015/08/Riga-Roadmap-download-FINAL.pdf>. Accessed May 13, 2016.
13. European Cancer Patient Coalition. Survey: How much do you know about biomarkers? <http://www.ecpc.org/news-categories/policy-and-advocacy/421-survey-how-much-do-you-know-about-biomarkers>. Accessed March 14, 2017.
14. Wait S, Han D, Muthu V, et al. Towards sustainable cancer care: Reducing inefficiencies, improving outcomes—A policy report from the All.Can initiative. *J Cancer Policy*. 2017;13:47-64. <https://doi.org/10.1016/j.jcpc.2017.05.004>. Accessed March 14, 2017.



We believe that health information is a universal right and that every person is entitled to accurate, accessible and usable medical information.

And we believe that we have a responsibility to protect, preserve and share the best current medical information to enable more-informed decisions, to enhance relationships between patients and professionals, and to improve health care outcomes around the world.

Highlighted below are examples of publications, policies, links and other resources for both patients and health care professionals.

## The Manuals

The Manuals, known as the Merck Manuals in the U.S. and Canada and the MSD Manuals in the rest of the world, are among the most widely used medical information resources.

As a sign of our deepened commitment to worldwide medical information access, we have made the Manuals available for free in digital form in multiple languages to professionals and patients around the world.

The 20th edition of the Manual is now available in print. Published in March 2018, this new edition boasts 3,584 pages filled with the most up to date medical content written by over 350 medical experts. First published in 1899, the Manual is one of the most comprehensive medical references and it has been completely revised, redesigned and expanded in this new edition.

First published in 1899 as a small reference book for physicians and pharmacists, the Manuals have grown in size and scope to become among the world's most widely used comprehensive medical resources. Over the years, the Manuals have been translated into 17 languages in print, and a consumer version has been published since 1997.

The U.S. is now the second largest Spanish-speaking country in the world, behind only Mexico. Despite this growth, the proportion of Spanish-speaking doctors has declined steadily over the last 30 years, and professionally translated medical information for Spanish speakers remains limited. Poor translation quality of online resources is another

barrier to accessing reliable medical information. In February 2016, we announced that the Manuals were available in Spanish in the United States.

As the Manuals have evolved, they have continually expanded the reach and depth of offerings to reflect the mission of providing the best medical knowledge of the day to a wide cross-section of users, including medical professionals and students, veterinarians and veterinary students, and consumers.

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“The best medical information worldwide is documented in English as a universal language, but unfortunately the advances in diagnosis and treatments for common medical conditions are out of reach for all the people around the world who don’t speak English. Having a resource translated into their native language is highly important to help increase their medical knowledge, which could make a difference between health and disease for families and entire communities.”

HECTOR GONZALEZ USIGLI, M.D.  
MSD MANUALS AUTHOR  
GUADALAJARA, MEXICO

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## GLOBAL MEDICAL KNOWLEDGE 2020



In 2015, we embarked on our most aggressive and far-reaching medical knowledge initiative to date: Global Medical Knowledge 2020. Through this worldwide project, we aim to make the best current medical information accessible for more than 3 billion professionals and patients around the world by 2020. As part of this project, all of the Manuals will be made available for free online and through mobile apps in multiple languages.

We met our 2020 goal by launching this trusted medical educational resource in 10 languages, and in mobile apps in five languages. There are additional languages planned for 2018 and beyond. Online access to the Manuals should serve as a valuable tool for patients and caregivers when faced with the need to make health care decisions for themselves and their loved ones.

Through “Global Medical Knowledge 2020,” we are actively partnering with health care and patient organizations, companies and libraries throughout the world to fulfill our mission and make the Manuals readily accessible to all. The initiative is a direct reflection of our company’s broad corporate commitment to addressing unmet medical needs and improving global health.



## Health Resources for Patients

According to a study published by the *New England Journal of Medicine*,<sup>1</sup> an estimated one-third to one-half of all patients in the U.S. reportedly do not take their medications as prescribed.

Twenty to thirty percent of new prescriptions are never filled at the pharmacy, and the majority of patients prescribed medications for chronic diseases have, after six months, taken less medication than prescribed or stopped the medication altogether.

The following resources are designed to help patients stay on course with their treatments and have better conversations with their health care providers about the medicines they have been prescribed.

Our company's digital [consumer engagement program](#), a free health-support program, offers resources that help consumers achieve their health goals by reinforcing healthy lifestyle choices, providing disease-specific education, supporting adherence to therapy and facilitating more productive interactions with health care professionals. The program also includes support and encouragement for caregivers, who are often engaged in the day-to-day care and treatment decisions of family members and friends.

Elements of the consumer engagement program include:

- Caregiver Resources
- Disease-specific support information including articles, slideshows, infographics and quizzes
- "Getting started" fitness ideas and recipe section
- A guide to better "Know Your Health Insurance"
- Low-sodium, low-fat, low-sugar, low-calorie cookbooks are available to download
- Ability to join our community on social media via Facebook, Twitter, YouTube and Pinterest
- Program app available on Google Play & Apple App Store
- Links to product savings coupons and free trial offers

## THE ADHERENCE ESTIMATOR®

Patients often fail to reach clinical goals because they do not take medications as directed. We remain committed to the issue of medication adherence and to helping patients and customers with adherence-related programming and solutions that are scientifically based.

The foundation of our adherence program is the [Adherence Estimator](#)®. The Adherence Estimator is a validated, patient-based resource that gauges the likelihood of a patient adhering to a newly prescribed oral medication for certain chronic conditions. The Adherence Estimator asks questions about three key areas of patient perception that affect adherence:

- Concerns about prescription medication
- Commitment to a prescription medication
- Financial burden from the cost of a prescription medication

After respondents answer the questions, the resource provides information to enable the patient and health care provider an opportunity to discuss any concerns that the patient may have. In addition to our outcomes research studies, we continue to explore behavioral and motivational factors that contribute to non-adherence. With this new information, we will build tools and resources that will allow for a deeper conversation between patients and their health care professionals on behavior change to improve medication adherence. And to facilitate the conversation, we are exploring technology to get our adherence tools and resources the ability to integrate into workflow within electronic health records.

## SPARTA

SPARTA is a proven adherence platform that supports patients on any of our company's therapies to improve adherence to these medications while also providing access to various tools and resources to assist in the management of conditions.

SPARTA was created in Australia in 2009, in partnership with physicians and pharmacists who voiced the need for more robust patient support. In addressing this unmet need, modules were created to support enrolled patients in managing their chronic conditions. The modules consisted of various patient touch points (e.g., telephone support, disease education and text/email reminders) to help patients understand their condition better, realize the importance of diet and exercise in managing their condition and, ultimately, improve medication adherence. SPARTA grew from 60,000 patients in Asia-Pacific in 2013 to more than 250,000 patients across the globe in 2017.

In 2018, the program will continue its expansion into the new therapeutic areas of immunology, oncology and hepatitis.

Based on a recent analysis of 15,000 patients across three countries, more than 80 percent of patients taking part in the SPARTA program completed the 12 month program with improvements in their medication adherence as well as significant improvements in their dietary and lifestyle parameters.

SPARTA has been launched in Australia, India, Indonesia, Vietnam, Malaysia, Singapore, Oman, Taiwan, Mexico, UAE, Chile, Sweden, Belgium, Switzerland and Ireland.

## SPARSH

[MSD SPARSH Healthline](#) is a telephone-based diabetes-management support program available in India for patients treated for Type 2 Diabetes Mellitus ("T2DM") with JANUVIA® (sitagliptin)/JANUMET® (sitagliptin and metformin HCl)/Janumet XR CP® (sitagliptin and metformin HCl extended-release).

SPARSH aims to improve therapy adherence among T2DM patients and improve their diabetes control by helping them adopt therapeutic lifestyle changes. The key elements of SPARSH include customized counseling on disease and lifestyle management along with text and adherence support.

Since 2009, SPARSH has enrolled more than 125,000 patients with over 15,000 GP's participating in the program. A recent analysis of approximately 1,280 patients who had completed more than 14 months in the program showed that telephonic counseling facilitated significant improvements of dietary and lifestyle parameters in patients with T2DM.

With the disease management space changing rapidly in the last couple of years, we are working toward enhancing the current program offerings to broaden the program's reach and help improve patient experience and disease outcomes.

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1. <http://www.nejm.org/doi/ful/10.1056/NEJMra050100>; <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3068890/>.

## Resources for Health Care Professionals

Univadis® is a comprehensive online medical-information resource from Aptus Health—a subsidiary of Healthcare Services and Solutions—for health care professionals worldwide.

This web- and mobile-optimized resource provides high-quality, relevant and trusted medical information essential for health care practice. The site features breaking medical news, accredited education courses and tools tailored by medical specialty and clinician need. Additionally, a point-of-care mobile application is available in key markets. Over 3.6 million health care professionals are registered members of Univadis, which is available across 63 specialties, 20 languages and 90 geographic markets.

The medical and scientific content comes from independent third parties, such as scientific leaders, educational institutions and medical societies, as well as through partnerships with a range of world-leading medical publishers. Sponsor organizations provide educational funding to expand and augment the site's core content in adherence with the strict editorial principles of independence, relevance and quality.

With no subscription or registration fees, Univadis provides access to:

- The latest medical news and clinical developments in 60+ specialist areas
- Selected full-text articles from *The Lancet* and *JAMA*
- Weekly research summaries from major peer-reviewed publications
- Conference coverage from medical congresses
- Full online access to trusted medical references
- A library of thousands of medical images to enrich presentations and research
- A wide range of resources to enhance interactions with patients at the point of care, including interactive 3-D anatomy tools and patient handouts

Univadis creates unique opportunities for long-term and meaningful partnerships with scientific and health care organizations, in addition to the world-class publishers that our company already works with. Univadis aims to be a valuable partner in building lasting relationships with our 3.6 million individual health care users globally.



Our global [Animal Health business](#) is dedicated to preserving and improving the health, well-being and performance of animals through science.

#### RESOURCES

[MSD Animal Health](#)  
[Antimicrobial Resistance Global Action Plan](#)  
[Delivering on Our Commitments](#)

We offer veterinarians, farmers, pet owners and governments the widest range of veterinary pharmaceuticals, parasiticides, vaccines and health management solutions. Healthier animals mean sustainable food supplies, protection against zoonotic diseases,<sup>1</sup> a reduction in the burden of certain food-borne diseases, and longer, richer companionship for pet owners.

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Our Animal Health business employs more than 7,000 people worldwide and is present in more than 50 countries.

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#### 2017 PERFORMANCE HIGHLIGHTS

- Natural disasters defined the year 2017 for both humans and their pets. Hurricanes Harvey and Maria and the wildfires in California left many household pets, horses, ponies and donkeys stranded and displaced. Our Animal Health business jumped in to provide physical, medical and monetary support.
- By 2017, our Animal Health's Afya Program had donated more than 2 million rabies doses to partners including Afya Serengeti and Mission Rabies as part of a broader global initiative to eliminate canine-mediated human rabies by the year 2030
- In June 2017, the largest canine influenza outbreak ever experienced shook 13 states in the U.S., from North Carolina to Texas. Our Animal Health business provided hands-on education and public relations support to veterinarians, veterinary nurses, pet professionals and pet parents, and organized the first Canine Flu Vaccination Day on June 20th.
- We launched the *Time to Vaccinate* program in Europe, an initiative for cattle care focused on treatment and vaccination to prevent infectious disease

- We acquired Vilsan Pharmaceuticals, enhancing our portfolio of animal health products in Turkey and adding a manufacturing facility
- We acquired Prondil S.A. in Montevideo, Uruguay, greatly expanding our ability to develop and manufacture vaccines for livestock in Latin America and globally. We also acquired Vallée S.A., which added to the breadth of our product line in Brazil and the Latin America region.
- We partnered with Laboratorios LETI for the distribution of LetiFend® to protect against canine Leishmaniasis, a harmful parasitic disease caused by the organisms *Leishmania infantum* (*L. infantum*) that can also be spread to humans. LetiFend® aids in the prevention of Leishmaniasis by bolstering the immune response in advance of infection with the parasite.
- We acquired a new global manufacturing facility located in Krems an der Donau, Austria, to expand global vaccine manufacturing and distribution. Krems is located near several universities and will be a leading site for innovation.
- We launched INNOVAX®-ND-IBD, providing simultaneous protection against Newcastle Disease (ND), Infectious Bursal Disease (IBD), and Marek's disease (MD). The vaccine is groundbreaking in Europe, where there are no current treatment options for these three damaging diseases. As a single- injection vaccine, INNOVAX-ND-IBD will also help to decrease stress due to vaccination in chicks and improve poultry welfare.
- We launched EXZOLT®, the first systemic treatment for poultry red mite infestations. EXZOLT is easily administered via poultry's drinking water, decreasing the potential for stress from infestations and the need for chemical treatments and sprays.

Our Animal Health business employs more than 7,000 people worldwide and is present in more than 50 countries. We operate a global network of manufacturing sites and dedicated R&D facilities, and offer products for various species, including ruminants (cattle, sheep, goats), poultry, swine, aquatic animals and companion animals (dogs, cats, horses) in 150 countries. Our Animal Health business concentrates our corporate responsibility efforts in the following areas:

- [Protecting animal health](#)
- [Contributing to public health](#)
- [Supporting a sustainable, global food supply and managing our global footprint](#)
- [Ensuring ethical business practices](#)

Note: This section includes information about how Merck & Co., Inc., Kenilworth, N.J., U.S.A., contributes to societies through its Animal Health business. Information and data on the performance of our Animal Health business in the environment and in other areas are contained within the main sections of our global corporate responsibility report.

1. Zoonotic diseases are any disease or infection that is naturally transmissible from vertebrate animals to humans or vice versa (World Health Organization). Food-borne diseases in general encompass a wide spectrum of illnesses caused by microbial, parasitic or chemical contamination of food.

## Performance

ANIMAL HEALTH	2013	2014	2015	2016	2017
Year-over-year increase in rabies vaccine donations <sup>1</sup>	+70%	+15%	+47%	+34%	+20%
Value of equine vaccines donated annually to the Unwanted Horse Veterinary Relief Campaign	\$125,000	\$115,000	\$107,000	\$142,400	\$182,420
Number of new products approved (annually)	5	8	10	9	18
Scholarships provided to students through our Animal Health Grant Program	NR	38	52	100	190

NR: Not reported.

1. Rabies doses donated to Afya rabies projects (including Mission Rabies and the Serengeti Health Initiative).



Our Animal Health business addresses the world's biggest animal health challenges, and collaborates with our customers to answer their specific needs.

#### RESOURCES

[MSD Animal Health](#)  
[Antimicrobial Resistance Global Action Plan](#)  
[Delivering on Our Commitments](#)

These challenges include not only how to treat new and re-emerging diseases, but also how to respond to consumer preferences and make optimal use of available tools. We endeavor to achieve the highest protection possible, while promoting the well-being and safety of the animals being treated and the people applying our veterinary products.

An example of this is the ready-to-use single injection of PORCILIS® PCV M Hyo®, Europe's first single-shot vaccine to protect piglets from both porcine circovirus Type 2 (PCV2) and *Mycoplasma hyopneumoniae* (M. hyo) infections. This vaccine reduces the number of vaccinations given to young piglets and provides protection against both diseases without a requirement for additional mixing, decreasing the potential for handling error. Additionally, PORCILIS PCV ID was introduced to the market in Latin America in 2017 and is the first porcine circovirus Type 2 (PCV2) vaccine for intradermal use in a single dose using the IDAL® device.

With the IDAL vaccination device for pigs, additional vaccination options are now available. The needle-free device provides flexibility for the user, particularly when vaccinating large groups of pigs. The IDAL device also reduces stress in pigs, which can improve animal welfare. The absence of needles improves biosecurity and worker safety, and eliminates the risk of broken needles in carcasses. To aid producers in tracking their herds' health, the device has the capability to send vaccination data directly to a tablet or smart phone, allowing users to monitor, analyze and manage relevant data contained within the vaccinator. Swine producers now have access to intradermal needle-free protection against PCV2, M. hyo and Porcine Reproductive and Respiratory Syndrome virus (PRRSv), the three major swine diseases affecting pig operations worldwide, as well as protection against Aujeszky's disease (pseudorabies).

The Convenience Program Evaluation, an innovative poultry health field service, complements our company's Convenience Program, an initiative designed to help poultry producers protect chickens against various diseases while achieving optimal vaccination standards, bird quality and performance goals. Through the Convenience Program suite, producers receive not only vaccination support through laboratory services and field visits, but also staff trainings and scientific seminars enabling them to remain highly proficient in poultry health practices.

## KEEPING PETS HEALTHY

In June 2017, the largest canine influenza outbreak ever experienced shook 13 states in the U.S., from North Carolina to

Texas. Our Animal Health business provided hands-on education and public relation support to veterinarians, veterinary nurses, pet professionals and pet parents, and organized the first Canine Flu Vaccination Day on June 20. Canine influenza (CIV) is a highly contagious disease that has affected dogs nationwide. Dog flu H3N8, first discovered in the U.S. in 2004, has been confirmed in 43 states, while the H3N2 strain, first isolated in the U.S. in 2015, has been confirmed in 34 states.<sup>1</sup> Nobivac<sup>®</sup> Canine Flu Bivalent, the first bivalent dog flu vaccine, was licensed in October of 2016, protecting the health of thousands of dogs across the U.S.

In 2017, we launched *Care & Control of Pet Diabetes Featuring Sugar & Spike*, a global program educating pet owners about the signs of diabetes in pets and how the disease can be managed. The program, led by the animated cat and dog pair Sugar and Spike, helps pet owners understand when they should take their pet to a veterinarian and how to develop a treatment plan. Signs of diabetes in pets can include frequent urination, lethargy, and excessive water consumption. The Sugar & Spike<sup>®</sup> campaign includes an interactive quiz that tests owners' knowledge of which behaviors or signs in their pet could indicate diabetes, and which are unlikely to be caused by the disease.

In partnership with the Canadian Veterinary Medical Association (CVMA), we have continued our successful educational campaign to broaden awareness to the risks and diseases associated with ticks. National Tick Awareness Month, occurring in March of each year, provides an opportunity to build a dialogue with the veterinary community about the control of tick-borne illness. The campaign provides helpful tools for veterinarians to use in the clinic, and on social media using the hashtag #ticktalk, to discuss tick-control methods with pet owners. In 2017, we partnered with the University of Bristol to launch the Big Tick Project, which examined tick transfer to dogs and humans, and tick-borne diseases in the United Kingdom. The study found that concentrations of ticks had increased in 73 percent of the locations surveyed.<sup>2</sup> Furthermore, the Big Tick Project found that ticks were traveling into the United Kingdom from other countries, bringing increased risk for disease. Programs like these are critical in reminding pet owners and veterinarians of the risk ticks pose to both human and animal health.

## INVESTING IN VETERINARY EDUCATION AND CONTINUED PROFESSIONAL VETERINARY DEVELOPMENT

Our company invests in the future of the veterinary profession by supporting research, education and specialized skills training so that veterinarians will have the resources they need to provide the best health care possible for the animals they treat. During 2017, with funding from our Office of Corporate Responsibility, our Animal Health grant program team provided over \$1 million in grants to veterinary students, allocated as follows:

- A \$90,000 grant to the American Association of Bovine Practitioners (AABP) for 18 scholarships to veterinary students at U.S., Canadian or Caribbean veterinary schools
- A \$300,000 grant to the American Veterinary Medical Foundation (AVMF) for 56 scholarships to veterinary students at U.S., Canadian or Caribbean veterinary schools
- A \$15,000 grant to the Food Systems Fellowship Program of Michigan State University College of Veterinary Medicine (MSU:FSF) to provide scholarships to three veterinary medicine students
- A \$50,000 grant to the American Association of Swine Veterinarians Foundation to provide scholarships to 10 veterinary medicine students
- A \$50,000 grant to the American Association of Avian Pathologists Foundation to provide scholarships to 10 veterinary medicine students
- A \$25,000 grant to the American Association of Equine Practitioners Foundation to provide scholarships to five veterinary medicine students
- A \$200,000 grant to the Federation of Veterinarians of Europe to provide scholarships to 36 veterinary medicine students
- A \$230,000 grant to the World Veterinary Association to provide scholarships to 41 veterinary medicine students
- A \$5,000 grant to the Vietnam Small Animal Veterinary Association to provide scholarships to two veterinary medicine students
- A \$10,000 grant to the Veterinary Council of Thailand to provide scholarships to four veterinary medicine students
- A \$25,000 grant to the Tuskegee College of Veterinary Medicine to provide scholarships to five veterinary medicine students

- A partnership with the National Pork Producers Council and a \$10,000 grant to host veterinary externs in Washington, D.C., to learn about the role of public policy and government regulations in animal health and veterinary practice

We also contributed €10,000 to the Gustav Rosenberger Memorial Fund. This fund provides annual grants to young and promising veterinarians who come from countries where bovine medicine needs further development and who intend to apply the knowledge obtained in those countries. Additionally, several national initiatives to support the education of veterinary students have been continued, such as in Canada and the U.K.

## PROFESSIONAL DEVELOPMENT

- We have supported research in swine health, production and welfare through the High Quality Pork PhD Award since 2016. Each year, we identify one recent doctoral graduate in veterinary or animal science to be recognized at a future High Quality Pork Congress, sponsored by our Animal Health division.
- With a grant to the University of Prince Edward Island, we recognized two graduating veterinary students from the Atlantic Veterinary College who demonstrated excellence in small- and large-animal medicine
- Since 1985, our company's Veterinary Award has recognized Canadian Veterinary Medical Association members who have significantly contributed to food animal medicine, science and surgery
- In 2017, we introduced the High Quality Poultry Science Award, to award three recently graduated master's degree or doctoral students for their practical research in areas of interest to the poultry community. Winners are featured at our High Quality Poultry Congresses, held in various locations around the world. In addition, together with the Poultry Science Association Foundation, we awarded a \$100,000 scholarship to fund the poultry research of a graduate student at the University of Wisconsin-Madison.

Dairy Care 365<sup>®</sup> demonstrates a commitment to animal care and welfare and, after six years, continues to deliver significant value to dairy producers and the dairy community. Dairy Care 365<sup>®</sup> is helping dairy producers document their animal care programs, employee training, and written protocols, a step that is becoming increasingly important in assuring the consuming public that animals are well cared for and milk is responsibly produced. Dairy Care 365<sup>®</sup> partners with dairy experts to develop resources in dairy animal care and partners with multiple dairy cooperatives and processors, as well as the National Dairy FARM Program (Farmers Assuring Responsible Management<sup>™</sup>).

Since 2014, we have hosted the CreatingConnections<sup>™</sup> Educational Series<sup>™</sup>, focused on cow-calf, stocker, and feedlot systems. The CreatingConnections program shows how preventative care, paired with low-stress management and handling, provides the best results for cattle, cattlemen and -women, and veterinarians. In addition to training modules, the program provides resources such as infographics and videos to help illustrate best management practices for the herd.

In 2017, we introduced the High Quality Salmon Science Award. This award supports up-and-coming aquaculture industry leaders pursuing research projects on salmon health and welfare. Award winners are provided with the opportunity to present their work at the High Quality Salmon Congress in Scotland.

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1. Cornell University, Test Summary for Canine Influenza Virus in Dogs Not Affiliated with Greyhound Racetracks, 2009; Crawford, et al., Transmission of Equine Influenza Virus to Dogs, P.C., 2005. Syndromic surveillance data of Cynda Crawford, DVM, Ph.D., University of Florida; Edward Dubovi, Ph.D., Cornell University; Sanjay Kapill, DVM, Ph.D., ACVIM, Oklahoma State University; and IDEXX Laboratories. February 2018. <https://www.dogflu.com/>.

2. The research for MSD Animal Health was carried out online by Censuswide between 14/04/2015 and 17/04/2015. All research conducted adheres to the MRS Codes of Conduct (2010) in the U.K. and ICC/ESOMAR World Research Guidelines. Censuswide is registered with the Information Commissioner's Office and is fully compliant with the Data Protection Act (1998).

## Performance

	2013	2014	2015	2016	2017
Scholarships provided to students through our Animal Health Grant Program	NR	38	52	100	190

NR: Not reported.



We provide a range of vaccines, pharmaceuticals and educational tools to keep companion animals and livestock healthy in order to help ensure a stable food supply and help control diseases that can ultimately affect the health of people.

#### MSD Animal Health

Global trade, global migration and climate change are increasing the spread of highly infectious diseases such as foot-and-mouth disease, lumpy skin disease, African swine fever, peste des petits ruminants, and zoonotic diseases such as avian flu and rabies. Animal health and human health are inextricably linked: highly infectious diseases have a direct impact on food production and the livelihood of farming families, leading to malnutrition and poverty, while zoonotic diseases directly impact human lives. Vaccination, alongside education, can help control such diseases in the animal reservoir, reduce the likelihood of their spreading to humans, and minimize the medical, social and economic impact that could occur if they were left unchecked.

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“Strengthening the knowledge exchange between animal health and human health researchers to identify opportunities to prevent disease transmission is more important now than ever. Improving animal health may help to improve human health.”

RICHARD R. DELUCA, JR.  
PRESIDENT, MSD ANIMAL HEALTH

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## SALMONELLA

Food-borne bacteria, such as salmonella, are a continuing concern, particularly for poultry farmers. Human consumption of poultry or eggs infected with bacteria can result in severe illness, pushing governments and industry to implement adequate measures to reduce this risk. With our Go Beyond food safety and intestinal health program, we provide poultry producers with vaccines and services to combat salmonella, promote gut health and protect against parasites that can be a vector for disease. Go Beyond includes a unique monitoring program to aid in locating and addressing food safety control points within a producer’s operation. These initiatives help to protect human health, as well as the health and well-being of

poultry, through disease prevention.

## LEISHMANIASIS

Our Animal Health canine preventive product protects dogs against sandfly-borne leishmaniasis, helping to control one of the world's deadliest parasitic diseases in the animal reservoir, causing an estimated 20,000 to 30,000 human deaths annually.<sup>1</sup>

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Our products help to minimize the annual number of human deaths from animal-borne diseases.

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## RABIES

Rabies is a fatal neurological disease that can be carried by a number of hosts, including dogs, which are the primary route of transmission to humans. Rabies is widespread throughout Asia and Africa, with more than 59,000 people<sup>2</sup>—mostly children—dying from the disease each year after being bitten by dogs. Rabies has a significant, negative impact on public health budgets, local communities and livestock economies in developing areas. The vast majority of rabies fatalities occur in Asia (59.6 percent) and Africa (36.4 percent). India, the world's second-most-populated country, accounts for 35 percent of all human rabies deaths, but the per-person death rate is highest in the poorest countries in sub-Saharan Africa.

Our Animal Health business has a history in rabies control. We have supported the Afya Serengeti Initiative in Tanzania since 1997 through the donation of canine rabies vaccines and resources to conduct vaccination campaigns. In 2013, we expanded our support to the Mission Rabies project, focused on rabies vaccination and education in Asia and Africa. We are proud to donate vaccines, as well as our time, with Animal Health employees participating in vaccination activities. By 2017, Merck Animal Health's Afya Program had donated more than 2 million rabies doses to partners including Afya Serengeti and Mission Rabies as part of a broader global initiative to eliminate canine-mediated human rabies by the year 2030. As dogs are the source of the vast majority of human rabies deaths (accounting for up to 99 percent of rabies transmissions to humans), rabies elimination is feasible through the vaccination of dogs.<sup>3</sup>

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1. World Health Organization. Leishmaniasis Fact Sheet. March 2018; <http://www.who.int/mediacentre/factsheets/fs375/en/>.

2. Hampson K, Coudeville L, Lembo T, Sambo M, Kieffer A, Atlan M, et al. Estimating the global burden of endemic canine rabies. *PLoS Negl Trop Dis*. 2015; 9(4): e0003709. doi:10.1371/journal.pntd.0003709.

3. World Health Organization. Rabies Fact Sheet. September 2017; <http://www.who.int/mediacentre/factsheets/fs099/en/>.



The United Nations estimates that by 2050 there will be an additional 2 billion people in the world. To feed them, we will need to help animal producers become more efficient and more sustainable.

#### MSD Animal Health

Animal diseases cost farmers a significant proportion of their meat, fish and dairy yield every year. In fact, the World Organisation for Animal Health estimates that animal disease reduces global food production by at least 20 percent.<sup>1</sup> Its impact on food output is greatest in developing countries, where two-thirds of the world's 1.5 billion poor are reliant on livestock as their main source of food and income.<sup>2</sup> Preventing disease-related costs will also be crucial if we are to meet the increasing demand for animal protein created by rising standards of living and population growth. In addition, the land and water available for agriculture is decreasing. Not only will food-producing animals have to stay healthy, but they will also have to be reared more efficiently.

As economies continue to grow and lifestyles change around the globe, the global appetite for meat, milk and eggs increases. In fact, the Food and Agriculture Organization of the United Nations (FAO) expects the global demand for animal protein to double by 2050.

Our portfolio of [Animal Health products and services](#) is focused on helping farmers keep their livestock healthy and productive. Targeted intervention with vaccines, antiparasitics, anti-infectives, and other veterinary medicines and services helps protect the health and well-being of animals, and helps producers to avoid and/or limit their production losses.

### PROTECTING POULTRY FLOCKS AND ENSURING THE LIVELIHOOD OF FARMERS

The introduction of SAFE-GUARD® AQUASOL (fenbendazole oral suspension) for use in U.S. poultry operations is helping poultry farmers to manage the gastrointestinal health of their flocks, resulting in better overall performance. Consistent uniformity, productivity and profitability are priorities for all of our customers. The innovative wet-milling technology used to produce SAFE-GUARD AQUASOL ensures treatment for the entire flock and produces a highly stable suspension that can be conveniently administered through drinking water for a short, five-consecutive-day treatment period.

## The World Organisation for Animal Health estimates that animal disease reduces global food production by at least 20 percent.

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Another innovation is our SPHEREON® technology, which freeze-dries poultry vaccines into small, highly soluble particles (spheres) instead of the traditional vaccine cake in a glass bottle. SPHEREON vaccines are packaged in lightweight, 100 percent recyclable aluminum cups in convenient dose sizes. These individual cups are then packaged in post-consumer plastic that is also recyclable. For poultry producers, the implication of this technology is that no component of SPHEREON packaging needs to be sent for medical waste incineration. Dissolving the particles is fast and convenient for administration of the vaccine via water, spray or eye drop. To meet the fast-growing demand, in 2016 our company made an investment in expanding our production facilities in Salamanca, Spain.

Our Animal Health business is committed to environmental responsibility – in particular, working toward the offset of carbon emissions. As part of this commitment, we have renewed our partnership with [WeForest](#), an international nonprofit association engaged in large-scale sustainable reforestation and reduction in plastic pollution. Through the partnership, we will plant 20,000 trees this year in areas where they are most needed, including Brazil, India and Zambia.

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## According to the National Academy of Sciences, currently half of all the fish consumed globally is farmed.

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Demand for fish is also rising, and farmed fish are becoming more important as a source of healthy, sustainably sourced protein. In order to meet this demand and protect wild fish, our SLICE® Sustainability Project, developed in partnership with fish farmers, continues to help control parasites and keep fish healthy. SLICE (emamectin benzoate) controls sea lice, the naturally occurring parasites that live in the ocean and threaten the health and welfare of salmon. Our “IDENTIFY-CONTROL-PROTECT” program helps fish farmers to identify the strain and biotype of *Streptococcus agalactiae* present on their farm, implement a surveillance, biosecurity and vaccination program, and train staff on appropriate control strategies against the most prevalent disease affecting tilapia.

In addition, educational events like our High Quality Tilapia Congresses are presented as part of our commitment to bringing the science of healthier animals to aquaculture producers globally.

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1. <http://www.oie.int/for-the-media/editorials/detail/article/feeding-the-world-better-by-controlling-animal-diseases/>.

2. OIE, B. Vallat. Opening speech, European Veterinary Week, Brussels, Nov. 10, 2008.



We invest millions of dollars each year in the research and development of novel animal health products.

#### RESOURCES

MSD Animal Health

As with our human health pharmaceuticals and vaccines, we test our investigative animal health pharmaceuticals and vaccines vigorously for safety, quality and efficacy before submitting them for approval, which can be obtained only after thorough review by independent regulatory authorities.

The authorization standards for veterinary medicines are at the same level as those for human medicines. On average, it takes five to 12 years to bring a veterinary product to market.

All of our pharmaceuticals and vaccines used in food-producing animals must be tested for safety, quality and efficacy in the treated animals and any food products that may come from them (such as milk, eggs, or meat). Our submissions to regulatory agencies also include an environmental assessment that appraises the effects of the use of our products on flora, fauna, soil and water.

All products have labeling developed to ensure that the intended use of the product is clear, so that it may be safely and properly used. This testing and refining of the product can take years to complete. When all of the required testing is completed and found to be satisfactory by the appropriate government regulatory agency, the product is approved to be sold. Once a product is on the market, we monitor all aspects that could affect product safety. Findings are assessed and reported to regulatory authorities, as required by pharmacovigilance rules, and addressed through appropriate measures.

The approval process for medicines and vaccines used in farm animals also establishes withdrawal periods, from the time the last dose of product is given until the animals or their products enter the food chain. These withdrawal periods ensure the safety of human consumption of meat, milk and eggs from pharmaceutical- and vaccine-treated animals.

A science-based, predictable regulatory environment is one of the key conditions necessary for innovation and for providing our customers with high-quality products. We support global harmonization of the regulatory process for veterinary medicinal products through participation in and dialogue with the [International Cooperation on Harmonisation of Technical Requirements for Registration of Veterinary Medicinal Products \(VICH\)](#) and the [Codex Alimentarius](#).

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On average, it takes five to 12 years to bring a veterinary product to market.

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## STRUCTURED HERD HEALTH MANAGEMENT

Disease prevention can be significantly aided by vaccination. In a number of countries, we support veterinarians in enhancing the efficacy and impact of prevention programs, like our ResCalf and ResPig programs and the Convenience Program. These provide a structured approach to improving lung health and preventing bovine respiratory disease in calves and respiratory diseases in pigs and poultry. Respiratory disease can seriously affect the health of cattle, pigs and poultry, and can lead to economic losses. Our acquisition of the worldwide rights to the Whisper® Veterinary Stethoscope System, a non-invasive bovine respiratory disease (BRD) detection system, is an example of how we support veterinarians to help manage herd health. The Whisper Stethoscope System is used to assess lung health, so that, if needed, the appropriate treatment regimen can be implemented to protect the health of the animal. BRD is the most common disease affecting cattle in North America.<sup>1</sup>

By the geo-expansion into Latin America and Asia-Pacific of our PORCILIS® PCV M Hyo® vaccine, the first ready-to-use single-injection combination vaccine to protect piglets against porcine circovirus and *Mycoplasma hyopneumoniae* infections during the fattening period, we help these markets to control these disease complexes and reduce the need to use antibiotics to treat sick animals.

## MAKING A DIFFERENCE IN WIDER SOCIETAL NEEDS

Our Animal Health business uses our experience, resources and science to help our partners keep animals healthy, ensure a sustainable food supply, protect public health, and help people and pets enjoy their lives together. We are committed to making a difference in the health and welfare of animals and in wider societal needs. We make it a priority to help those in need with product and monetary support. In the United States, this amounted to over \$1.5 million in support in 2017.

## RESPONSE TO HURRICANES AND WILDFIRES IN THE UNITED STATES

Several communities in the United States suffered devastating damage on an unprecedented scale as a result of Hurricane Harvey, Hurricane Irma, Hurricane Maria, and the California and Montana Wildfires. Apart from the enormous impact on the human population, unfortunately, such natural disasters also affect countless livestock animals and pets. We responded to meet the medical needs of animals in affected areas through the donation of financial assistance, products and professional/technical support.

In addition to on-the-ground support provided by customer representatives and technical service veterinarians to assist with relief and recovery efforts, support was also extended via financial assistance and the donation of much-needed products to a number of partner organizations, including the American Veterinary Medical Foundation (AVMF), the Humane Society of the United States, Texas A&M Foundation, and the University of Florida, College of Veterinary Medicine.

## ACCESS TO VETERINARY EXPERTISE

Access to veterinary expertise and medicines significantly benefits the livelihoods of small landholders and their families.

**Milk for Malawi:** The Shire Highlands Milk Producers Association (SHMPA) has provided supportive services to 7,000 smallholder dairy farmers in Southern Malawi since 1985. Our Animal Health business has partnered with SHMPA to lend financial and in-kind support to Malawian dairy farmers to improve the quality and quantity of milk supplies, which currently account for approximately 95 percent of the processed milk in Malawi. In 2017, our Animal Health business supplied NILZAN® boluses and DELETE® ALL acaridae to treat for parasitic worms and insects such as fleas and ticks.

These convenient products may be quickly and safely administered: NILZAN boluses are supplied orally while DELETE ALL is poured onto the back of each cow. Healthier cows are integral to smallholder operations, which rely on the sale of both milk and calves for income. Through the Shire Highlands Milk Producers Association, farmers receive training on the importance of practicing preventative medical care. At this time, approximately 400 women are entering the dairy farming market each year through SHMPA, enabling additional income for their families.

**Relief for unwanted horses:** Many of the unwanted horses in the U.S. are healthy horses that become more of a burden than a blessing to their owners because of financial limitations, time constraints, or otherwise failing to meet expectations. These horses can often be repurposed and re-homed. Others may be sick, injured or old. No one knows for sure how many unwanted horses exist in the United States, but we do know that the number of unwanted horses exceeds the resources currently available to accommodate them.

Our company's Animal Health business supports the Unwanted Horse Veterinary Relief Campaign together with the American Association of Equine Practitioners. The campaign provides complimentary vaccinations to equine rescue and rehabilitation facilities in an effort to help provide proper health care to rehabilitate, revitalize and rehome America's unwanted horses. Since the inception of the program in December of 2008, more than \$1,000,000 of vaccines have been donated to help over 25,000 unwanted horses. In 2017, we donated vaccines with a value of more than \$175,000.

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1. D. Griffin: Economic impact associated with respiratory disease in beef cattle. In: The Veterinary clinics of North America. Food animal practice. Band 13, Number 3, November 1997, ISSN 0749-0720, S. 367-377, PMID 9368983.



For more than 80 years, our company has played a significant role in the discovery and development of novel medicines and vaccines to treat and prevent infectious diseases.

In addition to a combined portfolio of vaccines, antibiotic and antifungal medicines, and medicines for HIV and hepatitis C (HCV), we have multiple programs that span discovery through late-stage development.

According to the [World Health Organization \(WHO\)](#), every year, there are approximately 5.5 million deaths worldwide caused by infectious and/or parasitic diseases. We have a long history of both in-house research and engagement with external partners to address infectious diseases, and we continue to seek new ways in which we can contribute expertise and resources to these disease areas.

We apply our research and development resources, expertise and technology to identifying potential products that would address unmet needs in the treatment of infectious diseases, such as HIV, HCV and bacterial infections. We are also involved in a number of product-development partnerships and research collaborations to further develop treatments to address those diseases, as well as neglected tropical diseases (NTDs) and tuberculosis (TB).

We recognize that new methods and a broader scope of collaborating—with both public and private entities—are critical to continuing innovation. This is true for all diseases, and especially true for diseases prevalent in low- and middle-income countries, for which the relevant expertise spans academia, local public health authorities, industry and international agencies. We plan to continue to expand our interactions with these groups to provide relevant expertise and resources.

We also recognize that our research capabilities and our access strategies play an important role in recruiting outstanding scientists as well as potential external research collaborators seeking to make the products developed from their discoveries available to patients worldwide.



## RESOURCES

[Delivering on Our Commitments](#)

[Global Antimicrobial Resistance Action Plan](#)

Vaccines and antibiotics have revolutionized infectious disease prevention and treatment, saving millions of lives worldwide. Rising levels of resistance to antimicrobials is a serious threat to public health, food safety and global security.

For more than 80 years, our company has played a significant role in the discovery and development of novel medicines and vaccines to treat and prevent infectious diseases in both humans and animals, including the development of sulfamerazine, one of the world's first antibiotics, in 1938 and one of the first methods for mass production of penicillin during World War II. Today, we are one of only a few large pharmaceutical companies that has sustained a focus in research and development (R&D) aimed at producing new vaccines and medicines to prevent and treat bacterial infections.

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“The rise in infections that are resistant to current antibiotics has become one of the world’s most pressing public health problems. We are proud to reaffirm our long-standing commitment to develop new therapeutics to fight infectious diseases, and to continue to collaborate with others to support antimicrobial stewardship to help slow the rate of emerging resistance.”

DR. JULIE GERBERDING  
EXECUTIVE VICE PRESIDENT AND CHIEF PATIENT OFFICER

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## THE GLOBAL CHALLENGE OF ANTIMICROBIAL RESISTANCE (AMR)

Antimicrobials are medicines to treat and prevent infectious diseases caused by pathogens such as bacteria, viruses, fungi and parasites. Antibiotics, which are used to treat bacterial infections, are one of the most important types of antimicrobials. AMR occurs when a pathogen evolves to survive antimicrobial treatment. While such evolution is inevitable, AMR is developing more quickly due to the inappropriate use of antimicrobials. Bacteria resistant to multiple antibiotic medicines are becoming more common—jeopardizing our ability to treat what are historically considered minor infections and increasing the risks associated with secondary infections that can be commonplace with procedures such as surgery, chemotherapy and transplantation. Action is needed to slow down the development and spread of AMR so that the antimicrobials we have continue to work for as long as possible.

The health and economic consequences of antibiotic resistance are considerable and costly, making it a serious threat to

population health that demands a concerted, global response. The [U.S. Centers for Disease Control and Prevention](#) estimates that at least 2 million people become infected with bacteria that are resistant to antibiotics and at least 23,000 people die as a direct result of these infections each year.<sup>1</sup> The cost of infections caused by resistant pathogens to the U.S. health care system is between \$21 and 34 billion annually.<sup>2</sup> In the European Union, drug-resistant bacteria are estimated to cause 25,000 deaths per year.<sup>3</sup>

New antibiotics are urgently needed to address growing resistance; however, there are relatively few in development. Over the past two decades, there has been a significant decline in the number of companies conducting antibiotic and antifungal R&D. Today, only five of the top 50 pharmaceutical companies have antibiotics in clinical development.

**Taking Action to Combat Antimicrobial Resistance**

As a global health care leader, we are investing our resources and expertise to drive innovation that promotes human and animal health and wellness by preventing and treating infections.

<p><b>Leading in infection prevention</b> through the development and production of vaccines to prevent infections and reduce antibiotic use</p>	<p><b>Driving innovation</b> to research, develop and commercialize new treatments and antibiotic alternatives to address important unmet medical needs</p>	<p><b>Advancing antimicrobial stewardship (AMS)</b> programs to support the appropriate use of antibiotics and slow the pace of resistance</p>	<p><b>Supporting global surveillance and awareness</b> of AMR through our Study for Monitoring Antimicrobial Resistance Trend (SMART) and AMR/AMS awareness programs</p>
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**Advocating for policy solutions** to address the global challenges limiting development of and access to new antibiotics, vaccines and diagnostics needed to combat AMR

Annually in the U.S., at least 2 million people become infected with antibiotic-resistant bacteria, and at least 23,000 people die each year as a direct result of these infections.

While the pace of resistance may be slowed through programs that promote the responsible and appropriate use of antibiotics, research must continue into new antibiotics and additional therapeutic and vaccine strategies that address this critical unmet need.

In April 2018, during the 28th European Congress of Clinical Microbiology and Infectious Diseases (ECCMID), our company underscored its continued commitment to discovering and developing novel medicines in the global fight against infectious diseases with more than 25 scientific data presentations on the company’s established and investigational infectious disease medicines. [Learn more.](#)

## DELIVERING ON OUR COMMITMENTS

Our company is committed to playing its part in the global response to AMR.

In January 2016, our company and over 100 biopharmaceutical, generic medicines and diagnostic companies, as well as key trade associations, launched a [joint declaration](#) at the World Economic Forum setting out bold commitments and calling for governments and industry to take action against AMR.

At the UN High Level Meeting on AMR in September 2016, MSD and 12 other leading companies released the [Industry](#)

[Roadmap for Progress on Combating AMR](#). This document laid out additional commitments to reduce the environmental impact from the production of antibiotics, help ensure antibiotics are only used by those who need them, improve access to antibiotics globally and explore new opportunities for collaborations between industry and the public sector.

We are a founding board member of the [AMR Industry Alliance](#), comprised of signatories of these documents, to drive and measure industry progress against these commitments.

In October 2017, MSD Animal Health worked with [HealthforAnimals](#) to develop [global animal health commitments](#) related to the responsible use of antibiotics and investment into other areas of animal health and welfare.

For more information on our progress against these commitments, please refer to the following document: [Delivering on Our Commitments: MSD's Actions to Address Antimicrobial Resistance](#).

Our [Global AMR Action Plan](#) describes our company's long-standing commitment to the global fight against infectious disease and our efforts to help slow the rate of emergence of potentially deadly resistant organisms. The Global AMR Action Plan includes sections on how our company is:

- **Leading in infectious prevention** through the development and production of vaccines to prevent infections and reduce the need for antibiotics
- **Driving innovation** to discover and develop new treatments and antibiotic alternatives to address AMR
- **Advocating for policy solutions** to support sustainable investment in the development of new tools to combat AMR
- **Advancing antimicrobial stewardship** to improve patient outcomes and slow the development of AMR
- **Supporting global AMR surveillance** through our Study for Monitoring Antimicrobial Resistance Trends (SMART), which provides data to the scientific community on AMR trends
- **Protecting and maintaining animal health** by promoting vaccination and the responsible use of antibiotics

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“Our company remains deeply committed to working with governments, health care providers, patients and others to drive antibiotic innovation, promote appropriate use and enhance access for patients.”

KENNETH C. FRAZIER  
CHAIRMAN AND CHIEF EXECUTIVE OFFICER

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1. Centers for Disease Control and Prevention. Antibiotic Resistance Threats in the United States. 2013. Available at: <http://www.cdc.gov/drugresistance/pdf/ar-threats-2013-508.pdf>. 2. Roberts, R.R., Hota, B., Ahmad, I., Scott, R.D., Foster, S.D., Abbasi, F., et al. (2009) Hospital and societal costs of antimicrobial-resistant infections in a Chicago teaching hospital: implications for antibiotic stewardship. *Clin Infect Dis* 49: 1175–1184. 3. European Medicines Agency, European Centre for Disease Prevention and Control. Joint technical report: the bacterial challenge—time to react. 2009. Available at: [https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/0909\\_TER\\_The\\_Bacterial\\_Challenge\\_Time\\_to\\_React.pdf](https://ecdc.europa.eu/sites/portal/files/media/en/publications/Publications/0909_TER_The_Bacterial_Challenge_Time_to_React.pdf).



For nearly three decades, our company has been engaged in the response to the hepatitis C virus (HCV) epidemic.

#### RESOURCES

[Press Release: Raising Awareness Among U.S. Veterans](#)

We have worked to apply our scientific expertise, resources and global reach to the development and delivery of health care solutions that support people living with HCV worldwide.

The World Health Organization (WHO) estimates that in 2015, 71 million people globally were chronically infected with HCV, and at risk of developing liver cirrhosis and/or liver cancer, with 1.75 million new infections occurring each year. In 2015, WHO and its 194 Member States committed to eliminating viral hepatitis as a public health threat by 2030.

### **IN THE PAST DECADE, MSD'S CLINICAL DEVELOPMENT PROGRAMS IN CHRONIC HCV INFECTION HAVE:**



Enrolled Approximately 10,000 Participants



Included more than 135 Clinical Trials in Approximately 40 Countries

Our scientists have been engaged in research to address HCV infection since the discovery of the virus in the late 1980s, and we continue to work with the scientific community to advance understanding of this significant global public health epidemic.

In January 2016, ZEPATIER® (elbasvir and grazoprevir)—a once-daily, fixed-dose combination tablet for the treatment of adult patients with chronic HCV—received regulatory approval from the U.S. Food and Drug Administration (FDA) and Health Canada for specified HCV genotypes. Since that time, ZEPATIER has been approved in the 28 European Union member countries and in more than a dozen additional countries around the world.

We believe it is in the best interests of public health to broaden and accelerate patient access to HCV treatment, including underserved or difficult-to-treat chronic HCV-infected populations.

The clinical development program for ZEPATIER enrolled diverse groups of patients with chronic HCV infection, including patients who had failed certain prior therapies and patients with significant comorbidities and health complications such as severe renal impairment, compensated cirrhosis, and HIV co-infection. Notably, the clinical development program also included a trial of patients who were receiving opioid agonist therapy.

According to WHO, in addition to unsafe health care practices, injection drug use is one of the most common modes of transmission of HCV today. Patients who inject drugs are and will be an important population to address in achieving WHO's goal of eliminating viral hepatitis as a public health threat by 2030.

## PRICING DESIGNED TO ENABLE BROAD PATIENT ACCESS

Innovations in chronic-HCV treatment that have become available over the past several years, now including ZEPATIER, provide the world with an unprecedented opportunity to significantly reduce the burden of HCV by 2030. However, a significant medical need remains: it is estimated that fewer than one in five patients with chronic HCV infection are currently treated, with thousands of new cases occurring each year.

Innovation without access limits meaningful benefit to patients. The majority of patients with chronic HCV have not yet been treated. While restricted access continues to be a barrier to chronic HCV treatment worldwide, our company is taking steps to address these barriers. We have worked closely with key stakeholders in the countries where we have launched ZEPATIER to increase the affordability of treatment, reduce barriers and expand eligibility criteria to broaden and accelerate access to treatment for more patients.

In the United States, when our company launched ZEPATIER, we established a list price and a comprehensive commercial- and public-segment access strategy that we anticipated would help broaden and accelerate patient access to treatment and move us closer to our shared goal of reducing the burden of chronic HCV in the U.S. Since that time, we have continued to implement commercial strategies and public policy efforts in both the United States and in other countries to accelerate access to treatment.

## HEPATITIS C IN EMERGING MARKETS

In many developing countries, the spread of HCV is facilitated by unsafe medical practices, such as the reuse of needles and syringes by medical practitioners. The use and misuse of intravenous drugs is also a major route for HCV transmission.<sup>1</sup> Health systems in many of the countries most impacted by HCV are poorly equipped to widely diagnose HCV and to deliver care and treatment for those with the virus.<sup>2</sup>

Together, these factors are contributing to the heightened HCV disease burden in these regions. We are committed to developing sustainable solutions to improve awareness, diagnosis and access to care and treatment in areas where the HCV disease burden is greatest.

We recognize that global elimination of HCV will require the combined efforts of all stakeholders—governments, donor organizations, policy makers, advocacy groups, nongovernmental organizations (NGOs) and the private sector—to build a framework for promoting awareness, prevention and treatment of viral hepatitis, especially among the populations most at risk for chronic HCV. We remain committed to strengthening new and existing partnerships to achieve greater access to health care.

1. European Association for the Study of the Liver. "Therapy of Hepatitis C: Clinical Application and Drug Development." <http://www.who.int/mediacentre/factsheets/fs164/en/>.
2. Ewen Callaway. "Hepatitis C drugs not reaching poor." Nature 508:295–296.17 April 2014.



For more than 30 years, our company has been committed to addressing the global challenge of the HIV epidemic.

With over 35 million people infected and 2 million new infections each year globally, the challenges of HIV are vast, impacting both developed and developing countries. These challenges include scientific, behavioral and programmatic aspects that continue to change as the epidemic evolves.

Since 1985, we've been engaged in research and development (R&D) efforts in both prevention and treatment of HIV. These efforts continue today with a focus on prevention, treatment, and cure for HIV.

Research is just one part of our comprehensive strategy to address unmet needs in combatting HIV. Our company has also sought to make a difference in the fight against HIV through efforts to enhance access to our HIV medicines, in both the developed and the developing world, and through partnerships that seek to strengthen health systems to better deliver prevention and treatment services. Clearly, the need is too great for any one stakeholder to address, requiring coordinated efforts among many organizations.

## Research

Our company has had an intensive, broad-based HIV clinical research program in place since 1985 which has sought to address both treatment and prevention.

In addition to our own research efforts, we have entered into collaborations with other researchers and scientific organizations to help accelerate the search for new treatments and possible cures. Our work has been pioneering, and was pivotal in the development of new antiretroviral (ARV) treatments, including protease inhibitors (PIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs), and integrase inhibitors. We have also played an important role in collaboration with others to define the principles for combination ARV treatment that are the standard for today's treatment paradigm.

Since our company's HIV products became available more than two decades ago, our company has worked to expand access to our medicines, build health care infrastructure, and address health and development challenges around the world. [Learn more.](#)

We continue to focus on comprehensive R&D that targets HIV, recognizing the need for new methods to address the

epidemic. Our current R&D work in HIV includes programs to develop novel HIV-prevention technologies, new HIV antiretroviral medicines, and approaches to addressing HIV latency and eradication.

We have an active HIV R&D program to develop new HIV antiretroviral medicines that address unmet needs in HIV treatment. Our company has an ongoing commitment to HIV therapeutic R&D. Our clinical development programs include an NNRTI in Phase III and several earlier-stage clinical development programs.

## FOCUSING ON UNMET NEED IN PEDIATRIC TREATMENT

As part of the company's commitment to fighting HIV/AIDS, we have conducted extensive R&D efforts to develop pediatric formulations for our HIV ARVs.

The burden of pediatric HIV falls primarily in sub-Saharan Africa and in lower-income countries. The lack of demand for pediatric HIV medicines in high-income countries provides little commercial incentive for the development of optimized pediatric combinations, such as those seen in adults. Consequently, public-private partnerships are key mechanisms to facilitate availability of new pediatric formulations and to develop optimized formulations and combinations of pediatric ARVs.

Most recently, we have worked to increase access to the pediatric formulations of raltegravir, our integrase inhibitor, in the areas of greatest need. We have developed several pediatric formulations of raltegravir, which, following clinical studies conducted in collaboration with the [IMPAACT Network](#), have been approved by the U.S. Food and Drug Administration (FDA). In November 2017, raltegravir received approval from the FDA for the treatment of neonates from birth. In its various dosage formulations, raltegravir is now approved by the FDA from birth through adulthood.

In February 2015, we entered into an agreement with the [Medicines Patent Pool \(MPP\)](#). The agreement is designed to improve access to raltegravir for pediatric populations in 92 low- and middle-income countries, where 98 percent of the children infected by HIV live. Through this agreement, our company has licensed our pediatric formulations of raltegravir for use in treating HIV-1 infection in infants and children from 4 weeks to under 12 years of age in developing countries. This is MPP's first agreement to provide access to an HIV integrase inhibitor for use in combination HIV therapy for infants and children in this age range.

The agreement also allows for the development of novel pediatric formulations of raltegravir and novel combinations, in support of the "Global Pediatric Antiretroviral Commitment-to-Action" announced by the [U.S. President's Emergency Plan for AIDS Relief \(PEPFAR\)](#), the [Pediatric HIV Treatment Initiative \(PHTI\)](#), and the [Global Fund to Fight AIDS, Tuberculosis and Malaria](#) to accelerate the development of new, high-priority pediatric ARV co-formulations.

In November 2017, our company joined other key stakeholders at the Vatican in Rome as part of the meeting that endorsed the Rome Action Plan for Scaling Up Early Diagnosis and Treatment of Children and Adolescents.<sup>1</sup> As part of the Rome Action Plan, our company has committed to making pediatric raltegravir available at no profit in low-income countries, Least Developed Countries (LDCs), and across sub-Saharan African countries, until generics are available.

Efforts to register the formulations of raltegravir broadly in the countries with the greatest pediatric HIV burden are ongoing. And, as of December 2017, ISENTRESS® (raltegravir) chewable tablets (25mg and/or 100mg) have been approved in 72 countries, and ISENTRESS granules for suspension (100mg) have been approved in 34 countries for use in pediatric patients.

## REGULATORY APPROVAL OF NEW RALTEGRAVIR ONCE DAILY DOSE

In May 2017, the FDA approved ISENTRESS® HD in the U.S., a 1,200 mg (2 x 600 mg) once-daily dose of ISENTRESS, to be given in combination with other antiretroviral agents, to adults as well as to pediatric patients weighing at least 40 kg, who are treatment-naïve or who are virologically suppressed on an initial regimen of ISENTRESS 400 mg twice daily.

## Access/Availability

Multi-stakeholder efforts, including those of governments, civil society, donors and the private sector, are needed to address the challenges of delivering comprehensive HIV prevention, care and treatment.

### A MULTIFACETED APPROACH TO IMPROVING ACCESS

We are committed to working with governments, donors, innovative and generic manufacturers, multilateral organizations, and civil society to address the full range of factors affecting access. We strive to find new ways to apply our expertise, human and financial resources, and market-based solutions to addressing the complex challenge of patient access. Our strategies are designed to enable us to facilitate access while continuing to develop new medicines. They also help us move beyond the limits of what we can achieve if we work alone. Collaboration has been essential to the progress made against HIV.

We have seen that increasing access requires a broad, comprehensive approach. Consequently, we are committed to improving patient access through expanded availability, enhanced access strategies and multi-sectoral partnerships.

To make these possible, we have employed multiple strategies to address the needs of particular regions and countries, including: seeking broad registration of our antiretroviral medicines (ARVs); implementing differential-pricing strategies; signing voluntary licenses with generic manufacturers; developing pediatric formulations; and establishing strong collaborations with governments, manufacturers and other stakeholders.

### ENHANCING ACCESS IN THE DEVELOPING WORLD

To facilitate access to raltegravir in sub-Saharan Africa and in World Bank-defined low-income countries, the areas of greatest need and the least ability to finance health care, we instituted a multi-strategy model that includes implementing a low-cost supply chain with manufacturing partners that has enabled us to reduce our access price in sub-Saharan Africa, low-income countries and LDCs, and to grant nonexclusive voluntary licenses to multiple generic manufacturers to supply generic raltegravir in these regions.

Public-sector purchasers in these 62 countries are eligible for our lowest price. According to the WHO, three-fifths of patients in need of therapy live in these countries. A complete list is available [here](#).

Given the varying levels of economic development and national strategies, in other middle-income countries, we have implemented strategies to make meaningful improvements in patient access. We are focusing on working with governments and with other country stakeholders to develop strategies tailored to each country's HIV-access needs. As part of this effort, we have implemented a differential pricing policy based on country income level, disease burden, treatment-guideline position, patient access through national AIDS treatment programs, and market conditions. As conditions evolve, we continue to refine these country-specific models.

To truly enhance access to treatment in low- and middle-income countries, the international community must collaborate to strengthen health care infrastructure, to ensure adequate financing for health, and to help to build local health care capacity through training and support. Pharmaceutical companies alone cannot solve these immense public-health problems. Sustainable solutions will come from comprehensive approaches that draw on the expertise of all stakeholders.

## ADDRESSING ACCESS ISSUES IN THE DEVELOPED WORLD

In developed countries, we continue to work to address patient access needs. In the United States, for example, many state AIDS Drug Assistance Programs (ADAPs) have struggled to meet growing need. Over the last two decades, our company has lowered or frozen the price of our ARVs five times. We also continue to offer support to eligible patients through our U.S. Patient Assistance Program and Co-Pay Assistance Program. Since 2010, we have worked with [Welvista](#) and with [HarborPath](#) to offer immediate access to no-cost HIV medicines to patients on ADAP waiting lists.

### State AIDS Drug Assistance Program (ADAP)

We have a long history of working closely with leaders from the HIV community to ensure that our approach to pricing our medications is fair and reasonable, balancing our interest in conducting extensive HIV research with efforts to support broad access to our medicines.

We were one of the first companies to provide our HIV medicines to uninsured patients on waiting lists for drugs under the AIDS Drug Assistance Program (ADAP). In addition, we were the first company to provide a price freeze for state ADAPs in the late 1990s, when they began to suffer a funding challenge.

We expanded our price-freeze policy to subsequent products, and also continue to provide expanded financial relief to state ADAPs through increased discounts. Through the agreement, which has been extended through December 31, 2018, we provide continued support for initiatives that give low-income individuals living with HIV access to medicines.

ADAPs reach approximately one-third of the people with HIV estimated to be receiving care nationally.

### U.S. Patient Assistance Program

Our commitment to patients' access to our products is reflected in our U.S. Patient Assistance Program. CRIXIVAN® (indinavir sulfate) and ISENTRESS qualify for this program. This private and confidential program provides product free of charge to eligible individuals, primarily the uninsured, who, without our assistance, could not afford this medicine. [Learn more.](#)

### Co-Pay Assistance Program in the U.S.

In addition to our [Patient Assistance Program](#), we have a program in the United States for eligible patients on ISENTRESS or ISENTRESS HD. If patients have private insurance and an out-of-pocket cost for ISENTRESS or ISENTRESS HD, they may be eligible to receive a savings coupon. The coupon provides savings toward their out-of-pocket costs. Restrictions, terms and conditions apply. [Learn more.](#)

### Common Patient Assistance Program Application

We also participate in the national [Common Patient Assistance Program Application \(CPAPA\)](#) for HIV medications. The form was developed by the Department of Health and Human Services (DHHS), participating pharmaceutical companies, the [National Alliance of State and Territorial AIDS Directors \(NASTAD\)](#), and community stakeholders. The form can be used both by people living with HIV and by their providers, and reduces the need to complete several different and individual PAP application forms for HIV medications.

## Pricing/Registration

We have sought to reduce the cost of our ARVs for people living in the world's poorest countries and those hit hardest by the epidemic.

We have worked with external manufacturers and suppliers to achieve incremental efficiencies for our branded raltegravir, ISENTRESS. We established a low-cost supply chain with external partners for commercialization in all low-income countries and all countries in sub-Saharan Africa.

With the implementation of this supply chain, we were able to reduce our price of ISENTRESS to \$1.85 per day for these countries. We have also granted multiple nonexclusive licenses to several Indian generic manufacturers for the manufacture and commercialization of the 400mg tablet formulation of raltegravir in 60 low-income and sub-Saharan African countries. In addition, in February 2014, together with Cipla, we announced a strategic partnership to co-market raltegravir (400mg tablet) in India.

In February 2015, together with the Medicines Patent Pool (MPP), we announced a licensing agreement for pediatric formulations of raltegravir for children less than 12 years of age covering 92 low- and low-middle-income countries.

## HIV PRICING POLICIES

Our differential-pricing policy is part of our commitment to addressing HIV through a multi-pronged strategy, with the goal of ensuring that our HIV antiretroviral (ARV) medicines reach as many of those in need as possible.

### ISENTRESS® (raltegravir), STOCRIN® (efavirenz), CRIXIVAN® (indinavir sulfate)

The lowest Access price for our HIV medicines is offered to countries with a combination of highest disease burden and lower country income (gross national income [GNI] per capita), as defined by the World Bank. A list of eligible Access countries is provided [here](#).

As of July 1, 2017, the Access prices for our HIV medicines for eligible customers<sup>1</sup> are:

#### HIV PRICING

PRODUCT NAME	Daily Dose	Cost Per Year of Treatment (cost \$ per unit)
<b>STOCRIN® (EFAVIRENZ)</b>		
50mg tablet	based on weight	(0.12)
200mg tablet	based on weight	(0.36)
600mg tablet	1	237 (0.65)
30mg/ml suspension (bottle)	based on weight	(0.094 per ml)
<b>CRIXIVAN® (INDINAVIR)</b>		
400mg cap	4	394 (0.27)
<b>ISENTRESS® (RALTEGRAVIR)</b>		
400mg tablet	2	675 (0.925)
100mg chewable tablet	based on weight	(0.6)
25mg chewable tablet	based on weight	(0.3)

Countries classified as lower-middle-income and upper-middle-income<sup>2</sup> by the World Bank are eligible for prices that are discounted from those in high-income countries. These prices are based on, among other things, a combination of country income, disease burden, treatment guideline positioning, patient access through national AIDS treatment programs, and

market conditions, and will be negotiated with each government. For high-income countries, we make ISENTRESS available at competitive prices that take into account the innovation and value that ISENTRESS represents.

**ATRIPLA® (efavirenz/emtricitabine/tenofovir disoproxil fumarate)**

We sell ATRIPLA at \$1.68 per day, or \$613 per year, in 98 Access countries, as defined by our agreement with Gilead.

## REGISTRATION

We are committed to pursuing registration of our antiretrovirals (ARVs), including registration in those countries most affected by HIV/AIDS. Currently, our ARVs are registered or available through import waiver in many countries. Since the first approval in 2007, ISENTRESS has received regulatory approval in more than 110 countries.

Details of registration and availability of our four ARVs are available through the links below:

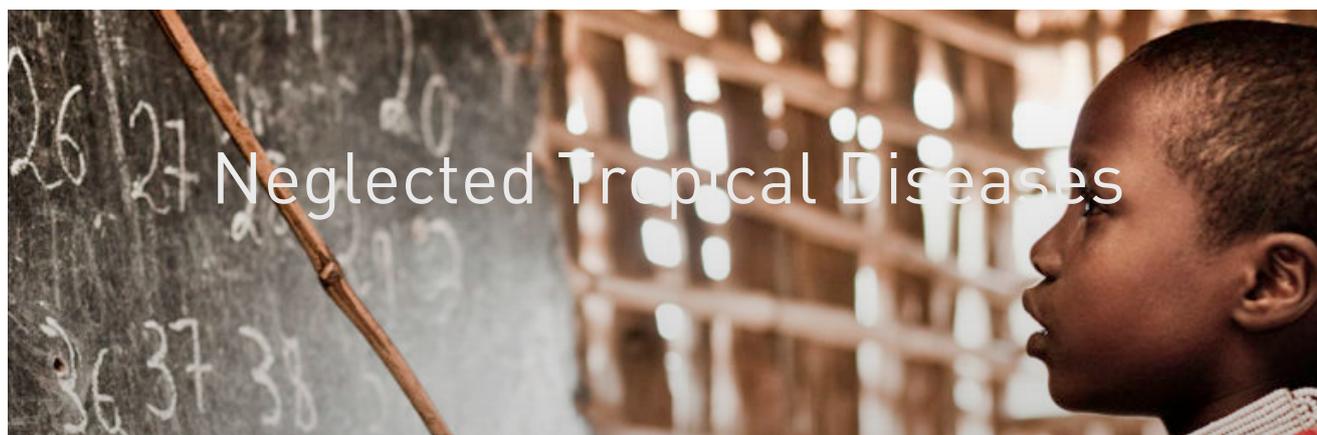
- [ATRIPLA®](#) (efavirenz, emtricitabine, tenofovir disoproxil fumarate)
- [CRIXIVAN®](#) (indinavir sulfate)
- [ISENTRESS®](#) (raltegravir)
- [STOCRIN®](#) (efavirenz)

All of our company's formulations of ISENTRESS, including the 600mg tablet, the 400mg tablet, the 100mg and 25mg chewable tablets, and the granules for suspension, have been approved by the U.S. Food and Drug Administration (FDA) and the European Medical Agency, making these formulations eligible for purchase by both the U.S. PEPFAR program and the Global Fund to Fight AIDS, Tuberculosis, and Malaria.

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1. Customers eligible for public-sector Access pricing in eligible Access countries will include: governments and programs fully funded by governments and/or by multi- and bilateral donors (e.g., the Global Fund, PEPFAR, UNITAID); UN System organizations; NGOs and other noncommercial providers of HIV treatment in sub-Saharan Africa; World Bank-defined low-income countries, UN-defined least-developed countries, and India. We offer these products on a Delivered Duty Unpaid (DDU), Carriage and Insurance Paid (CIP), or Carriage Paid To (CPT) airport-of-destination (Incoterm, 2000) basis. Additional costs may include freight, insurance, customs handling, taxes and duties.

2. Customers eligible for public-sector pricing in lower-middle- and upper-middle-income countries will include: governments and programs fully funded by governments and/or by multi- and bilateral donors (e.g., the Global Fund, PEPFAR, UNITAID); UN System organizations; and NGOs. Low- and middle-income countries that are members of the European Union are not eligible for pricing under this Access program.



## Neglected Tropical Diseases

Neglected tropical diseases (NTDs) are a set of 17 diseases that disproportionately affect more than 1 billion people living primarily in the developing world.

Public Policy Position Statement: Social Licensing Approach for Research Development Partnerships for NTDs

As a leading cause of disability, NTDs carry with them significant social and economic burdens. However, as the [World Health Organization \(WHO\)](#) reports, many of these diseases can be effectively controlled and, in many cases, eliminated. Our company has a long-standing commitment to research into NTDs. We initiated research on MECTIZAN® (ivermectin) for use in humans for the NTD onchocerciasis (river blindness) in 1978, leading to the creation of the groundbreaking [MECTIZAN Donation Program](#). Through a range of in-house programs and external partnerships, we continue to conduct research to address the burden of NTDs today. [Learn more](#) about the MECTIZAN Donation Program.

### THE LONDON DECLARATION

We are an original signatory to the [London Declaration](#) a collaborative effort launched in 2012 to accelerate progress toward eliminating or controlling 10 NTDs by the end of the decade. Our company joined 12 other global pharmaceutical companies and many other stakeholders, including endemic country governments, WHO, the [Bill & Melinda Gates Foundation](#), the [U.S. Agency for International Development \(USAID\)](#), the [UK Department for International Development \(DFID\)](#), nongovernmental organizations (NGOs) and other organizations in this effort.

Together with the other pharmaceutical companies, we committed to continuing or increasing donations of medicines to treat or prevent these diseases. Donors committed financial resources, and NGOs agreed to support implementation needs. The partners came together under the banner of “Uniting to Combat NTDs” to track progress and identify gaps that need to be addressed in order to reach the goals of the London Declaration. Through the MECTIZAN Donation Program, we are helping to achieve the disease control and elimination goals for two diseases, onchocerciasis (river blindness) and lymphatic filariasis (LF).

Although existing tools are having a major impact, several NTDs require new or improved drugs and diagnostics to achieve the goals of the London Declaration. We are engaged in various efforts to advance progress toward developing new drugs and diagnostics. For example, together with several other companies, we are providing access to compound libraries with external researchers through the [World Intellectual Property Organization’s Re:Search \(WIPO Re:Search\)](#) Consortium and [Drugs for Neglected Diseases Initiative \(DNDi\)](#). [Learn more](#) about our social licensing approach to combatting NTDs.

Taken together, through our drug donations for onchocerciasis and LF, and our research and development activities for schistosomiasis, visceral leishmaniasis (VL) and Chagas disease, we are supporting the London Declaration goals for five NTDs.

For more information on progress toward the London Declaration goals, [click here](#).

For more information on our company's drug donations for onchocerciasis and LF, please refer to the [MECTIZAN Donation Program](#).

## RESEARCH & DEVELOPMENT

### WIPO Re:Search

Our company is one of the founding members of [WIPO Re:Search](#), a consortium of public and private organizations that facilitates research on NTDs, malaria and tuberculosis. Through this consortium, we are collaborating with investigators at the University of California, San Diego (UCSD), providing scientists with a series of compounds for screening that have the potential to lead to better and safer treatments for patients suffering from schistosomiasis. This disease is caused by a blood-borne parasite, and affects millions of people living in the developing world.

Also through WIPO Re:Search, in late 2014 [we entered into an agreement](#) with researchers at the Walter and Eliza Hall Institute of Medical Research (WEHI) in Australia which supports collaboration focused on the research and development of antimalarial drugs that could potentially impact the replication and transmission of malaria. In 2015, our joint team was successful in applying for and receiving a Wellcome Trust Pathfinder Award. Initial screening yielded quality hits with excellent antimalarial potency and *in vivo* proof-of-concept activity. With the encouragement and support of the BioVentures for Global Health Partnership Hub, the team applied and successfully competed for further funding from the Wellcome Trust (WT). Such support will accelerate the team's collaborative research program with an objective to achieve lead optimization status in 2019.

In furtherance of our commitment to the WIPO Re:Search mission and community, we continue to provide relevant expertise to other WIPO Re:Search members as requested and appropriate. We also continue to consider other collaboration opportunities where our company's contributions can provide unique and significant impact.

### G-FINDER Survey

To contribute to global awareness and advocacy on research and development (R&D) for NTDs, we participate in the annual [G-FINDER survey](#). Since 2008, G-FINDER has reported on global investments in neglected disease R&D from a range of public and private institutions, and is considered a unique source of current information and insights into ongoing trends for stakeholders engaged in NTDs. We are pleased to note that industry investment in neglected disease R&D has increased in each of the last five years, and reached new record highs in each of the last three years. Since 2008, reported industry investment has increased by nearly 50 percent, while funding from both the public and philanthropic sectors has fallen.

### Macrofilariicide Drug Accelerator Program

In 2015, our company became a founding member of the Macrofilariicide Drug Accelerator Program (MacDA), an effort driven by the Bill & Melinda Gates Foundation to support the members' collective work toward identifying and generating lead drug compounds to augment the global onchocerciasis and LF drug pipelines. We have established collaborations within the MacDA membership in support of the program's goals to accelerate the discovery of such lead drug compounds.

### Emerging Pathogens with Potential to Generate Severe Epidemics

We are currently collaborating with the United States Army Medical Research Institute of Infectious Diseases to perform targeted screening of the company's compounds. The primary focus of this effort includes viral pathogens such as Ebola, Zika and related viruses that have the potential to generate severe epidemics and pose a threat to civilian and military populations. Most recently, *in vivo* proof-of-concept inhibitory activity was achieved for two classes of molecules. More detailed pharmacokinetic / pharmacodynamic studies are planned.



## Our company is working to identify and develop new drugs against tuberculosis (TB) that can lead to shorter and better-tolerated regimens.

Tuberculosis is one of the most serious infectious diseases worldwide. In 2016, the World Health Organization (WHO) estimated that there were 10.4 million new TB cases worldwide, and that 1.7 million people died from the disease.<sup>1</sup> Although TB is a treatable and curable disease, current treatments require patients to take multiple antibiotics for six to 24 months or longer, are complicated to administer and have significant adverse events. These factors prevent people from accessing or completing their treatment, which can lead to the development of drug-resistant strains or death. There is an urgent need for new, better-tolerated regimens with shorter durations.

Our company is a member of the TB Drug Accelerator (TBDA), a groundbreaking collaboration among eight research institutions, nine pharmaceutical companies and a product development partnership to facilitate TB drug discovery. It has been designed and coordinated by the Bill & Melinda Gates Foundation.

Through the TBDA, companies share targeted sections of their compound libraries and data with one another and with academic research institutes in order to develop the best drug prospects, regardless of where they originate. To date, scientists from four continents have tested more than 3 million small molecules from corporate and other compound collections for screening. The immediate goal is to provide clinical proof of concept by 2024 for a new regimen that can cure a patient with TB in only one month.

Our company has completed two large in-house screening campaigns. One was a screen of over 2 million compounds, and the other was a collaborative effort with TBDA partners using our proprietary Automated Ligand Identification System (ALIS) technology. Both screens delivered sets of unique hit molecules that are being followed up by our scientists and other TBDA member scientists. In collaboration with the National Institute of Allergy and Infectious Diseases, we continue to champion a lead optimization program within the TBDA. Through the TBDA, we are collaborating to progress a natural product program that was initiated by our company and is now being championed by Eisai.

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1. <http://apps.who.int/iris/bitstream/10665/250441/1/9789241565394-eng.pdf?ua=1>.



Cancer is one of the most significant global health challenges today.



**14 Million**  
In 2012, it is estimated that approximately 14 million people worldwide were diagnosed and about 8 million people died from cancer.



**20 Million**  
By 2025, new cancer cases worldwide are predicted to exceed 20 million annually.

Research on global cancer burden shows more than 14 million new cancer cases were diagnosed in 2012,<sup>1</sup> a number that is expected to grow to more than 20 million by 2030.<sup>2</sup> In the United States alone, 1.7 million new cancer cases are expected to be diagnosed in 2018.<sup>3</sup>

Remarkable progress has been made in the fight against this disease. Five-year survival is increasing for many types of cancer, in large part due to early detection and better treatments. Current research holds enormous promise to fight the growing burden.

We are proud to be a part of the great progress being made in this fight. We have a long history of bringing forward innovative medicines in oncology, beginning with the approval of our first oncology medicine by the U.S. Food and Drug Administration (FDA) in 1986.<sup>4</sup> Building on this foundation, our company has continued to invest in promising science and has developed a portfolio of medicines to treat cancer and cancer treatment-related conditions. These medicines span therapy types and patient needs, showcasing the depth and breadth of our commitment to cancer.

An anchor of that commitment is KEYTRUDA® (pembrolizumab), an anti-PD-1 therapy. KEYTRUDA is a type of immunotherapy that harnesses the body's immune system to help fight cancer. With the largest immuno-oncology clinical development program in the industry, we are exploring how KEYTRUDA can potentially help the greatest number of cancer patients globally.

We are committed to working with stakeholders to support accessibility to our cancer medicines through various initiatives, programs, and contributions. Many of these efforts are described below.

## Our Legacy in Cancer Care



## TIMELINE

1986

Our first oncology product, INTRON A<sup>®</sup> (Interferon alfa-2b), is approved by the FDA. In 1986, it is the only treatment for hairy cell leukemia, a rare cancer that affects about 2,000–3,000 Americans at the time.<sup>5</sup>

1989

Our expanding research portfolio and broad interest in cancer leads to actions to protect employees from cancer-causing risk factors. The establishment of a link between tobacco smoking and cancer leads us to change workplace policies to promote healthy living globally.<sup>6</sup> In 1989, the company becomes one of the first corporations to establish a smoke-free workplace, encouraging employees to live healthier lives.

1998

Our oncology portfolio continues to grow as we pursue cutting-edge cancer research. Our second oncology product, TICE<sup>®</sup> BCG (Bacillus Calmette-Guerin), is approved by the FDA for the treatment of carcinoma of the bladder—more than 50,000 new cases are diagnosed annually in the United States at the time of approval.<sup>7</sup>

Furthermore, in collaboration with the National Cancer Institute, we co-fund the creation of the Chemistry-Biology Center at Harvard University, which aims to screen and develop cancer drug candidates much more quickly in order to address the need for expedited discovery of cancer therapies.

1999-2001

At the turn of the century, chemotherapy is the standard of care for most cancer patients. TEMODAR<sup>®</sup> (temozolomide), our first chemotherapy, receives FDA approval in 1999 to treat certain types of brain tumors.

2003

While chemotherapy is most effective on cancer cells, it also kills some healthy cells that are actively replicating. For patients being treated with chemotherapy, side effects often stem from the death of these healthy cells. In 2003, EMEND<sup>®</sup> (aprepitant), our fourth oncology product, is approved by the FDA to address nausea and vomiting caused by chemotherapy.

2006

As we continue to learn more about how and why cancer develops, we begin to understand the ways to detect cancer earlier and prevent it altogether. In 2006, our first vaccine to prevent cancer, GARDASIL<sup>®</sup> [Human Papillomavirus

Quadrivalent (Types 6, 11, 16, and 18) Vaccine, Recombinant], is approved by the FDA for the prevention of [cervical cancer](#). This same year, we also receive FDA approval for ZOLINZA® (Vorinostat), which treats a certain type of lymphoma.

**2013**

Through better understanding the biology of cancer cells, we learn how to use biological signals to control cancer cell growth. This type of therapy, called immunotherapy, harnesses the immune system to help identify and fight cancer cells. In 2013, we announce that our first immunotherapy, KEYTRUDA, receives Breakthrough Therapy Designation by the FDA for previously treated, advanced melanoma, indicating evidence of significant improvements over existing treatment options for serious or life-threatening diseases.<sup>8</sup>

**2014-2015**

KEYTRUDA is the first anti-PD-1 therapy in its class to be approved in the United States. In 2014, KEYTRUDA is approved for treating unresectable or metastatic melanoma with disease progression following ipilimumab and, if BRAF V600 mutation positive, a BRAF inhibitor. Just one year later, it is approved for treating patients with metastatic non-small cell lung cancer (NSCLC) whose tumors express PD-L1 and who have disease progression on or after platinum-containing chemotherapy.

**2017**

KEYTRUDA continues to reach regulatory milestones and expand to new indications. In 2017, it is approved for ten indications across many cancers. In May 2017:

1. KEYTRUDA became the first cancer therapy approved by the FDA for use based on a biomarker, regardless of tumor type. This was a first-of-its-kind indication: the treatment of adult and pediatric patients with unresectable or metastatic, microsatellite instability-high (MSI-H) or mismatch repair deficient (dMMR) solid tumors that have progressed following prior treatment and who have no satisfactory alternative treatment options.
2. Additionally, KEYTRUDA was approved by the FDA in combination with pemetrexed (ALIMTA®) and carboplatin (pem/carbo), a commonly used chemotherapy regimen, for the first-line treatment of metastatic nonsquamous NSCLC, regardless of PD-L1 expression

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“New medicines like KEYTRUDA are central to [our] mission to save and improve lives. Providing early access to promising investigational medicines helps us join with the scientific and medical communities in seeking additional ways to extend compassion, and potentially to extend or save lives.”

DR. SCOT EBBINGHAUS  
VICE PRESIDENT, CLINICAL RESEARCH, GCD – ONCOLOGY MELANOMA

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## Access to Health Guiding Principles

Improving access to cancer care is our strategic priority.

To guide our efforts, we follow our company-wide [Access to Health Statement of Guiding Principles](#), which articulate our approach and aspirations in the areas of Research and Development, Manufacturing and Supply, Registration, Commercialization, and Community Investment. We are working with governments and other stakeholders to help patients gain access to the oncology medicines that they need and to invest in health systems to expand the provision of quality cancer care.

## RESEARCH AND DEVELOPMENT

Our goal is to translate breakthrough science into innovative oncology medicines to help people with cancer worldwide. Today, our portfolio includes oncology medicines that treat different cancers and conditions related to cancer treatment. Currently, we're focusing our development program on our most recently approved oncology product, KEYTRUDA.

### Clinical Research Program

In an effort to help as many people as possible, our company has created the largest immuno-oncology clinical development program in the industry. We are studying KEYTRUDA, our first anti-PD-1 therapy, in hundreds of clinical trials across 30 tumor types<sup>9</sup> as both a single agent and in combination with other cancer medicines. With approximately 90,000 patients<sup>9</sup> expected to participate in these clinical trials, we are aiming to help as many patients with cancer as possible. We also have more than 20 novel mechanisms<sup>9</sup> being explored in our pipeline, in the clinic or close to entering the clinic, for monotherapy or combination with KEYTRUDA.

### Combination Therapies

While single cancer therapies have proven to be effective in many patients, in some cases, combination therapies have delivered better clinical outcomes than stand-alone medicines.<sup>10</sup> This scientific progress has the potential to improve patients' survival and quality of life. It is because of this promise that we are also exploring combining KEYTRUDA with other cancer treatments in more than 400 clinical trials<sup>9</sup> globally.

## DEEP DIVE—EXPANDED ACCESS PROGRAM (2014)

We are committed to bringing innovation to patients facing life-threatening conditions as quickly and equitably as possible. Our first priority with new medicines is to enroll patients in clinical trials to expedite regulatory approval, which enables access for the greatest number of patients. However, we recognize that there is often a time lag between providing evidence that a drug is effective and gaining regulatory approval.

The Expanded Access Program provided KEYTRUDA to more than 5,800 melanoma patients in 38 countries before it was approved. It helped patients of all ages—from 14 to 94. Thanks to regulatory approval, patients now have broader access to KEYTRUDA through the traditional healthcare systems.

“I was truly honored and humbled to be part of the KEYTRUDA early access team. In fact, it’s the highlight of my career. [Our] colleagues worldwide were driven to do what we do best—work to bring innovative science to help patients be well.”

CHET BHATT  
EXECUTIVE DIRECTOR, GLOBAL MEDICAL AFFAIRS

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## REGISTRATION

Once evidence has been collected regarding the safety and efficacy of a compound, it must be approved by the relevant regulatory agency before it can be prescribed and administered in a region or country. To prevent delayed access between products being deemed clinically beneficial and being approved, we have focused on expediting filings for regulatory approvals across the globe. This ensures that the greatest number of patients in need have access to our products as soon as safely possible. Reflecting our commitment to registration, KEYTRUDA is currently approved in 86 countries<sup>9</sup> around the world.

## COMMERCIALIZATION

After our products are approved by the local regulatory bodies, our next priority is to expedite reimbursement to support patients in getting access to care that they need as quickly as possible. In countries where reimbursement is delayed or not available, we undertake different approaches to improve patient access.

We acknowledge that costs for cancer care, including hospitalizations, management of complications, medicines, and other financial burdens, can be inhibitory to patients. Thus, we provide programs and initiatives to reduce these access barriers for patients. We support Patient Access Programs to enable patient access to our medicines by reducing patient inability to pay for cancer treatment. We have launched many of these programs across many geographies:

**In the United States**, our Patient Access Program supports patients who do not have insurance. Patients whose insurance does not cover KEYTRUDA may be eligible for free product, including product replacement, if they meet certain financial and medical criteria.

**In other regions** where there is limited or no reimbursement for KEYTRUDA, we have structured various Patient Access Programs and continue to explore initiatives which enable greater access to our products. These types of initiatives are currently active across Asia Pacific and the Middle East.

## DEEP DIVE—U.S. PATIENT SUPPORT PROGRAM

Our company's Patient Support Program in the U.S. provides free reimbursement support services to help answer questions related to insurance coverage and reimbursement. [Learn more.](#)

Lastly, the time lag between regulatory approval of a product and reimbursement of that product in a given country can present access challenges for patients in need. We are working to ensure timely reimbursement authorizations to ensure patients are able to access our products as quickly as possible. To that end, we have engaged with other industry partners to address these issues around timelines and reimbursement.

## **DEEP DIVE—MEDICINES AUSTRALIA—ONCOLOGY INDUSTRY TASKFORCE**

Due to increasing challenges in gaining timely, affordable and equitable patient access to new cancer medicines in Australia, several member companies of Medicines Australia came together to work in collaboration with key stakeholders to improve access to cancer medicines for the benefit of patients. Our company is one of 15 companies participating in the Oncology Industry Taskforce, which launched a report in May 2017 entitled, "A collaborative assessment of access to cancer medicines in Australia." The report draws from Australian and international research and more than 30 interviews to provide practical and prioritized considerations for government and policymakers. This and other industry engagements will continue as we strive to improve access to our products.

## **Partnerships**

We believe that many access challenges cannot be resolved in isolation. To enable broader access to cancer medicines and healthcare, we are undertaking a number of efforts in partnership with stakeholders, which target barriers to access from drug availability to reimbursement, while ensuring local infrastructure exists to treat patients across the pathway of care.

### **PATIENT-CENTERED CANCER CARE**

Our company's Foundation established the Alliance to Advance Patient-Centered Cancer Care to increase timely access to patient-centered care and to reduce disparities in cancer care for vulnerable and underserved populations in the United States. The Foundation has committed \$15 million over five years (2017–2021) to support the Alliance and its program partners in selected communities across the country.

# ALLIANCE TO ADVANCE PATIENT-CENTERED CANCER CARE

## ACCESS ACCELERATED INITIATIVE

Our company is a member of Access Accelerated, a first-of-its-kind, multi-stakeholder collaboration focused on improving non-communicable disease (NCD) care. Involving more than 20 pharmaceutical companies, the initiative works with partners such as the World Bank and the Union of International Cancer Control (UICC) to help overcome access barriers in low- and middle-income countries.



*Moving NCD Care Forward*

## DEEP DIVE—CITY CANCER CHALLENGE 2025 (C/CAN 2025)

In partnership with UICC, Access Accelerated has launched C/Can 2025, a global, signature, cancer initiative to deliver robust cancer treatment solutions in cities in low- and middle-income countries with populations over 1 million. The initiative engages with cities in the design, planning and implementation of treatment solutions to improve the health of their citizens and reduce inequalities in access to quality cancer care.

The challenge addresses the need to ensure that functional, comprehensive cancer solutions are available for the majority of the world's population. C/Can 2025 is piloting the model in three initial cities—Yangon, Myanmar; Cali, Colombia; Asunción, Paraguay. Upon proof of concept, the initiative will expand beyond these cities.

Our company has taken a leadership role in this initiative, spearheading a multi-stakeholder working group. Furthermore, by supporting C/Can 2025 and a holistic treatment solution, we and the rest of our industry partners have agreed to be prepared to negotiate on pricing if it is identified as a barrier to access in the gap analysis in pilot cities.

## **AMERICAN CANCER SOCIETY PARTNERSHIP**

To address cancer care challenges in the U.S., our company's Foundation provided a \$1.58 million grant to the [American Cancer Society \(ACS\)](#) through a four-year partnership, which aims to expand ACS's Patient Navigation Program in three communities where there are substantial disparities in cancer care.

The Patient Navigation Program provides guidance and support for cancer patients, their families and caregivers. More than 100 Patient Navigators are helping those affected by cancer in hospitals and cancer treatment centers nationwide. They help identify and reduce barriers to treatment, including challenges with language, transportation and health insurance.



1. Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, Rebelo M, Parkin DM, Forman D, Bray, F. GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 [Internet]. Lyon, France: International Agency for Research on Cancer; 2013. Available at: [http://globocan.iarc.fr/Pages/fact\\_sheets\\_cancer.aspx](http://globocan.iarc.fr/Pages/fact_sheets_cancer.aspx).
2. American Cancer Society. Global Cancer Facts & Figures. 2nd Edition. Available at: <http://www.cancer.org/acs/groups/content/@epidemiologysurveillance/documents/document/acspc-027766.pdf>.
3. American Cancer Society. Cancer Facts & Figures 2018. Available at: <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2018/cancer-facts-and-figures-2018.pdf>.
4. Food and Drug Administration. Clinical Review. Available at: [http://www.accessdata.fda.gov/drugsatfda\\_docs/bla/1997/ifnasch110697r.pdf](http://www.accessdata.fda.gov/drugsatfda_docs/bla/1997/ifnasch110697r.pdf).
5. [https://www.washingtonpost.com/archive/politics/1986/06/05/cancer-drug-interferon-wins-approval-for-commercial-use/0046e95a-6cc8-402f-910a-09bad92eeb59/?utm\\_term=.87b606b08291](https://www.washingtonpost.com/archive/politics/1986/06/05/cancer-drug-interferon-wins-approval-for-commercial-use/0046e95a-6cc8-402f-910a-09bad92eeb59/?utm_term=.87b606b08291).
6. Bode AM, Dong Z. Cancer Prevention Research—Then and Now. *Nature reviews Cancer*. 2009;9(7):508–516. doi:10.1038/nrc2646.
7. <http://wayback.archive-it.org/7993/20170723144330/https://www.fda.gov/downloads/BiologicsBloodVaccines/Vaccines/ApprovedProducts/UCM101490.pdf>.
8. <https://www.fda.gov/RegulatoryInformation/LawsEnforcedbyFDA/SignificantAmendmentstotheFDCA/FDASIA/ucm329491.htm>.
9. Figures are accurate as of April 20, 2018.
10. Xu, Liang et al. "A Meta-Analysis of Combination Therapy versus Single-Agent Therapy in Anthracycline- and Taxane-Pretreated Metastatic Breast Cancer: Results from Nine Randomized Phase III Trials." *OncoTargets and therapy* 9 (2016): 4061–4074. PMC. Web. 8 Feb. 2018.



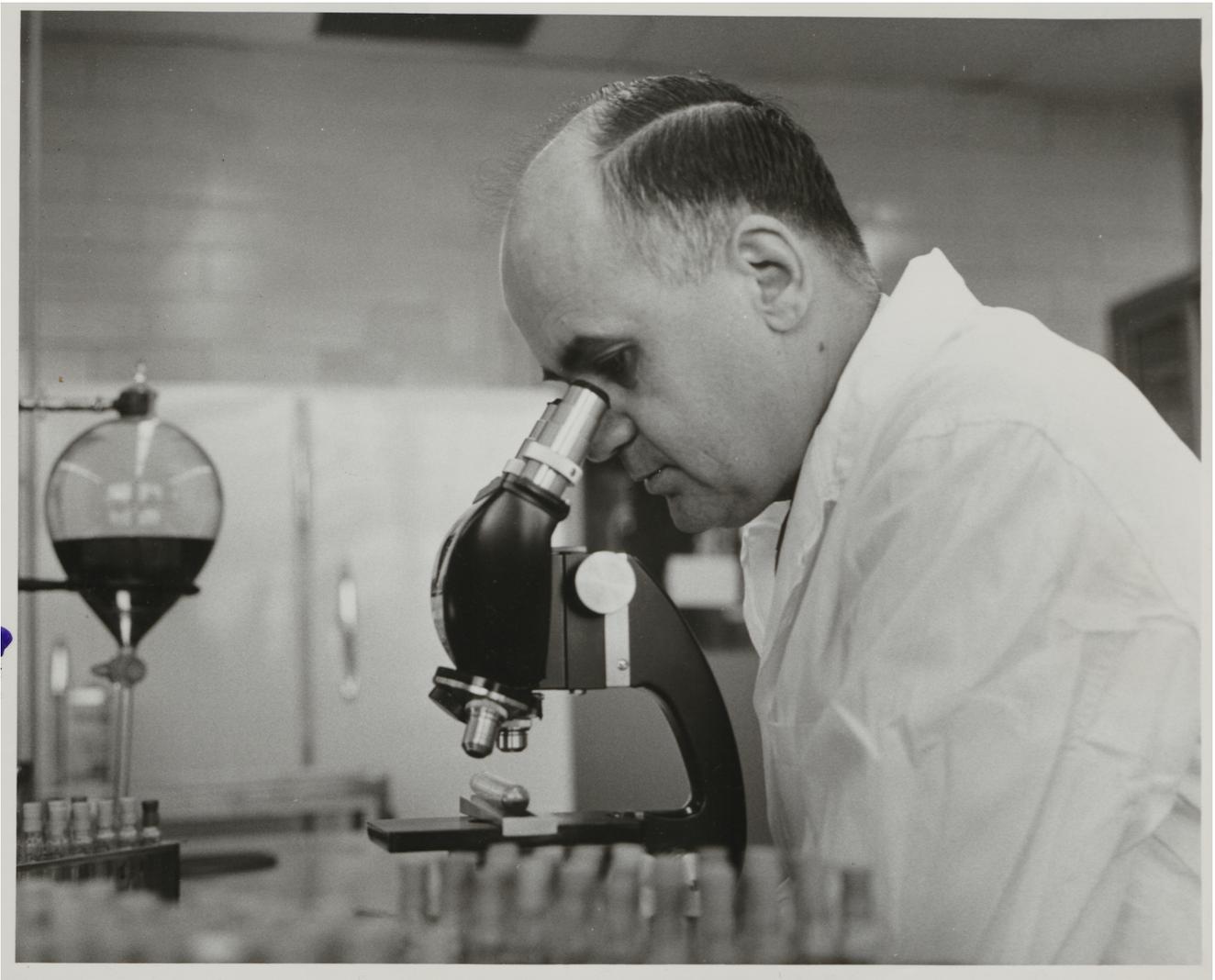
Vaccines are one of the most valuable public health innovations of modern times, according to the World Health Organization (WHO), the U.S. Centers for Disease Control and Prevention (CDC) and other leading health authorities.<sup>1, 2, 3, 4, 5</sup>

#### Public Policy Position Statement: Vaccines

Vaccines are vital in the global fight against disease, eradicating smallpox and nearly eliminating other diseases like polio worldwide.<sup>2, 6</sup> According to the World Health Organization, vaccines help prevent more than 30 infectious diseases and save 2 to 3 million lives globally each year.<sup>1, 7</sup>

Our company has played a defining role in the history of vaccines. For more than 100 years, our scientists have been discovering and developing vaccines to help protect children, adolescents and adults from a number of serious diseases.<sup>8</sup>

In that time, our company has been home to some of the greatest vaccinologists, including the late Dr. Maurice Hilleman, a scientist and visionary who developed more than 40 vaccines for humans and animals over the course of his remarkable career.<sup>9</sup>



Dr. Maurice Hilleman, ca. 1962.

Our long history of success in discovering, developing, manufacturing and distributing vaccines is the foundation on which we will build a healthier future for people of all ages worldwide.

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“I think there’s perhaps no better example of how we make our mark on long-term health than our vaccines business. The bottom line is, children are protected and communities are being changed for the better around the world because of our company.”

KENNETH C. FRAZIER  
CHAIRMAN AND CEO

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Our company’s framework is one that allows the ongoing research, development and distribution of innovative vaccines that address important unmet health needs. In keeping with our overarching [Access to Health Statement of Guiding Principles](#), we have a comprehensive strategy.

## OUR COMMITMENTS

- Support ongoing surveillance and assessments to understand infectious-disease trends and their impact on people
- Engage in innovative research and development (R&D) to provide vaccines that address vital global health needs
- Strive to maintain the highest standards of safety and product quality in all stages of vaccine development and manufacturing
- Invest in manufacturing improvements to help assure reliable product supply and lower production costs
- Use tiered (or differential) pricing—systematically pricing vaccines at differing levels appropriate to the value they create under the economic conditions where they are used—to facilitate broad access
- Work with governments and nongovernmental organizations (NGOs) to build sustainable and effective vaccination programs that reliably reach people

Following the end of a successful 20-year joint venture with Sanofi Pasteur, in January 2017, our company reintegrated our broad vaccines portfolio of pediatric, adolescent and adult vaccines into 19 MSD countries across Europe. We're proud to build on the success of the joint venture and move forward independently managing the MSD vaccines portfolio in the region. The addition of the vaccine portfolio in Europe strengthens our global position as a leader in vaccines and infectious disease prevention.

## Our Approach

Our company invents—i.e., conducts innovative research and development—to create vaccines that address unmet and emerging global health needs.

## RESEARCH AND DEVELOPMENT

We remain one of the few companies dedicated to the complex business of researching and producing vaccines to help address the public health burden of infectious diseases for people around the world.

Our company is working with a number of collaborators, including global and national health organizations, to develop vaccines that target diseases of global significance, such as pneumococcal disease, respiratory syncytial virus (RSV), cytomegalovirus (CMV), herpes zoster and Ebola.

We are also working to develop a vaccine to prevent dengue. It is estimated that each year there are 390 million people infected with dengue viruses throughout the tropics and subtropics, resulting in up to 100 million cases of dengue fever, with at least 500,000 of those cases being classified as severe.<sup>10</sup> Nearly 4 billion people live in the more than 140 countries where dengue transmission occurs.<sup>11</sup> At this time, there is no broadly registered and widely available vaccine or specific therapy to protect these people at risk. In 2014, we in-licensed the NIH live attenuated dengue vaccine candidate. NIH-sponsored Phase II clinical trials are currently ongoing and preparations for company-sponsored trials are in progress.

## IMPROVING VACCINES

In addition to engaging in vaccine R&D, we are focused on exploring ways to improve the characteristics of our vaccines. This includes investing in improved production approaches, formulations, schedules and presentations, as well as investigating opportunities to improve supply security and expand the number of serotypes in our vaccines, and evaluating the appropriateness of our vaccines for additional populations.

For example, in 2016, our company received WHO Prequalification for GARDASIL<sup>®</sup> [Human Papillomavirus Quadrivalent (Types 6, 11, 16 and 18) Vaccine, Recombinant], in “Controlled Temperature Chain” (CTC) environment. This was granted after we conducted a thorough clinical assessment of the vaccine thermostability. The CTC allows vaccines to be kept at temperatures outside of the traditional cold chain of +2°C to +8°C for up to three days under monitored and controlled conditions. This CTC compatibility improves the programmatic suitability in areas where cold chain infrastructure is the weakest.

## MSD-WELLCOME TRUST HILLEMANN LABORATORIES

We are committed to increasing global vaccination coverage and supporting sustainable vaccination programs that expand access and uptake. Certain product attributes can make it easier for public health systems to manage vaccination programs and for community health care workers to vaccinate people in unique geographies and resource-limited environments.

We are proud to be engaging with the global health community to help address such challenges through the MSD Wellcome Trust Hilleman Laboratories, a unique and creative partnership founded in 2009 with co-funding from our company and Wellcome Trust. Headquartered in New Delhi, India, Hilleman Laboratories is a research and development center focused on enabling increased immunization rates through innovative vaccine science and technology that can help improve the design and affordability of vaccines for lower-income settings (including countries eligible for support from Gavi, the Vaccine Alliance).

Hilleman Laboratories’ current portfolio consists of pursuing vaccine development to combat two high-burden, life-threatening diseases—diarrhea and bacterial meningitis. For protection against diarrhea, Hilleman Laboratories is testing innovations to help improve vaccine implementation of lyophilized vaccines, pursuing development of an affordable cholera vaccine in support of global cholera prevention and control, and researching vaccines against other diarrheal pathogens for which vaccines are not yet available, enterotoxigenic *Escherichia coli* (ETEC) and *Shigella*.

Additionally, Hilleman Laboratories is developing an affordable, first-of-its-kind polyvalent conjugate vaccine to protect against five types of meningococcal disease (A, C, Y, W, X). Hilleman Laboratories pursues its work in strong collaboration with government and non-government organizations, spanning global public health, science, technology, and the vaccine industry, including, for example, the World Health Organization, Gavi, UNICEF, vaccine manufacturers, and others.

Inspired by the rich legacy and innovative spirit of Dr. Maurice Hilleman, Hilleman Laboratories is committed to addressing major public health needs and reducing inequity around the world. Toward that end, Hilleman Laboratories is dedicated to delivering high-quality, affordable, user-centered vaccines that can be implemented in effective, sustainable ways to help protect the health of children, families and communities in low-income settings. Learn more about Hilleman Laboratories’ exciting endeavors at [www.hillemanlabs.org](http://www.hillemanlabs.org).

## MANUFACTURING AND SUPPLY

We continue to invest in manufacturing and end-to-end supply improvements in both capability and capacity to help assure the sustainable, reliable supply of quality and affordable vaccines to serve global needs.

As part of our long-term strategy to reach more people around the world with our vaccines, we have invested more than \$1 billion to modernize and expand our existing facilities and build new vaccine manufacturing sites. We have manufacturing

sites in West Point, Pennsylvania, U.S.; Durham, North Carolina, U.S.; Elkton, Virginia, U.S.; and Carlow, Ireland. We seek to develop the capability and capacity to serve a significant portion of the world's population.

The total number of doses distributed of our vaccines has increased significantly since 2010. And over the past eight years, our global reach has also increased dramatically: In 2017, approximately 65 percent of our vaccines were distributed outside the U.S., up from just 28 percent in 2010.

Importantly, we are working hard to ensure that many of these doses reach people in the low-income settings where they are needed most. More than 31 million doses of just two of our vaccines—GARDASIL and ROTATEQ® (Rotavirus Vaccine, Live, Oral, Pentavalent)—have been distributed in Gavi-eligible countries through 2017. Today, 28 Gavi-eligible countries have launched immunization programs with GARDASIL, and four are using ROTATEQ. More broadly, working with Gavi, UNICEF and other partners, we have helped to mobilize funding and technical support to enable the successful introduction of underused vaccines in the world's poorest countries.

## RELIABLE AND HIGH-QUALITY SUPPLY<sup>12</sup>

Our manufacturing division has undertaken an ambitious program to reduce the cost of production by increasing efficiency, minimizing procurement spending and improving supply performance.

Maintaining product quality is paramount. To provide high-quality vaccines to people who need them, we manage our supply chain through policies and procedures designed to keep the distribution system secure.

Tools such as serialization—a unique identification number on each package that goes to market—add extra security to the vaccine supply chain. A serial number on an individual package enables anyone along the supply chain to scan the code and authenticate it as a genuine product. Additionally, to help offset supply uncertainties, we produce a strategic vaccine reserve to respond quickly to unanticipated market demand.

We also have initiatives in place to help ensure that our packaging reduces unnecessary waste and is environmentally friendly. For instance, evaluating opportunities to reduce packaging elements for providers that have a controlled delivery environment or removing unnecessary packaging for individual units within bulk purchasing can result in substantial efficiencies and reduced waste. [Learn more.](#)

## MANUFACTURING PARTNERSHIPS

We continue to explore potential strategic partnerships with other manufacturers to bring down the cost of vaccines and promote greater access in local markets. We have a long history of progress in this area, dating back to our hepatitis B license of technology to manufacturers in China in the 1990s.

In 2014, we signed an agreement with Instituto Butantan, a Brazilian biomedical research center and vaccine producer, outlining the terms of a productive development partnership (PDP) for the technology transfer of our company's quadrivalent human papillomavirus (HPV) vaccine. Through this important transfer of vaccine technology, GARDASIL is now being supplied to Brazil's National Immunization Plan (NIP) through a partnership between our company and Instituto Butantan supporting the government of Brazil in its long-term national vaccination efforts against HPV-related diseases. In addition, we are working with Instituto Butantan on the transfer of technology for the production of our hepatitis A vaccine, VAQTA® (Hepatitis A Vaccine, Inactivated).

## REGISTRATION AND PREQUALIFICATION

We seek to ensure global access to our vaccines by obtaining and maintaining up-to-date product registrations around the globe. Additionally, we seek to obtain WHO prequalification so that our vaccines may be easily obtained and distributed to underserved areas of the world's poorest countries.

The following table summarizes the registration and WHO prequalification status of a select list of our vaccines.

	GARDASIL® [Human Papillomavirus Quadrivalent (Types 6, 11, 16, and 18) Vaccine, Recombinant]	GARDASIL®9 (Human Papillomavirus 9-valent Vaccine, Recombinant) <sup>13</sup>	RotaTeq® (Rotavirus Vaccine, Live, Oral, Pentavalent)	M-M-R®II (Measles, Mumps & Rubella Virus Vaccine Live)	VARIVAX® (Varicella Virus Vaccine Live)
Product Is WHO Prequalified <sup>14</sup>	Yes	Yes	Yes	Yes	Yes
Date of Prequalification	May 20, 2009	February 9, 2018	October 7, 2008	January 6, 2009	February 9, 2018
Approximate Number of Countries Where Product Is Registered (as of Q1 2017)	130	70	120	70	60

## PRICING

Our company works with governments, international health and development organizations, donor groups, NGOs, and others to support countries' population health aims and help improve sustainable vaccination programs.

We use tiered pricing for vaccines as an equitable way to achieve twin objectives: to expand access to people who need vaccination, and to ensure sufficient return on investment over time to support the complex and costly research and development and other activities necessary to create new vaccines.

We consider a variety of factors in arriving at a price in a given country, including public health needs, the health and economic value of the vaccine, the country's ability to support vaccine delivery and achieve population health coverage, its level of economic development, its fiscal capacity for investments in health and actual health spending, its mechanism and policies for procuring vaccines, and others.

We also consider inequities in access within a country. Where regulations and infrastructure allow, reduced pricing has been offered to support government- or donor-funded coverage of lower-economic-tier segments.

Our company's commitment to helping protect global health by improving the affordability, availability, accessibility, and use of our vaccines around the world is fundamental to our business and overall mission. We offer ROTATEQ and GARDASIL at an access price that is significantly less than the price of these vaccines in developed markets. The access price is exclusive to the public sectors of the countries eligible for support from [Gavi, the Vaccine Alliance](#).

In 2015, we extended our current Gavi prices for ROTATEQ and GARDASIL through 2025 to Gavi-graduated countries with a per-capita gross national income (GNI) not exceeding \$3,200. This action greatly assists in meeting the needs of low- and lower-middle-income countries by facilitating access to these vaccines in those countries while also making sure they remain affordable and sustainable in the long term. We believe that our pricing approach contributes to wider access to our

vaccines while taking into account our need to continue investing in vaccine research, development and production. In the short period of time since we made our price commitment to countries transitioning out of Gavi support, five countries have taken advantage of the offer to introduce or continue existing national HPV vaccination programs.

For additional information regarding pricing, see our [Public Policy Statement: Access to Our Vaccines](#).

## Ebola and Preventing Future Epidemics

To respond to the Ebola crisis that started in 2014, we joined with the international health community in collaborative efforts to help develop an investigational vaccine against Ebola virus disease.

In November of that year, our company announced that we had licensed a vaccine candidate, originally engineered by the Public Health Agency of Canada, from NewLink Genetics Corporation.

Our rich history in vaccine clinical development and public-private partnerships, and our commitment to respond to unmet health needs, positioned us well to join a vaccine development collaboration that resulted in the availability of interim Phase III efficacy results in humans within 10 months after the first Phase I clinical trial was started.

On December 23, 2015, we announced that the application for Emergency Use Assessment and Listing (EUAL) for the company's investigational Ebola Zaire vaccine, V920 (rVSVΔG-ZEBOV-GP, live attenuated), had been accepted for review by WHO.

Phase II/III testing was initiated with studies starting in Liberia in February 2015, in Guinea in March 2015, and in Sierra Leone in April 2015. In December 2016, *The Lancet* published the final results of the 2015 Guinea Ebola study.<sup>15</sup>

In 2016, the U.S. FDA granted our Ebola vaccine candidate, V920, Breakthrough Therapy Designation, and the EMA granted it PRIME (PRiority Medicines) status. We are planning to file regulatory applications for V920 with the European Medicines Agency (EMA) and the FDA in 2019.

If the vaccine is licensed, we are committed to making the vaccine available to Gavi-eligible countries at the lowest possible access price. In the meantime, our company maintains supply of the investigational vaccine in collaboration with the US Government, the WHO, and Gavi. This investigational vaccine can be used in emergency situations under a clinical access protocol at the request of relevant authorities and with appropriate regulatory frameworks in place—as was done in the May 8–July 24, 2018, outbreak in the Equateur Province of the Democratic Republic of the Congo (DRC) and again in the North Kivu outbreak in the DRC that began on August 1, 2018.

### 2018 Fortune Change the World List

Our company is proud to be ranked number two on *Fortune* Magazine's 2018 "Change the World" list for our work in Ebola in partnership with the global health community and affected countries.

## PREVENTING FUTURE EPIDEMICS

On January 19, 2017, our company joined with world leaders and NGOs to announce the launch of the Coalition for Epidemic Preparedness Innovations (CEPI), a global coalition to create new vaccines for emerging infectious diseases.

An innovative public-private philanthropic partnership, CEPI was founded by the governments of India and Norway, the Bill & Melinda Gates Foundation, the Wellcome Trust, and the World Economic Forum. Other partners include multinational pharmaceutical corporations—including MSD—and NGOs. CEPI is backed by WHO and Doctors Without Borders.

CEPI will support needed research and development of vaccines that could be deployed rapidly to contain outbreaks before they become global health emergencies.

Epidemics and pandemics in recent years have highlighted the extent to which infectious diseases threaten human life and health, and economic and social disruption. These outbreaks have exposed the shortcomings in the world's capacity to prepare and respond. Ebola and Zika are the most recent examples; others include SARS, MERS, Chikungunya, Lassa and Nipah.

CEPI is potentially an evolutionary leap forward in how we collectively conduct R&D into infectious diseases that come and go, posing challenges for clinical trials, for manufacturing, and for just-in-time delivery.

## Cervical Cancer

Our company collaborates with organizations and local governments worldwide to help foster community access to HPV education, prevention, detection and early treatment.

In 2017, partnership programs to improve access to HPV vaccination continued in Haiti and Peru. In Haiti, one of the poorest countries in the world, our company is collaborating with Zanmi Lasante in a two-year HPV vaccination program across three districts. The program is expected to vaccinate nearly 30,000 girls against certain HPV-related cancers and diseases. Vaccinations completed in 2016 to 2017, achieved a coverage rate of >93 percent for two doses.

To complement these efforts in Haiti, in early 2018 the St. Boniface Haiti Foundation initiated a school-based HPV vaccination program with donated doses of GARDASIL. This program is expected to vaccinate up to 5,000 girls in Haiti through 2019. And, in combination with the program being conducted by Zanmi Lasante, health officials in Haiti plan to leverage the learnings from this program in the development of a national vaccination program.

In Peru, we are working with CerviCusco, Direct Relief, and the Peru Ministry of Health on an HPV vaccination program in Cusco. CerviCusco is a clinic for specialized medical care in the prevention and detection of cervical cancer in women from the underserved mountainous region of Cusco. As of early 2018, CerviCusco had nearly completed vaccinating an expected total of over 30,000 persons with GARDASIL.

In addition, Zambia, which received a donation of 30,000 doses of GARDASIL in 2016, was able to leverage the experience gained and was approved in late 2017 for a national HPV vaccination program with Gavi support.

## OUR LEGACY OF INITIATIVES TO INCREASE ACCESS TO HPV VACCINE

2006



Beginning in 2006, the first year of GARDASIL licensure, we partner with the international nonprofit organization PATH to

provide GARDASIL for the conduct of post-licensure HPV-vaccine demonstration projects in Peru, Vietnam and India. GARDASIL is donated to vaccinate approximately 30,000 appropriate girls participating in the demonstration projects. The initiative was designed to strengthen the capacity of developing countries to help prevent cervical cancer by generating and providing necessary evidence for public-sector introductions of HPV vaccines, informing global advocacy efforts and providing analyses to help accelerate access to HPV vaccines.

**2007**



We announce a commitment to helping improve access to GARDASIL in developing countries by creating the GARDASIL Access Program (GAP) and donating the vaccine. By closeout of the program in 2015, over 1.3 million doses of GARDASIL have been donated to 31 GAP projects in 21 countries across the globe, providing helpful information about the feasibility of HPV vaccine delivery in developing-country settings.

**2010**



With support from the Australian Cervical Cancer Foundation (ACCF) and our company, Bhutan becomes the first developing nation in the world to implement a national cervical cancer vaccination program. In the first year of the six-year program, over 130,000 doses of GARDASIL donated by our company are administered, with approximately 90 percent of eligible 12–18-year-old females receiving all three doses. After the first year, ACCF provides financial support to the Royal Government of Bhutan to secure doses of GARDASIL at the access price offered by our company.

**2011**



Together with the Government of Rwanda and QIAGEN, N.V., we begin the first-ever national cervical cancer prevention program in sub-Saharan Africa. Over the three-year program, our company donates over 1.4 million doses of GARDASIL, and more than 96 percent of eligible girls receive all three doses in the first two years.

Also in 2011, our company announces plans to contribute \$3 million to Pink Ribbon Red Ribbon to address both cervical and breast cancer in sub-Saharan African nations. Through this commitment, we work with Susan G. Komen for the Cure, government ministries of health and local partners to support the initiative in Zambia, Botswana, Tanzania and Peru. Learn more about PRRR [here](#).

Initial activities include a donation of equipment to expand screen-and-treat services for cervical precancer in Tanzania, programs to raise national awareness of available cervical and breast cancer services, the improvement of treatment protocols for breast cancer, mobilization of the community in efforts against cervical cancer, and the provision of advanced surgical training to physicians in Zambia.



A young girl is vaccinated during the September 2012 phased launch of a national GARDASIL vaccination program in the Republic of Uganda.

## 2012

In September 2012, the Republic of Uganda, through the Ministry of Health, with support from our company, announces the launch of a GARDASIL vaccination program. Through this agreement, the vaccination program is implemented with just under a half-million doses of GARDASIL donated to 12 districts in Uganda, enough to vaccinate approximately 140,000 eligible girls 9 to 13 years of age over a two-year period. The program represents the first phase of Uganda's national rollout plan for HPV vaccination.

## 2013

Botswana, with support from the Pink Ribbon Red Ribbon partnership, begins a two-year HPV vaccination demonstration project to gain experience for a national HPV vaccination program.

## 2014

We are awarded a significant portion of the UNICEF HPV vaccine tender, providing a sustained supply of GARDASIL to countries eligible to procure vaccines through Gavi.

## 2015

Our company extends Gavi pricing for GARDASIL for 10 years to select Gavi-graduated countries.

1. WHO, UNICEF, World Bank. *State of the world's vaccines and immunization*, 3rd ed. Geneva, World Health Organization, 2009. [http://whqlibdoc.who.int/publications/2009/9789241563864\\_eng.pdf?ua=1](http://whqlibdoc.who.int/publications/2009/9789241563864_eng.pdf?ua=1). Accessed April 2, 2017.
2. Centers for Disease Control and Prevention. Ten Great Public Health Achievements—United States, 2001–2010. *Morb Mortal Wkly Rep*. 2011;60(19):619–623.
3. *Ibid.*; 60(24):814–818.
4. Centers for Disease Control and Prevention. "Achievements in Public Health, 1900–1999 Impact of Vaccines Universally Recommended for Children—United States, 1990–1998." *Morb Mortal Wkly Rep*. 1999;48(12):243–248.
5. World Medical Association. "Statement on the Prioritisation of Immunisation." World Medical Association 63rd General Assembly, 2012, Bangkok, Thailand. <https://www.wma.net/policies-post/wma-statement-on-the-prioritisation-of-immunisation/>. Accessed April 2, 2017.
6. WHO. Poliomyelitis. Fact Sheet No 114. <http://www.who.int/mediacentre/factsheets/fs114/en/>. Accessed April 4, 2018.
7. WHO. Immunization Coverage Fact Sheet. <http://www.who.int/mediacentre/factsheets/fs378/en/>. Accessed April 4, 2018.
8. The College of Physicians of Philadelphia. *The History of Vaccines*. [http://www.historyofvaccines.org/timeline#EVT\\_102212](http://www.historyofvaccines.org/timeline#EVT_102212). Accessed March 19, 2017.
9. Obituaries—Maurice Hilleman. *BMJ*. 2005;330:1028. doi: <https://doi.org/10.1136/bmj.330.7498.1028>. Published April 28, 2005.
10. "The global distribution and burden of dengue." *Nature*, 2013, Apr 25;496(7446):504–507. doi: 10.1038/nature12060. Epub 2013 Apr 7.
11. "Refining the global spatial limits of dengue virus transmission by evidence-based consensus." *PLoS Negl Trop Dis*. 2012;6:e1760. doi: 10.1371/journal.pntd.0001760.
12. Some content for this section taken from *Economic Outlook*, Spring 2015. Premier.
13. Not currently available through UNICEF procurement; awaiting Vaccine Vial Monitor (VVM).
14. [https://extranet.who.int/gavi/PQ\\_Web/Browse.aspx?nav=3](https://extranet.who.int/gavi/PQ_Web/Browse.aspx?nav=3).
15. "Efficacy and effectiveness of an rVSV-vectored vaccine in preventing Ebola virus disease: final results from the Guinea ring vaccination, open-label, cluster-randomised trial (Ebola Ça Suffit!)." *Lancet*, 2017;389:505–518. [http://dx.doi.org/10.1016/S0140-6736\(16\)32621-6](http://dx.doi.org/10.1016/S0140-6736(16)32621-6).



The private sector has an important role to play in contributing to the achievement of the United Nations' Sustainable Development Goals (SDGs)<sup>1</sup> regarding women's health.

## OUR COMMITMENTS

- Facilitate sustained access for our family planning products and services, and engage in partnerships that address specific reproductive health and development challenges
- SDG 3 sets two targets in support of the overall health of women, families and society:
  - By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births
  - By 2030, ensure universal access to sexual and reproductive health care services, including those for family planning, information and education, and the integration of reproductive health into national strategies and programs

While progress was made toward these targets under the original Millennium Development Goals whose sunset date was 2015, rates of maternal mortality and unintended pregnancy remain high in many countries, and access to modern contraceptive methods remains limited, especially among the poorest and most vulnerable women and girls. As the global community embraces the Sustainable Development Goals launched in September 2015, we will continue to support efforts to accelerate access to our products and ensure that reproductive health and rights are included in global, regional and country strategies.

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Access to modern contraceptives is an important aspect of family planning.

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Enabling couples to determine whether, when and how often to have children is vital to helping achieve safe motherhood, healthy families and healthy communities. Voluntary family planning and broadening the method mix of family planning options help protect the health of women by reducing high-risk pregnancies, and help protect the health of children, adolescents and mothers by allowing sufficient time between pregnancies. Research has shown that appropriately spacing

pregnancies helps improve both mother and child survival rates and reduces the risk of preterm birth.<sup>2</sup> The use of family-planning methods can also reduce the number of unsafe abortions and associated complications.<sup>3</sup>

Access to modern contraceptives is an important aspect of family planning. Our multifaceted approach supports efforts to improve access to family-planning services and contraceptives for the women most in need of them. We are actively engaged in areas where maternal mortality is high and the prevalence of contraceptive use is low.<sup>4</sup>

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1. <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>.

2. [http://www.marchofdimes.com/news/jul19b\\_2011.html](http://www.marchofdimes.com/news/jul19b_2011.html), [www.guttmacher.org/pubs/AddingItUp2009.pdf](http://www.guttmacher.org/pubs/AddingItUp2009.pdf).

3. Singh, S., et al., Guttmacher Institute and United Nations Population Fund; 2009.

4. <http://www.everywomaneverychild.org/networks/life-saving-commodities>.

## Partnerships

We participate in a number of coalitions that support women's reproductive health by increasing access to family planning, working to reduce maternal mortality, and promoting collaboration between the public, private and not-for-profit sectors.

Throughout the world, we have partnered with organizations and supported projects that work to increase women's access to health services, reduce maternal mortality, increase awareness of reproductive/sexual health among adolescents and vulnerable populations, prevent mother-to-child transmission of HIV/AIDS, and promote women's empowerment and access to economic opportunities.

### PARTNERING FOR IMPLEMENTATION

#### Reproductive Health Supplies Coalition (RHSC)

The [RHSC](#) is a global partnership of public, private and nongovernmental organizations (NGOs) dedicated to helping all people in low- and middle-income countries gain access to and use affordable, high-quality supplies that ensure better reproductive health.

The coalition brings together diverse agencies and groups with critical roles in providing contraceptives and other reproductive health supplies. These include multilateral and bilateral organizations, private foundations, governments, and civil society and private-sector representatives. We participate in various RHSC working groups, including the Market Development Approaches Working Group, which contributes to the goal of reproductive health supply security, and to ForoLac, which focuses on access in Latin America and the Caribbean.

In 2017, we were asked by RHSC to join a working group in support of its new Global Family Planning Visibility and Analytics Network (Global FP VAN), which is intended to be a shared platform for capturing and using supply chain data from multiple sources and organizations to provide enhanced visibility for decision making. We will provide input into the selection of a software solution that will allow supply chain professionals to see supply data and execute supply decisions in order, ultimately, to ensure more timely and cost-effective delivery of reproductive health products to countries.

#### Reproductive Health Global Traceability Advisory Group

In 2017, we continued to participate in the Reproductive Health Global Traceability Advisory Group, convened by USAID and UNFPA. Through our engagement, we provided feedback on the benefits and challenges associated with the adoption of data standards, shared our capabilities, and learned about UNFPA and USAID's initial work in this area. The major output from the group, published in October 2017, was the "Identification Recommendations for Reproductive Health Pharmaceuticals."

#### Global Implant Removal Task Force

Since 2015, we have participated in the Bill and Melinda Gates Foundation–convened Global Implant Removal Task Force, which brings together multiple organizations to deliver clear evidence and best practices and offer tangible solutions for identified problems in implant removal services. Materials developed by the task force have been published at <https://www.k4health.org/toolkits/implants/implant-removal-resources>.

#### **European Parliamentary Forum on Population and Development**

In Europe, in 2016, we established a partnership with the European Parliamentary Forum on Population & Development (EPF) to support the NGO's efforts to raise awareness of inequities in access to contraception and family-planning services among European countries.

Our company provided EPF with support to create a unique new tool called the [European Contraception Atlas](#), an online interactive map that scores 45 European countries on access to modern contraception, focusing on access to information and contraceptive supplies.

With criteria established by a multi-stakeholder group of experts in sexual and reproductive health and rights, the atlas aims to provide a dynamic and robust tool to help improve access to modern contraception.

#### **American Health Foundation**

In Latin America and the Caribbean, an estimated 60 percent of pregnancies are unplanned. During 2017, our company supported the efforts of the American Health Foundation (AHF) to convene a meeting of Latin American experts to develop a white paper on the magnitude and burden of unplanned pregnancies and the potential to reduce the burden through increased access to effective contraception. The white paper will be shared with health care providers, policy makers and the public. [Learn more](#).

#### **Centers for Disease Control and Prevention Foundation**

In June 2016, together with the [CDC Foundation](#), we announced a collaboration to enable increased access to NEXPLANON® (etonogestrel implant) and NuvaRing® (etonogestrel/ethinyl estradiol vaginal ring) in Puerto Rico through the Zika Contraception Access Network (Z-CAN). Z-CAN was established by the CDC Foundation to address an urgent need to improve contraception access in Puerto Rico during the Zika outbreak. As part of the effort, we are also providing training and education support to health care providers.

Z-CAN concluded in June 2017 when Puerto Rico declared an end to its Zika epidemic. During the program's run, more than 28,000 women visited Z-CAN clinics, of which 95 percent received same-day family planning services. Approximately 25 percent of all women who were offered the full range of contraceptive methods chose NEXPLANON. Prior to the establishment of the Z-CAN program, NEXPLANON was not widely available on the island. In January 2018, an article was published in [The Lancet Public Health](#) highlighting the work of Z-CAN and demonstrating what is possible during an emergency response or humanitarian crisis through partnership.

#### **Women Deliver**

[Women Deliver](#) is a leading global advocate for the health, rights and well-being of girls and women that brings together diverse voices to drive progress, with a particular focus on maternal, sexual, and reproductive health and rights. We are proud to participate in Women Deliver–led initiatives and coalitions that seek to bring meaningful change to women around the world.

#### **Family Planning 2020 (FP2020)**

[FP2020](#) works with governments, civil society, multilateral organizations, donors, the private sector, and the research and development community to enable 120 million more women and girls to use contraceptives by 2020. It is based on the principle that all women, no matter where they live, should have access to lifesaving contraceptives, and supports the UN Secretary-General's global effort for women's and children's health. In May 2013, we committed to reduce the cost of our implants by approximately 50 percent for six years, through 2018. In November 2015, we extended this commitment to FP2020 by five years, through 2023, to offer access pricing for IMPLANON® (etonogestrel implant) and IMPLANON NXT® (etonogestrel implant)—our single-rod, long-acting, reversible contraceptive implants—to eligible countries.

In 2017, we were proud to participate in the second [London Family Planning Summit](#) and to re-confirm our commitment to the partnership's goals.

For an update on FP2020 progress since it was created in 2012, [click here](#).



We support the ambitious—but, we believe, achievable—goal set by the public health community in 2012 of ensuring that voluntary lifesaving family planning information, services and products reach an additional 120 million women and girls in the world's poorest countries by 2020.

Our commitment to providing access to reproductive health starts with our research and development, which has resulted in a diverse portfolio of contraceptive products.

Over the years, we have been responsible for the development of a wide range of contraceptive options, including a single-rod contraceptive implant, a once-monthly vaginal contraceptive ring, and progestin-only and combined oral contraceptives.

Beyond our research, we continue to work hard to develop sustainable business models that will help improve access to our products for the people who need them most. Our partnerships with governments, international organizations and nongovernmental organizations (NGOs) help support and implement programs and policies that improve access and promote capacity-building by helping to train health care professionals and address barriers to care.

## **SUSTAINABLE BUSINESS MODEL TO PROMOTE ACCESS**

We are committed to making our contraceptive products available to women around the world. We take a comprehensive approach to access that includes high-quality manufacturing and supply chain management; extensive registration and World Health Organization (WHO) prequalification for a wide variety of our family-planning products; responsible commercialization that incorporates training and capacity-building; policy advocacy; and community investment.

In developing countries that have high rates of maternal mortality and low rates of contraceptive prevalence, we have created a sustainable business model to promote access to contraceptive health programs. These activities are focused primarily on sub-Saharan Africa and countries in Asia and Latin America with high unmet need. Through this model, we work closely with core global partners and their regional and local affiliates—including the [United Nations Population Fund \(UNFPA\)](#), [U.S. Agency for International Development \(USAID\)](#), [Department for International Development \(DFID\)](#), [Marie Stopes International](#), the [International Planned Parenthood Federation](#), [DKT International](#), the [Clinton Health Access Initiative](#), the [Bill & Melinda Gates Foundation](#), and [Population Services International](#)—to help expand access to our products.

We also work to raise awareness and improve equity in access to contraception in other parts of the world. In Europe, we are working to support efforts to launch our “Call to Action for Access to Effective Contraception” at the EU and country levels, and are liaising with stakeholders to elevate awareness and generate potential solutions for improvement.

## HIGH-QUALITY MANUFACTURING & SUPPLY CHAIN MANAGEMENT

We work to ensure that we have sufficient manufacturing capacity to meet short-, medium- and long-term availability of our contraceptive products to meet customer needs globally.

The majority of our production of our long-term reversible contraceptive implant is for developing countries. When we face supply constraints in these markets due to unforecasted demand, we work in close collaboration with our customers and partners to allocate supply to those countries most in need in the fairest and most transparent manner.

We continuously examine our supply chain, seeking to reduce inefficiencies, optimize yields, and lower costs of production, and have passed these savings on to our customers in the form of lower prices, particularly in lower-income markets. We also invest in new technologies to increase the efficiency of our operations and to be able to produce more affordable products at the same high quality to meet increasing demand.

As we continue to see demand grow for our long-term reversible contraceptive implant, particularly in developing markets, we will continue to analyze potential investments in our production capacity.

## REGISTRATION & PREQUALIFICATION

We seek to ensure global access to our contraceptive products by obtaining and maintaining up-to-date product registrations around the world. In addition to existing and in-process registrations, numerous registrations are planned for products in countries of various income levels.

## REGISTRATION

The following metrics are for our family-planning products intended for underserved segments of the world's poorest countries (defined as [Family Planning 2020 or FP2020 countries](#)) that are supplied through the public sector and social-marketing organizations. In 2017, IMPLANON NXT® (etonogestrel implant) was approved in India.

*Note: For World Bank country classifications, please [click here](#).*

	IMPLANON NXT®	EXLUTON®	MARVELON 28®
Product is WHO Prequalified	Yes	Yes	Yes
FP2020 countries where product is registered <sup>1</sup>	45	30	29
FP2020 countries in which we supplied product	34	4	3
Women reached in FP2020 countries <sup>2</sup>	3,485,179	195,622	385,676

1. There are additional unregulated markets where our products may be available that are not represented by these numbers.

2. Number represents potential number of women who could be reached based on number of products provided.

## PREQUALIFICATION

In order to facilitate institutional purchases of family-planning products and provide quality assurance, we have secured WHO prequalification for EXLUTON (lynestrenol), IMPLANON NXT (etonogestrel implant) and MARVELON 28 (desogestrel-ethinyl estradiol).

IMPLANON NXT is also included on the WHO Model List of Essential Medicines. The WHO list, updated every two years, serves as a guide for the development of national and institutional essential medicine lists. Medicines for inclusion are selected by WHO based on a rigorous review process by an Expert Committee of public health and clinical experts.

	International Nonproprietary Name (IN)	Date of Prequalification
MARVELON 28	Ethinylestradiol + Desogestrel	October 21, 2010
EXLUTON	Lynestrenol	June 18, 2010
IMPLANON NXT	Etonogestrel	May 23, 2013

## COMMERCIALIZATION

The success of reproductive health programs in the developing world relies upon the close cooperation and coordination of many partners. Those include pharmaceutical companies like ours that discover, develop and manufacture contraceptive products; national governments that seek to support family planning through policies that increase the use of contraception and through investment in both procurement and capacity-building; international, bilateral and multilateral donors that finance the purchase of reproductive health commodities and invest in service delivery management and implementation; NGOs that support implementation of such programs; and health care professionals and health extension workers who counsel and provide care for women around the world.

As one of many partners, we take the following steps to support family planning programs and to help increase awareness of and access to a broad choice of contraceptive products:

- Requests for quotation
- Pricing
- Partnering for implementation
- Public advocacy

## REQUESTS FOR QUOTATION

Our company receives and responds to "Requests for Quotation" from developing countries' governments seeking supplies for their own programs (financed by government funds, by multilateral organizations like the [World Bank](#), or through bilateral aid); from donor country aid agencies (e.g., [USAID](#), [DFID](#) and [KfW](#), a German government-owned development bank) seeking to purchase reproductive health commodities that will be donated to programs in one or more countries; from multilateral agencies, such as [UNFPA](#), donating to one or more countries; or from nongovernmental agencies seeking supplies for programs that they manage in one or more countries.

In responding to these requests, we adhere to the specific guidelines of each proposal and act in full compliance with local

and international laws and requirements, as well as with our own high ethical standards.

## PRICING

For contraceptive product pricing, we consider a nation's level of economic development and other relevant factors, including the types of family-planning programs implemented by the local government.

In upper-middle-income and high-income countries, we provide our products at prices that take into account the innovation and value they represent. With a commitment to making our contraceptive products available to the public sector, we also offer discounts to organizations that serve women of all income levels, like Planned Parenthood affiliates, so that the women who rely on their services have routine access to contraceptive options that include non-daily and long-acting reversible methods.

We believe that our pricing approach will help improve product availability while also allowing the company to continue to invest in research, development, production, and the training and education necessary to help ensure appropriate counseling on and use of our products.

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**We are extending our access pricing to targeted countries through 2023, an additional five years beyond the expiration of our 2013 agreement.**

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In May 2013, our company and the Bill & Melinda Gates Foundation announced an agreement to expand contraceptive access and options for millions of women in some of the world's poorest countries. Under the agreement, we reduced the cost of IMPLANON and IMPLANON NXT by approximately 50 percent through 2018 in the targeted poorest eligible countries of focus for the reproductive health community.

Since 2013, we have supplied more than 20 million implants, bringing greater choice to millions of women in the world's poorest regions.

In November 2015, we announced our decision to extend our access pricing to these same targeted countries through 2023, an additional five years beyond the expiration of the 2013 agreement.

## PARTNERING FOR IMPLEMENTATION

For family planning programs in the developing world involving our contraceptive implants IMPLANON and IMPLANON NXT, the company requires the recipient governments and partnering NGOs to sign its Cooperation Agreement for the Receipt and Use of IMPLANON (CARUI).

The cooperation agreement includes:

- Our commitment to a comprehensive service approach that provides and/or supports capacity-building in service delivery, including pre- and post-insertion counseling and insertion/removal training
- Distribution requirements that must be met by our company and local partners to ensure that all clinics/providers meet training and quality assurance requirements, provide sustained services over the duration of the product's life (three years), and can access referral centers in case more specialized care related to IMPLANON is required
- Procedures to report product complaints and adverse events

- Provisions regarding compliance with the applicable laws of the U.S. and the recipient country, and with our ethical and business compliance policies

In the countries where our products are included in family-planning programs, we work closely with ministries of health and local implementing partners, who play a pivotal role in supporting training, counseling and other related activities. Our local implementing partners have included [Jhpiego](#), [EngenderHealth](#), the [Clinton Health Access Initiative](#), [Marie Stopes International \(MSI\)](#), the [International Planned Parenthood Federation \(IPPF\)](#), [Population Services International](#), [DKT](#) and [Pathfinder International](#). Such collaboration ensures that countries have the expertise and support they need to achieve their reproductive health objectives.

In February 2015, we announced, as part of our commitment to health care provider training, that we would provide IMPLANON NXT training applicators at no cost in FP2020 countries through 2018 as part of product launch. During 2017, we provided approximately 54,912 placebos, and supported “training of trainers” by providing other training materials, including audiovisual materials, training kits and artificial arm models.

In 2017, we worked with more than 48 countries in sub-Saharan Africa, Asia and Central America to provide contraceptive products through numerous partnerships with governments, donors and NGOs. Some of the countries we engaged with were Mozambique, Malawi, the Gambia, Bangladesh, Uganda, Zambia, Zimbabwe and Niger.

# Employees

We recognize that our ability to excel depends on the integrity, knowledge, imagination, skill, diversity and teamwork of our employees.

We are working to create a 21st-century workforce that is gender-balanced and inclusive of top, diverse talent. A positive, inclusive and high-performing work environment is essential in order for our employees to feel welcomed and valued, and to be able to fully contribute to the business objectives of their teams.

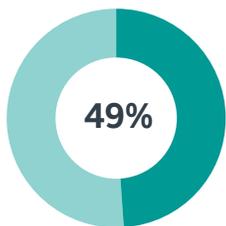


## Global Diversity & Inclusion

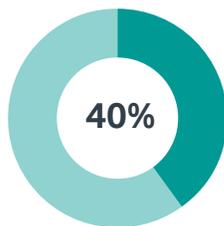
Innovation comes from fostering inclusion, creating a sense of belonging on teams, and unleashing diversity in all its dimensions.

We understand that diversity and inclusion are fundamental to our success and core to future innovation. We foster a culture of inclusion and belonging where all employees feel welcomed and valued—a culture where we regard every individual as a source of competitive advantage in our larger mission of saving and improving lives.

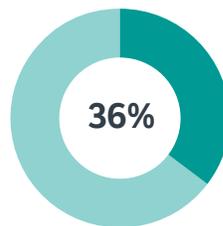
It is with this focus that we uphold diversity and inclusion as core values and as essential to every aspect of our business, enabling us to innovate, execute, adapt and grow. This, in turn, delivers intrinsic, long-term value to our patients, employees, customers and shareholders.



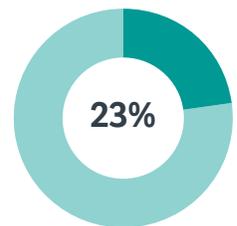
of new hires in 2017 were female



of our management roles in 2017 were held by women



of new U.S. hires in 2017 were members of underrepresented ethnic groups



of our U.S. executive roles in 2017 were held by members of underrepresented ethnic groups

# Employee Well-Being

We are committed to helping our employees and their families be healthy and stay safe. Only when our employees feel their best, in all aspects of their lives, can they perform at their highest level.

We believe that well-being is more than physical health and the absence of disease. A holistic well-being model includes physical, emotional, financial and safety, and we understand that these components are highly interdependent.

As part of our commitment to becoming a leader in employee health and well-being, we brought together our health and wellness offerings under one brand called *LIVE IT*. More than just a program, *LIVE IT* serves as a call to action for employees to take control of their health and live their best lives.



*LIVE IT* was launched in the United States in 2011 and now is available in over 40 countries, reaching approximately 78 percent of our global workforce.

Our goal is to have *LIVE IT* reach over 90 percent of our global workforce by 2019.

## Awards & Recognition

We have been recognized for our commitment to fostering a workplace where our employees and our business can thrive.



AMERICAN HEART ASSOCIATION

Gold recognition in the 2018 Workplace Health Achievement Index



U.S. VETERANS MAGAZINE

Best of the Best Top Veteran-Friendly Company for 2017





## We see ourselves as a company inspired to invent.

As we pursue our goal of becoming the world’s premier research-based biopharmaceutical company, we need to continuously develop our diverse and talented people. They are a clear competitive advantage for us, and their active engagement matters.

A positive, inclusive and high-performing work environment is essential in order for employees to feel welcomed and valued, and to be able to fully contribute to the business objectives of their teams. We recognize that harnessing the knowledge and insights of a globally diverse workforce requires leadership, a corporate culture of respect and full engagement, and a thoughtful and strategic approach to workplace inclusion and to employee development and well-being—physical, emotional, social and financial.

Throughout 2017, we advanced this commitment by developing new and improved initiatives to lead us into the future to meet the challenges and opportunities before us. The following pages highlight our accomplishments, progress and commitments that promise success now and in the future.

In November 2017 we launched INSPIRE, a new global web-based, mobile-enabled recognition program. This user friendly program aims at creating a culture where expressions of thanks are common and employees feel valued for the good work they do. Since its inception, 70 percent of employees have been recognized and 32 percent have given recognition.

We conduct rigorous and transparent annual performance reviews of employees at all levels (except those subject to collective bargaining obligations) to guide company decisions relating to compensation and rewards. Employee performance is measured, in part, by how well employees demonstrate our leadership behaviors. We seek to emphasize not just what an employee achieves, but also how he or she achieves it. It is critical to our company that the annual incentive bonus of management-level employees is determined, in part, by demonstrated leadership that is consistent with these behaviors.

In addition, we conduct an annual employee-development planning process in which managers discuss with each of their employees his or her strengths and development needs. The manager and employee then jointly create an action plan to strengthen areas in need of development and build new leadership skills.

## Performance

WORKFORCE	2013	2014	2015	2016	2017
Number of employees (approximate)	76,000	70,000	68,000	68,000	69,000

WORKFORCE BY REGION

**Eastern Europe, Middle East and Africa**

4.1%

**Japan**

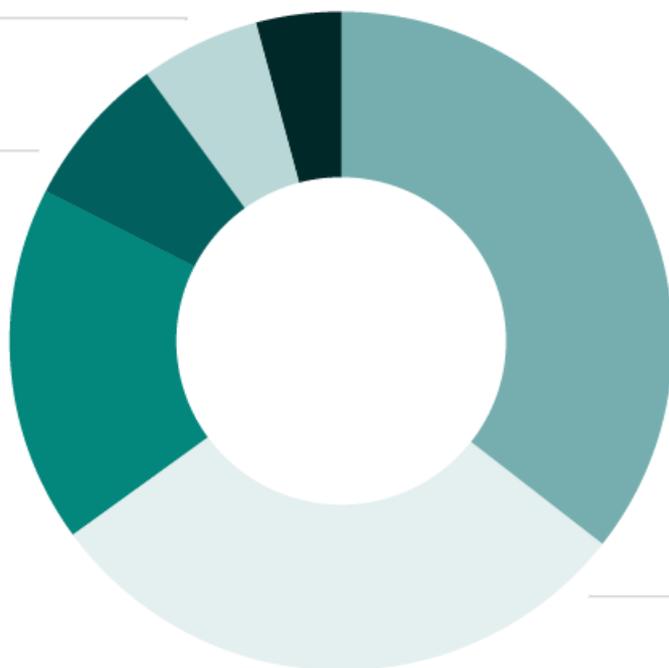
5.8%

**Latin America**

7.7%

**Asia Pacific**

17.5%



**United States**  
36.0%

**Europe & Canada**  
29.9%

PERFORMANCE REVIEWS

	2013	2014	2015	2016	2017
Executives <sup>1</sup>	100%	100%	100%	100%	100%
Middle management	100%	100%	100%	100%	100%
Line supervisors	100%	100%	100%	100%	100%
Non-managers <sup>2</sup>	93%	93%	94%	95%	94%

1. "Executives" refers to the first two levels below the chief executive officer.

2. Includes all "non-managers" (previously "individual contributors") who are not subject to a collective bargaining agreement (unions).

TURNOVER

	2013	2014	2015	2016	2017
Overall turnover rate <sup>1,2</sup>	15.4%	18.8%	14.8%	11.1%	10.7%
Voluntary turnover rate	7.3%	8.0%	7.4%	6.3%	6.5%
Avoidable voluntary turnover rate	5.8%	6.2%	6.0%	4.8%	5.0%
Involuntary termination rate	8.1%	10.8%	7.4%	4.9%	4.2%

1. Includes all types of turnover, including restructuring.

2. 2013 and 2014 Turnover rates are restated by incorporating the retroactive transactions.

2017 TURNOVER BY REGION	Asia Pacific	Latin America	EEMEA	Japan	EUCAN	U.S.
Overall turnover rate <sup>1</sup>	18.51%	16.53%	16.93%	3.00%	11.72%	7.14%
Voluntary turnover rate	14.92%	4.51%	10.46%	2.19%	6.36%	4.67%
Avoidable voluntary turnover rate	13.92%	2.53%	8.29%	1.78%	2.75%	3.01%
Involuntary termination rate	3.59%	12.01%	6.47%	0.81%	5.36%	2.48%

1. Includes all types of turnover, including restructuring.

2017 TURNOVER BY GENDER & REGION	Female	Male
Overall	48%	52%
Asia Pacific	47%	53%
EEMEA (Eastern Europe, Middle East and Africa)	61%	39%
Latin America	45%	55%
EUCAN (Europe and Canada)	51%	49%
Japan	31%	69%
U.S.	47%	53%

EMPLOYEE HIRES BY REGION	2015	2016	2017
Asia Pacific			
Number of hires	2,104	1,732	1,909
Hire rate <sup>1</sup>	17.70%	14.79%	16.14%
EEMEA (Eastern Europe, Middle East and Africa)			
Number of hires	384	382	378
Hire rate <sup>1</sup>	12.84%	13.49%	13.69%
Latin America			
Number of hires	509	380	1,246
Hire rate <sup>1,2</sup>	9.80%	8.01%	23.82%
EUCAN (Europe and Canada)			
Number of hires	1,427	1,636	1,865
Hire rate <sup>1</sup>	7.81%	8.90%	9.80%
Japan			
Number of hires	101	196	109
Hire rate <sup>1</sup>	2.66%	5.04%	2.80%
U.S.			
Number of hires	1,909	1,937	2,173
Hire rate <sup>1</sup>	8.28%	8.33%	9.12%

1. Percentage of new hires in the total onboard head count; regular employees only.

2. 2017 data includes merger and acquisition in Brazil and Uruguay.

UNION MEMBERSHIP	2013	2014	2015	2016	2017
Percentage of employees worldwide employees represented by an independent trade union or covered by a collective bargaining agreement (approximate)	32%	31%	32%	29%	29%



We strive to foster employee engagement at our company by promoting a positive work environment and by communicating proactively with all employees.

Research shows that engaged employees work more efficiently and effectively, are motivated to perform beyond minimal expectations, and consequently contribute more desirable business outcomes to the organization.

Employee engagement is achieved through trust, mutual commitment and transparent communication. As we do with our external stakeholders, we work to understand our employees' concerns, needs and thoughts pertaining to our company's strengths and weaknesses, while at the same time informing them of our business strategy and progress toward our goals.

Through our global enterprise portal, known internally as "Sync," employees worldwide can gain access to company news and videos, divisional and functional news channels, and organizational communities that allow them to share interests, messages and ideas online. Other employee communications vehicles include quarterly Employee Business Briefings, periodic town hall meetings, email communications from senior management, and employee surveys—in particular, the Voice Survey, which is distributed to all employees on a biannual basis.

## **VOICE SURVEY: OUR GLOBAL EMPLOYEE OPINION SURVEY**

As part of our mission to maintain a satisfying and productive work environment, we routinely survey all employees to learn about their perspectives on the business and on how we are responding to the needs of our global workforce. The Voice Survey, an all-employee opinion survey, is our flagship employee feedback medium.

Offered in 20 languages, the Voice Survey helps our company leaders and managers to understand employees' perspectives on our culture and its effect on the company's ability to meet our business objectives, and to learn what drives employee engagement. We communicate highlights of the survey results through meetings with our employees, in our employee publications, on Sync and through summaries that are distributed via email.

The Voice Survey is conducted on a biannual basis. The last Survey was conducted in September 2016, and the overall results from previous years were encouraging; suggesting positive momentum for the organization. Employees feel that our strategy is moving us in the right direction.

Since administration of the 2014 survey, we've been working to increase collaboration, share customer insights and drive innovation. Compared to 2014, employees participated more actively in the 2016 Voice Survey, with a record-high participation rate of 85 percent, an increase of 7 percentage points. Scores for all 15 categories significantly improved as compared to 2014.

Additionally, the score for the Engagement Index reached over 80 percent for the first time (82 percent in 2016 versus 79 percent in 2014). In response to the 2016 Voice Survey results, our company will focus on enhancing innovation, and has

adopted an “Employee Listening Strategy” to better leverage and respond to employee feedback.

## PROFESSIONAL NETWORKING AND COLLABORATION

We ensure that our employees have ample opportunity to engage, network, build important stakeholder relationships, learn new skills and hear the perspectives of senior leaders. Our company fosters an inclusive environment by ensuring that employees quickly forge strong relationships with supervisors, connectivity with coworkers and development in the workplace.

We enable employees to provide feedback through a community platform on Sync and via brief, three- to five-question surveys and open-comment forms attached to key communications.

Soliciting employee feedback on the subject of the communication in real time gives us the information we need to close knowledge gaps and address employee concerns. Such direct employee feedback has resulted in “meet and greet” sessions, hosted by our CEO and members of our company’s Executive Committee to provide employees with another opportunity to share information with senior leaders in a more personal setting.

We conduct global employee briefings every quarter. Our CEO and members of Executive Committee speak to employees about how we are fulfilling our company mission and goals. These sessions cover topics such as the quarterly financial performance update, pipeline progress, customer stories, anticipated product developments and a question and answer discussion.

Real-time employee sentiment is voluntarily submitted during our quarterly employee business briefings through a widget in our webcast application. This sentiment data provides valuable insights into workplace satisfaction, engagement and culture.

In addition, we leverage the business insights of our U.S. employees, including those who are members of DRIVEN (Delivering Real Insights Via Employee Networks), to support our company’s business objectives. DRIVEN represents true innovation in the pharmaceutical industry and allows us to adopt the best practices from other industries to get the quick, cost-effective and deep insights we need to drive our business forward, asking our own employees to share their experiences—as parents, caregivers, patients, and consumers—so we can serve patients better.

Through DRIVEN, employees are able to make meaningful contributions to the business in a private, online market research community. Employees have already contributed to helping us innovate in pet tracking and the use of robotic systems (like the Amazon Echo) for taking care of elderly family members’ health. DRIVEN has also been used to make patient and caregiver education resources more relevant by giving feedback on online materials and advertisements. This enables the efficient and compliant engagement of employees to provide business, customer, brand and research development insights via market research methods.

We have grown the DRIVEN community to 2,000 employees and had significant cost savings by harnessing the experience of our own employees. It has enabled us to innovate with the patient perspective included for understanding in therapeutic areas like chronic cough, Alzheimer’s and the use of new technologies to help with compliance/adherence.

## OTHER RESOURCES FOR EMPLOYEE FEEDBACK

In addition to employee surveys, the “ombudsmen” within our Office of Ethics provide an avenue for employees to raise concerns in confidence, and, where necessary, they recommend appropriate action.

Our anonymous helpline, which operates in accordance with applicable legal standards for employee-based hotlines, is available 24/7 to listen and provide advice to employees worldwide. [Learn more.](#)

## Performance

	2013	2014	2015	2016	2017
Response rate to Voice Survey	77%	78%	NA	85%	NA
Engagement Index <sup>1</sup> (favorable response rate)	78%	79%	NA	82%	NA
Culture Index <sup>2</sup> (favorable response rate)	70%	69%	NA	72%	NA

NA: Not administered; the Voice Survey is conducted on a biannual basis.

1. The Engagement Index is a composite that averages scores measured from three aspects: "Engaged," "Enabled," and "Energized."

2. The Culture Index is a composite that averages scores measured from three aspects: "Customer Focus," "Reputation and Trust," and "Innovation."



The Global Learning & Development organization, under the leadership of the chief learning officer, deploys a global approach to maximizing the value of learning and development investments by leveraging resources, educational platforms and other synergies across the enterprise to deliver learning solutions designed to optimize business and customer outcomes.

To support our global employee base, we sponsor curricula that build leadership and management skills as well as providing technical and functional training to all employees.

We have five active Key Talent Programs to support the learning and development of our future key talent, women in leadership, diverse talent, and those who are at the executive level. These programs support the advancement of our talent pipeline and diversity and inclusion strategy. The programs are as follows:

**General Management Acceleration Program (GMAP)**—is our company’s flagship program to develop future global, enterprise-wide leaders. The Office of the CEO sponsors the program. Successful participants will broaden their experience and perspective, enhance their leadership abilities and be well placed to grow into positions of greater responsibility following their rotations. The objective of GMAP is to create a robust global acceleration program for internal talent, providing the right experiences and learning opportunities to grow broad, global business leaders to meet our future business demand. Please note, this is an application based program. Individuals can apply on their own.

**The Business Leadership Program**—is a global program designed to enhance both an individual’s leadership and business acumen skills. Areas of focus include: our company’s strategic context and how to integrate long-term plans with short-term action; value creation in financial and non-financial terms so one is able to increase his/her ability to perform in the short-term and plan for the long-term; and ability to translate strategy into action to deliver business impact. This is a nomination program.

**The Women’s Leadership Program**—is a global program designed to support the advancement of women into senior leadership ranks. Areas of focus include: strengthening the ability to navigate within the organization; gaining skills and knowledge to grow and improve leadership capacity; and increasing the ability to manage gender differences and any subtle “micro-inequities” that may exist in the culture. This is a nomination program.

**Diverse Leader Program**—this thought-provoking U.S.-only program is an interactive leadership journey that is designed to create a safe place where participants can hone their leadership skills while exploring what it means to be a Leader of Color within the company. While building leadership proficiency, participants will also investigate the similarities and differences of leaders from other racial/ethnic groups. Finally, they will have the opportunity to deepen relationships with their sponsors/mentors through experiential activities and guided and unguided conversations. This is a nomination program.

## KEY TALENT PROGRAMS

In partnership with the Human Resources Talent Management team, the Leadership, Learning & Development department is reaching deeper, wider and earlier into the organization to develop top talent. We are striving to develop a cross-functional general management mind-set, enterprise-wide knowledge of the business, and end-to-end thinking for top talent and potential leaders early in their careers.

Investments and programs that support the development of key talent include the Executive Development Program, the Enterprise Leadership Program, the Women's Leadership Program and the Business Leadership Program. Each has a very specific targeted audience and blended learning objectives.

## MANAGEMENT AND LEADERSHIP PROGRAMS

Management Foundations is a comprehensive program that focuses on building core, common and critical knowledge and skills for new managers. Using a variety of learning methods, new managers focus on what they will need to know and do to be effective in their role and to gain the knowledge and skills to manage others.

In addition to foundational management skills, we offer a suite of programs for experienced managers that are driven by key topics integral to the organization, like strategic planning, innovation and influencing others.

## TEAM DEVELOPMENT

For teams, there is a suite of programs that provide skills and tools for team leaders and team members, including Leading High Performing Teams, Virtual Teaming, Assessing Team Performance, Teaming Fundamentals, and Insights Discovery, a program to understand communications styles.

## TOOLS AND RESOURCES

### **myCareer**

Our talent tracking system, myCareer, serves as our global gateway to professional development, performance management, talent management and learning across the company. It keeps track of employee development plans, performance objectives and performance ratings, career aspirations (desired next roles and mobility preferences), experience (both outside of and within the company), language proficiency, certifications and education.

The primary business purpose of myCareer is to facilitate more effective, consistent and efficient companywide performance management, talent reviews, succession planning, and associated employee performance and development processes through a single, integrated and automated global system of record for critical talent data about our employees. This helps to ensure that our workforce continues to realign itself with company objectives.

### **Leadership Development Center**

The Leadership Development Center is a website that features videos, articles, program announcements and resources for leaders and managers. Resources are aligned to our leadership behaviors, professional competencies, and functional competencies, and are available in the following formats: "on-demand" Web-based modules, classroom programs, articles, books (including audio books), webcasts and suggestions for "on-the-job" development activities.

# Performance

TRAINING AND EDUCATION	2016	2017
Total course completions for all employees (in millions)	4.2	5.3
Hours of training for all employees (in millions) <sup>1</sup>	2.1	2.6
Course completions per employee	60	48
1. Based on average of 30 minutes per course.		

TRAINING AND EDUCATION	2016	2017
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Hours of training for all employees (in millions) <sup>1</sup>	2.1	2.6
Course completions per employee	60	48
1. Based on average of 30 minutes per course.		

In 2017, the number of leaders who participated in a program was more than double the number of 2015 participants.

LEADERSHIP	2016	2017
Number of leaders who participated in leadership, learning and development programs	9,500	9,500
Number of leaders who participated in a Learning Community	10,000	10,000
Number of visitors to the Leadership Development Center	6,700	7,200



We are committed to helping our employees and their families be healthy and stay safe. Only when our employees feel their best, in all aspects of their lives, can they perform at their highest level.

We believe that well-being is more than physical health and the absence of disease; a holistic well-being model includes physical, emotional, financial and safety; and we understand that these components are highly interdependent.

As part of our commitment to becoming a leader in employee health and well-being, we brought together our health and wellness offerings under one brand called *LIVE IT*. More than just a program, *LIVE IT* serves as a call to action for employees to take control of their health and live their best lives.

Our *LIVE IT* continuum of well-being includes four pillars: PREVENT IT, BALANCE IT, MOVE IT and FUEL IT. We promote offerings within each of these areas to engage and enhance the lives of our employees.



*LIVE IT* was launched in the United States in 2011 and now is available in over 40 countries, reaching approximately 78 percent of our global workforce.

Our goal is to have *LIVE IT* reach over 90 percent of our global workforce by 2019.

In 2017, we were recognized for our efforts in employee well-being by several national and global organizations including:

- The National Business Group on Health's Best Employers for Healthy Lifestyles® Award (Gold recognition)
- The Global Business Group on Health's Global Distinction Award
- The American Heart Association's Workplace Health Achievement Index (Silver recognition)

# Total Rewards

We recognize that our employees are critical to our mission to contribute to the health and well-being of people around the world.

One way in which we recognize their importance is to provide a valuable suite of compensation and benefit programs as well as resources to support our employees' professional achievement and personal well-being. Together, we call these "Total Rewards."

Total Rewards include [compensation and financial rewards](#), health and insurance benefits, opportunities for employees to [develop their skills and grow their careers](#), and programs that help meet the demands of managing employees' professional and [personal well-being](#). Our philosophy behind these programs is rooted in maintaining our competitive position in the market while providing a comprehensive and valuable package of rewards to attract and retain a talented and diverse workforce.

*myTotalRewards* is an online personalized resource that provides U.S. employees with a simple, consolidated view of their total compensation and financial rewards at our company. For most active employees (certain groups are excluded, such as those that are subject to collective bargaining), *myTotalRewards* contains the following detailed information:

**Money:** Annual pay, cash incentives and our company's estimated contribution to pension, 401(k), insurance, and other benefits

**Health:** The value of the key health benefits in which an employee participates, including medical, dental and vision coverage

**Retirement & Long-Term Incentives:** Retirement benefits and long-term incentives—and how they've performed over time

**Other Rewards:** Other benefits available, such as educational assistance, K-12 educational guidance and financial planning

For employees subject to collective bargaining obligations within and outside of the U.S., we comply with any and all applicable contractual and legal obligations in providing information to employees.

## COMPENSATION

Our compensation programs are designed using a pay-for-performance approach to recognize and reward employees for their accomplishments and the value they bring to the company. The programs target different aspects of individual and company performance and are monitored to ensure that they are competitive with those of other companies—and appropriate for the markets in which we compete for talent.

**Competitive Base Pay:** Individual base pay based on job, market-aligned pay range, relevant experience, skill level, breadth of responsibility and proficiency

**Short-Term Incentives:** Cash award programs to reward employees on the basis of company and/or individual performance versus objectives

**Long-Term Incentives:** A future-oriented program that rewards the demonstration of individual performance, leadership and potential (based on defined skills and sustained performance) through stock-based incentives

**Recognition Awards:** Programs designed to acknowledge employee service milestones and to reward the significant contributions of individuals and teams

## BENEFITS

Our company's health and well-being, retirement and insurance programs draw from best practices to ensure quality, competitive value, protection from significant financial hardship and access to tools and resources to support employees and their family members at all life stages.

In the U.S., we generally offer health, life, disability and business travel insurance as well as retirement income benefits to all employees, including part-time employees. Employees also can opt to contribute to tax-free Flexible Spending Accounts for reimbursement for certain health spending and/or dependent-care costs.

Outside the U.S., while benefits may vary by region and country, we offer health insurance, life and injury insurance, disability insurance, retirement income benefits, and insurance for business travel. In addition, in many countries where legally permitted, including the U.S., we extend health care and various insurance benefits to employees' domestic partners and their partners' eligible dependent children.

Worldwide, our company offers retirement benefits that are competitive with those of our peers and the general industry in each market we serve. In the U.S., for example, we offer a defined benefit pension plan, as well as a 401(k) plan with company matching contributions. To assist in financial decision making, we offer all U.S. employees comprehensive financial education and guidance through Ernst & Young at no cost. And U.S.-based employees who are at least age 55 and those who have at least 10 years of service as of age 40 (for certain employees, service before age 40 also counts) are eligible for subsidized medical benefits at retirement. Outside the U.S., we have more than 80 pension plans (including defined benefit, cash balance, and defined contribution plans) in over 40 countries. These plans often supplement government-sponsored social security pension benefits to improve employees' financial security through added retirement income.

For employees who are traveling between sites or otherwise traveling on company business, we offer business travel accident insurance, a global medical benefits abroad policy and emergency travel assistance.

## OTHER BENEFITS AND SERVICES

Offering on-site services that support an inviting work environment where employees can thrive is another component of our company's Total Rewards proposition.

At the majority of company sites, including the company headquarters in Kenilworth, New Jersey, U.S., employees have the option of making an appointment to see a health care professional on site for such services as immunizations, biometric screenings, and treatment for minor aches and pains. The vast majority of sites globally are tobacco-free, and many encourage healthy behaviors by having on-site fitness centers, walking trails and well-lit stairways.

At many of our sites, we also offer services such as cafeterias, child care, dry cleaning, automobile services, and other amenities. In the U.S., our employees have the option of banking through our company's Employees Federal Credit Union, which offers competitive interest rates on savings accounts and lending.

For those who need flexibility, our company offers a global [Flexible Work Arrangement](#) policy that allows employees to work remotely or on a different work schedule that best fits their needs.



## Every day our employees are resolutely focused on their quest to save and improve the lives of people around the world.

Living this mission starts with ensuring that our employees are caring about themselves, their families and their communities. Global Employee Health works closely with Global Benefits and Global Population Health to provide a wide range of health and wellness services and work-life programs to our employees, retirees and their covered dependents.

These offerings cover the continuum of care for those who are well, those at risk, those with acute or chronic illnesses, and those requiring complex or catastrophic care. Many of these services and programs are provided at on-site employee health clinics or through programs managed by our vendor partners. These all work in conjunction with our comprehensive coverage through our health benefits offerings.

Through *LIVE IT*<sup>1</sup>, our company offers a health and wellness website to all eligible U.S.-based employees (except those covered by collective bargaining agreement) and their dependents. The site features a Personal Health Assessment (PHA), online interactive health tools and information, health-coaching programs and more. Over 75 percent of eligible U.S. employees have registered to access the site, and 70 percent of those who registered have completed the PHA to date. The website is designed to raise awareness about an individual's health status and to motivate employees to manage and improve their health and well-being. It includes topical health summaries based on scientific evidence and links to reliable health care information. Mobile technology solutions continue to be added to help employees more conveniently manage their health.

The online PHA is promoted during annual enrollment each fall. Once employees, spouses or partners complete the PHA, they receive a customized report that summarizes their health status and offers suggestions for personal goal-setting. Anyone who takes the assessment and wants to work on an identified health risk has access to a telephonic personal health coach or an online lifestyle coach who provides advice and encouragement and regularly monitors progress. Approximately 16 percent of employees engaged with a personal health coach during 2017.

Results from the PHA are used to help develop programs such as [Weight Watchers](#) our weight management program, which consists of both the Reimbursement Program (on-site Weight Watchers at work meetings) and [Healthy Solutions® at Home](#), a clinically proven weight-loss program featuring meal replacements and personal coaching, offered through our subsidiary [HMR Weight Management Services Corp.](#)

We are also committed to providing a safe workplace for all of our employees around the world and to complying fully with all applicable country and local safety laws and regulations. We strive to eliminate work-related injuries, illnesses and unplanned events from our global operations through comprehensive safety programs that are part of our overall Environmental, Health & Safety management system. The design of our facilities and processes, our process controls, our protection systems, and our emergency response capabilities are critical components of our overall effort to minimize the frequency and severity of safety and environmental incidents.

Learn more about [Employee Safety](#).

## ON-SITE CLINICS

The majority of our sites offer on-site health clinics that provide an array of services to help our employees stay or get well. Specific services include:

**Annual Flu Shots and Pandemic Flu Planning**—Most of our sites around the world offer employees annual flu shots. In the U.S., our Global Employee Health group provides annual flu shots at no cost to employees at site-based employee health clinics. In addition, with guidance from Global Employee Health, most of our sites have also developed site-specific pandemic flu preparedness plans, employing a variety of countermeasures that focus on heightened awareness and tactical procedures.

**Vaccinations**—Our on-site clinics in the U.S., as well as many around the world, offer employees both occupational vaccinations (including travel-related vaccinations) and non-occupational vaccinations for such diseases as pneumonia and influenza. In the U.S., each year in May, we run a campaign to promote and raise awareness of the pneumococcal vaccine. We also conduct vaccination clinics off-site during our National U.S. Sales Meetings to offer the same level of convenience to our field-based employees that our site-based employees enjoy. Through the Express Scripts Retail Vaccination Program available in our U.S. medical plan, applicable to most U.S.-based employees, participants may also receive certain vaccinations at participating retail pharmacies without member coinsurance/copay.

**Lab, Acute Episodic Health Care and Other Services**—Many of our on-site clinics offer employees the opportunity for lipid, blood glucose and other laboratory services, including blood collection ordered by a personal physician. Each year during the annual enrollment period in the U.S., employees can make an appointment to have their biometric screening done in preparation for their annual PHA. All individual employee medical information is kept confidential and only aggregate health data is shared outside the clinic.

**Automatic External Defibrillator Program and Emergency Response**—At many of our sites, on-site health clinic staff responds to medical emergencies while also working with volunteers who help as emergency responders. Our Global Employee Health group provides direct oversight for automatic external defibrillators and associated training, provided at many of our sites in the U.S.

Most Global Employee Health clinics also provide non-work-related acute episodic health care, including the diagnosis and treatment of minor non-occupational illnesses or injuries; health maintenance counseling; and appropriate referral to specialty services. In addition, to support new mothers returning to work, our clinics offer work-site lactation programs. “Lunch and Learn” programs and site-based wellness activities, including walking and weight-reduction programs, are also available at some sites.

## OCCUPATIONAL HEALTH

As a global organization, our company has numerous operating divisions and work assignments—each with its own requirements. Particular work assignments may involve potential exposure to one or more occupational hazards, such as noise, mixtures of chemicals, or hazardous biological compounds. Our company maintains a concerted effort to assess and control workplace hazards (chemical, biological and physical) and to make sure that each employee’s work assignment is safe and consistent with his or her evaluated capabilities.

Occupational health programs are developed and implemented in accordance with identified health risks and applicable regulatory requirements. In the event that an employee becomes injured or ill while performing his or her job, we have programs in place for treatment and rehabilitation.

Our company’s Global Employee Health professionals are clinically trained and dedicated to supporting efficient and effective quality health care for employees who become injured or ill as a result of their work. They advise on and coordinate health care with providers or agencies to ensure a smooth treatment-and-recovery process, while complying with both company and applicable regulatory record-keeping requirements.

## TOBACCO-FREE WORKPLACE GLOBAL POLICY

According to the World Health Organization, tobacco is the leading cause of death, illness and impoverishment in the world today. Tobacco-free workplaces are essential to providing comfortable work environments that protect health and decrease the risk of developing tobacco-related illnesses.

We aim to adopt a global, comprehensive, tobacco-free worksite policy over the next few years. This policy will prohibit the use of all tobacco products on workplace property, including outdoors, in parking areas and in company vehicles, by everyone at all times.

Starting in the U.S., our goal is to be 100 percent tobacco free by 2019. Currently 69 percent of our employees in the U.S. work in comprehensive tobacco free sites. Our goal is to be a Global Tobacco Free Company by the end of 2020.

## FITNESS CENTERS

We offer access to on-site fitness centers at several large U.S. facilities, as well as at other company facilities around the world. In countries where on-site fitness centers are not available, membership fee reimbursement or discounts are provided in accordance with local market practice.

In the U.S., professional fitness managers organize voluntary programs and events to encourage employees to eat well, manage their weight, exercise and participate in various fitness challenges and other special events. We also offer on-site massage therapy services at these centers at a reasonable cost to employees. Often, nonmembers can participate in the fitness centers' special programs for a nominal fee.

## CAFETERIA COLLABORATION

What we eat and drink affects our daily physical and mental well-being and our longer-term health and resilience. To contribute to a healthy work culture, we work with our on-site food vendor at most of our U.S. facilities to increase the availability and visibility of healthy food choices and to raise awareness of proper nutrition. Employees also receive discounts for healthy food purchases. In addition, many of our sites around the globe have cafeterias that offer healthy food options and nutrition education. Our food vendor is an integral partner of our *LIVE IT* team, and we jointly sponsor healthy eating events that correspond with the National Health Calendar.

## HEALTH ADVOCACY (U.S.)

Within the United States, we partner with a health advocacy company to help employees and their families navigate the complicated health care and health insurance system. Health Advocate is designed to make employees' lives easier by saving hours of effort, with activities such as:

- Helping to resolve complicated medical and dental insurance claims
- Finding doctors, providers and facilities
- Scheduling appointments for physicians, treatments and tests
- Securing second opinions
- Assisting with eldercare and Medicare issues
- Getting cost estimates for medical procedures
- Assisting in the transfer of medical records
- Researching and locating the latest treatments

- Locating work-life resources

The program is available to all U.S.-based employees and their dependents (other than those covered by collective bargaining agreement) at no cost, and is also available to employees' parents and parents-in-law for any health care or eldercare issues they may be facing. During 2017, more than 3,500 cases from 13,525 interactions with eligible members were managed through health advocacy.

## **PERSONALIZED HEALTH CARE MANAGEMENT SERVICES (U.S.)**

We have partnered with our health plan providers in the U.S. to enhance the care management our members receive through an innovative single-nurse care model. Through this voluntary and confidential program, employees and their family members have access to a nurse who is dedicated to helping manage any chronic condition, such as diabetes, asthma and heart disease, in addition to providing support for severe and complex episodes of care, including cancer, high-risk pregnancies/Neonatal Intensive Care Unit, transplants and infusion therapy, as well as inpatient admissions and obtaining appropriate services and treatment plans.

## **DISABILITY MANAGEMENT/DISABILITY ACCOMMODATIONS**

The Disability Leave team and our Global Employee Health group work with external vendors in the U.S. to develop and implement short- and long-term disability management and return-to-work policies and programs. Optimizing the health and productivity of our employees is a key goal of these efforts. Our centralized Workplace EnABLEment program in the U.S. ensures that employees with apparent and non-apparent disabilities are able to be accommodated, where feasible, to enable them to work to their full potential.

## **BUSINESS TRAVEL PROGRAM**

We are committed to ensuring the health and safety of our employees who travel on business, especially to international locations. Our Global Employee Health group maintains up-to-date information about infectious diseases that are prevalent in all countries and their required immunizations. Business travelers are given any required immunizations, information on health conditions in the country of their destination, a traveler's guide, a travel kit containing over-the-counter medications they may need and an international emergency travel-assistance card. Employees may also consult with a Global Employee Health-licensed health care provider for specific travel-related prescription medications that may be needed during travel, possible preventive medical care prior to departure, information regarding the availability of medical care in the country of destination and the possibility of medical care after return, as needed.

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1. Privacy is important to us. No personal health information related to participation in LIVE IT is shared with the company.



Today's professionals are interested not only in intellectually challenging work and the opportunity to contribute to company goals, but also in finding work environments that are amenable to personal life needs and to interests that support and enhance their emotional and social well-being.

With this in mind, we have developed comprehensive, innovative emotional and social support programs that meet the needs of our talent and appeal to employees at all stages of life. We offer an environment intended to support employee engagement and team cohesiveness, which leads to reduced absenteeism and increased productivity.

## GLOBAL FLEXIBLE WORK ARRANGEMENTS

We believe flexible work arrangements offer a different way of working, and have the potential to enhance employees' commitment to the company, increase productivity and make employee teams more competitive. The company has had a flexible work arrangement policy globally since 2008.

In developing our global flexible work arrangement policy, we've challenged traditional assumptions about where and how work can and must be done. Flexibility reflects our belief that job effectiveness is determined by employee performance and results, not by the number of hours one is seen in the office. What is produced or accomplished is more important than when or where the work is done.

Employees and managers work together to assess the opportunities and challenges of a proposed arrangement. While the overall process should be collaborative, managers are accountable for making the final decision in light of business requirements, recognizing that some positions may not lend themselves to a flexible work arrangement. Except for those subject to collective bargaining agreements, all regular full- or part-time employees are eligible to apply for a flexible work arrangement, which includes:

**Part-Time Work:** Employees' workloads and hours are reduced to less than the standard workweek requirements, along with commensurate reduction in benefits and compensation.

**Job Sharing:** Two employees on reduced schedules and workloads share the overlapping responsibilities of one full-time position; benefits and compensation are reduced accordingly.

**Flextime:** Employees with full-time job responsibilities modify the start time and quit time of a standard day while being present for departmentally established "core hours" (hours of mandatory attendance), if any.

**Compressed Workweeks:** Employees compress full-time job responsibilities into fewer than five days per week or 10 days per two weeks.

**Telework:** Employees fulfill full-time job responsibilities up to several days a week at sites other than their primary location—usually their home or a satellite office.

**Remote Work:** Employees fulfill full-time job responsibilities working primarily as home-based or mobile employees, with limited presence in a regular company facility.

**Summer Hours:** The Summer Hours program offers U.S. employees an additional resource in our flexible work schedule portfolio. Specifically, eligible employees are able to work nine-hour days Monday through Thursday, and the final four hours on Friday.

**Other:** Other options, including hybrid arrangements, seasonal work, and project-based approaches, may also make business sense. Employees and managers are encouraged to consider and pilot other alternatives.

## RESOURCES FOR LIVING (EMPLOYEE ASSISTANCE AND WORK-LIFE SERVICES PROGRAM)

We recognize that our employees' lives are busy—filled with priorities, commitments and tasks—and that when our employees are doing so much, *any* challenge—whether big or small, can create stress or disrupt life. Consequently, in early 2016, our company introduced “Resources for Living,” an employee assistance and work-life program that supports our employees and family members in all aspects of their lives. The introduction of this global program expanded support from 18 countries to all countries where we have a presence.

The key services of Resources for Living (provided in local languages) include:

- In-the-moment telephonic support for daily parenting questions, relationship challenges, work issues, and everyday stress
- Professional counseling sessions for personal, family, or emotional issues (up to five telephonic, face-to-face, or video sessions [in the U.S. only] per person per issue)
- Work-life services for everyday help with everyday needs, such as finding assisted living for aging parent(s) or locating a service provider for common household needs
- Crisis support for unanticipated events

Resources for Living is available at no cost to all employees and their family members 24 hours a day, seven days a week, and is confidential except as required by law.

## SOCIAL CONNECTEDNESS

Connecting to others socially—both in and out of the office is an important component of well-being. Our company offers a variety of ways for our globally dispersed employees to connect. Our Sync news portal provides company news at the enterprise level and also offers the flexibility of local content in native languages. In 2017, we launched a new internal social workspace, Yammer. This new platform is helping to create a more connected and collaborative company. Yammer is breaking down silos, helping employees build and strengthen relationships with one another, and enabling faster problem-solving.

In addition, through divisional, functional and organizational communities, employees can join various online forums to collaborate with their colleagues, learn more about topics of interest to them, and gain insights from other employees.

Our 10 Employee Business Resource Groups (EBRGs) are foundational to building a diverse workforce for people of all backgrounds across race, gender, ethnicity, culture, age, disability, religion, gender identity, gender expression and veteran status. More information about our EBRGs is available .

Through our company's Global Employee Volunteerism Policy, eligible employees are provided with an opportunity to take up to 40 hours of paid time off each year to engage in a variety of volunteer activities that support eligible nonprofit

organizations. [Learn more.](#)

### **Thoughtful Communication with Employees and Managers**

To ensure deep and broad-scale awareness of all our programs, our company uses a thoughtful, integrated communications approach to help all employees manage work-life integration. We provide training to managers in helping employees find new ways of working to achieve business goals, while supporting employees' work-life effectiveness. In addition, we use internal communications, employee networking events, mentoring and leadership-development forums to maintain high levels of employee morale, enthusiasm and productivity.

## **TIME OFF AND LEAVE POLICIES**

For U.S.-based employees not subject to a collective bargaining agreement, we offer paid time off, leaves of absence and other benefits to help employees manage work-life issues.

**Vacation, Holiday and Year-End Shutdown:** We provide employees with fixed holidays, year-end shutdown days and a set number of paid vacation days to use throughout the year based on years of service, or on work experience for new hires.

**Parental Leave:** Beginning January 2017, our company has extended paid parental time-off from one week to six weeks for the birth, adoption or foster placement of a child. Paid parental time off is available to both birth and non-birth parents.

**Childcare Leave:** In addition to parental leave, employees receive separate, unpaid, job-protected leave to care for a newborn child, adopted child or child placed in foster care within six months (182 days) following the child's birth, adoption or foster-care placement.

## **OTHER PROGRAMS TO SUPPORT EMPLOYEE EMOTIONAL AND SOCIAL WELL-BEING (U.S.)**

Our company offers many programs to help make it easier for employees to balance their various responsibilities. The following are a non-exhaustive sampling:

**Transportation Services:** Free commuter/shuttle services from specific locations near our headquarters in Kenilworth, New Jersey, U.S., and other locations enable employees to save on transportation costs and commute time while reducing their carbon footprint. Transit and parking reimbursements are also available at various locations.

**Backup Dependent Care:** Temporary child and adult backup dependent care services are available to employees when their regular care arrangements are unavailable. Employees are eligible for 10 days' usage per dependent per year for a nominal out-of-pocket fee. Employees can also take advantage of significant online resources.

**Child Care Support:** Our company offers several on-site or near-site child care centers that enable employees to be close to their children during the work day. Recognizing not all employees work at a site with a company-sponsored childcare facility, we have made arrangements with several national childcare providers to offer discounts to employees on their eligible regular tuition.

**K-12 Educational Guidance:** Educational counseling is available for dependent children ranging from kindergarten to grade 12 that offers a comprehensive menu of education topics and helps employees manage their professional and family responsibilities through live webinars, online support and personalized counseling. The program helps employees and their families reach their academic goals—reducing stress and keeping employees content and productive, both at home and at work.

**Special Needs:** The Autism Spectrum Disorder (ASD) Program is for employees and their children as they plan for and navigate school and college options for students with diagnosed ASD and related conditions. Once qualified, employees can receive personalized counseling and participation in one live webinar.

**Adoption Assistance:** Effective January 2017, our company has enhanced its adoption assistance program to be an adoption/surrogacy assistance program and increased the eligible reimbursement to \$25,000 per child for eligible

adoption/surrogacy expenses.

For U.S.-based employees who are subject to a collective bargaining agreement, work-life benefits may be offered in accordance with the agreement. For employees based outside the U.S., the work-life benefits offered differ by location and may be subject to a collective bargaining agreement or local legal requirements.



We believe it is critical to focus not only on improving our employees’ physical, emotional and social well-being, but also on helping them to achieve financial well-being.

Doing so helps to reduce stress and distractions in the workplace and contributes to increased worker productivity and loyalty.

One of the guiding principles of our company’s benefits program is that it is designed to protect employees from financial hardship. We do so by providing access to health benefits (with out-of-pocket maximums in the U.S. that vary by pay level) and life, disability and accident insurance to protect employees and their families if the unexpected happens. In addition, we provide various defined-benefit and defined-contribution plans around the world to help employees plan for a secure retirement.

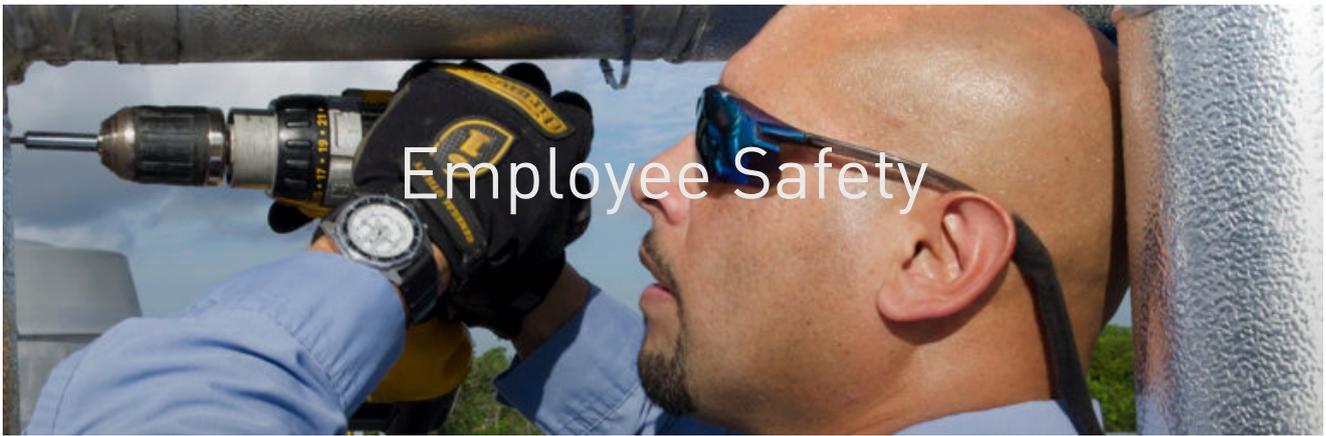
In the U.S., our retirement plans are specifically designed to provide an opportunity for each employee to save at least 15 percent of total pay each year, through a combination of his or her 6 percent contribution to the company’s 401k savings plan, the company’s 401k savings plan matching contribution, and the U.S. retirement plan.

As part of the Resources for Living program, all employees globally have access to a free initial consultation with a financial planner for a variety of issues, such as budgeting, debt, retirement, college funding, buying versus leasing, mortgages and refinancing, financial planning and tax considerations.

In the U.S., we also offer a comprehensive financial planning benefit at no cost to employees. Planners are available to help reduce financial stress by assisting with topics ranging from cash flow, credit card and debt management to retirement savings and investing, education funding, and more.

## Performance

EMPLOYEES & COMPENSATION	2013	2014	2015	2016	2017
Total compensation paid to employees/payroll, including benefits (in billions)	\$7.70	\$7.40	\$7.50	\$7.77	\$8.65



As a global health care company, we strive to provide a safe and healthy workplace.

We are committed to providing a safe and healthy workplace for our employees and contractors, and to complying with all applicable safety laws and regulations. In addition, we aim for Environmental, Health & Safety (EHS) performance that is among the best in the pharmaceutical industry. We seek to eliminate work-related injuries, illnesses and unplanned events from our operations through comprehensive safety programs that are part of our EHS management system. We also work to minimize the frequency and severity of safety and environmental incidents by focusing on proper facility design, process controls, operation and maintenance procedures, protection systems and emergency response capabilities.

Our global safety program is designed to drive a “mindset shift” and reinforce the link between our leadership behaviors and our safety and environmental objectives. We believe that through visible management, leadership and employee engagement, we can increase the awareness of hazards and help employees make the right choices when it comes to safety, health and the environment—both on and off the job. We also promote a strong safety culture at our sites through active safety committees that drive program implementation and address safety issues collaboratively between management and employees.

Our company has processes in place that are consistent with the International Labour Office (ILO) Code of Practice on Recording and Notification of Occupational Accidents and Diseases (the Code) where governments have adopted the Code. In countries that have not adopted the Code, we report to governments as required by applicable law.

For consistency across the company, and to enable us to compare our injury rates with those of other multinational companies, we use the U.S.- based [Occupational Safety and Health Administration \(OSHA\) record-keeping criteria](#) for recording and tracking work-related injuries and illnesses. We require all recordable injuries, illnesses and incidents involving our employees to be reported and investigated to determine their cause. We also require that actions be taken to prevent recurrence. Our injury and illness data are consolidated into a central system, enabling us to analyze trends and focus our efforts to continually improve. We communicate significant incidents, near-miss events and workplace conditions that could represent risks at our operations and sites around the world. We also share corrective and preventive actions across our operating locations to allow all sites to learn from the improvements we make.

[Learn more](#) about EHS governance, roles and responsibilities.

## Programs

We are committed to providing a safe and healthy workplace for all of our employees.

## PROCESS SAFETY

Our Process Safety program identifies and controls risks associated with manufacturing our human and animal health products. The program applies not only to operations that are subject to process safety regulations, but also to our pilot plants, manufacturing operations and utility areas where process hazards may exist. In addition, we have implemented a structured chemical-reaction-hazard review program for our research laboratories.

In the early stages of product development, we conduct chemical reaction and thermal testing of our intermediate materials and products to identify potential reactivity, fire and explosion hazards and environmental risks. This testing continues throughout each product's life cycle to assure that we are aware of and can appropriately manage process risks. Global process safety professionals work with operational and engineering personnel to conduct process-hazard analyses and hazard and operability studies to thoroughly evaluate our operations. These structured reviews take place during process design, initial start-up and throughout the process life cycle, to ensure that our facility design, equipment, operating controls and maintenance procedures are effective in controlling process-related hazards.

## NON-ROUTINE HAZARDOUS WORK

In recognition of industrial safety trends and our own internal assessments, we have refined our global approach to managing safety during non-routine maintenance and repair activities, as these work activities are a leading cause of serious and fatal injuries across industries. We have developed global safety standards to minimize the potential for serious incidents when our employees are working at heights, entering confined spaces, and working on or near machinery, piping and electrical systems. This global effort is focused on creating a rigorous, error-free and safe approach to performing these non-routine hazardous work activities.

## CAPITAL PROJECTS CONSTRUCTION SAFETY

We have a strong Construction Safety program with a focus on zero harm to people, property and the environment. We educate and coach our capital project construction contractors on EHS fundamentals and the need to drive continuous improvement in safety behaviors. Our global engineering group has adopted a culture-based program that promotes safety as a personal value, which has led to a steady increase in leading indicator performance such as safety observations, pre-task planning and hazard assessments.

For construction projects, we use the days-away, reassigned or transferred (DART) rate for assessing our construction capital projects, instead of the lost-time incident rate (LTIR). DART is commonly used in the construction industry, and is therefore an appropriate lagging indicator for our construction safety program.

In 2017, we had no recordable or lost-time injuries on 95 percent of our capital construction projects. Our 2017 construction safety recordable injury rate (RIR) of 0.59 reflects a slight increase over our 2016 rate, and our DART rate of 0.32 is also slightly higher than last year. This is primarily due to an increase in the number of capital projects being implemented outside the U.S. where contractor safety cultures and performance can be less advanced. Even so, our injury rates continue to be significantly better than construction industry averages.

Our construction safety peer reviews bring in-house engineers, contractors, EHS and other partners together to conduct thorough project safety evaluations with lessons learned and sharing of best practices. We completed 117 peer safety reviews in 2017, covering 85 percent of our active projects in 2017.

## INDUSTRIAL HYGIENE

Our Industrial Hygiene program protects the health of our employees throughout all stages of research and manufacturing by identifying chemical, physical, and biological hazards, assessing exposures, and properly controlling risks.

To protect the health of our employees, we first seek to eliminate or find a substitute for a hazardous material or process. When it is not possible to do so, we evaluate the feasibility of engineering controls based on the hazard and risk. Where engineering controls are not feasible, we establish effective work practice controls and require the use of appropriate personal protective equipment.

For new processes and facilities, appropriate engineering and operational controls are part of the design and installation. We monitor to verify the effectiveness of these controls after they are installed to ensure that they are properly used and maintained.

In 2017, our company made significant progress in evaluating and controlling workers' exposures in existing processes by installing feasible engineering controls and by substituting less hazardous materials or processes, which is consistent with our approach of using a hierarchy of control measures.

## BIOLOGICAL SAFETY

Our biosafety program utilizes a performance-based management system to effectively mitigate bio-risks associated with the research, development and manufacturing of human and animal vaccines and therapeutic proteins. We use a robust and effective risk assessment process that evaluates and controls potential impacts, including:

- Biosafety (preventing an accidental release)
- Biosecurity (preventing an intentional release)
- Bioethics (promoting responsible use of biological materials and technologies)
- Sustainability (minimizing our environmental footprint)
- Product stewardship (eliminating or minimizing safety and environmental hazards)

Each assessment identifies risk-mitigating controls and a risk management strategy, which includes biosafety training, emergency response procedures and containment level requirements.

## MOTOR VEHICLE SAFETY

The aim of our Motor Vehicle Safety program is to reduce the frequency and severity of motor vehicle injuries in our global operations. We have implemented a global motor vehicle safety standard and adopted programs to support safe driving skills and behaviors by our sales and marketing employees, who operate the majority of our business-use vehicles. As we make these improvements, we are seeing a corresponding reduction in the injuries associated with vehicular collisions, both for our own employees and for those with whom we share the road.

In 2017, 24 percent of our company's recordable injuries were related to motor vehicle collisions. We saw a 23 percent decrease in the number of collisions, normalized for miles traveled in 2017 versus the prior year, and an 11 percent reduction in employee injuries related to motor vehicle collisions.

## ERGONOMICS

The objective of our ergonomics program is to minimize employee injuries and improve human performance and well-being in relation to job tasks, equipment and the work environment. Our priority business areas are the manufacturing, research and sales environments, where most ergonomic injuries and illnesses are related to manual material handling and repetitive motion.

Ergonomic-related injuries continue to represent about 15 percent of our recordable injury cases globally. To minimize ergonomic risks, engineering design and work practices are reviewed and implemented at our sites. We are focusing our efforts on the locations and operations that have the highest ergonomic risks by conducting risk assessments, implementing engineering and operational controls, providing training, communicating with employees and encouraging their participation in workplace assessments. These efforts help to improve employees' ergonomic awareness, both at work and at home.

## EMERGENCY PREPAREDNESS AND RESPONSE

We prioritize the prevention of incidents through equipment and facility design, operational and maintenance procedures, and employee training. Because we recognize that incidents can still occur, our EHS standards require emergency response capabilities at all of our facilities worldwide. Our priorities for emergency response include: ensuring the safety and well-being of our employees, preserving the environment and nearby communities, and protecting our physical assets. Site-specific emergency response procedures include incident reporting and management, personnel evacuation, medical/first-aid response, and incident response and control. We routinely conduct emergency response drills and train employees in both job- and site-specific emergency response duties.

We conduct pre-emergency planning for credible emergency scenarios such as process upsets, fires, spills, releases, severe weather and security-related incidents. Many of our manufacturing plants have trained emergency response teams, and mobile fire and rescue apparatus that can respond to on-site fires, medical emergencies, technical rescues and spills/releases. Most of our emergency response teams interact directly with their local community-based emergency responders, and in some cases, assist off-site when requested.

## LOSS PREVENTION

Protecting our people, facilities, production processes and product supply chains from threats such as hurricanes, floods, windstorms, earthquakes and fires is critical to ensuring that our products reach our customers when needed. We proactively assess and manage these risks at our facilities and at several of our strategic third-party manufacturers and warehouse providers. Our loss-prevention program focuses on:

- Providing appropriate facility and process designs
- Implementing inspection, prevention and maintenance procedures
- Installing fire detection and protection systems
- Executing emergency response and business continuity programs to eliminate or reduce the impact of potential loss events

We also engage the services of globally recognized engineering service providers to routinely inspect facilities and review new designs and facility modifications. This helps us to maintain a high standard of loss prevention that is commensurate to operational risks, monetary value and supply-chain importance.

# Performance

We have worked steadily over the last five years to drive down our workplace injury rates.

In 2017, our lost-time injury rate remained at 0.13, the same as 2016. Our recordable injury rate was 0.33, down 6 percent from the prior year.

Last year, 29 percent of our recordable injuries were related to slips, trips and falls, with motor vehicle and "struck-by/caught-in" injuries accounting for 24 and 21 percent of the total number of injuries, respectively.

We saw a 31 percent decrease in the number of ergonomic recordable injuries in 2017 versus the prior year. Consistency in our case management process as well as improvements to our facilities and related equipment contributed to the decrease in these types of injuries.

In 2017, we continued to see reductions in the number of motor vehicle-related injuries, with an 11 percent improvement versus the prior year. Our global vehicle safety program includes a standard duty of care by holding both employees and managers accountable for achieving safe driving expectations.

We also continue to focus our efforts on slip, trip and fall injuries. In addition to our focus on facility maintenance, we coach colleagues to understand their surroundings, take necessary precautions, and make better decisions to avoid these types of injuries.

## LONG-TERM INJURIES BY BUSINESS AREA (2017)

**Global Support Functions**

3.6%

**Facilities Management**

4.7%

**Animal Health**

5.9%

**Research**

13.8%

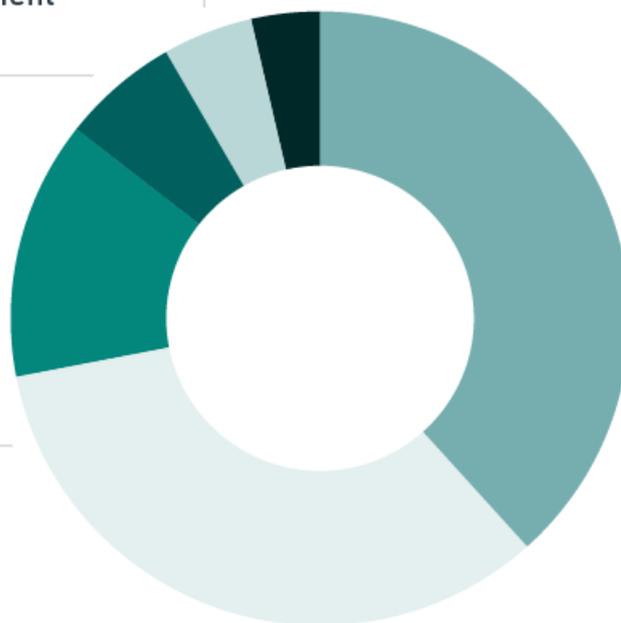
**Manufacturing**

33.6%

**Sales & Marketing**

38.3%

N = 253



RECORDABLE INJURIES BY CAUSAL FACTORS (2017)

**Physical/Environmental Exposure**

2.4%

**Chemical/Biological Exposure**

4.0%

**Non-ergonomic**

5.1%

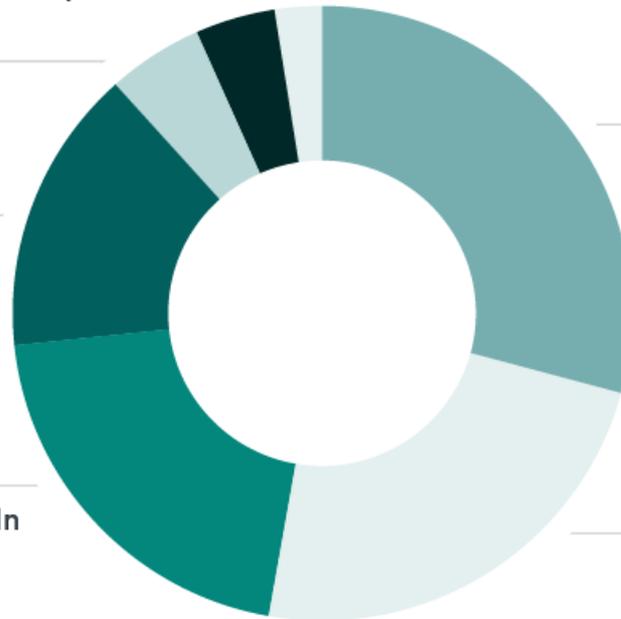
**Ergonomic**

15.0%

**Struck By/Caught In**

20.6%

N = 253



**Slips/Trips/Falls**

29.2%

**Motor Vehicle**

23.7%

GLOBAL SAFETY PERFORMANCE	2013	2014	2015	2016	2017
<b>Workplace safety</b>					
Recordable Injury Rate (RIR)	0.62	0.58	0.48	0.35	0.33
RIR percentage change	-	-6%	-17%	-27%	-6%
Lost-Time Incident Rate (LTIR)	0.28	0.20	0.22	0.13	0.13
Fatalities <sup>1</sup>	1	1	1	0	0
<b>Motor vehicle safety</b>					
Collisions per million miles (CPMM) <sup>2</sup>	12.98	13.40	12.41	9.48	7.29
<b>Capital projects construction safety<sup>3,4</sup></b>					
RIR	0.36	0.96	0.87	0.53	0.59
DART <sup>5</sup>	0.20	0.44	0.38	0.26	0.32
Fatalities	0	0	0	0	0

Note: Injury rates are subject to change over time, as new cases are added and case classifications change in accordance with our own requirements and applicable regulatory requirements.

1. All fatalities were transportation-related.

2. CAPMM: Reflects both personal and business use of company-owned or -leased vehicles.

3. LTIR/RIR: Calculated per OSHA methodology.

4. Primarily reflects capital projects over \$100,000 managed by our global engineering group.

5. DART: days away, reassigned or transferred calculated per OSHA 300 methodology.

2017 LOST-TIME INJURIES BY BUSINESS AREA (TOTAL: 253)	% of Total
Sales & Marketing	38.3%
Manufacturing	33.6%
Research	13.8%
Animal Health	5.9%
Facilities Management	4.7%
Global Support Functions	3.6%

2017 RECORDABLE INJURIES BY CAUSAL FACTORS (TOTAL: 253)	% of Total
Slips/trips/falls	29.2%
Motor vehicle	23.7%
Struck by/caught in	20.6%
Ergonomic	15.0%
Non-ergonomic	5.1%
Chemical/biological exposure	4.0%
Physical/environmental exposure	2.4%



Innovation comes from fostering inclusion, creating a sense of belonging on teams, and unleashing diversity in all its dimensions. That's how we win with our patients.

#### U.S. Employee Demographics (2017)

We understand that diversity and inclusion are fundamental to our success and core to future innovation. We foster a culture of inclusion and belonging where all employees feel welcomed and valued—a culture where we regard every individual as a source of competitive advantage in our larger mission of saving and improving lives.

- We understand that true innovation is achieved not in a vacuum, but through the powerful intersection of ideas from employees across a range of diverse backgrounds: age, race, gender, ethnicity, culture, nationality, sexual orientation, gender expression, gender identity, religion, faith, and veteran and disability status
- We motivate every employee whether working independently on a project, or participating collectively as a team to solve for the next great breakthrough in scientific advancement; they feel a deep sense of belonging, appreciation and value for the unique perspective they bring
- We create an enterprise-wide commitment to diversity and inclusion: through our leaders who embody inclusion in how they manage teams to bring the very best ideas forward; through more than 10,000 employee business resource group members that build cultural awareness, share business insights and support talent, inclusion and corporate reputation goals; through educational programs and just-in-time tools to further the career advancement and managerial skills of employees, and through strategic partnerships to reinforce our ties and alliances to the external marketplace

It is with this focus and commitment that we uphold diversity and inclusion as core values and as essential to every aspect of our business. Through these we are able to successfully innovate, execute, adapt and grow. This, in turn, delivers intrinsic, long-term value to our patients, employees, customers and shareholders.

## OUR COMMITMENT FROM THE TOP

Our leaders believe diversity and inclusion (D&I) drive our business by breaking down barriers and changing minds so we can unleash the powerful potential of our employees. Among the most significant and visible advocates of D&I at our company is CEO, Kenneth C. Frazier. Mr. Frazier publicly advocates that diversity and inclusion in the workplace is a fundamental business decision.

“We are deeply committed to fostering an inclusive environment that embraces different perspectives and values the contributions of each individual. Having a globally and locally diverse workforce makes us a more innovative and agile company—and one better attuned to the needs of our customers, health care providers and patients who ultimately use our products.”

KENNETH C. FRAZIER  
CHAIRMAN & CHIEF EXECUTIVE OFFICER

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Our CEO reinforces this commitment to diversity throughout our company by:

- Approving diversity metrics and reviewing progress against aspirational talent goals for women and underrepresented ethnic groups
- Driving accountability through meetings with the company’s leaders to review key strategic initiatives centered on global diversity
- Conferring with the company’s head of GD&I on strategic diversity and inclusion solutions and innovation opportunities
- Engaging in company-wide events, town halls and fireside chats that provide a platform for discussion with employees on a range of important topics related to GD&I

A powerful example of global enterprise outreach on diversity and inclusion and our CEO’s commitment to this as a priority business focus is the 2017 Global Diversity & Inclusion Experience Month.

Designed as a month-long series of twenty signature events, the Global Diversity & Inclusion Experience Month brought together colleagues from around the world for several educational and experiential events, including a global webcast featuring remarks and a fireside chat with Ken Frazier, a leadership panel discussion, highlights of regional examples of diversity and inclusion and much more. An interactive theatre group opened the session using actors to role-play and provide insight into hidden biases and how they manifest in the workplace.

Externally, Mr. Frazier plays an active role in communicating his commitment to diversity and inclusion through corporate sponsorship of national advocacy and health organizations, participation in diversity leadership events, and other visible platforms.

## CEO ACTION FOR DIVERSITY & INCLUSION

In June 2017, Mr. Frazier, along with other CEOs, signed a pledge that outlines a specific set of actions the signatories will take to cultivate a trusting environment where all ideas are welcomed, employees feel comfortable, and all are empowered to discuss this very important topic.

By signing this pledge, we are demonstrating our commitment to diversity and inclusion by:

- Continuing to make our workplaces trusting environments where all can have complex conversations about diversity and inclusion
- Expanding unconscious bias education
- Continuing to share best—and unsuccessful—practices

## CHIEF HUMAN RESOURCES OFFICER AND DIVERSITY OFFICER SUMMIT

Building off the CEO ACTION for Diversity and Inclusion pledge, we sponsored a special session of more than 250 chief human resources officers and Diversity and Inclusion Officers to strengthen diversity and inclusion strategies. Mr. Frazier, members of our Leadership Team, along with employees from our company and other companies who signed the pledge, convened as a group to learn, listen, and support CEO efforts to lead with action-oriented steps and drive diversity and inclusion commitments.

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“The business community is united in our dedication to further weaving diversity and inclusion into the fabric of our companies. Participants are working together to find ways to recognize and overcome unconscious biases, create trusting environments where difficult conversations can take place, and share the stories of successes and lessons learned—with the purpose of bringing better results for our talent and our businesses.”

MIRIAN GRADDICK-WEIR  
EXECUTIVE VICE PRESIDENT, GLOBAL HUMAN RESOURCES

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As a result of our CEO’s public advocacy, positive role modeling, demonstrating the importance of service and fostering the next generation of diverse leaders in America he was honored with the Ronald H. Brown American Journey Award. The award, given annually, honors outstanding Americans who exemplify the vision and transformative ideals of Ron Brown, the first African-American U.S. Secretary of Commerce. At the ceremony, Ken expressed hope about Americans coming together to develop workable solutions to the problems we face and spoke to the Ron Brown Scholars young African Americans of outstanding promise who are helping to shape our society.

In addition to our CEO, our company’s executives are committed to GD&I as a business strategy. One hundred percent of our company’s executives are mentors, helping and enabling employees to achieve their full potential. Of note among our company’s executives:

- **Dr. Julie Gerberding**, MD, MPH, executive vice president for strategic communications, global public policy and population health and chief patient officer was selected as the 2018 Woman of the Year by the Healthcare Businesswomen’s Association (HBA)
- **Celeste Warren**, vice president, Global Diversity & Inclusion was named one of Diversity Global’s “2017 Influential Women in Global Diversity.” She was also chosen as one of Black Enterprise’s Top Executives in Global Diversity and Inclusion.
- **Frank Cylburn**, president of our company’s Global Oncology business unit, was honored with the Ebony Power 100 Award
- **Lisa Shipley**, vice president, Global Head of Pharmacokinetics, Pharmacodynamics and Drugs was named as a National

Association of Female Executive (NAFE) Woman of Excellence

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Like any business priority, global diversity and inclusion requires a clear strategy, deliberate focus and sustained action.

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We use diversity and inclusion best practices and implement our strategy to focus on establishing a strong foundation for D&I, fostering internal workforce and workplace excellence, driving external reputation, and achieving innovation through business integration. Among the key priorities within this model are four distinct ambassador teams that play a substantial role in helping all employees thrive and helping to achieve our corporate mission of saving and improving lives.

- **The Global Disability Inclusion Strategic Council**—The Council recognizes the importance of a disability-confident workforce that understands how full inclusion of people with disabilities increases creativity and innovation for its employees, customers, external partners and suppliers.
- **The GD&I Extended HR Leadership Team**—This cross-functional, cross-divisional group of Human Resources professionals supports GD&I with policies, processes, programs, benefits, work-life integration, compensation, training, and business partners to foster greater employee engagement
- **Employee Business Resource Group (EBRG) Executive Leadership Council**—With ten EBRGs representing different constituencies and 10,000 members worldwide, the Council strengthens and diversifies the global leadership pipeline and provides culturally relevant insights that drive our success. The ten EBRGs represented at our company are Women, Veterans, Hispanic/Latino, African Ancestry, Asia Pacific, Native American/Indigenous, Lesbian, Gay, Bisexual and Transgender, Differently-able, Interfaith, Generational. Each EBRG has an executive sponsors—many of whom report directly to the CEO.
- **GD&I Business Consortium**—This consortium enhances our business performance through GD&I best practices—creating a competitive business advantage and driving shareholder value. Members come from Business Strategy, Supplier Diversity, Clinical Trials and other key business functions.

## HOW DO WE ENSURE A WORKFORCE REPRESENTED BY THE BEST AND BRIGHTEST GLOBALLY DIVERSE MINDS?

We use a comprehensive approach to ensure recruiting, retention, and leadership development goals are systematically executed throughout our company and that we hire talented future leaders across all dimensions of diversity.

- Our candidate selection process includes aspirational diversity recruiting goals and the selection process includes representation of diverse talent on all panels, including women and under-represented ethnic groups.
- We provide unconscious bias training to managers and external recruiting organizations on strategies for the candidate selection and hiring process.
- We utilize a comprehensive communications strategy, marketing outreach, and strategic alliance partnerships to ensure that top prospective candidates in STEMM (Science, Technology, Engineering, Mathematics, and Marketing) and other important business functions are represented in our recruiting efforts. The strategy comprises academic and university relations, participation in targeted job fairs, national advocacy alliances, community outreach, branded communications, and external recognition.
- The result of this approach is an improvement in the cultivation of a diverse employee population.

## WHAT ROLE DO EXTERNAL PARTNERS PLAY IN HELPING US RECRUIT THE BEST AND BRIGHTEST MINDS?

We partner with organizations in both professional and academic settings to reach the broadest possible base of talent that support our business goals across the global business enterprise and throughout the value chain. Some examples of where we recruit and where we leverage strategic relationships to expand our reach include higher-education campuses and institutions that have a history of serving African-American and Latino students.

### Historically Black Colleges and Universities (HBCUs)

- We partner with HBCUConnect.com, the largest social network and career site targeting the students, faculty, and alumni from Historically Black Colleges and Universities
- The partnership is designed to introduce graduating seniors from HBCUs to our company's Leadership Development Program. The Leadership Development Program is an entry-level program designed to create a pipeline of emerging talent who can prepare for leadership positions of increasing responsibility and visibility within key divisions of our business.

### Hispanic-Serving Institutions (HSIs)

- To enhance the quality of undergraduate STEM education at HSIs, we signed a Letter of Support for the National Science Foundation and St. Peters College (SPU) to provide STEM majors with career relevant hands-on experiences and student mentoring through interactions between company representatives and SPU students as they make their transition into their professional lives

We partner with Hiring Our Heroes, an organization that provides employment opportunities nationwide to veterans with disabilities. Each branch of the military produces scientists, engineers and doctors, all of whom are aligned with our company's needs. Each year the company offers an internship through the Corporate Fellow Program, which provides transitioning service members with civilian work experiences to prepare those individuals for smooth transitions into meaningful civilian careers.

Through our strong partnership with the National Technology Institute for the Deaf (NTID), we are able to source a pool of talented students who can make an immediate and valuable contribution to our business. Together with NTID, we helped to raise awareness of the deaf culture and empower managers to create a more inclusive environment for students with a hearing disability.

Our IT colleagues collaborated with the Chickasaw Nation through the IT Talent Management Workshop with the Chickasaw Nation to find ways to encourage more Native Americans to enter IT careers. Chickasaw Nation talent experts came to our company to participate in the 2<sup>nd</sup> Human Centered Design Workshop as a strategy to attract and develop Native talent.

"The Power of Performance: Leadership At The Next Level" conference, co-presented by the National Black MBA Association<sup>®</sup> and Prospanica<sup>®</sup>, brought together MBA students from diverse backgrounds and organizations looking to hire top talent and increase representation in their organizations.

We have strong relationships and partnerships with the following organizations to support talent development needs:

- AccessSTEM
- American Indian Science and Engineering Society (AISES)
- ASCEND—largest nonprofit organization for pan-Asian business professionals
- Black Girls Code (BGC)
- Catalyst—the leading women's research organization
- Executive Leadership Council (ELC)
- Hispanic Alliance for Career Enhancement (HACE)
- Hispanics Inspiring Students' Performance and Achievement (HISPA)
- Healthcare Businesswomen's Association (HBA)
- Hispanic Alliance for Corporate Responsibility (HACR)

- INROADS College Links Program (corporate charitable contributions)
- National Black MBA Association (NMBAA)
- National Gay and Lesbian Chamber of Commerce (NGLCC)
- National Minority Supplier Development Council (NMSDC)
- National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCCHE)
- National Organization on Disability (NOD)
- National Society for Hispanic MBAs (NSHMBA)/Prospanica
- National Society of Black Engineers (NSBE)
- National Technology Institute for the Deaf (NTID)
- National Urban League (NUL)
- Office of Disability Employment Policy (ODEP)
- Out & Equal Workplace Advocates
- Society for Hispanic Professional Engineers (SHPE) university chapters
- Society of Women Engineers (SWE)
- STEMConnector
- United States Business Leadership Network (USBLN)
- Women of Color in Pharma (WOCIP)

## INCLUSION IS KEY TO MAXIMUM PERFORMANCE

Diversity is the measure while “inclusion” is the mechanism by which we engage all employees to contribute to their full potential. To ensure that we foster a culture of inclusion we design educational programs and encourage leadership behaviors around perceptions of fairness and respect, value, and feeling a sense of belonging. We actively leverage the wealth of knowledge, insights, and perspectives of all employees in an open, trusting, non-judgmental workplace—one where everyone feels they are known, valued and respected.

Our “Diversity and Learning Development Catalog” allows for ongoing access to foundational training and programs such as “unconscious bias” and “micro-inequities,” executive seminars, peer coaching, external conferences, and more. Examples of our inclusion-focused educational programs include the following:

- **Foundations of Diversity & Inclusion Training:** In June 2017, the Global Diversity & Inclusion COE launched the Foundations of Diversity & Inclusion training. In this course, employees learn the foundations of diversity & inclusion and explore why diversity & inclusion is important to our company and the broader marketplace. Since the launch, more than one third of employees globally have taken this training. This training has been translated in to our company’s nine core languages.
- **Unconscious Bias Education:** Using thought leadership related to unconscious bias in the workplace, all company vice presidents and above were introduced to Unconscious Bias Education (UBE) as an enabler to identify and mitigate hidden biases. In order to cultivate a mindset of conscious inclusion, a UBE toolkit was developed to support managers at all stages of the employee life cycle—from recruiting, to onboarding, to development, retention and promotion.
- **Micro-Inequities:** Our company offers employees training options to reinforce our commitment to diversity and inclusion. Micro-inequities training helps to create a more fully inclusive work environment by providing employees with an opportunity to learn about and avoid non-inclusive behaviors.

## CAREER ADVANCEMENT AND LEADERSHIP DEVELOPMENT PROGRAMS

We invest in career advancement education and provide targeted development offerings for high potential talent and managers. Here are a few hallmark examples of our diversity and inclusion education programs:

### **Women's Sponsorship Program**

The purpose of the Women's Sponsorship Program is to accelerate the movement and to improve readiness and visibility of women and women of color into positions of greater leadership responsibility. This two-year engagement between the sponsor and protégé is curated to help build the network and personal brand of high potential women leaders and to further their development and career.

### **Women in STEMM (Science Technology Engineering Manufacturing Marketing)**

Our company hosted two Women in STEMM conferences during 2017, one in the United States and one in Singapore for our women employees. This conference provided leadership and career development workshops for women across the organization.

### **The Diverse Leadership Program**

Launched in November 2017, we provide an innovative leadership development program focused on strengthening the pipeline of ethnically diverse talent to increase representation in our senior leadership.

### **MSD Fellowship for Global Health**

The MSD Fellowship for Global Health is a field-based corporate pro bono program that embeds highly qualified MSD employees into NGOs. The Fellowship is one way that our company is helping answer the global health needs of the underserved. [Learn more](#) about the MSD Fellowship for Global Health.

## **DISABILITY INCLUSION IS GOOD FOR BUSINESS**

Our company is has consistently been named as a top-scorer on the Disability Equality Index<sup>®</sup> produced by the U.S. Business Leadership Network (USBLN) and the American Association of People with Disabilities. We understand that by creating a culture of inclusion where employees with disabilities can thrive fosters innovation, ideation and drives business outcomes.

In 2015, our company's Global Disability Inclusion Council, a cross-functional group of leaders focused on inclusive best practices, embarked on a five-year strategy encompassing areas such as Information Technology, Facilities, Health & Benefits, Talent Acquisition, Labor Relations, Supplier Diversity and D&I capability building.

We are a founding partner of the USBLN's Disability Supplier Diversity Mentoring and Development Program. This program helps disability-owned businesses to better connect with corporate supply chains and each other, giving them valuable support, networking, and potential business opportunities. The outcomes and connections from the Disability Supplier Diversity Mentoring and Development Program empower diverse suppliers and better benefit corporate buying functions. [Learn more](#) about our supplier diversity program.

In addition to the creation of the Global Disability Inclusion Council, we leverage a comprehensive strategic platform to address full disability inclusion, titled "Workplace EnABLEment." This is our first enterprise-wide approach addressing the entire spectrum including employee experience including employee and manager awareness on disability inclusion, talent acquisition, retention and advancement, a just-in-time manager training toolbox, communications support, community outreach, and a measurement system to track results.

During GD&I Experience Month, our capABILITY Network hosted the America's Disability Rights Museum on Wheels, a 48-foot, interactive traveling museum that tells the story of the fight for equal rights by people with disabilities in the United States. Later in the month, colleagues had the chance to attend a tactile carnival, which emphasized the sense of touch and featured a variety of carnival games and prizes that were fully accessible to people who are deaf and blind.

### **Self-ID Campaign**

We have conducted a self-ID campaign designed to comply with U.S. federal regulations and to reinforce a culture of inclusion by inviting employees in the U.S. and Puerto Rico to voluntarily self-identify disability, LGBT and veteran status. The program has received a strong response from employees, and we were invited to participate on the Department of Labor Office of Federal Contract Compliance Roundtable to share best practices. In 2017, we saw a 200 percent Increase

in Self-Identification of Employees with Disabilities.

## EMPLOYEE BUSINESS RESOURCE GROUPS (EBRGs)

Our EBRGs represent volunteer organizations of employees for different diversity constituencies aligned around supporting talent acquisition, sharing business insights and enhancing the company's reputation in external events. EBRGs support the growth of employees—both those new to the organization, as well as existing employees—by affording them development opportunities, networking forums to meet new people, and mentoring opportunities. The EBRGs also play an important role in cultivating talent to prepare them for leadership roles. Each is supported by company leaders who provide counsel, insight and support for its business plans.

With more than 10,000 members worldwide, EBRGs represent different constituency groups, including women, veterans, Hispanic/Latino, African ancestry, Asia-Pacific, Native American/Indigenous, lesbian, gay, bisexual and transgender, differently able, interfaith and generational.

- League of Employees of African Descent (LEAD)
- Asia Pacific Association (APA)
- CapAbility Network
- Hispanos Organization (MHO)
- Interfaith Organization (MIO)
- Rainbow Alliance (MRA)
- Next Gen Network (NGN)
- Native American & Global Indigenous People
- Veterans Leadership Network (VLN)
- Women's Network (MWN)

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“Diversity and inclusion are not just abstract concepts...they are core values and strategic business imperatives that deliver business results.”

CELESTE R. WARREN  
VICE PRESIDENT, HUMAN RESOURCES  
GLOBAL DIVERSITY & INCLUSION CENTER OF EXCELLENCE

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## LEVERAGING DIVERSITY AND INCLUSION TO DRIVE BUSINESS OUTCOMES

The GD&I Business Consortium brings a business mind-set to four specific initiatives through which our company believes it can make the greatest impact.

In addition to EBRGs, we leverage the business insights of employees via D.R.I.V.E.N. (Delivering Real Insights Via Employee Networks) to support our company's business objectives. Employees in the United States and Puerto Rico can contribute to our success by joining this secure, collaborative community of employees designed to allow them to share

their perspective anonymously and help drive success for our company. The program is designed to allow its members to share their perspective anonymously and help drive success for our company.

For example, in June 2017, the Alzheimer's team used the D.R.I.V.E.N. platform to better understand the potential utility of a new treatment currently being investigated and the type of education and support that will be needed to identify and treat patients early in the disease progression. [Learn more](#) about D.R.I.V.E.N. here.

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“D.R.I.V.E.N. represents true innovation in the pharmaceutical industry and allows us to take the best practices from other industries to get the quick, cost-effective and deep insights we need to drive our business forward by leveraging the diverse experience and perspective of our own employees.”

ALEXINE TRANQUADA  
DIRECTOR, GLOBAL CUSTOMER AND BRAND INSIGHTS

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**Supplier Diversity:** In 2017, we were named to the Billion Dollar Roundtable for the first time in our company's history. This coveted designation underscores our commitment to economic inclusion & supplier diversity and its alignment to who we are and what we stand for as a company. We believe our collaboration with diverse suppliers helps us to better understand and anticipate the needs of the customers we serve. Learn more about supplier diversity [here](#).

**U.S. Clinical Operations:** We have set goals to ensure appropriate diversity representation of patients going through our clinical trials in the U.S. for relevant areas. In addition, and to underscore the link between diversity and clinical trials, our company hosted a global webcast featuring a conversation with the family of Henrietta Lacks, an African-American woman who in 1951 had some of her cervical cancer cells harvested without her consent. These cells later played a role in some of the most important advances in medicine. Learn more about R&D's commitment to diversity in clinical trials [here](#).

**Health Literacy:** Our company is committed to ensuring diversity in clinical trials, championing health literacy across countries and divisions, and proposing new solutions to improve health care equity around the globe. In 2017, the advancement of health literacy was named a key priority for the Global Diversity & Inclusion Business Consortium. Learn more about health literacy [here](#).

#### **External Awards and Recognition**

- Working Mother
- NAFE
- Latina Style
- Diversity Best Practices
- GI Jobs
- NGLCC
- Black Enterprise
- HBA
- Disability Equality Index
- NOD Leading Disability Employer
- ILO GDBN

# Performance

GENDER & ETHNICITY	2013	2014	2015	2016	2017
Women in the workforce	47%	48%	48%	48%	48%
Women on the Board	17%	17%	21%	23%	23%
Women in executive roles <sup>1</sup>	31%	31%	34%	31%	32%
Women on the senior management team <sup>2</sup>	35%	31%	34%	36%	38%
Women in management roles <sup>3</sup>	37%	37%	38%	39%	40%
Members of underrepresented ethnic groups on the Board	25%	25%	21%	23%	23%
Members of underrepresented ethnic groups in executive roles (U.S.)	20%	20%	20%	23%	23%
Members of underrepresented ethnic groups on the senior management team (U.S.)	23%	15%	18%	18%	17%
Members of underrepresented ethnic groups in the workforce (U.S.)	24%	24%	26%	26%	26%
Members of underrepresented ethnic groups in management roles (U.S.)	18%	20%	23%	23%	23%
New hires that were female	46%	49%	50%	51%	49%
New hires that were members of underrepresented ethnic groups (U.S.)	25%	22%	33%	37%	36%

Note: Our company has publicly disclosed EEO-1 information since 1999. Our 2017 data is available at <https://s3.amazonaws.com/msd17-assets/wp-content/uploads/2018/06/06105455/2017EEO-1Diversity-Brochure.pdf>.

1. "Executive" is defined as the chief executive officer and two structural levels below.
2. "Senior management team" is defined as the fourth structural level below the CEO.
3. "Management role" is defined as all other managers with direct reports not reflected in notes 1 or 2.

# Environmental Sustainability

A healthy planet is essential to human health and the sustainability of our business.

As a global health care company, we recognize the important role we play in identifying and responding to the public health risks associated with climate change, such as threats to clean air and water, insufficient food supplies, and the spread of disease.



We believe our longstanding support of stronger health systems and expanded access to medicines and vaccines in underserved areas is even more important given the evidence that certain disease patterns can be associated with changing climate conditions.

## Sustainability Strategy

The world's resources are limited, and over the next few decades the demand for energy, clean water and other natural resources is likely to increase substantially due to population growth and economic development.

We believe that companies have a responsibility to use resources wisely and to drive innovations that will enable global development while protecting and preserving both the planet and the communities in which we live and work.

Our environmental sustainability strategy includes efforts in three key areas:



Efficient Operations

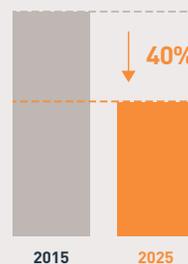


Design For Environment



Reduce Risks In Value Chain

We have committed to reducing our Scope 1 and market-based Scope 2 absolute greenhouse gas (GHG) emissions by 40 percent between 2015 and 2025.



This goal is designed to meet the science-based criteria to limit the global temperature increase to below 2°C. We have submitted our goal to be evaluated by the Science-Based Targets initiative (SBTi) and joined We Mean Business to emphasize our commitment.

## Global Water Use

Access to clean water is critical for human health and is a key input to our manufacturing operations.

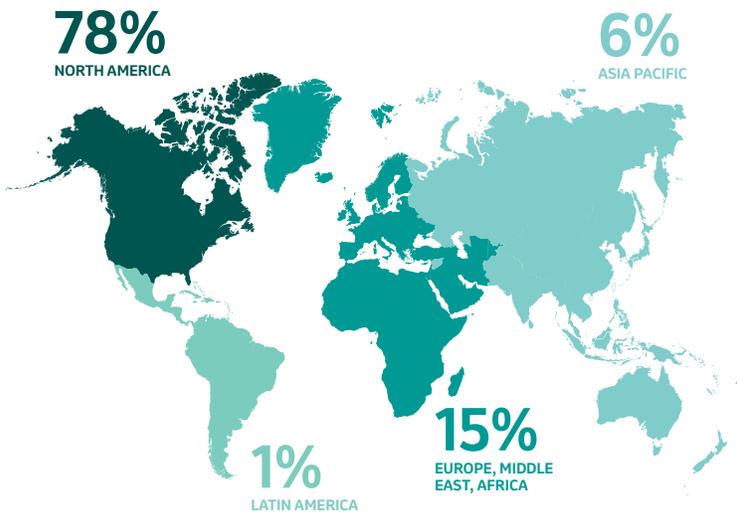
Our global water strategy aims to achieve sustainable water management within our operations and our supply chain. To achieve these strategic objectives, we are focusing on the following commitments:

- Ensuring that our wastewater discharges comply with local and national standards, as well as internal company requirements
- Understanding and controlling our operational water footprint
- Managing water risk at our facilities and in our supply chain
- Reporting publicly on our water use and goals
- Encouraging our employees to be water stewards at work, at home and in their local communities

We use the World Resources Institute’s (WRI’s) Aqueduct water-risk-assessment tool to measure and map our water risks. Sites are categorized using the “Baseline Water Stress” indicator, which is the ratio of total annual water withdrawals to total available annual renewable supply, and accounts for upstream consumptive use. Higher stress values indicate more competition among water users.

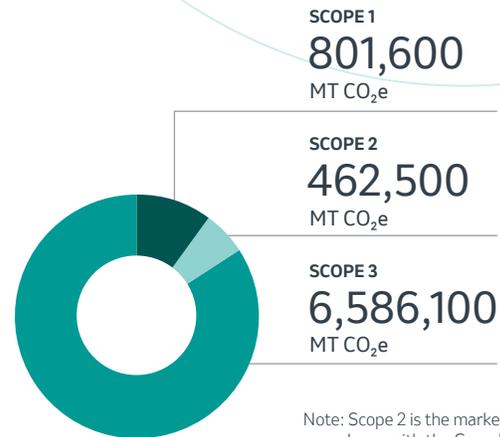
We are assessing our facilities located in areas of “extremely high” and “high” Baseline Water Stress to determine if more extensive water management plans are needed. We are also working to identify “hot spots” of water use within our supply chain so that we can begin to engage with our suppliers on the issue of water risk.

### TOTAL WATER USE IN 2017



## Measuring Our Greenhouse Gas Footprint

We have made it a priority to reduce our demand for energy, and have established internal policies and practices focused on all of our sites, which includes minimizing greenhouse gas generation throughout the company. By taking these steps, we are also reducing our operating costs and mitigating the business impacts expected to be associated with future climate change requirements.



To achieve our goals, we will continue to optimize systems, consolidate excess facility space when possible, shift power supplies to combined heat and power systems, and utilize renewable energy sources.

We are working to reduce these impacts through activities such as reducing waste in our operations, reducing fuel use, and looking for opportunities to shift from air shipping to ocean transport wherever practical. In addition, we have started to work with our strategic suppliers to reduce their environmental impacts.

## Awards & Recognition

We have been recognized for our commitment to minimizing our environmental impact.





In 2017, we announced a new set of environmental sustainability goals to help position our company to succeed in an increasingly resource-constrained world.

RESOURCES

[Environmental Goals Factsheet](#)

Our environmental sustainability goals were developed to address the rising expectations of our customers, investors, external stakeholders and employees regarding the environmental impact of our operations, supply chain, products and packaging.

We have made progress toward the environmental sustainability goals we announced in 2017 and remain on track to achieve them. Our Design-for-Environment goals are being incorporated into our product development processes. We are reducing our water use and examining water risk more closely. We continue to find ways to decrease energy demand, and are pleased to announce a significant renewable energy purchase contract that will put us on the path to achieving our greenhouse gas reduction and renewable energy targets. Our procurement team has begun to engage our strategic suppliers in our efforts to reduce the environmental footprint outside of our own operations.

## Design for the Environment

The environmental footprint of our products can be improved by how we decide to make them. So, we use green and sustainable design principles and other environmental design criteria in the development of our manufacturing processes and packaging right from the start.



### GREEN & SUSTAINABLE SCIENCE

**GOAL:** By 2020, at least 90% of our new human health active pharmaceutical ingredient processes will meet internal sustainability targets at launch.

**2017 PROGRESS:** On track



## PACKAGING

**GOAL:** 100% of the packaging for our new human health products will be reviewed for environmental impact and improvement.

**2017 PROGRESS:** 100% of products launched in 2017

[LEARN MORE](#)

## Water

Water is essential to the well-being of our patients and the planet, and is a critical input for our manufacturing processes. As demand for water increases with population growth, we are committed to utilizing this vital resource responsibly. We look for ways to continuously improve our use of this natural resource by promoting the reuse and recycling of water at our facilities around the globe.



## WATER USE & RISK

**GOAL:** By 2020, we will develop water conservation plans for sites in “high water risk” locations.

**2017 PROGRESS:** On track

**GOAL:** By 2025, we will maintain global water use at or below 2015 levels.

**2017 PROGRESS:** 4.4 million cubic meters below 2015 levels (18% reduction)

[LEARN MORE](#)

## Climate

Although the biopharmaceutical industry sector is not a leading emitter of greenhouse gases (GHGs), we believe it is in the best interest of our company and our patients to reduce GHG emissions and other associated air pollutants by driving energy efficiency improvements and purchasing more electricity from renewable sources of energy, such as wind and solar.



## GREENHOUSE GAS (GHG) EMISSIONS

**GOAL:** By 2025, we will reduce global Scope 1 and market-based Scope 2 GHG emissions by at least 40% from 2015 levels.

**2017 PROGRESS:** 13% reduction



## RENEWABLE ENERGY

**GOAL:** By 2025, at least 50% of our purchased electricity will come from renewable sources.<sup>1</sup>

**GOAL:** By 2040, 100% of our purchased electricity will come from renewable sources.<sup>1</sup>

**2017 PROGRESS:** 4.9%

[LEARN MORE](#)

## Waste

Reducing waste not only decreases our environmental footprint; it also reduces costs through improved resource efficiency and decreased waste disposal needs.



**GOAL:** By 2025, 20% or less of our global operational waste will be sent to landfills and incinerators.

**2017 PROGRESS:** 29%

**GOAL:** By 2025, at least 50% of sites will send zero waste to landfill.

**2017 PROGRESS:** 42%

[LEARN MORE](#)

## Supply Chain

Our analysis shows that a large portion of our water use and GHGs is generated upstream of our own operations in various tiers of our supply chain. We realize that in order to make a truly meaningful reduction in our overall environmental impact, we must engage with our suppliers to drive positive change.



**GOAL:** By 2018, we will collect GHG emissions and water use data from at least 90% of our strategic suppliers with the highest environmental impact.

**2017 PROGRESS:** On track

**GOAL:** By 2020, we will engage with those suppliers and request them to identify GHG emission and water use reduction opportunities.

**2017 PROGRESS:** On track

**GOAL:** By 2025, at least 90% of our strategic suppliers with the highest environmental impact will set their own GHG emission and water use reduction targets.

**2017 PROGRESS:** On track

[LEARN MORE](#)

We believe that a strong environmental sustainability strategy is critical to meeting the needs of our customers and the expectations of our external stakeholders.

We've learned that our customers are concerned about the health impacts of environmental degradation and are working to reduce their environmental impact, both in their operations and in their supply chains. We also know that the financial investment community views sustainability performance as an indicator of long-term business value, and that current and potential employees are seeking to work in a company whose values reflect their own concerns for social responsibility and environmental sustainability.

Our environmental goals support our business strategy by helping us to operate more efficiently, reduce risk and drive down costs. We also believe that by focusing on environmental sustainability, we can foster employee engagement and drive innovation by challenging our scientists and engineers to design new products and packaging that lower our environmental impact, while delivering lifesaving medicines to our patients.

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1. We have defined "purchased electricity" as electricity sourced from external suppliers, as well as renewable electricity that was generated and utilized on-site where we retained the renewable attributes or where we have obtained renewable attributes through contract.



Protecting our people, our communities and the environment is fundamentally important to the way our company operates.

#### RESOURCES

[Corporate Policy: Respect for Environmental, Health and Safety](#)  
[Public Policy Position Statement: PIE](#)  
[Global Antimicrobial Resistance Action Plan](#)  
[Public Policy Position Statement: Climate Change](#)  
[Public Policy Position Statement: Water](#)  
[Public Policy Position Statement: Responsible Disposal of Medicines in the Household](#)  
[Public Policy Position Statement: Nanotechnology](#)  
[Sharps Management Plan—CalRecycle](#)  
[Business Partner Code of Conduct](#)

Our company strives to conduct business in a safe and environmentally responsible manner. We are committed to providing a safe and healthy workplace for our employees and to reducing the environmental impact of our operations around the world. We believe that promoting wellness for employees and respect for the environment is not just the lawful thing to do; it's the right thing to do.

In addition to complying with all applicable country, regional and local safety and environmental laws, we strive for Environmental, Health and Safety (EHS) performance that is among the best in the pharmaceutical industry. We also adhere to the following key operating principles:

- Maintain a safe and healthy working environment for all employees, contractors and guests
- Foster a culture of EHS excellence that is built on integrity, accountability, personal responsibility, collaboration and active employee participation
- Seek to continuously improve our EHS systems, processes and standards
- Minimize our impact on the environment by identifying and implementing approaches to reduce the resources we use during the design, development and manufacture of our products
- Understand the potential hazards associated with our products and take action to minimize any potential risks or adverse impacts
- Promote EHS excellence in our supply chain by entering into business relationships with partners that share our commitment to responsible EHS stewardship

Our EHS Management System is based on the “Plan, Do, Check, Act” model, which allows us to assess and continually improve our practices over time. The model is implemented globally through a set of interwoven business processes that span the corporation:

- Our planning process includes developing goals, objectives and metrics based on a review of our company's performance, EHS programs, applicable regulations and external factors that may impact our business [PLAN]
- Activities are performed by using standards, guidelines and tools, that are integrated into the EHS Management System and include specific expectations for sites and operating organizations [DO]
- Governance committees, from the executive-level EHS Council through site-based compliance committees, review the company's performance and progress against objectives throughout the year [CHECK]
- Corrective actions and continuous-improvement initiatives are established to resolve EHS concerns that have surfaced during periodic assessments, audits and routine surveillance of the regulatory landscape [ACT]

## Training

Training is critical to building worldwide employee competencies that will improve compliance, reduce risks and drive continuous performance improvement.

We have a global standard that defines the Environmental, Health & Safety (EHS) training expectations for employees in three categories:

- **Manager Training** covers specific management responsibilities with regard to safety and environmental compliance and promoting a "safety first" culture
- **EHS Professional Training** is designed to expand technical expertise and improve our EHS capabilities around the world
- **Employee Training** covers the specific information our employees need to perform their jobs in a safe and environmentally compliant manner, focusing on hazards and control measures they encounter on the job

Site EHS professionals complete an assessment of the activities performed at their sites and ensure that relevant topics are included in their site training plans. They develop employee training curricula to comply with internal and regulatory training requirements. These training programs are reviewed periodically to ensure that they remain current. Our EHS training program materials are available in both instructor-led and e-learning formats. We also conduct periodic Web-based seminars to inform EHS professionals of changes in regulations and standards.

A mandatory course for all senior company leaders highlights the importance of EHS to the business, the critical role senior leaders play in EHS performance, and the specific actions our leaders can take to drive their areas of accountability toward EHS excellence.

## EHS Governance

Our commitment to the environment and employee health and safety begins with the company's Executive Committee, which has established the corporate Environmental, Health & Safety (EHS) Council.

The EHS Council is composed of senior-level executives representing all business units, and is responsible for overall EHS governance, as well as for leading and driving enterprisewide excellence in EHS management and performance.

The Council's responsibilities include:

- Establishing EHS strategy, policy and standards

- Providing companywide oversight of environmental and employee safety issues, risk mitigation and control strategies
- Monitoring performance, establishing continuous-improvement targets, and recognizing and promoting EHS excellence
- Allocating resources and/or sponsoring projects to address specific EHS concerns

An EHS Standards Committee has been chartered by the Council to provide stewardship over the Standards and enable business engagement in the development of new or revised Standards. Each area of the business is responsible for executing against the Standards, contributing to the development of programs, supporting internal audits and communicating significant EHS events. Divisional EHS compliance committees have also been established to provide governance on the implementation of the Standards, and to manage, execute and resolve EHS issues as they arise.

The Vice President (VP) of Global Safety and the Environment (GSE) is responsible for communicating to the Board of Directors, the Executive Committee and the EHS Council regarding progress on goals, objectives and metrics, as well as other material issues. The VP of GSE partners with business leaders to establish long- and short-term goals and performance metrics to drive EHS excellence.

Our corporate EHS organization is responsible for:

- Developing corporate policies, procedures, guidelines, standards, tools and programs to set expectations and to support EHS compliance
- Providing technical and regulatory support to site-based EHS staff and operating organizations
- Managing and implementing an internal audit program targeted at understanding the current state of compliance and identifying potential issues
- Tracking and communicating internal and external trends that should be addressed
- Anticipating, tracking and commenting on new regulations affecting our business and, where appropriate, developing plans to address them

Our site-based safety and environmental professionals around the world support the EHS needs of their business areas, which include manufacturing, research operations, sales and administrative activities, by:

- Ensuring that line management fully understands EHS requirements, including applicable regulations, permit requirements and company EHS Standards
- Establishing, assessing and improving programs
- Providing regulatory and technical support to employees and the operating areas
- Routinely assessing performance against our company standards and regulatory requirements
- Acting as the primary liaison with local regulators and inspectors
- Investigating incidents and near-miss events to identify root causes and developing corrective and preventive actions to prevent reoccurrence

## Internal Auditing

**We have a detailed and rigorous corporate environmental, health and safety audit program.**

Our global corporate EHS audit program is one way in which we identify and resolve compliance and performance issues within the company.

- Our audit leaders are full-time professional EHS auditors with extensive experience in auditing a broad range of EHS programs applicable to the company. The audit team consists of EHS professionals with extensive site and subject-matter expertise. In many cases, particularly outside of the United States, our internal auditors work with independent

consultants who have regulatory expertise in the laws of the host country.

- All audit findings are addressed through the development of corrective and preventive action plans, which are reviewed, approved by the audit leader and regional EHS leader, and tracked to completion
- Findings from our audit program are communicated to appropriate parts of the organization so that learnings may be shared and actions can be taken
- Audit performance and key program metrics are reviewed as part of our governance process

The audit frequency for a given facility is primarily risk-based. Manufacturing and research sites are generally audited every one to two years, depending on the type of facility, its size, and other factors. Less complex facilities, such as sales and business offices and our warehouses, are audited less frequently. In 2017, we performed 21 corporate EHS audits of our facilities, covering 27 percent of our manufacturing and research locations and involving 297 auditor days of on-site review activities. The number of audits conducted in 2017 was lower than in previous years due to our focus on implementing EHS Standards for critical safety programs during the second half of the year, when many of our manufacturing sites were concentrating on cyber-recovery efforts.

In addition to our corporate EHS audit program, our sites regularly perform self-inspections, and annually complete self-assessments of selected regulatory requirements and company standards, with all programs being evaluated at least once every three years.

## Remediation

Environmental management practices have evolved significantly over the past 30 years.

With research and manufacturing operations dating back more than 100 years, some of our facilities operated at a time when there were few regulations and little understanding of good environmental practices. Because our company has responsibility for remediation of these sites, we have launched investigations, developed science-based remediation plans and implemented cleanup projects to protect the health and safety of our neighbors, communities, employees and the environment, and comply with all applicable requirements. In addition, over time, we have acquired properties and manufacturing facilities that may not have been subject to the same EHS management standards that we have in place today. We are also investigating and remediating those properties where necessary.

We spent \$10 million in both 2016 and 2017 for remediation and environmental liabilities, including at formerly owned and operated sites. Our company has an environmental liability reserve of approximately \$75 million to fund the continued remediation of these sites into the future. In addition, we are a potentially responsible party at 19 multi-party Superfund sites in the U.S.

## Performance

Our centralized EHS information system allows us to collect, manage, learn from, and share our safety and environmental performance data more efficiently.

We collect and analyze data in both leading and lagging metrics to look for potential trends and identify opportunities that can help drive performance improvement. We continuously explore new ways to learn from and report on our performance.

NOTICES OF VIOLATIONS (NOV) & CITATIONS	2013	2014	2015	2016	2017
Environmental	7	17	16	12	5
Safety	9	11	2	2	3

FINES	2013	2014	2015	2016	2017
Environmental fines paid	\$1,167	\$81,600	\$92,270	\$33,906	\$0
Number of environmental fines	1	4	6	2	0
Safety fines paid	\$3,827	\$1,000	\$0	\$0	\$0
Number of safety fines	2	1	0	0	0

## NOTICES OF VIOLATIONS, FINES AND SETTLEMENTS

We report all forms of EHS compliance notices using the term Notices of Violation (NOVs), which includes citations, letters of warning and notices of noncompliance from environmental and safety-focused regulatory agencies.

In 2017, we had 164 EHS-related regulatory agency inspections of our facilities around the world. We received no safety or environmental NOVs and paid no fines in 2017.

## SIGNIFICANT ENVIRONMENTAL EVENTS

A "significant environmental event" is defined as an environmental release that results in environmental harm to humans, aquatic organisms or wildlife, or any environmental release that requires reporting to the U.S. Securities and Exchange Commission. We experienced no significant environmental events in 2017.



Scientific data support that climate change is occurring, and we are taking action to reduce the economic and public health risks associated with a changing climate.

RESOURCES

- [Public Policy Position Statement: Climate Change](#)
- [CDP—Climate Change 2017](#)
- [Performance Data Spreadsheet \(Excel\)](#)

As a global biopharmaceutical company, we recognize the important role we play in identifying and responding to the public health risks associated with climate change, such as threats to clean air and water, insufficient food supplies, and the spread of disease. We believe our longstanding support of stronger health systems and expanded access to medicines and vaccines in underserved areas is even more important given the evidence that certain disease patterns can be associated with changing climate conditions.



**GOAL:** By 2025, we will reduce global Scope 1 and market-based Scope 2 GHG emissions by at least 40% from 2015 levels.

**2017 PROGRESS:** 13% reduction

[LEARN MORE](#)



**GOALS:** By 2025, at least 50% of our purchased electricity will come from renewable sources. By 2040, 100% of our purchased electricity will come from renewable sources.<sup>1</sup>

**2017 PROGRESS:** 4.9%

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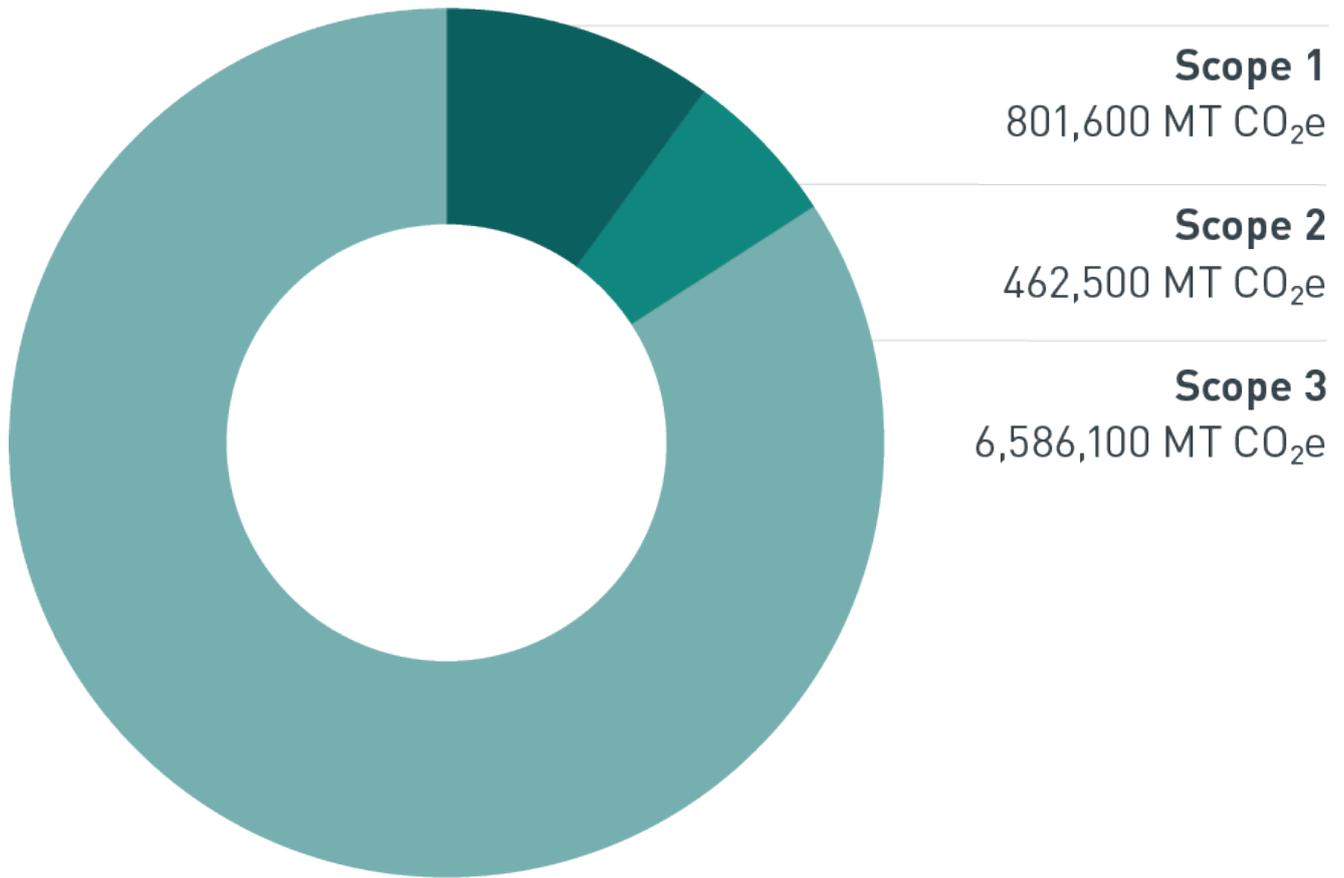
1. We have defined “purchased electricity” as electricity sourced from external suppliers as well as renewable electricity that was generated and utilized on-site where we retained the renewable attributes or where we have obtained renewable attributes through contract.

We have committed to reducing our Scope 1 and market-based Scope 2 absolute GHG emissions by 40 percent between 2015 and 2025. This goal is designed to meet the science-based criteria to limit the global temperature increase to below 2°C. We have submitted our goal to be evaluated by the Science-Based Targets initiative (SBTi) and joined [We Mean Business](#) to emphasize our commitment.

We realize that in order to make a truly meaningful reduction in our overall environmental impact, we must engage with our suppliers to drive positive change. We have set a goal that includes a three-phase process:

- By 2018, we will collect GHG emissions data from at least 90% of our strategic suppliers with the highest environmental impacts
- By 2020, we will engage with those suppliers and request them to identify GHG emission reduction opportunities
- By 2025, at least 90% of our strategic suppliers with the highest environmental impacts will set their own GHG emission reduction targets

We have made it a priority to reduce our demand for energy, and have established internal policies and practices focused on reducing energy use at all of our sites and minimizing greenhouse gas (GHG) generation throughout the company. By taking these steps, we are not only minimizing GHG emissions but also reducing our operating costs and mitigating the business impacts expected to be associated with future climate change requirements.



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Note: Scope 2 is the market-based value in accordance with the Greenhouse Gas Protocol.

For more information on our GHG emissions, please see our CDP Climate Change 2017 report.

To see all of our Scope 1, 2 and 3 GHG data, see the Performance section below.

We report our GHG emissions as required by regulations in certain countries and annually through CDP (formerly Carbon Disclosure Project). Our CDP score for carbon reporting has improved each year since 2008, when CDP scoring began. In 2017, we received a grade of A- “leadership,” indicating that we have “implemented a range of actions to manage climate change, both in our own operations and beyond.”

Energy-efficiency and demand-reduction projects will continue to contribute to lowering our energy consumption and reducing our direct GHG emissions. In addition, we will continue to optimize systems, consolidate excess facility space when possible, shift power supplies to combined heat and power systems and utilize renewable energy sources.

## Initiatives

Our company has launched initiatives around the world to improve energy use, reduce greenhouse gas (GHG) emissions from our operations and understand our supply chain-related impacts.

Our Energy Center of Excellence (CoE) identifies, shares and standardizes best practices, and prioritizes the funding of energy projects to reduce energy usage across the company. Our manufacturing facilities, warehouses, laboratories, major offices and vehicle fleet are the primary targets of our energy-demand-reduction programs, as they represent the majority of our energy consumption.

We have established an Energy Capital Fund of up to US\$12 million per year in order to transition to more energy-efficient technology and to better position the company to respond to energy demands in the future. The Energy Capital Fund supports the implementation of projects with a simple four-year payback averaged over the entire portfolio. In 2017, we spent US\$3.8 million on projects that resulted in US\$1.4 million in annual savings and will result in a reduction of more than 9,100 metric tons of carbon dioxide from our facilities. In 2018, we have over 100 projects in progress that when completed, will reduce carbon dioxide emissions from our facilities by over 35,000 metric tons.

## FACILITIES

We continuously strive to make our facilities energy-efficient. Our Energy CoE has created an “energy road map” to help our facilities reduce energy demand and associated GHG emissions. The energy road map’s foundation includes large-scale metering and monitoring to assess and identify opportunities for continuous improvement. As facility energy management programs mature, energy savings are sought by improving the reliability of the equipment, by the efficient operation of utility systems and by building efficiencies into systems design.

All of our new facilities are required to comply with our Energy Design Guide and Energy Conservation Planner. If we purchase a facility, it is evaluated for energy efficiency and assessed against our energy scorecard as part of its integration into our company.

We strive to build all new laboratories and offices following cost-effective and energy-efficient practices.

- Our China Head Office is certified as LEED Gold
- Our new South San Francisco Office is being built to LEED Gold Standards

We require our facilities to have a plan to manage their energy use.

- Four sites in Ireland, four sites in Germany and one site in the United Kingdom are certified as ISO50001 for energy management to comply with the EU Energy Efficiency Directive audit requirements

Our Energy CoE has provided tools for facility managers to identify opportunities to reduce energy use and eliminate waste. These tools include facility-wide, three-day Energy Treasure Hunts, half-day utility-system analyses (Energy Kaizens), and online Energy Treasure Hunts, which allow for best-practice sharing.

- Since 2010, we have conducted Energy Treasure Hunts at 13 of our facilities around the world. This process has identified over 1,000 energy-efficient project opportunities, many of which have been successfully implemented.
- Thirteen facilities participated in Energy Kaizens, which helped them to identify and fix costly air and water leaks and reduce heat energy losses from missing or damaged insulation. These kaizen events identified over US\$500,000 in energy savings in 2017. As important as the immediate energy savings and resultant GHG reductions, the training, assessment skills and knowledge the employees received can be applied to the rest of their facilities.
- Our online Energy Treasure Hunts have identified high-level recommendations such as renewable energy assessments and lighting systems optimization. As we are a global company, the online format proves to be a great way to engage our employees, understand their concerns and use their unique expertise and local understanding of their facilities.
- All of our employees have access to a training curriculum that allows them to learn more about energy management and energy systems. Through this program, employees can earn an Energy Manager Certification.

## WORK PRACTICES & RECOGNITION

Our company takes advantage of technology advances in order to save energy, time and money while also reducing emissions.

- Site energy use is tracked monthly by our Energy CoE through a centralized system
- A global energy scorecard is issued monthly and sites receive a letter grade based on an internal assessment of their energy intensity and performance. Our companywide average score has consistently been a top-level grade of "A."
- We developed an energy management strategy that seeks to achieve energy savings through continuous improvement, reliability, operations and design
- A rail-travel option is included in our online business-travel booking tool to make it easier to travel by train when appropriate. Train travel has a smaller carbon footprint than traveling by either airplane or personal vehicle.
- The long-range freight carriers that transport our products use alternatives to air freight whenever practical. In 2017, 45 percent (by weight) of our products were shipped by ocean freight, which reduces the amount of transportation-related GHG emissions by over 90 percent as compared to air shipping.

In 2017, our company presented internal Energy Awards to recognize sites, teams or individuals from around the world who exhibited leadership through their energy management efforts:

- Energy Savings by Design
  - Our site in Singapore has utilized tri-generation, installed LED lighting and undertaken eight Energy Capital Fund projects with over US\$1.5 million in savings
  - Our site in Italy modified an air compressor to reduce 50% of compressed-air losses and installed LED lighting and sensors
- Energy Savings by Operations
  - One of our New Jersey sites has implemented automated schedules for HVAC and lighting, and utilized free-cooling or pre-cooling for 80% of the year
- Energy Savings by Reliability
  - A site in Ireland performs regular infrared steam trap inspections, has an air leak inspection program, and has completed several Energy Kaizens
- Energy Savings by Energy Program Management
  - One of our sites in Pennsylvania has formalized standard operating procedures to support its energy management team and conducted several operator care and Energy Kaizen events

## RENEWABLE ENERGY

Our company has set bold renewable energy targets. We have committed to sourcing 100 percent of our purchased electricity from renewable energy sources by 2040, with an interim goal of 50 percent by 2025.<sup>1</sup> Photovoltaic arrays, wind turbines and other renewable-energy installations avoid emissions, help reduce energy-demand peaks and postpone or preclude adding new power plants.

While renewable energy accounts for a small percentage of the electricity we currently purchase (6 percent), we continually analyze our sites to look for opportunities for new on-site installations, power-purchase contracts, vendor-supplied renewable energy through the electrical grid and virtual power-purchase agreement (VPPA) projects.

In January 2018, our company signed a VPPA with Invenergy Wind Development LLC that adds 60 megawatts (MW) of renewable energy to the Electric Reliability Council of Texas (ERCOT) market and provides us with the associated renewable energy credits. This new wind asset will reduce our company's greenhouse gas emissions by more than 100,000 metric tons per year over the life of the 12-year agreement. This agreement will help us reach approximately 50 percent of our 2025 goal and 25 percent of our 2040 goal starting in 2019 when the wind development comes online.

1. We have defined “purchased electricity” as electricity sourced from external suppliers as well as renewable electricity that was generated and utilized on-site where we retained the renewable attributes or where we have obtained renewable attributes through contract.

## VEHICLE FLEET

Approximately 10 percent of our total Scope 1 & 2 GHG emissions are associated with our vehicle fleet. We calculate our fleet’s GHG emissions on the basis of estimated fuel economy and actual total miles driven.

- In an ongoing effort to improve fuel efficiency, we have converted our U.S. sales fleet from cars with six-cylinder engines to cars with four-cylinder engines, replaced eight-cylinder-engine trucks with six-cylinder-engine trucks, and introduced an all-wheel-drive (AWD) sedan option to replace AWD sport utility vehicles. This resulted in a fuel economy improvement from 25.6 miles per gallon (mpg) to 28 mpg in 2018.
- Our European Union (EU) fleet continues to convert to the use of more fuel-efficient vehicles. In 2017, our EU average emission rate was 106g CO<sub>2</sub>/km and we are on track to meet the EU target of 95g CO<sub>2</sub>/km by 2020.

## PARTNERSHIPS

We have a long-standing partnership with the U.S. Environmental Protection Agency’s (EPA’s) ENERGY STAR® program. This partnership provides a broad energy-management strategy that serves as a useful framework for measuring our current energy performance, setting goals, tracking savings and rewarding improvements.

In March 2018, the U.S. EPA again recognized our company with the Sustained Excellence Award. This is the 13th consecutive year in which we have been recognized by ENERGY STAR for excellence in energy management. We also received several facility-specific awards from EPA in 2018:

- Our Puerto Rico facility was awarded the ENERGY STAR Pharmaceutical Energy Performance Indicator Award by U.S. EPA for superior energy efficiency and environmental performance among U.S. pharmaceutical manufacturing plants
- Three office buildings and one data center in New Jersey and two office buildings in Pennsylvania earned ENERGY STAR Portfolio Manager Awards from U.S. EPA for being in the top quartile of their sector

For more information on our awards, [click here](#).

## Performance

From 2016 to 2017, we made great strides and reduced our year-over-year Scope 1 and Scope 2 market-based GHG emissions by 9.6 percent.

We have once again analyzed and reported our Scope 3 impacts using primary operating data, accepted emission factors, and an economic input-output model based on our third-party spend. In 2017, we estimated lower Scope 3 GHG emissions in several categories due to a change in methodology for calculating impacts from purchased goods and services, a reduction in on-site fuel use, business travel and emissions from sold products from 2016 to 2017. We also saw higher Scope 3 emissions from the end-of-life treatment of sold products due to improved accuracy of our third-party spend data.

Our analysis shows that our Scope 3 GHG emissions impacts are nearly three times greater than our combined Scope 1 and

Scope 2 emissions. We are working to reduce those impacts through activities such as reducing waste in our operations, reducing fuel use and looking for opportunities to shift from air shipping to ocean transport when practical. These actions not only reduce our environmental impact but benefit the business by reducing costs.

ENERGY USE & GHG SUMMARY <sup>1</sup>	2013	2014	2015	2016	2017
Total energy use (GJ)	23,652,700	21,813,200	21,105,400	20,727,400	19,062,700
Scope 1 and location-based Scope 2 greenhouse gas emissions (MT CO <sub>2</sub> e)	1,639,700	1,530,800	1,414,400	1,361,900	1,252,400
Scope 1 and market-based Scope 2 greenhouse gas emissions (MT CO <sub>2</sub> e)	1,639,700	1,530,800	1,456,100	1,398,100	1,264,100
Scope 3 greenhouse gas emissions (MT CO <sub>2</sub> e)	NA	5,760,000	5,586,300	7,975,100	6,586,100

Note: Tracking of all of our Scope 3 emissions, beyond business travel, began in 2014. NA: Not available.

1. In accordance with the Greenhouse Gas Protocol, prior-year data have been adjusted to add or remove facilities that have been acquired or sold. Adjustments also reflect changes in methodology to ensure consistency from year to year.

SCOPE 1 & LOCATION-BASED SCOPE 2 ENERGY USE (% OF TOTAL) <sup>1</sup>	2013	2014	2015	2016	2017
Natural gas (Scope 1)	60%	61%	60%	61%	59%
Purchased electricity (Scope 2) <sup>2,3</sup>	22%	23%	24%	23%	23%
Fleet fuel (Scope 1)	13%	12%	11%	12%	13%
Purchased steam (Scope 2)	4%	3%	3%	2%	3%
Fuel oil (Scope 1)	1%	2%	2%	2%	2%
Spent solvents (Scope 1)	0.1%	0.2%	0.1%	0.1%	0.0%
Coal (Scope 1)	0.0%	0.0%	0.0%	0.0%	0.0%
Renewable energy generated and used on-site <sup>4</sup>	0.0%	0.0%	0.01%	0.04%	0.04%

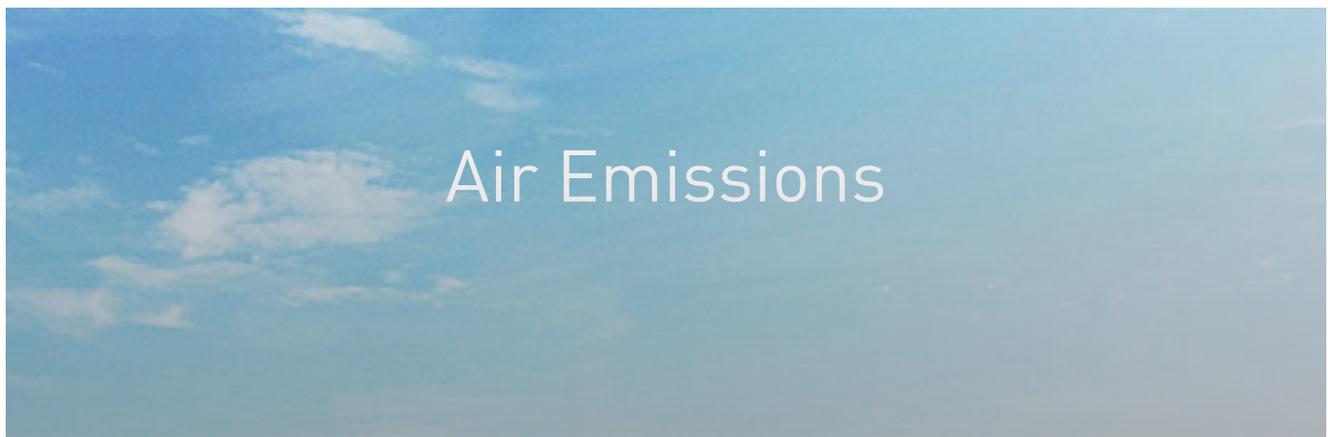
1. May not add to 100 percent due to rounding. 2. Reported using Scope 2 location-based value in accordance with the Greenhouse Gas Protocol. 3. Includes solar, wind and other renewables generated on-site where renewable energy credits (RECs) have been sold. 4. Includes solar, wind and other renewables generated on-site where renewable energy credits or guarantees of origin have been retained or retired.

SCOPE 1 & MARKET-BASED SCOPE 2 ENERGY USE (% OF TOTAL) <sup>1</sup>	2013	2014	2015	2016	2017
Natural gas (Scope 1)	60%	61%	60%	61%	59%
Purchased electricity (Scope 2) <sup>2,3</sup>	22%	23%	24%	22%	22%
Fleet fuel (Scope 1)	13%	12%	11%	12%	13%
Purchased steam (Scope 2)	4%	3%	3%	2%	3%
Fuel oil (Scope 1)	1%	2%	2%	2%	2%
Spent solvents (Scope 1)	0.1%	0.2%	0.1%	0.1%	0.0%
Coal (Scope 1)	0.0%	0.0%	0.0%	0.0%	0.0%
Renewable energy generated and used on-site or purchased <sup>4</sup>	0.0%	0.0%	0.01%	0.3%	1.1%

1. May not add to 100 percent due to rounding. 2. Reported using Scope 2 Market-based value in accordance with the Greenhouse Gas Protocol. 3. Includes solar, wind and other renewables generated on-site where renewable energy credits (RECs) have been sold. 4. Includes solar, wind and other renewables generated on-site where renewable energy credits or guarantees of origin have been retained or retired.

SCOPE 3 GREENHOUSE GAS (GHG) DETAILS (MT CO <sub>2</sub> E)	2013	2014	2015	2016	2017
Purchased goods and services <sup>1,2</sup>	NA	4,437,700	3,864,900	6,204,000	4,997,600
Capital goods <sup>1,3</sup>	NA	NA	112,700	224,000	192,900
GHG emissions from fuel and energy-related activities not included in Scope 1 & 2 <sup>2,4,5</sup>	NA	309,500	276,200	304,500	262,100
Upstream transportation and distribution <sup>1,2</sup>	NA	258,000	222,200	255,500	267,100
Waste generated in operations (excluding recycled & composted waste) <sup>2,5,6,7</sup>	NA	23,500	20,600	16,800	16,000
GHG emissions related to employee business travel <sup>8,9</sup>	123,200	182,600	283,300	265,400	218,200
Employee commuting <sup>2</sup>	NA	320,700	302,400	301,500	262,200
Downstream transportation and distribution <sup>2,10</sup>	NA	NA	211,000	118,000	121,900
GHG emissions from use of sold products <sup>11</sup>	186,900	228,000	255,000	248,400	205,800
End-of-life treatment of sold products <sup>2,12</sup>	NA	NA	38,000	37,000	42,200
<b>Total</b>	<b>310,100</b>	<b>5,760,000</b>	<b>5,586,300</b>	<b>7,975,100</b>	<b>6,586,100</b>

Note: Limited Data Assurance was granted for emissions calculated from primary travel vendor data and employee reimbursable travel mileage data. The total reported here includes non-primary travel vendor data emissions which were based on our 2016 third party spend data and an Economic Input-Output Model performed by Climate Earth, Inc. NA = Not available. 1. Based on third-party spend data and an economic input-output model performed by Climate Earth, Inc. 2. Data not available before 2014. 3. Data not available before 2015. 4. Emission factors from Argonne National Laboratory's GREET Model (<https://greet.es.anl.gov/>) were used in conjunction with primary fuel and energy-use data. 5. Data as reported historically, not baseline adjusted. 6. Primary-waste data were used with the U.S. EPA's WARM Model (<https://www.epa.gov/warm>). 7. Including recycled and composted waste in these calculations, would result in negative emissions in 2014 [-39,900 MT CO<sub>2</sub>e], 2015 [-40,200 MT CO<sub>2</sub>e], 2016 [-60,200 MT CO<sub>2</sub>e] and 2017 [-41,200 MT CO<sub>2</sub>e]. 8. Based on primary travel vendor data, employee-reimbursable mileage and UK Defra factors (<https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting#conversion-factors-2015>). 9. Beginning in 2014, emissions are based on primary vendor data where available and economic input-output modelling performed by Climate Earth, Inc., using spend data. 10. Emissions were calculated using our "Upstream transportation and distribution" spend data as a worst case estimate entered into the WRI Quantis tool. We assumed that all "downstream" material would first have been stored, transported and handled "upstream." 11. Assumes that all HFC-containing devices shipped for sale were consumed. The amount and identity of HFC in each product is calculated and multiplied by the appropriate global warming potential (GWP) to determine the CO<sub>2</sub>e released as a result of product use. 12. Calculated assuming that all primary, secondary and tertiary packaging purchased was disposed of by our customers. Packaging material data was used with the U.S. EPA's WARM Model.



We are committed to controlling air emissions from our facilities to reduce local, regional and global impacts.

## RESOURCES

[Public Policy Position Statement: Climate Change](#)  
[CDP—Climate Change 2017](#)  
[Performance Data Spreadsheet \(Excel\)](#)

Our Air Management Standard requires our facilities to quantify and control air emissions to comply with applicable regulations and emission standards. Air emissions are generated in our manufacturing and research operations, as well as from combusting fuel in on-site equipment and fleet vehicles.

Our pharmaceutical manufacturing processes, cleaning operations and research laboratories typically require the use of solvents. Evaporation of solvents into the air is the primary source of volatile organic compound (VOC) emissions. In an effort to reduce VOC emissions, reduction in solvent usage has been incorporated as an element of our [Green & Sustainable Science program](#). Key elements of the program include designing efficient processes that use fewer and less-hazardous solvents and using water-based methods for cleaning our process equipment where they are as effective as solvent-based methods. Additionally, to reduce emissions from processes where solvents are used, we use pollution-control technologies such as conservation vents, carbon filters, thermal oxidizers, condensers and scrubbers.

Air emissions are also generated by burning fuel in our boilers and power-generation turbines (for heat and energy), and by other combustion processes, such as thermal oxidizers (for treating air emissions) and incinerators (for destroying waste). Our fleet vehicles and aircraft also burn fuel and generate air emissions. These combustion processes result in emissions of carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>) and volatile organic compounds (VOCs). We strive to make our facilities more energy-efficient through our energy-management programs. By making these improvements, we also reduce emissions of CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>x</sub> and VOCs from our operations.

## Performance

AIR POLLUTANT EMISSIONS BY TYPE (MT) <sup>1</sup>	2013	2014	2015	2016	2017
Ozone-depleting substances (ODS)	1.5	1.5	0.1	0.7	0.1
Nitrogen oxides (NOx)	535	495	475	435	454
Sulfur oxides (SOx)	49	48	47	36	36
Volatile organic compounds (VOCs)	516	511	454	439	377

Note: Previously reported data have been restated per our methodology, which includes adding facilities that have been acquired and removing facilities that have been sold as operating sites. 1. Data are estimated using conservative assumptions and factors, not measured or weighed.

Our air emissions data reflect the facilities we own and operate as well as our leased facilities and our vehicle and aircraft fleet-related emissions. The increase in NOx emissions from 2016 to 2017 is attributed primarily to using emergency generators at our Puerto Rico facility during an extended power outage caused by Hurricane Maria.

The decrease in VOC emissions from 2016 to 2017, as well as the steady levels of SOx emissions, is attributed primarily to our adoption of more-accurate emission-tracking methods, reductions in the use of solvents in our manufacturing operations, and our energy-management programs. Emissions of ozone-depleting substances (ODS) are the result of non-routine releases from temperature-control and fire-suppression systems, and can vary significantly from year to year.



Access to clean water is critical for human health and is a key input to our manufacturing operations.

#### RESOURCES

Public Policy Position Statement: Water  
CDP—Water 2017

Our global water strategy aims to achieve sustainable water management within our operations and our supply chain. To achieve these strategic objectives, we are focusing on the following commitments:

- Ensuring that our wastewater discharges comply with local and national standards, as well as internal company requirements
- Understanding and controlling our operational water footprint
- Managing water risk at our facilities and in our supply chain
- Reporting publicly on our water use and goals
- Encouraging our employees to be water stewards at work, at home and in their local communities



**GOAL:** By 2020, we will develop water conservation plans for sites in “high water risk” locations.

**2017 PROGRESS:** On track

**GOAL:** By 2025, we will maintain global water use at or below 2015 levels.

**2017 PROGRESS:** 4.4 million cubic meters below 2015 levels (18% reduction)

LEARN MORE

In 2017, we announced new water goals to help us manage water-related risks in our operations and supply chain:

- Maintain global water use at or below 2015 levels through 2025
- Implement water conservation plans for internal sites in “high water risk” locations by 2020
- Supply chain:
  - By 2018, we will collect water-use data from at least 90 percent of our strategic suppliers with the highest environmental impacts
  - By 2020, we will engage with those suppliers and request that they identify water-use reduction opportunities
  - By 2025, □ 90 percent of our strategic suppliers with the highest environmental impacts will set their own water-use reduction targets

Wastewater from our facilities is managed and treated to meet regulatory standards and minimize environmental impacts. We operate wastewater-treatment plants at many of our production and research facilities. Approximately 66 percent of the wastewater from our manufacturing plants is treated on-site before being discharged into rivers or other surface-water bodies. The remaining 34 percent is sent to local municipal wastewater-treatment facilities that have the technology and capacity to treat our wastewater.

All of our facilities are required to implement an internal Environmental Quality Criteria (EQC) program for controlling active pharmaceutical ingredient (API) discharges into the environment. Each facility uses internal EQC standards to: (1) assess the potential risk from its operations using science-based and industry-accepted risk assessment methods; (2) minimize environmental impacts; and (3) establish procedures for managing APIs in wastewater. Our production facilities have, or are being provided with, API-treatment technology where needed, so that our wastewater discharges meet these internal standards.

As we strive to meet the health needs of our patients, we are increasingly operating in regions of the world where access to clean water and proper sanitation is under great pressure. Even in established markets, our business faces water-related risks.

## Initiatives

We are committed to the responsible use of water and to managing the water-related risks and impacts in our upstream supply chain.

Our internal Environmental Management Standard for water requires each of our sites to assess the impact of its operations on the local watershed, assure compliance, and drive continuous improvement in how water is used and in the quality of water discharged. Our Energy Center of Excellence includes the total cost of water in energy-related project evaluations, and drives best practices that conserve both energy and water.

Our water-use-reduction initiatives include:

- Consideration of water use in process design
- Cooling-system optimization
- Prompt repairs and maintenance of steam-distribution systems and traps
- Recovery and reuse of steam condensate and “reject water”
- Process-water purification system optimization
- Avoiding the use of water in mechanical seals, such as those in pumps

Our sites employ a variety of technologies and techniques aimed at reducing our water footprint and improving operational performance. Closed-loop cooling systems, which reduce freshwater use, are employed at more than half of our facilities worldwide. Reverse osmosis (RO) “reject water” is reused for non-potable and non-process applications such as cooling-tower feed water and fire water. In all, more than 1 million cubic meters of water are recovered, reused or recycled at our facilities, which is equivalent to 6 percent of the total water that is withdrawn.

Over the past several years, we have committed \$119.6 million of our \$120.6 million water-infrastructure-improvement fund to install API-treatment technology and reduce water use at eight facilities. The remainder of this water fund is expected to be committed by the end of 2018.

One example of a site-based water project is our Campinas facility in Brazil, which operates a wastewater filtering garden to treat approximately 480 cubic meters per month of sanitary wastewater produced by the plant. The treatment technology used is a “phytoremediation” process that takes advantage of the filtering capacity of the roots of native and exotic plant species. The plants filter and absorb the pollutants and sunlight disinfects the pond. Unlike conventional wastewater treatment plants, the filtering garden system does not use chemical compounds, working only with aerators and small pumps. The project also provides employees with access to walkways and sidewalks around the garden.

## CEO WATER MANDATE

We have endorsed the [UN CEO Water Mandate](#), a public commitment to adopt and implement a comprehensive approach to water management, and we have aligned our water program with its principles.

CEO Water Mandate endorsers have a responsibility to make water-resource management a priority and to work with governments, UN agencies, nongovernmental organizations, local communities and other interested parties to address global water challenges. We are working to identify partnerships that will help us advance our water stewardship priorities in the areas in which we operate.

Our 2017 contribution of \$100,000 to the Nature Conservancy’s Atchafalaya River Basin Initiative near our Baton Rouge, Louisiana, facility will help protect a critically important freshwater system that supplies drinking water for the area and also provides flood protection for millions of Americans.

## Performance

In 2017, the reduced demand across our manufacturing network resulted in a water-use reduction of 4.4 million cubic meters from 2015. In 2017, we used 19.5 million cubic meters of water versus 23.9 million cubic meters used in 2015, representing an 18 percent reduction in water use.

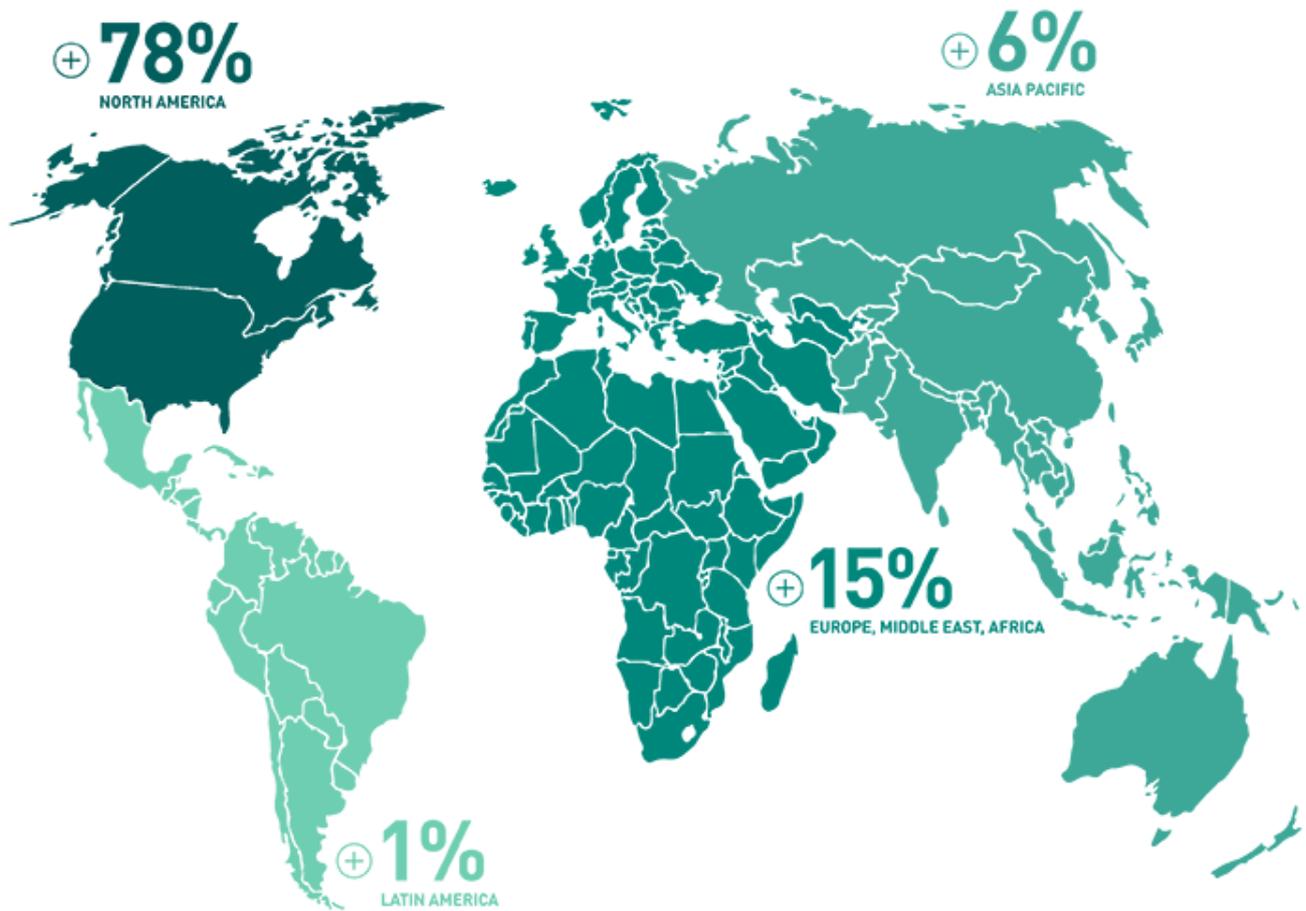
Approximately 66 percent of the total water we used in 2017 was supplied from nearby surface water and groundwater resources, with the balance sourced from municipal water supplies. Many of our facilities employ water reuse and recovery strategies, including recirculation of water in cooling towers and condensate recovery.

We use the World Resources Institute’s (WRI’s) Aqueduct water-risk-assessment tool to measure and map our water risks. Sites are categorized using the “Baseline Water Stress” indicator, which is the ratio of total annual water withdrawals to total available annual renewable supply, and accounts for upstream consumptive use. Higher stress values indicate more competition among water users.

In 2017, we operated 14 manufacturing and/or research facilities in areas with “extremely high” Baseline Water Stress, according to the WRI’s Aqueduct tool. Our manufacturing facilities that use the most water are located in areas of “medium to high” or “high” Baseline Water Stress and are located in the U.S.

We are assessing our facilities located in areas of “extremely high” and “high” Baseline Water Stress to determine if more extensive water management plans are needed. We are also working to identify “hot spots” of water use within our supply chain so that we can begin to engage with our suppliers on the issue of water risk.

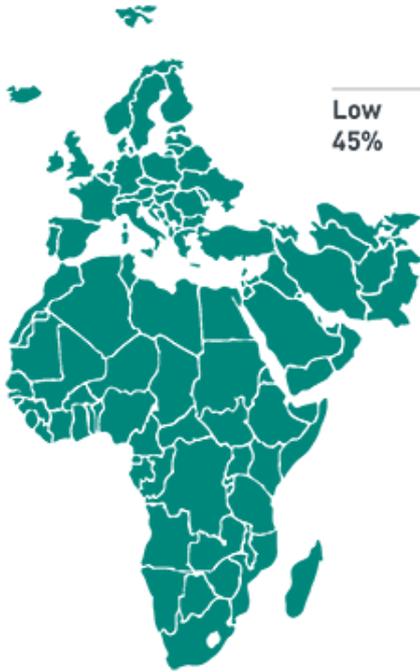
## GLOBAL WATER USE AND RISK—PERCENTAGE BY REGION



## Europe, Middle East, Africa

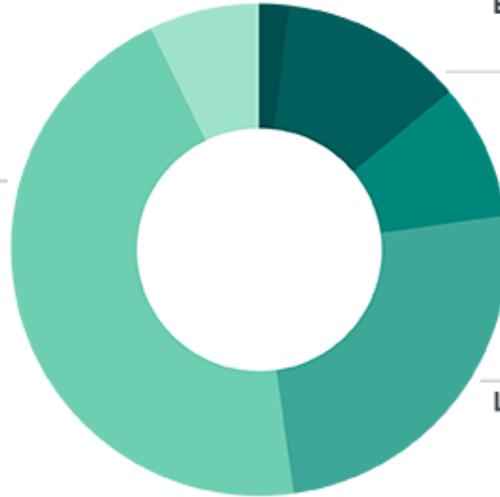


**2.88**  
million m<sup>3</sup>



**Not available**  
7%

**Low**  
45%



**Extremely high**  
2%

**High**  
12%

**Medium to high**  
9%

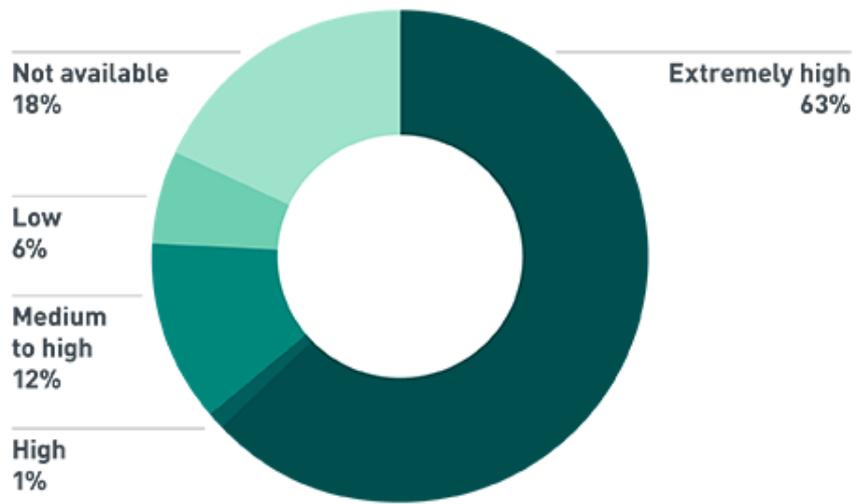
**Low to medium**  
25%

\*Data has been rounded to the nearest whole percentage point.

## Asia Pacific



**1.25**  
million m<sup>3</sup>



\*Data has been rounded to the nearest whole percentage point.

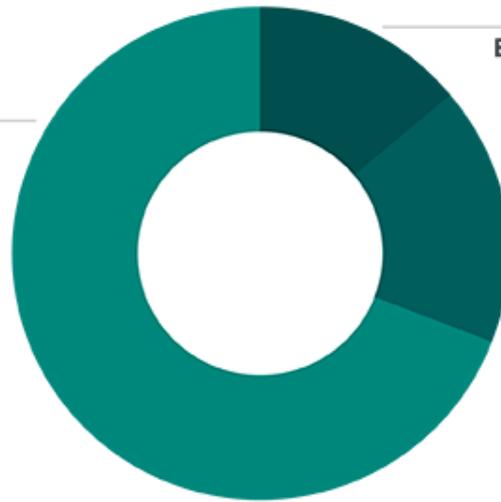
## North America



**15.15**  
million m<sup>3</sup>



Medium to high  
69%



Extremely high  
14%

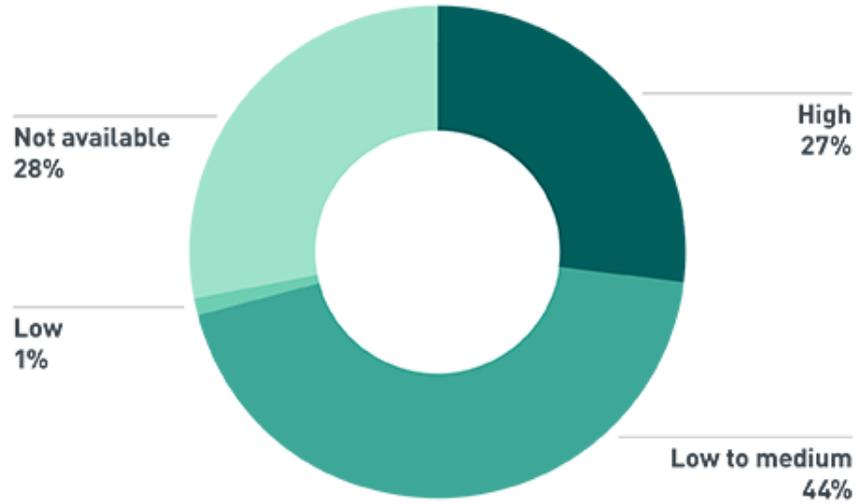
High  
17%

\*Data has been rounded to the nearest whole percentage point.

Latin America



0.21  
million m<sup>3</sup>



\*Data has been rounded to the nearest whole percentage point.

WATER USE & RISK BY REGION (M <sup>3</sup> )							% of Total	Total
	Extremely High	High	Med to High	Low to Med	Low	N/A		
North America	2.08	2.62	10.40	0	<0.01	0.04	78%	15.15
Europe, Middle East and Africa	0.05	0.35	0.26	0.73	1.31	0.19	15%	2.88
Asia Pacific	0.79	0.01	0.15	0	0.08	0.23	6%	1.25
Latin America	0	0.06	0	0.09	<0.01	0.06	1%	0.21
Total	2.92	3.04	10.81	0.82	1.39	0.51	100%	19.50

N/A: Categorization was not available.

WATER USE & RISK BY REGION [%]	Extremely High	High	Med to High	Low to Med	Low	N/A
North America	14%	17%	69%	0%	0%	0%
Europe, Middle East and Africa	2%	12%	9%	25%	45%	7%
Asia Pacific	63%	1%	12%	0%	6%	18%
Latin America	0%	27%	0%	44%	1%	28%
Total	15%	16%	55%	4%	7%	3%

N/A: Categorization was not available.

WATER USE BY SOURCE (MILLION M <sup>3</sup> ) <sup>1</sup>	2013	2014	2015	2016	2017
Pumped water (surface water and groundwater)	20.1	18.9	16.2	13.5	12.9
Purchased water	8.3	7.9	7.7	7.1	6.6
Total	28.4	26.9	23.9	20.6	19.5

1. In accordance with the Greenhouse Gas Protocol, prior-year data have been adjusted to add or remove facilities that have been acquired and sold. Adjustments also reflect changes in methodology to ensure consistency from year to year.



The proper management of materials and waste from our facilities is important for the communities where we operate and is the focus of our environmental permits and other regulatory requirements.

In 2017, we announced a new goal: to send no more than 20 percent of our total operational waste to landfills and incinerators without energy recovery by 2025.

To minimize our environmental footprint, we look for opportunities to avoid the use of hazardous materials, to reuse or recycle materials, and to prevent the generation of waste. When prevention, reuse and recycling are not practical, we apply controls and treatment technologies to prevent human health impacts and minimize environmental impacts.



**GOAL:** By 2025, no more than 20 percent of our global operational waste will be sent to landfills and incinerators.

**GOAL:** By 2025, at least 50 percent of sites will send zero waste to landfill.

[LEARN MORE](#)

Waste minimization begins with the upfront evaluation of our product designs and manufacturing processes. Through our [Green and Sustainable Science program](#), we design processes that use safer chemicals, consume less energy, use less water and other resources, and generate less waste. Our process-development biologists, chemists and engineers have the expertise to create more sustainable ways to make our products.

Additional information on our Waste Prevention and Management, Solvent Use, and Chemical Management programs, as well as our performance in these areas, can be found below.

## Programs

The amount of waste we generate reflects the efficiency of our manufacturing processes. Our facilities track and report the amount of operational waste they

## generate and how it is managed.

We continuously strive to reduce the amount of operational waste we generate and to maximize the use of environmentally beneficial disposal methods like recycling, composting and waste-to-energy.

To make sure that our waste is managed in an environmentally responsible manner, we use only approved waste disposal facilities. Approved facilities demonstrate that they have the systems, technologies and practices to manage our waste streams responsibly and in compliance with all applicable requirements. We routinely audit these facilities to verify the acceptability of their systems and practices.

Waste types are defined differently in various parts of the world. For this report, we have divided our operational waste into two categories:

**Hazardous waste:** Heavily regulated or high-risk waste streams that need to be neutralized, treated or destroyed to address a particular hazard such as toxicity, flammability, corrosivity, radioactivity, pharmaceutically active or infectious.

**Nonhazardous waste:** All other operational waste. (Because the amount of project-related waste can vary significantly from year to year based on the number and size of projects, our definition of operational waste does not include construction or demolition waste from projects.)

In 2017, we managed approximately 72,400 metric tons of waste from our operations, which is less than a 1 percent decrease from 2016.

In 2017, 42 percent of our facilities sent zero operational waste to landfills, versus our goal of at least 50 percent.

## SOLVENT USE

Solvents play a key role in the manufacture of our products, as well as in equipment cleaning. Because of their significance to our business and the life-cycle impact they represent, we focus on designing our processes to minimize or avoid their use where practical. Where we do use solvents, we maximize efficiency, and control them in our emissions, effluents and waste.

We have an active Green & Sustainable Science program to design our new processes using fewer solvents and other hazardous materials, and to reuse and recycle more of the solvents we do use. For cleaning our manufacturing equipment, we use water-based methods in cases where they are effective as solvents. At each of our manufacturing sites, we have engineers who are responsible for identifying and driving process-improvement projects. When it is not practical to reuse regenerated solvents in our own production processes, we either work with suppliers who recover the spent solvents for resale to other industries, or safely burn them as a source of energy. Any used solvents that leave our site as hazardous waste are managed at off-site facilities that are on our list of approved waste management sites.

## CHEMICAL MANAGEMENT

A comprehensive and effective chemical management program is critical to the safety and protection of our employees, the communities in which we operate and the environment.

We have put procedures, systems and processes in place to manage the approval, procurement, inventory, receipt, transfer, storage, use and disposal of chemicals at all of our sites. We provide our employees and others with information about the identities and potential hazards of the chemicals in our operations and final products through proper labeling of chemicals and the creation of safety data sheets.

## Performance

GLOBAL OPERATIONAL WASTE	2013	2014	2015	2016	2017
Landfill	10%	10%	15%	10%	10%
Incineration (without energy recovery)	16%	14%	13%	20%	19%
Total	26%	24%	28%	30%	29%
2025 goal					□20%

HAZARDOUS WASTE (MT)	2013	2014	2015	2016	2017
Incinerated (without heat recovery)	11,836	9,724	7,928	13,186	13,462
Landfilled	1,772	1,628	1,652	1,492	745
Recycled	10,127	12,196	5,944	6,135	7,979
Energy recovery	22,181	15,773	11,089	9,871	9,538
Reused	2,114	2,408	1,428	2,132	1,505
Composted	4	4	5	5	0
Other	2,747	2,387	2,299	2,425	2,423
Total	50,781	44,120	30,345	35,246	35,652

NON-HAZARDOUS WASTE (MT)	2013	2014	2015	2016	2017
Incinerated (without heat recovery)	1,547	788	1,243	1,361	426
Landfilled	7,523	6,349	8,459	5,826	6,633
Recycled	20,073	16,952	15,811	14,636	15,188
Energy recovery	10,776	10,405	9,706	10,342	8,576
Reused	1,478	782	970	972	1,071
Composted	3,849	4,094	3,018	3,771	4,668
Other	229	242	304	445	212
Total	45,475	39,612	39,511	37,353	36,774

HAZARDOUS + NON-HAZARDOUS WASTE (MT)	2013	2014	2015	2016	2017	Reductions since 2013
Landfill + incineration	22,678	18,489	19,282	21,865	21,265	1,413
Landfill	9,295	7,977	10,111	7,318	7,378	1,917
Incineration	13,383	10,512	9,171	14,547	13,887	-504
Recycled, energy recovery, reused or composted	70,603	62,614	47,971	47,864	48,525	22,078
Other	2,976	2,629	2,603	2,870	2,635	341
Total	96,256	83,732	69,856	72,599	72,426	23,830

In 2017, we managed approximately 72,400 metric tons of waste from our operations, a less-than-1 percent decrease from 2016. Of this, 35,652 metric tons were hazardous waste.

Of the hazardous waste we generated in 2017, 53 percent was beneficially reused in some way. Approximately 22 percent of our hazardous waste was sent off-site for recycling and was either returned to us for reuse or sold to other industries. Another 27 percent was burned to generate power. Of the hazardous waste that could not be recycled or beneficially reused, 38 percent was incinerated. Approximately 2 percent was sent to hazardous-waste landfills.

We recycled, reused or composted 57 percent of the 36,774 metric tons of nonhazardous waste we generated in 2017. Recycling and composting rates are increasing as more large-scale composting and recycling facilities are becoming available in the regions where we operate. We are evaluating and refining the programs in place at our manufacturing, research and office sites to reduce waste generation and increase recycling.

SOLVENT USE (MT)	2013	2014	2015	2016	2017
Fresh solvents used	31,000	24,000	15,000	20,000	19,000
Recovered solvents used	11,000	11,000	7,000	8,000	7,300
Total	42,000	35,000	22,000	28,000	26,300

Note: Previously reported data have been restated per our methodology, which includes adding facilities that have been acquired and removing facilities that have been sold as operating sites.

In 2017, we used 19,000 metric tons of new solvents and 7,300 metric tons of recovered solvents in our production processes and cleaning activities. The decrease in total solvent use from 2016 to 2017 reflects efficiencies in manufacturing and less solvent-based activity, such as equipment cleaning, for production of active pharmaceutical ingredients. In 2017, we used recovered solvents for 28 percent of our manufacturing and cleaning needs.



We are committed to understanding, managing and reducing the environmental impacts of our products and the materials associated with discovering and producing them.

RESOURCES

- Public Policy Statement: Pharmaceuticals in the Environment
- Global Antimicrobial Resistance Action Plan
- Public Policy Statement: Nanotechnology
- Public Policy Statement: Responsible Disposal of Medicines in the Household
- Sharps Management Plan—CalRecycle

We go to great lengths to ensure that our products are designed, made and used in a safe, effective and environmentally sound manner. We deliver on this commitment by maintaining a highly trained and capable scientific staff and by actively pursuing manufacturing process improvements that minimize environmental impacts. To ensure that our knowledge stays current with that of thought leaders and experts in the industry, we also collaborate with external resources and industry groups, such as the American Chemical Society and the European Federation of Pharmaceutical Industries and Associations.



**GOAL:** By 2020, at least 90% of our new human health active pharmaceutical ingredient processes will meet internal sustainability targets at launch.

**PROGRESS:** On track

LEARN MORE

Our product stewardship program focuses on identifying and either preventing or minimizing potential safety and environmental hazards throughout each product’s life cycle. We conduct extensive testing of our products to identify and understand possible safety, health and environmental hazards. We manage and communicate information about [hazardous materials](#) to keep our employees, contractors, transporters and other partners safe.

Our chemists and engineers are trained in [green design principles](#) and are provided with tools and resources to help them develop manufacturing processes that use safer chemicals and reduced quantities of raw materials. We use innovations

like [nanotechnology](#) to make our products more effective, while ensuring that product safety always remains of utmost importance.

Complying with chemical substance and product requirements is a top priority for us. We track numerous existing and emerging chemical control regulations that require us to register specific types of chemicals with the proper authorities. To meet these requirements, our scientists complete assessments of the environmental and human health risks of the substances we work with, and submit the required regulatory notifications. Additionally, we provide details on product use and risk-based control measures in accordance with applicable regulations.

Our product stewardship program extends downstream to our customers and patients through the design of effective, low-impact product [packaging](#). Our company also supports the development of science-based, cost-effective and environmentally sound programs that promote the proper disposal of unused medicines in accordance with regional requirements. For more information, see our position statement on [responsible disposal of medicines](#).

## PRECAUTIONARY PRINCIPLE

We take a precautionary approach when evaluating potential human exposures and environmental impacts resulting from our manufacturing processes. Conservative assumptions are made when data are limited, and safety factors are added to address uncertainty and variability in our assessments.

This type of approach is particularly relevant to our work in toxicology, industrial hygiene and environmental protection.

- Using the results of our scientific studies, we determine [hazard ratings](#) for all of our chemical compounds, and default to more conservative exposure limits when we have limited health hazard information. We use a rigorous and data-driven review process, and we often find that our initially conservative default ratings can be relaxed as additional preclinical and clinical data become available.
- Our Industrial Hygiene Risk Assessments require evaluation of the effectiveness of control measures. Risk-based exposure monitoring is also conducted to verify the effectiveness of installed engineering controls, and improvements are made as needed.
- We use conservative safety factors to set low *de minimis* levels for environmental releases until we have sufficient data to fully understand their impacts on aquatic organisms. Aquatic testing is typically completed late in the product development timeline, and limits are often revised upward once those data become available.



Optimal packaging design protects our products in a compliant manner and meets or exceeds customer needs with the minimum possible environmental impact.

The packaging we use for our finished products serves a range of important purposes. The foremost purpose is to protect the purity, efficacy and physical integrity of the product. Packaging also provides the customer with information and convenience, the pharmacist or provider with accurate dispensing information at the point of purchase, and our business with marketing value. For some products, packaging also serves safety functions such as child resistance and tampering evidence.



## PACKAGING

**GOAL:** 100% of the packaging for our new human health products will be reviewed for environmental impact and improvement.

**2017 PROGRESS:** 100% of products launched in 2017

We have adopted “Design for Environment” guidelines that help our engineers design new product packages that are better for the environment by minimizing package sizes and using more environmentally friendly materials, where possible. We have set a target to review all of our new human health packaging designs to understand and minimize environmental impacts as much as possible, while still providing adequate protection of our products.

To help us evaluate the differences in environmental impacts between packaging options, we use a simplified life-cycle assessment (LCA) tool that provides information on the environmental impacts generated by the materials used in our packaging. The tool helps us to make informed decisions as to which materials are better for the environment.





We support the use of nanotechnology to develop innovative drugs and vaccines that address the unmet medical needs of people and animals.

#### RESOURCES

[Public Policy Position Statement: Nanotechnology](#)

Nanotechnology involves the use of materials less than 100 nanometers in size (nanomaterials). This highly precise technology offers multifaceted applications for commonly used substances that have been reduced in size, as well as novel substances such as carbon nanotubes and other exotic materials. Our [public policy statement](#) explains our approach to using nanotechnology responsibly.

The required testing for all of our drugs ensures that nano-based pharmaceuticals are safe and effective for patient use. Our health and safety professionals closely monitor developments in the area of nanotechnology and pharmaceuticals. Based on the current scientific body of knowledge for nanoparticles, our existing methods of assessing risks and applying controls are appropriate for effectively managing exposures to employees and the environment. We do not currently use engineered nanoparticles.

Below are two examples of how we use nanotechnology:

- **Human Health**—The manufacturing process for EMEND<sup>®</sup> (aprepitant) uses a nanoscale milling approach to generate very small granules (with some in the “nano” range), allowing for easier absorption by the digestive tract
- **Animal Health**—Nanoscale milling is used for the active ingredient in PANACUR<sup>®</sup> (fenbendazole), resulting in a formulation that provides improved dosing and makes the product easier to administer



We are committed to understanding and managing the environmental impacts of our products throughout their life cycles—from discovery through manufacturing, use and disposal.

#### RESOURCES

- Public Policy Position Statement: PIE
- Global Antimicrobial Resistance Action Plan
- Public Policy Position Statement: Nanotechnology

We conduct environmental risk assessments on our products, from the development phase through product launch, to understand and manage product impacts from manufacturing and patient use. We assess products in a manner consistent with the most stringent applicable global regulations, including the regulatory review processes of the [U.S. Food and Drug Administration](#) and the [European Medicines Agency](#). Product environmental safety profiles are reassessed during periodic renewals of product filings, and risk-mitigation actions are implemented when needed.

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We carefully monitor scientific research on the issue of pharmaceuticals in the environment, including studies that evaluate the potential effects pharmaceutical products may have on the aquatic environment and human health.

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Pharmaceutical compounds have been found to enter the environment primarily through the use of medicines by humans and animals, and the subsequent excretion into wastewater treatment systems, water bodies or soil. Other potential environmental routes include manufacturing wastewater discharges and waste disposal.

We use the information from our risk assessments to establish or update our internal, compound-specific Environmental Quality Criteria (EQCs), which are used to confirm that wastewaters discharged from our facilities do not contain residual products that present a risk to human health or the environment. Our manufacturing facilities are required to use these EQCs, along with industry-accepted risk-assessment methods, to establish procedures for managing and controlling active pharmaceutical ingredients (APIs) in their wastewater. We also provide EQC information to suppliers that manufacture pharmaceutical compounds for us. Our production facilities have, or are currently being provided with, API-treatment technology to ensure that our wastewater meets these EQCs. Our facilities are also required to incinerate any product

containing solid waste streams, unless restricted by local regulation.

We carefully monitor scientific research on the issue of pharmaceuticals in the environment (PIE), including studies that evaluate the potential effects pharmaceutical products may have on the aquatic environment and human health. We support the use of science-based environmental risk assessments, and we will continue to collaborate with regulatory, academic, health care and research organizations to identify additional needs for data on pharmaceuticals in the environment.

## STAKEHOLDER ENGAGEMENT AND ADVOCACY

We participate in efforts to address PIE with various organizations, including the European Federation of Pharmaceutical Industries and Associations (EFPIA) and the International Federation of Pharmaceutical Manufacturers and Associations (IFPMA).

The EFPIA, Medicines for Europe, and the Association of the European Self-Medication Industry (AESGP) have worked together to develop the Eco-Pharmaco-Stewardship (EPS) initiative. The EPS initiative considers the environmental impacts of a medicine throughout its entire life cycle and addresses the roles and responsibilities of all parties in managing those impacts, including public services, the pharmaceutical industry, environmental experts, doctors, pharmacists and patients. Our [PIE Public Policy](#) statement contains additional details on this initiative and covers how we address environmental risks in our drug filings, within our manufacturing plants, and with our suppliers and patients.

The IFPMA is spearheading the battle against antimicrobial resistance (AMR) for industry. Our company is helping to lead these industry efforts to minimize AMR risk from manufacturing while following a One Health approach to antimicrobial stewardship. As a member of the AMR Industry Alliance and signatory to the Industry Roadmap for Progress on Combating Antimicrobial Resistance, we are working to deliver on our commitments to reduce environmental impacts from the production of antibiotics. We are currently reviewing the operations of our third-party suppliers to assess good practice in controlling releases of antibiotics into the environment. We are also working with other AMR Industry Roadmap signatories and key stakeholders, including independent technical experts, to establish a common framework for managing antibiotic discharges, to develop a mechanism for transparently demonstrating that our supply chains meet the standards in this framework, and to establish science-driven, risk-based targets for discharge concentrations.

# Ethics & Transparency

Through our unwavering commitment to ethics and transparency, we earn the trust and confidence of our stakeholders.

Our goal is to lead the way to a healthier future. But we also care about how we get there together.



Ethics and transparency are cornerstones of our reputation. The foundation of our strategy is our unwavering commitment to our values of ethics and integrity. We work hard to make sure we live up to our own high standards every day.

## A Commitment to Transparency

We aspire to be open and transparent about how we operate in order to earn and retain the trust and confidence of our customers, employees, shareholders, and other important stakeholders.

We do this by proactively providing nonproprietary information to stakeholders about our business and how we operate, which helps stakeholders make informed decisions about their interactions with the company and our products.

We disclose information through a variety of mechanisms, including our financial disclosures, our annual corporate responsibility report, and participation in voluntary efforts such as CDP, as well as through the media and through one-on-one stakeholder discussions.

## Human Rights

Respect for human rights is a fundamental part of our mission to discover, develop and provide innovative products and services that save and improve lives around the world.

Our company has a number of global policies that address how we protect human rights, including our global Public Policy on Human Rights, our Human Resources Policy, and our Labor and Human Rights Policy. Our company's Executive Committee is responsible for ensuring that governance processes are in place to provide oversight of the implementation and execution of these corporate policies.

Our Code of Conduct, which we publish under the title *Our Values and Standards*, outlines our responsibilities to our customers, our fellow employees, our suppliers, the communities where we live and work as well as those around the world that we serve, and our shareholders. These responsibilities represent the foundation of our company and what we stand for, and are the basis for our continued success. We seek to prevent or mitigate adverse human rights practices that are directly linked to our operations, products or services.

# Global Privacy Program

In all that we do, we strive to be good data stewards to balance our data needs with our responsibilities to the people and communities we serve.

Data about people—whether they are employees, patients, physicians, veterinarians, other health care professionals, customers, business partners, or other stakeholders—is essential to fulfilling our corporate mission and to operating our global research-intensive biopharmaceutical and animal-health businesses.

We have developed and continually improved a comprehensive global privacy program that promotes organizational accountability for privacy, data governance, and data protection across our business, and with our collaborative partners and suppliers.

We also have a set of privacy values to guide all of our privacy, data stewardship, and data protection decisions. These core tenets serve as the ethical framework for our comprehensive global privacy program and our compliance with the continually evolving legal and regulatory standards for privacy and data protection.

## Code of Conduct

Our Code of Conduct is considered to be the foundation of our company's success. These values and standards apply worldwide, wherever our company does business.

Ethics and compliance training is an important part of creating a strong culture, and our program is reflective of the Code of Conduct and corporate policies tailored to meet the needs of different groups of employees within the organization. All employees are required to complete the assigned ethics and compliance courses.



of our employees completed training on our Code of Conduct

## OUR GLOBAL PRIVACY VALUES

### RESPECT

We recognize that privacy concerns often relate to the essence of who we are, how we view the world and how we define ourselves, so we strive to respect the perspectives and interests of individuals and communities and to be fair and transparent in how we use and share information about them.

### TRUST

We know that trust is vital to our success, so we strive to build and preserve the trust of our customers, employees, patients and other stakeholders in how we respect privacy and protect information about people.

### PREVENT HARM

We understand that misuse of information about people can create both tangible and intangible harm for individuals, so we seek to prevent physical, financial, reputational and other types of privacy harm to individuals.

### COMPLY

We have learned that laws and regulations cannot always keep pace with the rapid change in technologies, data flows, and associated shifts in privacy risks and expectations, so we strive to comply with both the spirit and the letter of privacy and data protection laws and regulations in a manner that drives consistency and operating efficiency for our global business operations.

## Awards & Recognition

We have been recognized for our commitment to ethics and transparency.





## How we operate is as important as what we do.

### RESOURCES

[Code of Conduct](#)  
[Business Partner Code of Conduct](#)  
[Ethical Operations Handbook](#)

It is critically important to patients, purchasers, health care professionals, employees and investors, and to the sustainability of our business success, that we adhere to all applicable laws and regulations, follow ethical business practices, maintain good corporate governance, and treat people with respect.

We have strong management oversight, comprehensive corporate policies, and a long history of abiding by legal and regulatory requirements and promoting high ethical standards. Every employee worldwide is responsible for adhering to business practices that are in accordance with the letter and spirit of the law and with ethical principles that reflect the highest standards of corporate and individual behavior.

Our company's Office of Ethics was established over 20 years ago to protect and promote the company's values and standards on a worldwide basis by developing and overseeing global initiatives designed to deter illegal, unethical and improper behavior related to the company's business. The Office of Ethics is responsible for ensuring that employees are aware of and trained on the [Code of Conduct](#) and company policies.

The Office of Ethics serves as a channel for the receipt and investigation of ethics- and compliance-related concerns. There are multiple avenues through which employees can contact the Office of Ethics. They can contact the office directly, at a toll-free telephone number or by email, to speak to an ethics officer or ombudsperson. Our company also provides a confidential, toll-free intake service, called AdviceLine, through a third party that offers the option for the reporting person to remain anonymous.

The Office of Ethics is also responsible for managing our Ombuds Program, which offers an additional safe haven for U.S.-based employees to discuss work-related issues without fear of retaliation. This program confidentially addresses employees' concerns, mainly those relating to manager or coworker relations or fair treatment.

## ADDRESSING MISCONDUCT

It is our policy to maintain a work environment where all employees are expected to report ethical and compliance concerns that are potentially inconsistent with the company's Code of Conduct and policies. Our company is committed to maintaining a process for escalation and investigation of potential compliance-related concerns.

Retaliation against employees who report such concerns is a violation of corporate policy and will not be tolerated. The

Office of Ethics and the Office of Global Investigations is responsible for oversight of the global processes for managing investigations into potential ethics and compliance concerns to ensure consistent and timely resolution of potential concerns and implementation of remediation actions. When we substantiate allegations of ethical misconduct, we take appropriate disciplinary actions in order to ensure that those who were responsible are held accountable.

Disciplinary actions can include dismissal from the company, issuance of final written warning letters, or financial penalties. In addition, we take appropriate steps to address any needed improvements in organizational and process controls.

We also maintain a policy that will give our company the discretion to recoup incentive payments made to employees in certain instances. This policy will apply when a senior leader engages in misconduct or fails to reasonably supervise an employee who engages in misconduct that results in a material policy violation relating to the research, development, manufacturing, sales or marketing of company products where the policy violation causes significant financial or reputational harm to the company.

## ANNUAL ETHICS & POLICY CERTIFICATION

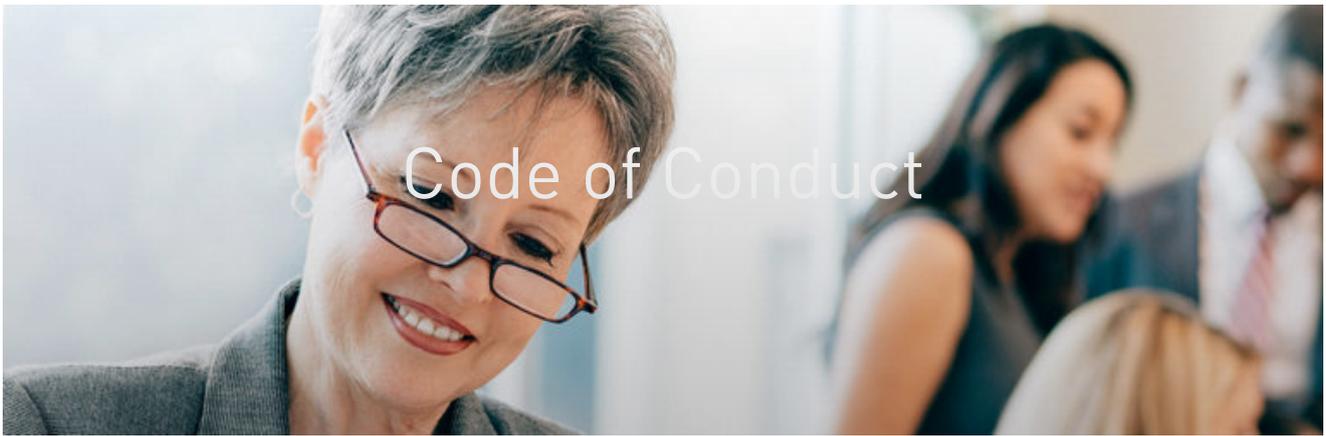
An important component of our corporate compliance program is our annual ethics and policy certification. The annual review process requires selected company employees to certify adherence to corporate policies on ethical business practices, antitrust-law compliance, and conflict-of-interest and insider trading. These employees are also expected to regulate their outside activities to avoid any conflicts of interest, and to certify, in writing, whether actual or potential conflicts of interest exist. Where potential conflicts are identified, the Office of Ethics will work with management to take actions to mitigate the potential conflict. In addition, all U.S.-based employees must certify compliance with our corporate policy on the effects of exclusions, debarments, suspensions and health care-related criminal convictions, reporting and screening.

## Performance

OFFICE OF ETHICS	2013	2014	2015	2016	2017
Employees trained on the Code of Conduct	99%	99%	99%	100%	100%
Employees who responded to the disclosure statement on the Conflicts of Interest form	NA	100%	100%	100%	100%
Concerns brought to the company's attention, such as employees seeking ombudsman services (most often relating to manager or coworker relations) and guidance on conflict of interest or Code of Conduct issues	624	517	484	389	432
Allegations involving noncompliance with company policy investigated	968	1,069	638	479	550
Ratio of substantiated allegations to concerns/issues raised	58%	60%	58%	55%	60%
Employees separated related to substantiated corporate policy violations <sup>1</sup>	313	365	156	123	132
Employees who received written warnings as disciplinary actions resulting from a substantiated concern	269	323	148	137	90

NA: Not available.

1. This data represents investigations conducted on a companywide basis.



Our Code of Conduct is considered to be the foundation of our company's success. These values and standards apply worldwide, wherever our company does business.

#### RESOURCES

[Code of Conduct](#)  
[Business Partner Code of Conduct](#)

Our [Code of Conduct](#), *Our Values and Standards*, is available in 23 languages and applies to all employees worldwide. In April 2017, we published the fourth edition of *Our Values and Standards*. While the look and feel of the new edition may have changed, *Our Values and Standards* continues to lead us on the principled path to being a company worthy of trust. It represents the very core of our character as a company and helps us to protect the reputation we have earned.

The Code of Conduct interactive website allows our employees to search for a relevant policy, ask a question or raise a concern. The website also offers tools and resources to help employees put our values into practice with every decision and every action.

## TRAINING & DEVELOPMENT

We provide annual training on our Code of Conduct to all employees worldwide to ensure awareness of the core values: Patients First, Ethics & Integrity, Respect for People, and Innovation & Scientific Excellence. Ethics and compliance content is also integrated into business and leadership development courses for managers and senior leaders on an ongoing basis. Ethics and integrity are key leadership competencies that are assessed as part of annual performance reviews and play an integral role in our decisions about employee advancement within the company.

## EXTERNAL SUPPLIERS' ETHICAL STANDARDS

We abide by strict ethical standards in our own operations, and we insist on equivalent standards from our suppliers. Our [Business Partner Code of Conduct](#) is based on our own Code of Conduct, as well as on the [Pharmaceutical Supply Chain Initiative's \(PCSI's\) Pharmaceutical Industry Principles](#) and the [Ten Principles of the UN Global Compact](#).

[Learn more](#) about how we work with our suppliers to uphold ethical standards.

## Performance

CODE OF CONDUCT	2013	2014	2015	2016	2017
Employees trained on the Code of Conduct	99%	99%	99%	100%	100%



As part of our long-standing commitment to ethics and good corporate citizenship, we adopt policies and procedures that facilitate compliance with the laws and regulations that govern the way we market and sell our medicines, vaccines and other products.

We have a well-established global compliance program that is consistent with the [International Federation of Pharmaceutical Manufacturers & Associations \(IFPMA\) Code of Practice](#) requirements, as well as with other applicable regional or country industry codes of conduct, including those issued by the [Pharmaceutical Research and Manufacturers of America \(PhRMA\)](#) and the [European Federation of Pharmaceutical Industry Associations \(EFPIA\)](#).

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Our global compliance program is built around the core elements of an effective compliance program.

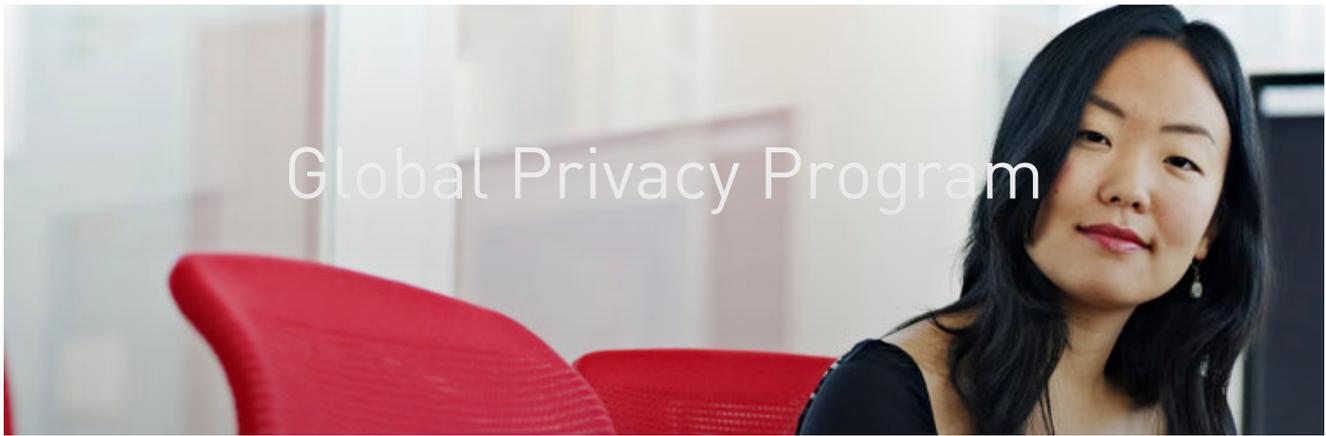
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Our company's Board of Directors and senior management, including the chief ethics and compliance officer and members of the [Corporate Compliance Committee](#), provide the foundational elements of leadership, accountability and structure to oversee the company's global compliance program.

The chief ethics and compliance officer reports directly to our company's CEO and provides regular quarterly updates to the Audit Committee of the Board of Directors on key indicators of ethical culture. This reporting structure supports open communications with senior leadership regarding important developments that relate to ethics and compliance.

[Learn more](#) and download a copy of our company's *Ethical Operating Handbook*.



In all that we do, we strive to be good data stewards to balance our data needs with our responsibilities to the people and communities we serve.

#### RESOURCES

[Business Partner Code of Conduct](#)

Data about people—whether they're employees, patients, physicians, veterinarians or other health professionals, customers, business partners, or other stakeholders—is essential to fulfilling our corporate mission and to operating our global research-intensive biopharmaceutical and animal-health businesses.

Over the past 17 years, we have developed and continually improved a comprehensive global privacy program that promotes organizational accountability for privacy, data governance, and data protection across our business, and with our collaborative partners and suppliers.

We were the first company in the world to obtain regulatory approval in the European Union (EU) for Binding Corporate Rules (BCRs) based in part on our existing Asia Pacific Economic Cooperation (APEC) Cross-Border Privacy Rules (CBPRs) certified program.

This achievement demonstrates that organizations can rely on common internal standards and processes to govern international data transfers across both the EU and APEC regions to simplify their ability to address the growing regulatory challenges in this area.

We also self-certify to the EU-U.S. and Swiss-U.S. Privacy Shield Frameworks. These frameworks were designed by the U.S. Department of Commerce together with the European Commission and with the Swiss Administration, respectively, following the invalidation of the EU-U.S. and Swiss-U.S. Safe Harbor programs.

Throughout 2017, we further improved organizational accountability and governance by expanding our cross-organizational/functional governance body to guide the overall privacy program and establish a set of privacy standards and specifications tied directly to the company privacy policy and based upon new external requirements.

Our holistic approach to privacy has its origins in biomedical research ethics and the protection of participants in the research studies that we sponsor and conduct. We have adapted human subject research ethics standards for risk-benefit analysis, transparency, anonymization, coding and prior review to other activities and processes involving data about people.

We also have established a set of privacy values to guide all of our privacy, data stewardship, and data protection decisions. These core tenets serve as the foundational ethical framework for our comprehensive global privacy program and our compliance with the continually evolving legal and regulatory standards for privacy and data protection.

## OUR GLOBAL PRIVACY VALUES

### RESPECT

We recognize that privacy concerns often relate to the essence of who we are, how we view the world and how we define ourselves, so we strive to respect the perspectives and interests of individuals and communities and to be fair and transparent in how we use and share information about them.

### TRUST

We know that trust is vital to our success, so we strive to build and preserve the trust of our customers, employees, patients and other stakeholders in how we respect privacy and protect information about people.

### PREVENT HARM

We understand that misuse of information about people can create both tangible and intangible harm for individuals, so we seek to prevent physical, financial, reputational and other types of privacy harm to individuals.

### COMPLY

We have learned that laws and regulations cannot always keep pace with the rapid change in technologies, data flows, and associated shifts in privacy risks and expectations, so we strive to comply with both the spirit and the letter of privacy and data protection laws and regulations in a manner that drives consistency and operating efficiency for our global business operations.

## Performance

GLOBAL PRIVACY PROGRAM	2013	2014	2015	2016	2017
Number of countries in which we conduct privacy compliance verification and risk assessment	137	137	137	137	137
Number of concerns regarding privacy practices, breaches of privacy and losses of personal data that were substantiated <sup>1,3</sup>	212	151	143	227	123
Percentage of reported concerns regarding privacy practices, breaches of privacy and losses of personal data that were substantiated <sup>2</sup>	26%	18%	96%	98%	98%
Number of privacy breaches requiring notification by Merck & Co., Inc., Kenilworth, N.J., USA, to individuals or government authorities	0	1	0	1	0
Number of privacy breaches requiring notification by third parties working for Merck & Co., Inc., Kenilworth, N.J., USA, to individuals or government authorities	1	1	3	0	1

1. Privacy concerns include all concerns about our privacy practices escalated to our company's Privacy Office. Substantiated concerns are those that are determined to be consistent with our own privacy standards or that involve loss of, theft or unauthorized access to personal data. 2. In 2015, because of the scope of lost or stolen devices known to be encrypted, we ceased inclusion of lost or stolen MSD devices in our incident metrics. 3. Reporting in 2017 was impacted by cyber-incident.



Human rights are an important element of our company's commitment to conducting our business in a responsible manner.

#### RESOURCES

- [Code of Conduct](#)
- [Business Partner Code of Conduct](#)
- [Public Policy Position Statement: Human Rights](#)

Respect for human rights is a fundamental part of our mission to discover, develop and provide innovative products and services that save and improve lives around the world. We believe in the dignity of every human being, and recognize the international human rights principles as embodied in the United Nations Global Compact and as defined in the United Nations Universal Declaration of Human Rights and its subsequent changes; the International Covenant on Economic, Social and Cultural Rights; the International Covenant of Civil and Political Rights; the Organisation for Economic Co-operation and Development Guidelines for Multinational Enterprises; and the core labor standards set by the International Labor Organization.

## OUR BELIEF & APPROACH

We believe in the dignity of every human being and in respect for individual rights. Our company has a number of global policies that address how we protect human rights, including our global [Public Policy on Human Rights](#), our Human Resources Policy, our Labor and Human Rights Policy, and our [Code of Conduct](#). Our company's [Executive Committee](#) is responsible for ensuring that governance processes are in place to provide oversight of the implementation and execution of these corporate policies.

*Our Values and Standards* outlines our responsibilities to our customers, our fellow employees, our suppliers, the communities where we live and work as well as those around the world that we serve, and our shareholders. These responsibilities represent the foundation of our company and what we stand for, and are the basis for our continued success. We seek to prevent or mitigate adverse human rights practices that are directly linked to our operations, products or services.

## OUR COMMITMENT

Our commitment is formalized and manifested through the various policies highlighted above, including our Code of

Conduct and our environmental governance and management systems. With respect to our internal operations, our policies and/or Code of Conduct state the following:

**Labor Standards:** We maintain labor standards, including hours, conditions, wages and overtime pay practices, that are in compliance with the laws of the jurisdictions in which we operate.

**Health & Safety:** We value the safety and security of every employee and are committed to maintaining healthy working conditions and strict safety practices. We have a zero-tolerance policy for actions that have the potential to threaten the safety of our employees or others in our workplace.

**Freedom of Association:** We respect the right of employees to associate freely, and to form, join or not join a labor union. All employees can communicate openly with management and each other regarding working conditions.

**Child Labor, Forced Labor & Human Trafficking:** We prohibit the use of child, forced or involuntary labor, including bonded labor, prison labor, slave labor or indentured labor, and any form of human trafficking.

**Commercial Sex Acts:** We recognize that the sex industry, even where lawful, can contribute to human trafficking and exploitation. We do not allow employees to engage in commercial sex acts.

**Wages & Benefits:** We compensate our employees in accordance with market practice in a manner that supports their ability to meet their basic needs. We also offer our employees the opportunity to improve their skills and capabilities.

**Diversity & Equal Opportunities:** We value diversity and strive to provide equal opportunities for all individuals.

**Privacy:** We respect individual privacy expectations and protect personal information that we collect, use and disclose in connection with our business.

**Access to Health Care:** We respect the right to good health for all people, and we are committed to leveraging our expertise to help remove the barriers that stand between patients and the health care they need.

**Communities:** We respect the human rights of our neighbors in those areas where we have operations or facilities.

**Discrimination & Harassment:** We do not tolerate discrimination or harassment based on a person's race, color, gender, age, religion, national origin, ancestry, ethnicity, disability, sexual orientation, gender identity, gender expression, genetic information, citizenship status, marital status, military/veteran status or any other characteristic protected by law.

**Compliance:** We adhere to local laws. When local protection is insufficient or nonexistent, we observe the more demanding standards consistent with our Human Rights policy to the extent that those standards do not violate local laws and regulations.

**International Standards:** We respect international standards on Human Rights. As a signatory to the United Nations Global Compact (UNGC), we have publicly committed to upholding 10 internationally recognized principles, including those related to human rights.

## ENGAGEMENT WITH SUPPLIERS

We use our [Business Partner Code of Conduct](#) to communicate our expectations to suppliers and external partners. The Code is based on our own Code of Conduct, as well as on the [Pharmaceutical Supply Chain Initiative's](#) (PSCI's) Pharmaceutical Industry Principles for Responsible Supply Chain Management and the [Ten Principles of the United Nations Global Compact](#). We expect appropriate standards of conduct and respect for labor and human rights, consistent with our own, from our suppliers, contractors, vendors and partners. Our Business Partner Code of Conduct is communicated and made available in 26 languages to help ensure that our expectations are widely understood.

## RAISING CONCERNS

Our company's Office of Ethics serves as a resource to raise concerns, including those regarding noncompliance with our Code of Conduct and company policies. Employees globally can contact the AdviceLine, which is run by an outside vendor. Employees can also contact the Office of Ethics directly and speak with an ethics officer or ombudsman. This program confidentially addresses employees' concerns, without fear of retaliation. [Learn more](#) about the Office of Ethics.

Business partners who believe that an MSD employee, or anyone acting on behalf of our company, has engaged in illegal or otherwise improper conduct should report the matter promptly to our company.

To learn more, download our [Business Partner Code of Conduct](#).



# Health as a Human Right

Although government has the primary responsibility for managing a health system that ensures the health of its citizens, pharmaceutical companies have a substantial role to play in realizing this right.

Health as a universal human right is recognized by the [United Nations Universal Declaration of Human Rights](#) and the [International Covenant on Economic, Social and Cultural Rights](#).

The role of the pharmaceutical industry in respecting and promoting health as a human right is complex. We believe that our most basic role is our core activity of inventing, developing and delivering medicines and vaccines to address unmet medical needs.

We also recognize our ethical duty to support governments in their efforts to protect the right to health by “doing no harm.” We do this in a number of ways, including:

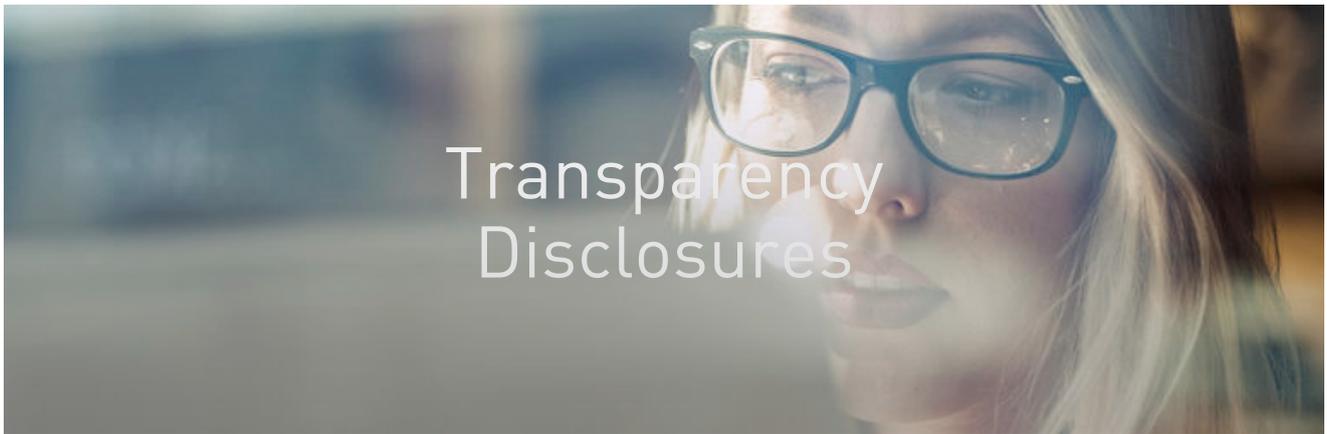
- Monitoring and reporting on the safety of our products
- Providing health care workers and consumers with important information on the benefits and side effects of our products
- Safeguarding the health, safety and privacy of patients involved in our clinical trials

## SUPPORTING THE RIGHT TO HEALTH

Beyond these efforts, we also have the ability—and, we believe, the responsibility—to support the right to health and to effect positive change. We do this by promoting timely [product registration](#) and helping to improve [access](#) to new medicines and vaccines, and through partnerships and public policy advocacy that seek to strengthen health care capacity and address deep-rooted and multifaceted barriers to access in ways that are aligned with our business mission and core capabilities.

Others have roles and responsibilities, too. Industrialized countries—where most research in life sciences takes place—must continue to foster innovation by funding basic research and supporting related institutions, and by recognizing the value of innovative medicines and vaccines.

Developing countries also must continue to make health care a budget priority, remove taxes and import duties on medicines that unnecessarily raise the price of medications, and stop product diversion to richer countries by price arbitragers. Emerging or middle-income countries should do the same, and should also recognize that they can and should pay more than the poorest countries for medicines, rather than taking actions that remove incentives for innovation.



We aspire to be open and transparent about how we operate in order to earn and retain the trust and confidence of our customers, employees, shareholders and other important stakeholders.

#### RESOURCES

[California Transparency in Supply Chains Act](#)

[Conflict Minerals Report](#)

[Sharps Management Plan—CalRecycle](#)

[MSD Modern Slavery Act Transparency Statement](#)

[Pricing Action Transparency Report \(2010-2017\)](#)  
We do this by proactively providing nonproprietary information to stakeholders about our business and how we operate, which helps stakeholders make informed decisions about their interactions with the company and our products.

We disclose information through a variety of mechanisms, including our financial disclosures, our annual corporate responsibility report, and participation in voluntary efforts such as the CDP (formerly the Carbon Disclosure Project), as well as through the media and through one-on-one stakeholder discussions. As part of this commitment to increasing transparency, we disclose information in this corporate responsibility report in the following areas:

- [CDP](#)
- [Clinical Trials](#)
- [Corporate Political Advocacy and Contributions](#)
- [Employee Diversity](#)
- [Grants to Medical, Scientific and Patient Organizations](#)
- [Payments to Health Care Professionals](#)
- [Philanthropic Grants and Contributions](#)
- [Post-Marketing Requirements](#)
- [Pricing Practices in the United States](#)

#### CDP

CDP is an independent not-for-profit organization working to drive greenhouse gas (GHG) emissions reduction and sustainable water use by businesses and cities.

CDP works with investors globally to advance the investment opportunities and reduce the risks posed by climate change by asking almost 6,000 of the world's largest companies to report on their climate strategies, GHG emissions and energy use in the standardized Investor CDP format. We have been disclosing climate information via the CDP for a number of years, and more recently have participated in both its Water and Supply Chain disclosures.

- [CDP Water \(2017\)](#)
- [CDP Climate Change \(2017\)](#)

## CLINICAL TRIALS

Clinical trials can offer hope for many people and may help researchers find better treatments for others in the future.

Clinical trial registries help patients and their healthcare providers learn about and gain access to relevant clinical trials of experimental treatments or preventative agents.

A clinical trial registry also serves those who analyze, report or publish the results of clinical trials by providing information on trials in progress and the ability to track such trials over the course of development.

In keeping with our publication guidelines, we are committed to disclosing balanced, complete and accurate information about our registered clinical trials of marketed products, regardless of outcome.

Learn more about our policies and perspectives:

- [Clinical Trial Ethics](#)
- [Clinical Trial Registries and the Publication of Clinical Trial Results](#)
- [Guidelines for Publication of Clinical Trials in the Scientific Literature](#)
- [Policy on Expanded Access](#)

### Clinical Trial Disclosures

Since 2007, we have registered at trial initiation all clinical trials in patients in which treatment is assigned that our company sponsors and conducts worldwide on [www.ClinicalTrials.gov](http://www.ClinicalTrials.gov). We also disclose results from registered clinical trials of marketed products—regardless of outcomes.

### Clinical Trial Results

The clinical study results of our company and Schering-Plough, previously posted via the Pharmaceutical Research and Manufacturers of America (PhRMA) Clinical Study Results Database, have been available as of December 2011 on our [corporate headquarters website](#).

## CLINICAL TRIAL DATA SHARING

We are committed to the PhRMA/EFPIA Principles for Responsible Clinical Trial Data Sharing. Learn more about our policies and perspectives:

- [Procedure on Access to Clinical Trial Data](#)
- [Procedure on CSR Synopsis Posting](#)
- [External Scientific Review Board Charter](#)

Scientific and medical researchers who wish to submit a proposal for access to our company's data may send an inquiry by clicking [here](#).

To view our data sharing metrics for 2014–2017, [click here](#).

### Clinical Research Protocols

Since July 1, 2011, when we submit a manuscript on a study of an investigational or an approved medicine or vaccine to a biomedical journal, we voluntarily include the protocol and statistical analysis plan. We previously supplied this material only upon request. Upon a journal's acceptance of the manuscript for publication, we provide the journal, at its own

discretion, with the opportunity to post on its website the key sections of the protocol, including the objectives and hypotheses, patient inclusion and exclusion criteria, study design and procedures, efficacy and safety measures, and statistical analysis plan, and any amendments relating to those sections.

## CORPORATE POLITICAL ADVOCACY AND CONTRIBUTIONS

Our company is committed to participating constructively and responsibly in the political process. To improve access to information about our advocacy activities, we disclose our costs associated with lobbying in the European Union and the United States.

Where permitted by law in the United States, Canada and Australia, the company provides corporate political contributions, primarily to the electoral campaigns of individual candidates.

To improve access to information about our corporate political and Political Action Committee (PAC) contributions in the United States, our company semiannually posts our contributions, categorized by state, candidate and amount. We post our contributions in Canada and Australia annually.

We also disclose a list of industry and trade groups of which we are members, and our dues (dues that are greater than \$25,000), to U.S. trade associations that are used for political purposes. We encourage all trade associations to which we belong to disclose publicly their political activities as well. [Learn more.](#)

## EMPLOYEE DIVERSITY

Diversity and inclusion are integrated into our leadership model, and are considered an essential leadership skill for all of our employees. To learn more about our initiatives and performance, [click here.](#)

We were one of the first companies in the United States to begin disclosing our Equal Employment Opportunity data, and we continue to do so annually. To view our EEO-1 data, [click here.](#)

# Grants to Medical, Scientific and Patient Organizations

We believe that providing support through grants or donations to third-party medical, scientific and patient organizations is an important way to advance our mutual objectives to improve health and advance patient care.

We disclose grants of more than \$500 provided by the company's Global Human Health division to U.S. organizations in support of independent, accredited educational programs for health care professionals, as well as grants to patient organizations and other medical education or scientific societies and organizations in the United States, Europe, the Middle East, Africa and Canada.

We have robust standards and policies in place to ensure that our grants are intended for, and provided in support of, improving patient care, and are not promotional or likely to be perceived as being promotional in nature, or provided to induce or reward prescription of our products. Furthermore, any grant or donation must also be permitted by and aligned with local country laws and regulations.

We update grants to medical, scientific and patient organizations quarterly in the United States, and annually in ex-U.S. jurisdictions.

The following three principles guide our approach to providing financial support to medical, scientific and patient organizations:

**Independence:** Our company respects the independence of medical, scientific and patient organizations and refrains from using our financial support to influence the policies of organizations or to promote specific medicines.

**Transparency:** Our company supports transparency of financial support provided to medical, scientific and patient organizations. We believe this is an important step in building public trust both in our company and in those to whom we provide support. Making our support public also enhances the visibility of our commitment to helping advance health and science.

**Compliance with Local Laws:** In providing financial support to medical, scientific and patient organizations, we comply with all relevant local laws and regulations.

As part of our commitment to these principles, we regularly review and update our Code of Conduct to reaffirm our mission and commitment to scientific excellence, ethics and integrity. These principles are also reflected in the company's corporate policies, procedures and guidelines, which all employees are responsible for understanding and applying appropriately.

### UNITED STATES

- [Grants made in the 2nd Quarter 2018 in the U.S.](#)
- [Grants made in the 1st Quarter 2018 in the U.S.](#)
- [Grants made in 2017 in the U.S.](#)
- [Grants made in 2016 in the U.S.](#)
- [Grants made in 2015 in the U.S.](#)
- [Grants made in 2014 in the U.S.](#)
- [Grants made in 2013 in the U.S.](#)
- [Grants made in 2012 in the U.S.](#)
- [Grants made in 2011 in the U.S.](#)
- [Grants made in 2010 in the U.S.](#)
- [Grants made in 2009 in the U.S.](#)
- [Grants made in 2008 in the U.S.](#)

### OUTSIDE THE UNITED STATES

Disclosure of grants to patient organizations has been mandatory in Europe since March 2009. However, in Europe, the Middle East and Africa, we voluntarily began disclosing financial support to patient organizations in 2008, and in Canada in 2009.

In October 2009, in Europe, the Middle East, Africa and Canada, our company also began to disclose grants to other third-party organizations such as medical societies and scientific organizations. The information disclosed includes the organizations, the amounts received, the dates of payment and the projects for which the money was used. Disclosures include all donations and charitable contributions, grants, and membership fees to professional societies or other medical or scientific organizations.

#### 2017 Grants Outside the U.S.

Austria

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Burkina Faso

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Canada

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Cyprus

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Denmark

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France

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Germany

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Greece

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Gulf

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Ireland

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Israel

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Italy

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Jordan

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Kenya

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Lebanon

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Morocco

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MSD for Mothers

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Netherlands

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Norway

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Office of Corporate Responsibility

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Portugal

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Romania

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Russia

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Saudi Arabia

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Slovenia

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South Africa

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Spain

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Sweden

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Switzerland

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Turkey/MEA

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United Kingdom

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- [2016 Grants Outside the United States](#)
- [2015 Grants Outside the United States](#)
- [2014 Grants Outside the United States](#)
- [2013 Grants Outside the United States](#)
- [2012 Grants Outside the United States](#)
- [2011 Grants Outside the United States \(2nd half\)](#)
- [2011 Grants Outside the United States \(1st half\)](#)

## Payments to Health Care Professionals

We believe in broad disclosure of financial relationships between physicians and the pharmaceutical industry.

### UNITED STATES

As an early supporter of the Physician Payments Sunshine Act, we believe in broad disclosure of financial relationships between physicians and the pharmaceutical industry. In October 2009, our company began voluntarily disclosing all payments to U.S.-based health care professionals who speak on behalf of our company about our products and other health care issues.

[SEARCH OPEN PAYMENTS DATA >](#)

We engage with health care professionals around the world to conduct company-sponsored clinical studies on the safety and effectiveness of our products. We conduct these studies, in accordance with strict regulatory requirements, with “real world” physicians and their patients in order to learn more about our products and bring new medicines and vaccines to patients who need them. Once a product is approved for marketing, we continue to conduct studies in order to monitor ongoing safety and effectiveness.

We also engage with health care professionals through our Investigator Studies Program, whose mission is to advance the delivery of quality health care by supporting investigator-initiated original research that will enhance the understanding of disease entities and their treatment. This program is open to all academic and community-based physicians and researchers worldwide who are interested in conducting their own research.

We are committed to the discovery and development of important new drugs and vaccines through collaboration with scientific leaders from academic and scientific organizations around the world. Advice in the form of consulting engagements with external medical and scientific experts results in meaningful scientific exchanges that bring real-world knowledge and perspectives to our company. These critical exchanges contribute to advancing science both at our company and in the broader scientific community, and ultimately help benefit human health.

We also engage physicians as speakers in the U.S. through our company’s Medical Forums, which are designed to deliver balanced medical and scientific information to health care professionals so that patients can have access to the medicines and vaccines they need and use these products correctly. These programs are structured to be consistent with the PhRMA Code on Interactions with Healthcare Professionals and are conducted in compliance with FDA regulations to help ensure that our product information is presented in an appropriately balanced manner, with respect to potential benefits and risks.

## EUROPE

In 2016, we began disclosing payments to European-based health care professionals and health care organizations, in alignment with the disclosure code announced by the [European Federation of Pharmaceutical Industries and Associations \(EFPIA\)](#). Our company played a supportive role in the development and adoption of the code by the EFPIA board.

## Philanthropic Grants and Contributions

We report philanthropic grants and charitable contributions, including contributions made through the Office of Corporate Responsibility, our company's Foundation, U.S. Global Human Health, and the MSD for Mothers Program.

All reports are intended for residents of the United States and Canada.

- [Charitable Contributions Report Q2 2018](#)
- [Charitable Contributions Report Q1 2018](#)
- [Charitable Contributions Report 2017](#)
- [Charitable Contributions Report 2016](#)
- [Charitable Contributions Report 2015](#)
- [Charitable Contributions Report 2014](#)
- [Charitable Contributions Report 2013](#)
- [Charitable Contributions Report 2012](#)
- [Charitable Contributions Report 2011](#)

## Post-Marketing Requirements

We recognize the importance of providing transparent information about the status of our marketing and development activities after a product has been approved by regulatory authorities.

This information can help ensure that health care providers and patients remain informed about our products.

To inform the public about post-marketing activities, we will, on a quarterly basis, post information on this website concerning post-marketing requirements (PMRs) for U.S.-marketed products intended for human use. Information will include the nature and status of the PMRs for the life cycle of a marketed product, in accordance with U.S. regulations. Information will also include reference to clinical, nonclinical or pharmacovigilance studies/trials that have been identified as PMRs. Additional background on post-marketing requirements is available at the FDA website.

## HEADINGS, COLUMN HEADINGS & EXPLANATIONS

**Registered Trade Name:** [TRADE NAME (generic name)] Trade name registered in the U.S. market (active ingredient[s] in the drug)

**NDA/BLA #:** New Drug Application or Biologic License Application number

**Original Due Date:** The date in the original FDA correspondence by which our company has agreed to complete the post-marketing requirement to the FDA

**Status:** The status of the post-marketing requirement at the last quarterly update (Pending, Ongoing, Delayed, Terminated, Submitted, Fulfilled and Released—see definitions below)

**Explanation of Status:** An explanation is provided where appropriate. Any revisions to due date agreed upon with the FDA are reflected here

**PMR Description:** The description of the post-marketing requirement

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[Click here](#) for our latest U.S. Post-Marketing Requirements Report (3Q 2018).

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Below are definitions of the status used for each final report submission. There may be differences between the status of the information posted to this website and that on the FDA Post-Marketing Commitments website, due primarily to the differences in timing of the updates and the fact that the Company only posts the status of the final report submission and not interim milestone statuses (such as final protocol, study/trial completion, etc.). The due date reflected is the original due date agreed upon with FDA. Any revisions to due date agreed upon with the FDA are reflected in the Explanation of Status.

**Pending:** Commitment activity has not yet started.

**Ongoing:** Activity for the Commitment has begun. The commitment status should be changed from “Pending” to “Ongoing” when the first subject/patient is screened.

**Delayed:** The status is changed to “Delayed” once the original due date has passed or the due dates of any approved extensions have passed.

**Terminated:** The applicant ended the study before completion and has not yet submitted a final study report to the FDA.

**Submitted:** The applicant has concluded or terminated the study and has submitted a final study report to the FDA, but the FDA has not yet notified the applicant in writing that the study commitment has been fulfilled or that the commitment has been released.

**Fulfilled:** The applicant has submitted the final study report for the commitment, and upon review of the final study report, the FDA is satisfied that the applicant has met the terms of the commitment.

**Released:** The FDA has informed the applicant that it has been released from its obligation to conduct the post-marketing study because the study is either no longer feasible or would no longer provide useful information.

## Pricing Practices in the United States

As part of our ongoing commitment to transparency about our business

operations, and to help people better understand our pricing practices in the United States, in 2017 we began disclosing information about price increases for our medicines and vaccines.

This information includes the average annual list and net price increases across our product portfolio since 2010. The disclosure also includes the average discount rate for our medicines and vaccines each year.

These disclosures don't tell the complete story about how we are responding to concerns about access and affordability. We have a long history of discovering medicines and vaccines and making them accessible and affordable to people who need them. Additional information about our activities can be found on our [Access and Affordability](#) page. We also recognize that more needs to be done, and we welcome opportunities to work with stakeholders to find long-term solutions.

## **REPORT ON PRICING PRACTICES IN THE U.S.**

[Pricing Action Transparency Report \(2010–2017\)](#) Posted February 2018.





## Ethical relationships with health care professionals are critical to our shared mission and vision to save and improve lives around the world.

An important part of achieving our mission is ensuring that health care professionals have balanced and accurate information about our products. All of our sales and marketing activities are conducted in accordance with our Guiding Principles for Ethical Business Practices Involving the Medical and Scientific Community. These principles are aligned with national regulations and worldwide industry codes, including the [International Federation of Pharmaceutical Manufacturers & Associations Code of Practice](#) and the [World Health Organization's Ethical Criteria for Medicinal Drug Promotion](#).

The principles serve as a bridge between countries' laws and regulations, industry guidelines, and our own [Code of Conduct](#), enabling us to interact with the medical and scientific communities, to meet our ethical and legal obligations, and to contribute to improvements in human health.

We provide promotional information in several ways, including:

- Product discussions between our professional representatives and health care professionals
- Promotional and/or educational meetings sponsored and organized by our company

We also provide non-promotional information through educational and scientific activities, including:

- Scientific presentations at medical conferences
- Support of independent continuing medical education
- Articles and related scientific studies published in peer-reviewed scientific journals
- Web-based tools such as [Univadis](#)<sup>®</sup>

Our interactions and informational materials must provide truthful, balanced and non-misleading information to health care professionals. All of our interactions with health care professionals are highly regulated by governments through laws such as the U.S. Anti-Kickback Statute; the Food, Drug & Cosmetic Act; the U.S. Foreign Corrupt Practices Act; and anti-bribery laws in other countries.

Our company's robust anti-bribery/anticorruption program and corporate policy give our employees the awareness and knowledge to comply with applicable laws and regulations, and to understand that the company will not tolerate any act of impropriety. Our activities must comply not only with company policies but with applicable laws, including the laws of the U.S. and other countries in which we do business.

Our program prohibits the offer, promise or giving of any payment or benefit at any time to an individual or entity for the purpose of improperly influencing decisions or actions with respect to our business. This policy applies to direct engagements (e.g., those driven by our company) as well as to indirect engagements (e.g., those managed through a third-party intermediary or partner).

We conduct anticorruption/anti-bribery training across the company. Supplemental training is also mandatory for employees who engage with non-U.S. government officials.

## CONTINUING MEDICAL EDUCATION (CME) AND CONTINUING EDUCATION (CE) PROGRAMS

Our CME/CE Grant Program supports independent educational programs whose purpose is to maintain, develop or enhance the knowledge, skills and/or professional performance that health care professionals rely on to provide services for patients, the public or the profession. We are committed to ensuring that our CME/CE programs are educational and not promotional. Through them, we seek to increase physicians' knowledge about the latest scientific data and health care topics, thereby improving patient care.

The environment in which we sponsor or support educational programs worldwide is complex, governed by a multitude of laws, regulations, and medical or industry association guidelines. We are committed to honoring them all in the countries in which we operate.

CME programs that we support or sponsor are governed by an internal policy that is aligned with the appropriate standards and regulations to which the programs are held. Those standards, such as the Accreditation Council for Continuing Medical Education (ACCME) standards for commercial support of CME in the U.S., the [International Federation of Pharmaceutical Manufacturers & Associations \(IFPMA\)](#). These standards specify independence, financial disclosure, and other requirements applicable to CME programs sponsored by commercial entities, including pharmaceutical manufacturers. [Click here](#) to view a list of grants of more than \$500 made to U.S. organizations by our company's Global Human Health division in support of independent, accredited educational programs for health care professionals.

## U.S. MEDICAL FORUMS

We deliver balanced medical and scientific information to health care professionals within the U.S. through our company's Medical Forums, which are conducted by external speakers. Speakers are selected on the basis of their expertise in the relevant subject matter. By attending one of our Medical Forums, health care professionals participate in interactive learning on therapeutic and health care industry topics. The goal of these interactions is to help attendees achieve improved medical results for their patients.

With our strict standards for conducting these Medical Forums, we comply with the [PhRMA Code on Interactions with Health Care Professionals](#) as well as with U.S. Food and Drug Administration (FDA) regulations, which assure that any product presentation is appropriately balanced with information regarding both the product's potential benefits and its risks, and is consistent with approved product labeling.

We disclose certain payments made to U.S. medical and scientific professionals who speak on behalf of the company. For a list of these disclosures, [click here](#).

## OBTAINING SERVICES FROM EXTERNAL HEALTH CARE PROFESSIONALS

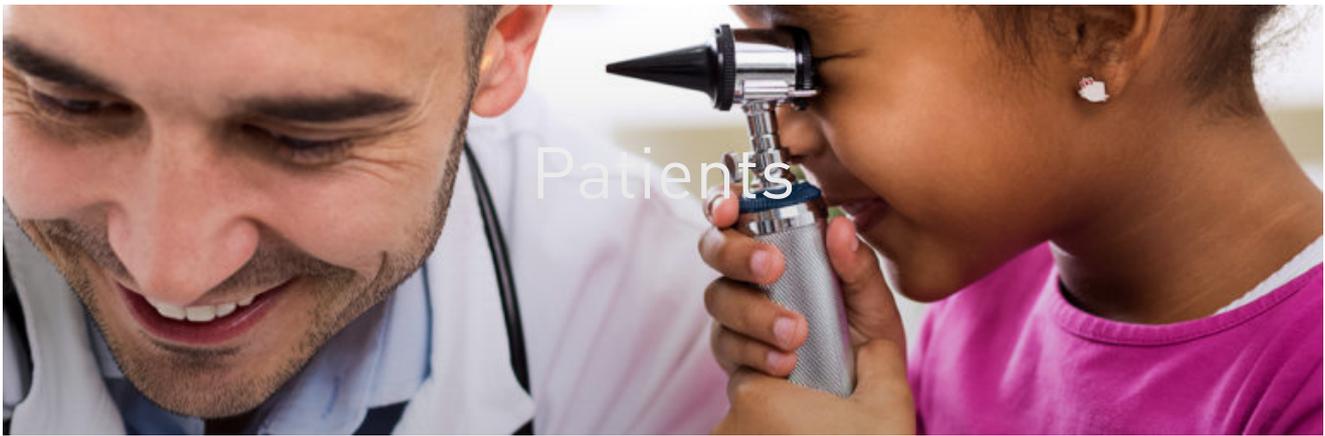
We engage the services of external health care professionals only when we do not have the specialized talent or expertise internally, or when an external viewpoint is critical. We ensure that compensation provided to external health care professionals is fair and reasonable, and is aligned with the fair market value of the service in the home country of the health care professional providing the service.

## **PRESCRIPTION PRODUCT SAMPLES**

Where sampling is permitted, our company has established country-specific guidance and policies on providing prescription product samples to health care professionals. This guidance specifies the appropriate distribution and use of samples to safeguard against the potential for misuse or abuse of our products, or the diversion of our products to inappropriate channels. In accordance with the law and with ethical practices, we do not provide product samples to reduce or discount the price paid or reimbursed, or in exchange for prescribing, purchasing or contracting for our products or for recommending our products for formulary status.

## **UNAPPROVED, OR “OFF-LABEL,” USE OF OUR MEDICINES AND VACCINES**

In accordance with laws, regulations, internal policies and ethical practices, our professional representatives and other members of our sales and marketing team are not permitted to promote product uses that are inconsistent with the approved product label, sometimes referred to as “off-label” promotion. We have policies and training in place to address violations, and we ensure that physicians are aware that we do not encourage off-label use.



We believe that direct-to-consumer (DTC) advertising can be an important and helpful way to inform patients about diseases that may be relevant to them and about therapeutic options they may want to discuss with their physicians.

#### RESOURCES

[Public Policy Position Statements: Direct-to-Consumer Advertising in the U.S.](#)

We try to help consumers achieve better health outcomes by delivering accurate, relevant and understandable information on disease prevention, identification and potential treatment. To remain true to this goal, we adhere to the letter and spirit of U.S. Food and Drug Administration (FDA) regulations and guidelines governing DTC promotion, meet or exceed all [Pharmaceutical Research and Manufacturers of America \(PhRMA\) guidelines on DTC advertising](#), and follow a comprehensive set of internal policies and practices when engaging in DTC advertising within the U.S.

Our company has a long-standing policy of voluntarily submitting new U.S.-based DTC advertising campaigns to the FDA for its review and comment before running them. Under our DTC policies and practices, the information provided in our DTC advertising must:

- Contain appropriate product benefit and risk information
- Be appropriately balanced, consistent with FDA regulations, and use appropriate “taste and tone”
- Be approved by our company’s Promotion Review Team, a governing body consisting of a team of reviewers (including the job owner, an attorney, a physician, a representative from the Office of Promotion and Advertising Review, and a product scientific specialist) who ensure that promotional material is clinically and scientifically accurate, compliant with applicable laws and regulations, and compliant with company policy. In addition, we include information on our [Patient Assistance Program](#) in all new U.S.-based DTC print and television advertisements for eligible products.

We inform and educate health care professionals about our products before we advertise them to consumers. We implement comprehensive programs to educate physicians and other prescribers about a new product for an appropriate period of time before starting product-specific DTC broadcast advertising in the U.S. These principles and our practices are reflected in the [PhRMA Guiding Principles on Direct-to-Consumer Advertisements about Prescription Medicines](#).





We source from suppliers globally, in the areas of capital equipment and services, direct materials and services, energy, professional services, site and commercial services, IT, marketing and research supplies and services.

RESOURCES

- California Transparency in Supply Chains Act
- Conflict Minerals Policy
- Business Partner Code of Conduct
- Supplier Performance Expectations
- MSD Modern Slavery Act Transparency Statement

The Global Sourcing & Procurement and Supplier Management function is responsible for maintaining the standards by which suppliers are identified, qualified and managed. Supplier selection and management follow a robust sourcing management process, in which supplier diversity principles are integrated throughout each stage.



As part of on-going sustainability efforts, we set goals for supplier environmental performance in 2016.

**GOAL:** By 2018, we will collect GHG emissions and water use data from 90 percent of our strategic suppliers with the highest environmental impact.

**2017 PROGRESS:** On Track

**GOAL:** By 2020, we will engage with those suppliers and request them to identify GHG emission and water use reduction opportunities.

**2017 PROGRESS:** On Track

**GOAL:** By 2025, 90 percent of our strategic suppliers with the highest environmental impacts will set their own GHG emission and water use reduction targets.

2017 PROGRESS: On Track

[LEARN MORE](#)

## SUPPLIER AND THIRD-PARTY RISK MANAGEMENT

Supplier and third-party risk management is an enterprise-wide effort supported by Global Sourcing & Procurement, Supplier Management, the Office of General Counsel, Global Compliance, Global Quality, Corporate Audit and Assurance, and Environmental Health & Safety. Representatives from each function meet regularly to discuss, assess and manage issues that are risk-drivers.

## PROCUREMENT PRACTICES



Our [Business Partner Code of Conduct](#), along with our company’s [Supplier Performance Expectations](#), are communicated to existing and potential third-party suppliers and are included in requests for information, proposals and quotes, as well as in our purchase-order terms and conditions. We select suppliers that share our commitment to our values and principles, as defined in our Business Partner Code of Conduct and Supplier Expectations Letter. In addition, we participate in the Pharmaceutical Supply Chain Initiative’s [Pharmaceutical Industry Principles](#) and are a signatory to the [10 Principles of the United Nations Global Compact](#).

We have a defined risk-management process, and our supply base is measured against the process criteria. Using a risk-based approach, supplier assessments and audits are conducted based on multiple factors (e.g., risk profile, engagement and activity type, and geography). The assessments and audits evaluate a supplier’s ability to meet both industry and our own standards for quality, safety, and ethical business practices. Results are reviewed by senior management across the company.

Our supplier assessments include:

- Labor and human rights

- Anti-bribery and anti-corruption
- Privacy and data protection
- Environmental, health and safety issues
- Quality
- Responsible sourcing of minerals
- Animal welfare
- Information technology
- Intellectual property
- Financial solvency

Where assessments and audits identify deficiencies or opportunities for improvement, we monitor suppliers to ensure that our concerns are addressed in a responsible and compliant manner. As part of our oversight and monitoring, we have established mechanisms to report, track and monitor supplier plans to address nonconformance and help drive continued improvement.

## **PROTECTING THE PRIVACY OF PERSONAL INFORMATION**

Some of our suppliers and service providers, such as contract research organizations, market research agencies, information technology systems developers, and other service providers, process personal information in connection with their performance of services for our company. We require these suppliers and service providers to provide appropriate privacy protection for personal information that they handle in accordance with our privacy policies and applicable privacy laws, regulations and guidelines.

## **SUPPLIER ASSESSMENT FOR LABOR PRACTICES AND HUMAN RIGHTS**

We have a formal program to evaluate the risks for labor and human rights in our supply chain. Prior to contracting, all new direct suppliers (as well as certain new indirect and research suppliers in certain geographies) are required to complete and return a Supplier Self-Assessment Questionnaire (SAQ) for Ethics & Compliance. Pre-existing external manufacturing suppliers and contract manufacturing organizations also complete SAQs. Our SAQ requires suppliers to answer a series of labor and human rights questions covering a range of subjects, including freely chosen employment, child labor, employment practices, employee disclosures, fair treatment, wages, benefits and working hours.

Each supplier's responses are used to judge whether or not that supplier has programs and/or procedures in place to address potential risks for labor and human rights related deficiencies.

We have a formal audit program used to evaluate supplier compliance with our company's standards for labor and human rights. Two third-party audit firms were engaged to perform independent audits at a limited number of direct material and research suppliers' facilities. These facilities were in countries identified as high risk for potential labor and human rights violations. Generally, audits were conducted over a two-day period, and included interviews and a review of relevant documentation. In total, 32 supplier facilities were audited in 2017. No critical observations were found. In 2018, we are expanding our labor and human rights audit program to approximately 100 audits per year.

Additionally, we maintain an AdviceLine for any employee, supplier or business partner to report concerns, including those related to labor and human rights issues.

## MANAGING EXTERNAL MANUFACTURERS OF OUR PRODUCTS

The company maintains strict quality standards—no matter where in the world our products are manufactured. Once we have made a decision to engage an external manufacturer, that manufacturer is required to comply with our business requirements, which are set forth in our contract with that supplier, regardless of geography.

Prospective external manufacturers of active pharmaceutical ingredients and finished products are screened for environmental, health and safety (EHS) compliance, in addition to quality, and supply and technical competence requirements. The EHS screening includes a survey covering such topics as regulatory compliance, fatalities and major incidents.

Based on the screening results and activities undertaken by the supplier, certain external manufacturers are subject to a more detailed on-site assessment conducted by a multidisciplinary team, which may include our company's Quality, Environmental, Health & Safety, Global Technical Operations, and Global Sourcing & Procurement representatives. The external manufacturers we contract with are periodically reassessed using a risk-based approach; higher-risk external manufacturers are subject to more frequent on-site assessments. We expect that observations made during the audit process will be remediated by our external manufacturers, and we monitor and track corrective actions through completion.

We continue to support the [Pharmaceutical Industry Principles for Responsible Supply Chain Management \(the Principles\)](#). The Principles outline industry expectations for external manufacturers and licensees with regard to labor, health, safety, environment, ethics and management systems. The external manufacturers with which we contract are expected to understand and align with the Principles.

## GLOBAL ECONOMIC INCLUSION & SUPPLIER DIVERSITY

Our core values are driven by a desire to improve life, achieve scientific excellence, operate with the highest standards of integrity, expand access to our products, and employ a diverse workforce that values collaboration.

Global Economic Inclusion & Supplier Diversity (EI&SD) is a part of our overall Global Diversity & Inclusion (GD&I) strategy and supports our corporate vision. The EI&SD Center of Excellence is a member of the GD&I Business Consortium, where EI&SD is one of four target areas focusing on increasing business performance through diversity and inclusion, creating a competitive business advantage, attracting and retaining top talent and driving shareholder value. The executive sponsor of the GD&I Consortium is our company's chief financial officer.

We have broadened the scope of our company's EI&SD process over the past few years from a national focus to a global one. Responsibility for EI&SD has expanded vertically and horizontally through all levels of the organization. EI&SD is managed under the Global Supplier Management Group. As a result of commitment at the senior and executive levels of management, overall visibility and accountability have improved. The program's importance and value have increased significantly as a result.

Our company's Supplier Diversity Leadership Council convenes once a month to share information, identify opportunities, develop solutions, and plan appropriate actions.

In 2017, we achieved a 31 percent increase of spend with diverse suppliers, after a 57 percent increase in 2016, exceeding our corporate goal to achieve \$1.2 billion in spend with minority-owned, women-owned, veteran-owned, LGBT-owned and disability-owned business enterprises.

This accomplishment and our sustained efforts will enable us to continue our membership in the Billion Dollar Roundtable (BDR), an exclusive industry organization that recognizes and celebrates corporations that achieve spending of at least \$1 billion with minority- and women-owned suppliers headquartered in the U.S. Our membership in the BDR allows us to share and access best practices in supply chain diversity excellence with other organizations that have also achieved this status. Our spend goal with diverse suppliers for 2018 is \$1.4 billion. Our commitment to growing our small-business suppliers continues as we increase our small-business spend year over year.

Our goals go beyond the amount of dollars we spend with small and diverse owned businesses, as we focus on the growth

and development of our suppliers to drive economic impact and value delivery to our company. We are committed to support the businesses that are the economic engine of growth around the world by making a difference in global economic inclusion.

## Our company is a proud member of the Billion Dollar Roundtable

From a global perspective, we exceeded our regional EI&SD goals in 2017. Europe, Middle East, Africa, Canada and South Africa achieved 146 percent of their \$285M EI&SD goal. Asia Pacific, Japan and Latin America combined achieved 99.3 percent of their \$40M EI&SD target. Our global initiatives continue to grow and mature, as we target a combined regional target of \$375M.

In addition to striving for supply chain excellence through inclusion principles and world-class supply, we focus on supplier development and increasing supplier capacity. In June 2017, our company held its third annual Economic Impact Summit in New Brunswick, New Jersey, and focused on "Inventing the Future." More than 180 people were in attendance, including representatives from more than 50 diverse-owned businesses, prime suppliers and global representatives from our company. The Summit provided prime and diverse suppliers with education and awareness on the impact of artificial intelligence, driving environmental sustainability, evolving their business model to meet future demand and how to be crisis ready. Attendees left the Summit with new ideas and relationships geared toward making a bigger impact in our communities by forming lasting partnerships.

In addition to being inducted as a member of the Billion Dollar Roundtable in 2017, our company received many awards for distinguished performance related to supplier diversity and overall diversity and inclusion. Among them are: National Business Inclusion Consortium Top 30 Best of the Best Corporation for Supplier Diversity, Women's Business Enterprise National Council Top Corporation for Women Owned Businesses, and Diversity Inc. Top 50 Company for Diversity.

## Performance

EXTERNAL MANUFACTURING EHS ASSESSMENTS	2013	2014	2015	2016	2017
Prospective external manufacturers	55	48	50	34	37
Current external manufacturers	45	68	69	85	53
Total	100	116	119	119	90

SUPPLIER DIVERSITY	2014	2015	2016	2017
Diverse-supplier spend (in millions)	\$805	\$953	\$1,500	\$1,962
Small-business spend (in millions)	\$529	\$568	\$753	\$1,218



We believe good governance is integral to achieving long-term shareholder value. We are committed to governance policies and practices that serve the interests of our company and its many shareholders.

#### RESOURCES

[Board Governance](#)  
[Governance Committee Charter](#)  
[2018 Proxy Statement](#)

In exercising our fiduciary duty to our shareholders, we take a long-term perspective on shareholder value that takes into account both our company's relationship with society as a whole and the interests of our many diverse stakeholders.

## THE BOARD

The primary mission of our Board is to represent and protect the long-term interests of our company's shareholders. The Board meets, at minimum, six times per year to provide strategic direction and to review our progress on a wide variety of measures.

In overseeing the affairs of the company, including our governance, the Board has established four [committees](#), each of which is comprised solely of independent directors, to help fulfill our obligations to our shareholders. The four committees are: Audit, Compensation and Benefits, Governance and Research. All of our standing committees are governed by Board-approved charters, which are available on our [website](#).

While it is our company's philosophy that the full Board should consider and act on matters of significance, the committees assist it in carrying out its responsibilities and provide greater focus in key areas:

1. The **Audit Committee** charter provides that its primary functions are to, among other things, oversee the company's accounting, financial reports, internal controls and audits, and consult with management, the internal auditors and the independent registered public accounting firm (the independent auditors) on, among other items, matters related to the annual audit, the published financial statements and the accounting principles applied
2. The **Compensation and Benefits Committee** charter provides that its primary functions are to, among other things, establish and maintain a competitive, fair and equitable compensation and benefits policy designed to retain and motivate executives on behalf of the Company and to attract the talent necessary to successfully execute the Company's long-term strategic plan
3. The **Governance Committee** charter provides that its primary functions are to, among other things, review social, political and economic trends that affect our business, our Good Manufacturing Practice compliance, including

internal and external audits, our environmental, health and safety practices, our supply chain manufacturing strategy and governance, as well as our third party sourcing program, our business continuity plans and our privacy policies and practices

4. The **Research Committee** charter provides that its primary functions are to, among other things, assist the Board in its oversight of matters pertaining to our strategies and operations for the research and development of pharmaceutical products and vaccines

Additional information on our company's standing committees can be found in our company's [2018 Proxy Statement](#) (pages 21–24).

Our Board possesses broad expertise, skills, experiences, and perspectives that facilitate the strong oversight and strategic direction required to govern the company's business and strengthen and support senior management.

In its regular discussions regarding Board composition and especially in conjunction with the annual Board and committee evaluations, the Governance Committee works with the Board to determine the appropriate mix of professional experience, areas of expertise, educational background and other qualifications that are particularly desirable for our directors to possess in light of our current and future business strategies. The input gathered is then used by the Governance Committee in its planning and director search process.

The Governance Committee considers diversity as a factor when identifying prospective nominees for our Board, although it does not have a formal diversity policy. Nominees are selected so that the Board of Directors represents a diversity of expertise in areas needed to foster the company's business success as well as a diversity of personal characteristics, including gender, race, ethnic origin and national background. From time to time and including in 2017, the Governance Committee has retained independent search firms to assist in identifying candidates that reflect its director succession priorities, including these diversity objectives. At present, we have two members on our Board who represent members of the under-represented ethnic groups.

The Governance Committee also considers recommendations for director candidates made by shareholders and evaluate them using the same criteria as for other candidates. The Board along with the Governance Committee takes into account, among other things, the needs of the Board and the company in light of the overall composition of the Board with a view towards achieving a balance of the skills, experience and attributes that would be essential to the Board's oversight role.

## BOARD INDEPENDENCE & LEADERSHIP

Kenneth C. Frazier, our company's chairman of the Board, president and chief executive officer, is the only company executive serving on the Board. Leslie A. Brun serves as the Board's independent lead director. As lead director, Mr. Brun confers with management on matters involving the Board and serves as a liaison to shareholders on investor matters. Mr. Frazier is not a member of any of the Board's committees; only independent directors serve on those committees.

The Board believes that the company and its shareholders are well-served by the Board's current leadership structure. The independent lead director is appointed by the Board of Directors to a three-year term. Having an independent lead director vested with key duties and responsibilities and four independent Board committees chaired by independent Directors provides a formal structure for strong independent oversight of the chairman and chief executive officer and the rest of our management team.

Our policy is that the Board should consist of a substantial majority of independent directors, in accordance with the standard for independence established in our [Policies of the Board](#). Furthermore, we believe that the members of the Board should have the flexibility to choose their chairman in light of the company situation and circumstances prevailing at the time. At this time, the Board continues to believe that shareholders are best served by having Mr. Frazier serve as chairman and chief executive officer adds substantial strategic and operational perspective to the chairman role. His years of senior management and executive leadership experience at the company provide valuable business and cultural insight into the company to the benefit of the Board and put him in the best position to provide effective leadership.

For additional details on our Board's leadership structure, please see our company's [2018 Proxy Statement](#) (page 18).

## CORPORATE MANAGEMENT

Our company's chairman, president and chief executive officer, Kenneth C. Frazier, is accountable to the Board. Our company's [Executive Committee](#), an internal management committee of senior company executives chaired by Mr. Frazier, meets regularly to review our progress and to attend to other matters affecting our company.

## SHAREHOLDER ENGAGEMENT

We regularly communicate with our shareholders to better understand their perspectives, and have established a shareholder engagement program that is proactive and cross-functional. Throughout the year, members of Investor Relations, the Office of the Secretary, Human Resources, and the Office of Corporate Responsibility along with other subject-matter experts within the company, engage with our shareholders to remain well-informed regarding their perspective on current issues, as well as to address any questions or concerns. These teams serve as liaisons between shareholders, members of senior management and the Board. This open and constructive dialogue with our shareholders has led us to make certain governance- and compensation-related changes over the past few years, including the adoption of proxy access, lowering of the threshold required for shareholders to call special meetings and various changes in the design of our long-term incentive plan. For additional details on shareholder engagement, please see our company's [2018 Proxy Statement](#) (page 25).

## COMPLIANCE

Our company's Board of Directors and senior management, including the company's chief ethics and compliance officer and the Corporate Compliance Committee, oversee our company's [Global Compliance Program](#). Our compliance program is designed to maintain a culture that promotes the prevention, detection and resolution of potential violations of law or company policies. The program is dynamic, involving regular assessments to ensure that it is responsive to the company's evolving business and associated compliance risks. The Global Compliance Organization is led by the senior vice president and chief ethics and compliance officer, who reports directly to the chief executive officer and provides regular quarterly updates to the Audit Committee of the Board of Directors on the state of ethics and compliance at our company. This reporting structure supports open communications with senior leadership and the Board regarding important developments that relate to ethics and compliance.

## ENVIRONMENT, HEALTH & SAFETY GOVERNANCE

We are committed to full compliance with all environmental and employee health and safety laws and regulations, to engaging with our stakeholders concerning these issues, and to actively identifying, understanding and addressing potential environmental, health and safety (EHS) risks.

Our Executive Committee has established the EHS Council to provide enterprise-wide leadership and governance of our EHS compliance and performance. In addition to a corporate EHS policy, we are continuing to implement and sustain a robust compliance management program that effectively oversees and manages EHS issues affecting the company, in order to meet our responsibilities and commitments and to improve our performance. Furthermore, the Governance Committee also has oversight over the company's EHS practices as set forth in its charter.

## RISK MANAGEMENT

The Board has two primary methods of overseeing risk. The first method is through its Enterprise Risk Management (ERM) process which allows for full Board oversight of the most significant risks facing the company. The second is through the functioning of the Board committees. Management has established an ERM process to ensure a complete company-wide approach to evaluating risk over five distinct but overlapping core areas: (i) Responsibility and Reputation—risks that may impact the well-being of the Company, its employees, customers, patients, communities or reputation; (ii) Strategy—macro risks that may impact our ability to achieve long-term business objectives; (iii) Operations—risks in operations and cybersecurity that may impact our ability to achieve business objectives; (iv) Compliance—risks related to compliance with laws, regulations and company policies; and (v) Reporting—risks to maintaining accurate financial statements and timely, complete financial disclosures.

Our company's Corporate Audit and Assurance Services group is accountable to the Audit Committee of the Board of Directors for assessing the adequacy and effectiveness of the company's control environment in relation to the aforementioned core areas. This responsibility includes the appropriate management and oversight of key company risks, in accordance with our corporate policy on audit, control and risk management.

The goal of the ERM process is to provide an ongoing process, implemented across each business unit and corporate function, to identify and assess risk, and to monitor risk and agreed-upon mitigating action. Furthermore, in the event of a risk materializing into an incident, the ERM process ensures that effective response and business continuity plans are in place. Where the ERM process identifies a material risk, it will be elevated through our CEO and our company's Executive Committee to the full Board of Directors for its consideration.

The Audit Committee periodically reviews the ERM process to ensure that it is robust and functioning effectively. The Audit Committee has responsibility for overseeing our company's risk management program relating to cybersecurity; however, the full Board participates in periodic reviews and discussion dedicated to our company's cyber risks, threats and protections.

For additional details on risk management, please see our company's [2018 Proxy Statement](#) (pages 19–20).

## DISCLOSURE

We are committed to a policy of full, accurate and timely disclosure of all material information in order to keep shareholders and the investing public informed about the company's business and operations. Accordingly, we have established a corporate disclosure policy that articulates the standards, processes and governance for the company's disclosure practices. Pursuant to the policy, our Disclosure Committee oversees the company's disclosure practices and disclosure obligations.

## EXECUTIVE COMPENSATION

Our company's compensation programs are designed to align the interests of our executives with the interests of our shareholders. Each year, the Board of Directors considers the outcome of shareholder advisory votes on executive compensation when making decisions relating to the compensation of the company's executive officers, including the chief executive officer, and to our executive compensation program and policies.

In 2018, shareholders continued their strong support of our executive compensation programs, with almost 95 percent of the votes cast for approval of the "say on pay" proposal at the 2018 Annual Meeting of Shareholders. The Board believes that the voting results demonstrate our shareholders' support of the philosophy, strategy and objectives of our executive compensation programs. Furthermore, we continue to engage in direct constructive dialogue with our shareholders regarding our executive compensation programs and policies to ensure that investors understand the manner in which

these programs and policies support our long-term strategic objectives.

Additional information on our company's executive compensation programs, policies and practices can be found in our company's [2018 Proxy Statement](#) (pages 43–56).

## GOVERNANCE OF OUR RESEARCH AGENDA

The Research Leadership Team, headed by the president of our company's research laboratories, develops the divisional strategy, allocates resources, and manages the research and development portfolio. The Research Leadership Team is made up of the heads of functional areas within our research laboratories. Each area provides expert support of our medicine and vaccine candidates during the discovery and development process. Furthermore, the Research Committee assists the Board in its oversight responsibilities to ensure compliance with the highest standards of scientific integrity in the conduct of our company's research and development as set forth in its charter.

## SAFETY MONITORING

Our Global Clinical Safety and Pharmacovigilance organization collects, medically reviews, and evaluates and reports adverse experiences to global health authorities in compliance with global regulatory reporting requirements. The global product safety teams within our research laboratories are responsible for monitoring the evolving safety profile of our medicines and vaccines. In parallel, at the country level, local pharmacovigilance teams at our subsidiaries worldwide are responsible for ensuring that adverse experience information is collected and reported to our global product safety staff at headquarters and to local regulatory authorities.

## CORPORATE RESPONSIBILITY GOVERNANCE

Our Office of Corporate Responsibility identifies corporate responsibility issues that are important to our business success and to our stakeholders, and formally manages targets and performance for those issues. In addition, the Public Policy Responsibility Council, comprising senior representatives of each major division and function of the company, provides executive-level oversight and guidance on corporate responsibility matters. To learn more, [click here](#).

Furthermore, the Governance Committee has responsibility for overseeing the company's corporate responsibility and public policy issues. Additional information on the Governance Committee's responsibilities can be found in our company's [2018 Proxy Statement](#) (page 24) or in its committee charter available on our [corporate website](#).

# Performance

CORPORATE GOVERNANCE	2013	2014	2015	2016	2017
Independent directors on the Board	11	11	13	12	12
Percentage of Board members who are independent	92%	92%	93%	92%	92%
Separate chairman of the Board and CEO <sup>1</sup>	No	No	No	No	No
Lead independent director	Yes	Yes	Yes	Yes	Yes
Independent audit committee	Yes	Yes	Yes	Yes	Yes
Independent compensation and benefits committee	Yes	Yes	Yes	Yes	Yes
Independent governance committee	Yes	Yes	Yes	Yes	Yes
Number of Board meetings scheduled or held <sup>1</sup>	7	8	8	8	8
Shareholder support of the advisory vote on executive compensation	89%	96%	95%	94%	95%

1. Meetings held in person or via telephone.



# Our Giving

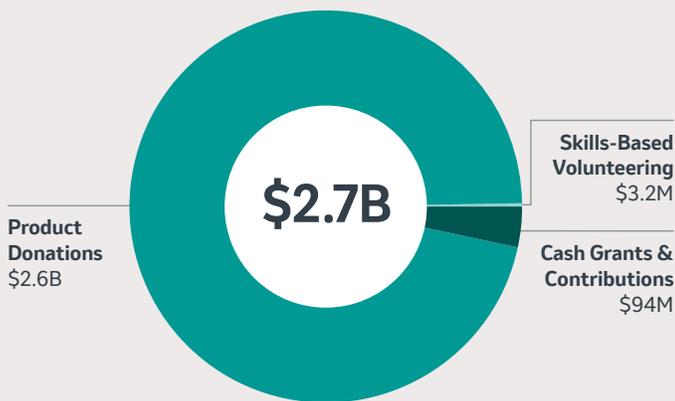
Our commitment to corporate responsibility is also demonstrated through our philanthropic efforts and our company's long history of philanthropy.



SDG 17

Through our philanthropic contributions, product donations and employee volunteering efforts, we strive to find sustainable solutions to key global health challenges and to strengthen communities where our employees live and work.

## Total Giving 2017



## Priorities and Performance

Our giving priorities strengthen the effectiveness and impact of our company's philanthropy by focusing on areas of global health need in which we have substantial expertise and capability.

We also provide financial support and share the expertise of our employees through grant and volunteer programs that address critical health needs and selected social issues in communities in which we have a presence.

We are committed to discovering smart, sustainable ways to expand access, especially in parts of the world where there are limited or nonexistent health care infrastructure and resources. Given the immensity of this challenge, we believe we can make the strongest contribution by working in partnership with others—governments, donors, patient organizations, health care professionals, nongovernmental organizations, academic institutions, multilateral organizations, and the private sector.

We focus on select areas of global health need and relevance to our company: Alzheimer's disease, cancer, diabetes, and HIV/AIDS. Our program investments in these areas focus on innovative interventions showing evidence of effectiveness in improving health care quality and reducing disparities in access and health outcomes among underserved populations who are particularly burdened by these diseases.

## Employee Giving

Around the world, our employees take an active role in giving back to their communities through a variety of programs.

Each year, our employees donate thousands of hours to help improve the health and well-being of communities around the world through programs such as *MSD for Mothers*, the MSD Fellowship for Global Health, and a range of volunteer activities.

Our corporate policy on volunteerism provides employees worldwide with the opportunity to take up to 40 hours of paid time off annually to engage in volunteer activities that support eligible nonprofit organizations.



The ninth cohort of the MSD Fellowship for Global Health gathered in Johannesburg, South Africa for a week-long onboarding session to prepare for their three-month assignments working with nongovernmental organizations to help solve some of the world's greatest global health challenges. (August 2018)

## Product Donations

It's not enough to discover and develop new medicines and vaccines. We also need to help get them to the people who need them, whether they live in communities with a fundamental lack of access to health care and services or are affected by acute or protracted humanitarian crises.



**300K+**

people reached through our  
Medical Outreach Program in 2017

Our product donation programs and initiatives include:

### **MECTIZAN® (ivermectin) Donation Program**

Currently in its 31st year, the MECTIZAN Donation Program is the longest-running disease-specific drug donation program and public-private partnership of its kind. The program is focused on the elimination of two diseases, onchocerciasis (river blindness) and lymphatic filariasis (LF).

### **Medical Outreach Program**

Established 60 years ago, our company's Medical Outreach Program is the primary mechanism through which we donate our pharmaceuticals and vaccines for humanitarian aid in the developing world and in support of disaster relief and emergency response worldwide.

### **U.S. Patient Assistance Programs**

We provide selected medicines and adult vaccines for free to people who do not have prescription drug or health insurance coverage and who, without our assistance, could not otherwise afford them.

## Disaster Relief

Our company is committed to supporting communities around the world that are affected by natural disasters. We provide disaster relief assistance through cash and product donations during major disasters and support efforts in disaster preparedness and recovery.

Through our disaster relief efforts, we aim to respond in a timely, coordinated manner to meet the immediate needs of affected communities, to provide ongoing assistance through recovery (as needed), and to support preparedness efforts as appropriate.

During 2017, a series of hurricanes, earthquakes and wildfires resulted in widespread destruction across the southern United States, the Caribbean, California and Mexico. Our company worked with humanitarian agencies in support of relief efforts, providing approximately \$24 million in donated medicines, vaccines, financial contributions and employee matching funds to help those in need.



**\$24M**

in product and cash donations  
for disaster relief



Philanthropy is an important component of our company's commitment to corporate responsibility, and is a visible demonstration of our efforts to improve access to health and to strengthen communities where our employees live and work.

#### RESOURCES

- [Grant Application Website](#)
- [Grant Application Guidelines](#)

Through our philanthropic programs, we have the ability to bring about positive change by addressing complex global health challenges and improving the quality of life in communities where we have a presence.

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### [Grant Application Guidelines](#)

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#### GUIDING PRINCIPLES

Several key principles guide our philanthropic investments and program portfolio.

We seek to:

- Address critical global health needs where we can have a meaningful impact
- Collaborate with key partners to optimize our effectiveness
- Leverage not only cash and product donations but also expertise and capabilities across our company

#### GIVING PRIORITIES

Our giving priorities strengthen the effectiveness and impact of our company's philanthropy by focusing on areas of global health need in which we have substantial expertise and capability.

Our priorities are:

**Health**

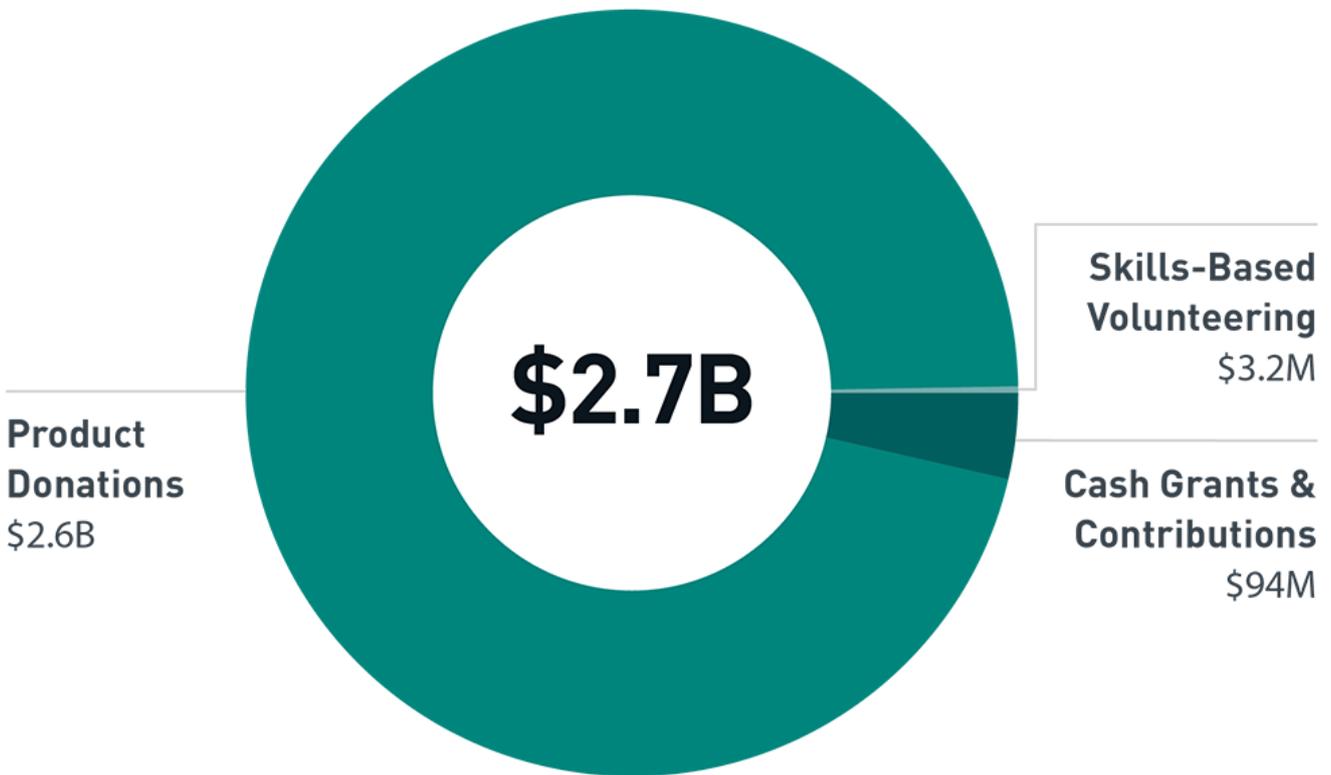
Improve health care quality and health system capacity while also increasing access to care for underserved populations in areas where there are specific health challenges that have relevance to our company, namely Alzheimer’s disease, cancer, diabetes, and HIV/AIDS. Through our program investments, we aim to support interventions that have shown evidence of effectiveness in advancing the quality of health services delivery, reducing health care disparities, fostering innovation in the delivery of health care, and empowering patients as active participants in managing their own health.

**Community**

Provide financial support and share the expertise of our employees through grant and volunteer programs that address critical health needs and selected social issues in communities where we have a presence.

## Performance

### Total Giving 2017



GRANTS & CONTRIBUTIONS	2013	2014	2015	2016	2017
Grants and contributions (total cash, in-kind and product) (in millions)	\$1,860	\$1,543	\$1,820	\$2,238	\$2,722
Cash grants and contributions (in millions)	\$107	\$111	\$133	\$117	\$94
Product donations through U.S. Patient Assistance Program (in millions)	\$566	\$433	\$567	\$798	\$1,112
Product donations for ex-U.S. programs and U.S. disaster relief (in millions) <sup>1</sup>	\$1,185	\$997	\$1,117	\$1,320	\$1,513
Valuation of employee volunteer time (in-kind, in millions) <sup>2</sup>	\$2.0	\$2.2	\$2.9	\$2.6	\$3.2

1. Includes our Medical Outreach Program (including U.S. disaster relief), the African Comprehensive HIV/AIDS Partnerships, the MECTIZAN® Donation Program, the GARDASIL® Access Program (2012–2014 only), and MSD division and subsidiary donations. 2. Includes valuation of volunteer time for only those employees who participated in the MSD Fellowship for Global Health program and our company's Pro Bono Legal and other skills-based volunteer programs.



For more than a century, our company has been inventing medicines and vaccines for the world's most challenging diseases.

#### RESOURCES

[Grant Application Website](#)  
[Grant Application Guidelines](#)  
[NCD Infographic](#)

And we continue to invent new approaches that save and improve lives so that people can positively contribute to a healthier and more hopeful world. As a global health care company, in addition to our focus on invention, we have a responsibility to help enable access to medicines, vaccines and quality health care worldwide.

We are committed to discovering smart, sustainable ways to expand access, especially in parts of the world where there are limited or nonexistent health care infrastructure and resources. Given the immensity of this challenge, we believe we can make the strongest contribution by working in partnership with others—governments, donors, patient organizations, health care professionals, nongovernmental organizations, academic institutions, multilateral organizations and the private sector.

We focus on select areas of global health need and relevance to our company, namely the following noncommunicable diseases (NCDs) and chronic conditions: Alzheimer's disease, cancer, diabetes and HIV/AIDS. Our program investments in these areas focus on innovative interventions showing evidence of effectiveness in improving health care quality and reducing disparities in access and health outcomes among underserved populations who are particularly burdened by these diseases.

## Key Foundation Programs

### **ALLIANCE TO ADVANCE PATIENT-CENTERED CANCER CARE**

With funding from our company's Foundation, the Alliance aims to increase timely access to patient-centered care and reduce disparities in cancer care, especially for vulnerable and underserved populations in the United States. [Learn more.](#)

## ALZHEIMER'S ASSOCIATION, MASSACHUSETTS/NEW HAMPSHIRE CHAPTER

With support from our company's Foundation, the [Alzheimer's Association, Massachusetts/New Hampshire chapter](#), will expand its Dementia Care Coordination program in Massachusetts, and take it to Maine, New Hampshire and Rhode Island. [Learn more.](#)

## AMERICAN CANCER SOCIETY—CARE COORDINATION NAVIGATION

With a four-year (2015–2018), \$1.58 million grant from our company's Foundation, the [American Cancer Society \(ACS\)](#) is enhancing its Patient Navigator Program (PNP) in the United States to improve care coordination, promote patient activation and increase access to high-quality cancer care in communities where health care disparities exist. The ACS has selected six PNP sites to participate in a community-based pilot program—Care Coordination Navigation Program—including the Harbor-UCLA Medical Center in Torrance, California; the Fox Chase Temple University Cancer Center in Philadelphia, Pennsylvania; the Queens Hospital Center in Queens, New York; the Multicare Regional Cancer Center in Auburn, Washington; the University of New Mexico Cancer Center in Albuquerque, New Mexico; and the John Peter Smith Cancer Center in Fort Worth, Texas.

This program aims to enhance the ACS's existing navigation program by providing navigators with the knowledge and skills to:

- Support patients in overcoming or managing barriers to timely initiation of treatment
- Empower patients with the information and skills to more actively engage in their health care, treatment planning and shared decision making
- Enhance the coordination of care
- Advance best practices in the field of patient navigation

The Care Coordination Navigation Program provides training in participating communities for ACS lay-patient navigators on concepts of care coordination and patient activation, as well as effective patient-provider communication about such topics as treatment planning, palliative care and survivorship, among others. The training also equips navigators with effective communication strategies and problem-solving and coaching skills to help support and coach patients in managing psychosocial issues and treatment side effects, building social support networks and engaging in healthy behaviors throughout the cancer care continuum.

Over the past 14 months of implementation, navigators have reached nearly 500 eligible patients through this program. Among the most common types of cancer experienced by patients served through the program thus far are breast, lung and colorectal cancer.

Through this project, ACS is also collaborating with the [Academy of Oncology Nurse and Patient Navigators \(AONN\)](#) and Oncology Solutions to develop a Metrics Implementation Toolkit which will guide navigation programs in implementing standardized metrics to support consistent high-quality patient navigation.

The ACS is implementing an evaluation of the program. While final results are anticipated in late 2019, preliminary findings suggest that:

- Navigators are able to track the specific barriers that patients encounter in the course of cancer treatment, and can use these identified barriers to guide the specific coaching strategies and action plans that they co-create with patients along the care continuum
- Navigators are able to develop and use action plans with their patients to overcome or manage barriers (e.g., financial issues, transportation, lodging, treatment side effects) to cancer care
- Navigators have reported an increase in their knowledge and skills, as well as increased confidence in their ability to execute effective problem-solving and coaching strategies with their patients
- Navigators have reported that the program provides valuable "refresher" training for existing skills, as well as a foundation for developing new skills in action planning and coaching that are tailored to the patient's level of activation

and need

## **BRIDGING THE GAP: REDUCING DISPARITIES IN DIABETES CARE**

With funding from our company's Foundation, *Bridging the Gap* aims to improve access to high-quality diabetes care and reduce health disparities among vulnerable and underserved populations with type 2 diabetes in the United States. [Learn more.](#)

## **HEALTHPARTNERS CENTER FOR MEMORY AND AGING**

Our company's Foundation is supporting [HealthPartners Center for Memory and Aging](#) and its partner, the University of California, San Francisco (UCSF) to implement UCSF's Care Ecosystem program for people with dementia and their caregivers in rural areas of Minnesota with limited access to specialty care. [Learn more.](#)

## **MARSHALL HEALTH—GREAT RIVERS REGIONAL SYSTEM FOR ADDICTION CARE IN WEST VIRGINIA**

Our company's Foundation is supporting a new initiative with [Marshall Health](#) through a \$2 million grant over four years (2018–2021) to establish the *Great Rivers Regional System for Addiction Care*—a comprehensive program to address the opioid crisis in West Virginia. [Learn more.](#)

## **NORTH CAROLINA A&T STATE UNIVERSITY CENTER FOR OUTREACH IN ALZHEIMER'S, AGING AND COMMUNITY HEALTH**

Our company's Foundation is supporting the North Carolina A&T State University [Center for Outreach in Alzheimer's, Aging and Community Health \(COAACH\)](#) to implement several programs for communities affected by Alzheimer's disease in rural North Carolina. [Learn more.](#)

## **PROJECT ECHO® IN INDIA AND VIETNAM**

In 2017, our company's Foundation established a new partnership with the ECHO (Extension for Community Healthcare Outcomes) Institute™ at the University of New Mexico Health Sciences Center. Through a \$7 million, five-year (2017–2021) grant, the partnership will expand the replication of [Project ECHO®](#) in India and Vietnam. Through this partnership, we aim to improve access to specialty care for complex, chronic conditions such as hepatitis C, HIV, tuberculosis, and noncommunicable diseases, including cancer and diabetes, as well as mental health conditions. [Learn More.](#)

## UNIVERSITY OF NORTH CAROLINA (UNC) SCHOOL OF PUBLIC HEALTH—DIABETES PEER SUPPORT PROGRAM IN SHANGHAI, CHINA

Our company's Foundation has established a three-year (2016–2018) partnership with the UNC School of Public Health to support the development, implementation and evaluation of a diabetes peer support program, based on the [Peers for Progress](#) model, in nine Community Health Centers (CHCs) in Shanghai, China. This program aims to improve diabetes self-management, treatment adherence and quality of life among people living with diabetes. Using a practical and flexible peer support model, peer leaders work in a variety of areas, such as: helping professional staff lead monthly meetings for patients and their families; helping individuals with diabetes address challenges in their daily self-management; promoting diabetes awareness initiatives in the community; leading tai chi or other exercise groups; and offering support and day-to-day contact with patients.

The peer support program is part of the Shanghai Integration Model which links hospital and specialty care with primary care through Community Health Centers. It is a collaboration between the Shanghai Municipal Government, the Shanghai Health Bureau and the Shanghai Sixth People's Hospital, led by Professor Weiping Jia, also president of the Chinese Diabetes Society.

As of January 2018, 74 peer leaders have completed training and reached 885 adults through nine Vanguard CHCs. Program participants are broadly representative of the diabetes population in China, averaging 68.2 years of age and having lived with diabetes for about 12.5 years. Especially encouraging is the progress in reaching men—a population often difficult to reach with health promotion programs. Forty percent of participants in the program to date are men.

In addition to the clinical challenges of improving care, the peer support program raises *adaptive* challenges for health systems, organizational practices, and both professionals' and patients' roles. Lessons learned to date include:

- Support and engagement of CHC leadership is critical
- Program managers need autonomy to tailor the program to their individual settings
- Professional staff need to learn how to encourage their patients' use of peer supporters in their diabetes management
- Professional staff also need networking opportunities to learn from professionals in other CHCs
- Peer leaders need backup and linkage to clinical teams and resources

Shanghai has a total of 240 Community Health Centers. Extending the peer support program to these CHCs also will entail adaptive challenges beyond training staff on a new protocol. A dissemination conference is planned for September/October 2018 to chart how the lessons learned from the Vanguard CHCs may be adapted to the varied programs and strengths of all 240 CHCs, which is anticipated to begin in November 2018.

The UNC School of Public Health and its partners are conducting a robust program evaluation. Anticipated outcomes to be evaluated include:

- Patterns of care, including attendance at regular care, follow-through on referral to specialty care and perceptions by patients as well as primary and specialty care providers of the continuing need for integration of care
- Components of care, including medication adherence as well as key aspects of disease self-management, such as healthy diet and physical activity

Results from the program evaluation are anticipated in 2019.

## YMCA'S DIABETES PREVENTION PROGRAM

With a three-year (2016–2018), \$2 million grant from our company's Foundation, the YMCA will expand its [Diabetes Prevention Program](#) in 60 communities across five U.S. states: Illinois, Kentucky, New Jersey, Pennsylvania and Texas. The YMCA's Diabetes Prevention Program is an evidence-based chronic-disease prevention program that aims to improve the health of participants with prediabetes through modest weight loss achieved by healthy eating and physical activity. It is

also part of the [National Diabetes Prevention Program](#), led by the U.S. Centers for Disease Control and Prevention.

One participant in Harrisburg, Pennsylvania, shared the following observations:

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“Diabetes can become a very expensive disease later in life, and this program has helped me to decrease my chances of developing type 2 diabetes. I would rather continue to prevent it for the rest of my life than pay for it later in life. I also feel more physically fit and have benefited from the increase in energy and stamina. To me, this program is a *no fail* program if you do your part. If participants take the information presented and use it, do their part and homework, they are all bound to succeed in the YMCA’s Diabetes Prevention Program.”

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To date, 57 local YMCAs in these states have served more than 1,379 participants in their Diabetes Prevention Program. At the conclusion of the first 16 program sessions, participants attended an average of 15.5 sessions and achieved an average 4.3 percent weight loss.



Our goal is to have a positive influence on the communities in which we operate around the world.

RESOURCES

- [Grant Application Website](#)
- [Grant Application Guidelines](#)
- [Neighbor of Choice Application Guidelines](#)
- [Neighbor of Choice Participating Sites](#)

Our community engagement programs reflect the priorities that our company shares with the local community. Our [Neighbor of Choice](#) program is designed to help build strong and vibrant communities by promoting a healthier society and preserving the environment in localities where we have a major site presence. The program provides financial support and enables our employees to contribute to the well-being of their communities.

[Learn more](#) about our economic impact on communities.

COMMUNITY CONTRIBUTIONS	2013	2014	2015	2016	2017
Art	\$412,500	\$729,325	\$735,000	\$608,000	\$616,000
Civic	\$924,448	\$1,350,950	\$135,375	\$11,500	\$16,190
Education	\$630,644	\$923,465	\$586,277	\$600,263	\$690,864
Environment	\$157,977	\$148,665	\$123,144	\$392,422	\$346,500
Human Health Services	\$1,794,977	\$1,941,185	\$2,690,459	\$2,721,534	\$7,102,636

## Neighbor of Choice

Our Neighbor of Choice (NOC) community grant program supports the work of local nonprofit organizations that strive to improve people’s quality of life and to preserve the environment in communities in which we have a presence.

Established in the 1990s, the NOC program fosters partnerships with local nonprofit organizations whose mission is to promote the well-being of community residents. We provide financial resources, enhanced by employee volunteerism, to support community programs that aim to improve health care quality and increase access to care for underserved populations in the areas of Alzheimer’s disease, cancer, diabetes, heart disease, hepatitis C, HIV/AIDS, and maternal health. We also strive to advance the quality of health services delivery, strengthen local health system capacity, and protect the environmental health of the local community.

NEIGHBOR OF CHOICE	2013	2014	2015	2016	2017
Amount contributed (in millions) <sup>1</sup>	\$2.3	\$2.2	\$2.5	\$3.1	\$3.1
Number of grants	181	126	129	118	130
Number of people reached globally <sup>2</sup>	N/A	N/A	N/A	N/A	221,328
Number of employees who volunteered with grantees <sup>2</sup>	N/A	N/A	N/A	N/A	2,511

1. Data include funding provided through the Office of Corporate Responsibility and our company’s Foundation. Additional funding is provided through local U.S. sites and our company sites outside the United States that we do not track centrally.

2. Beginning in 2017, we estimate the number of beneficiaries receiving funding through the NOC program and the number of employees who volunteered with NOC grantees.

In 2017, our company invited nonprofit organizations in 19 communities in which we have a major presence to apply for funding support. Factors that determine our local sites’ participation in the NOC program include whether we have a major presence, the number of employees at the site, and community need.

In accordance with NOC program guidelines, a total of \$3.1 million in grants was awarded to 130 nonprofits in support of a wide range of environmental and health services initiatives.

Below are examples of projects supported through the NOC grants program throughout 2017.

## UNITED STATES

### Community Servings, Inc., of Boston, Massachusetts

In 2017, Community Servings received a grant from our foundation to support their initiative, Food Is Medicine: Medically Tailored Nutrition Program for Individuals and Families Affected by Critical Illness. The program’s objective was to prepare and deliver 598,000 medically tailored meals to 2,021 people who were medically certified as too sick to shop or cook for themselves. Our support of Community Servings, Inc., also included 19 employee volunteers who donated time in their kitchen to help prepare and package meals.

### Ravenswood Education Foundation of Palo Alto, California

In 2017, we extended our Neighbor of Choice program to Palo Alto and the South San Francisco region in California. Our foundation provided a grant to the Ravenswood Education Foundation (REF) in support of its science fair initiative. REF used the funding to provide essential materials and supplies for the science labs and STEM (science, technology, engineering and mathematics) Fair projects at all seven participating school sites. In addition, our employee volunteers worked with over 300 students and served as a scientific resource during classroom labs and as judges for science fair projects. During the projects, the students gained scientific knowledge and confidence in their options for future careers. Our volunteers learned valuable lessons about the challenges of providing science education in grade school.



Children performing an experiment during a Ravenswood event

### **Xochimilco, Mexico**

In Mexico, cancer is the second leading cause of death among children ages 4-15. Nutrition and psychomotor fitness are important factors for these children, helping them cope with cancer treatment. In 2017, we supported Casa de la Amistad para Niños con Cáncer and its project *Eat, learn, and develop my sensorial skills* (Focus Project for Poor Children and Youngsters with Cancer - "Xochimilco Neighborhood"). Through the program, Casa de la Amistad delivered 1,364 pantry packages, and installed a multisensory room serving as a space for relaxation and well-being for children undergoing treatment. There were 181 beneficiaries attending 699 sessions in multisensory workshops. In addition, employee volunteers from our site in Xochimilco collected items for use at Casa de la Amistad and helped with extra-curricular activities for children staying at the home.



A young participant in the Casa de la Amistad Eat, learn and develop my sensorial skills program

### **Montreal, Canada**

Through its Oncology Transportation Program, NOVA West Island (a Canadian nonprofit) improves access to health care for many vulnerable cancer and palliative care patients in the Montreal West Island community. This program helps improve the lives of oncology and palliative care clients and reassures caregivers and families that their loved ones have access to their treatments and related medical appointments. Patients with cancer often require a challenging schedule of chemotherapy or radiation therapy, and this program helps improve the quality of life for these individuals as they undergo treatment. NOVA West Island cares for more than 1,380 individuals per year in the 16 municipalities in the West Island of Montreal.

## **The Children's Inn at NIH**

Our company's partnership with The Children's Inn at NIH spans more than 25 years. Our company provided \$3.7 million through a public-private partnership for the initial construction of [The Children's Inn](#) at the National Institutes of Health (NIH), the world's premier biomedical research center, in Bethesda, Maryland. The Inn opened in 1990 and, since then, seriously ill children involved in treatment at the NIH have had a place to call home.

Most children who come to the NIH for treatment are facing life-threatening illnesses that resist conventional therapy. Since its opening, The Inn has hosted more than 13,500 children from all over the U.S. and from more than 94 other countries. Our Foundation helps cover The Inn's operating costs, and also provided a grant of \$3.7 million in 2001 to build a 22-room addition, completed in 2004, increasing The Inn's capacity to 59 rooms. Our employees also have generously

supported The Inn through personal contributions as part of our company's [Partnership for Giving \(P4G\)](#) program.

Since 2009, our Foundation has committed \$10 million to support, through 2021, the establishment and operations of a transitional home adjacent to the NIH campus, called The Woodmont House. This home has accommodated up to five families at a time whose children were no longer in the acute phases of illness, yet still required treatment at the NIH Clinical Center. Families stayed free of charge and participated in all of The Inn's activities and programs. As of December 2017, The Woodmont House has served more than 330 children and their families from 44 U.S. states and Puerto Rico, and 20 other countries.

In February 2018, The Inn sold The Woodmont House. Proceeds from the sale will be used to support the renovation of the NIH-owned Quarters, a duplex house on the NIH campus. The Quarters will accommodate up to six families, and The Inn anticipates that this housing will be used primarily for its young adult residents up to age 30.

## Disaster Relief

Our company is committed to supporting communities around the world that are affected by natural disasters. We provide disaster relief assistance through cash and product donations during major disasters and support efforts in disaster preparedness and recovery.

Through our disaster relief efforts, we aim to respond in a timely, coordinated manner to meet the immediate needs of affected communities, to provide ongoing assistance through recovery (as needed), and to support preparedness efforts as appropriate.

It is our practice to base our response on the assessment of need by local authorities and/or humanitarian relief agencies.

Where appropriate, and in consultation with local management, our company may donate pharmaceuticals and vaccines through the disaster and emergency relief component of our [Medical Outreach Program](#). In major disaster situations, donations of our medicines may be made directly by a local subsidiary or manufacturing facility.

During 2017, a series of hurricanes, earthquakes and wildfires resulted in widespread destruction across the southern U.S., the Caribbean, California and Mexico. Many lives, homes, businesses and communities were destroyed. We responded quickly, working with humanitarian agencies in support of relief efforts and providing approximately \$24 million in donated medicines, vaccines, financial contributions and employee matching funds to help those in need.

DISASTER RELIEF	2013	2014	2015	2016	2017
Disaster relief efforts assisted	10	10	12	6	6
Total giving value of disaster relief contributions (cash and products, in millions)	\$3.3	\$10.0	\$5.6	\$13.4	\$23.9

### RESPONSE TO HURRICANES HARVEY AND IRMA

On August 25, 2017, Hurricane Harvey, a Category 4 storm with sustained winds of 130 miles per hour, made landfall multiple times in six days, causing \$125 billion in damage, according to the National Hurricane Center. It affected 13 million people throughout Texas, Louisiana, Mississippi, Tennessee and Kentucky, and resulted in over 88 deaths. At its peak, one-third of Houston, Texas, was under water, and the flooding forced 39,000 people out of their homes and into shelters.

Hurricane Irma, the most powerful Atlantic hurricane in recorded history, with winds of over 180 miles per hour, made landfall in the U.S. Virgin Islands on September 6, 2017, and passed over Puerto Rico, leaving hundreds there without

power. On September 10, Irma hit the Keys and Naples, Florida, as a Category 4 hurricane. The death toll, as of September 23, 2017, was 102 people, including 75 in Florida. Hurricanes Harvey and Irma mark the first time in 100 years that two storms Category 4 or larger hit the U.S. mainland in the same year.

Shortly before these hurricanes struck, our company provided a \$600,000 grant to the American Red Cross as part of a multi-year commitment to supporting the organization's disaster preparedness and relief efforts. We also donated approximately \$200,000 to support the hurricane response efforts of our humanitarian partners AmeriCares, Direct Relief, Project Hope, Save the Children and World Vision, and donated \$1 million through the Hand in Hand Hurricane Relief Fund television fundraiser event, with 100 percent of donations going to hurricane relief efforts.

Through our [Medical Outreach Program](#), we also donated medicines with a market value of approximately \$1.5 million to Direct Relief, one of our company's Medical Outreach Program partners. In addition, our company's Animal Health business donated animal health products, services and professional/technical support, and employees stepped up to help communities in Texas and the thousands of animals impacted by Hurricane Harvey.

## RESPONSE TO HURRICANE MARIA

On September 20, 2017, Hurricane Maria, the first Category 4 hurricane to directly impact Puerto Rico in 85 years, devastated the island, which was still recovering from the effects of Hurricane Irma only weeks before. The storm's 155-mile-per-hour sustained winds uprooted trees, destroyed weather stations and cell towers, and tore roofs off of homes. Electricity was cut off to 100 percent of the island, and limited access to clean water and food left the island's 3.4 million residents in a desperate humanitarian crisis.

Our company responded quickly, first ensuring the safety of the 540 employees who were directly impacted by the storm, then donating \$1 million to Unidos Por Puerto Rico through the One America Appeal, to assist hurricane victims.

Through our Medical Outreach Program, we also donated medicines with a market value of over \$18 million to Medical Outreach partners Direct Relief, MAP International, and Project Hope.

## RESPONSE TO EARTHQUAKES IN MEXICO

On September 7, 2017, Mexico suffered the first of two major earthquakes, registering magnitude 8.2, affecting more than 1.5 million people and causing over 90 deaths. Less than two weeks later, on September 19, a 7.1-magnitude earthquake struck about 75 miles outside of Mexico City, killing hundreds of people, injuring thousands and causing widespread destruction.

Our company responded quickly, ensuring that all employees in Mexico were safe and accounted for, and then by donating \$50,000 to Direct Relief, \$250,000 to the American Red Cross in support of the Mexican Red Cross response to the earthquakes, and \$250,000 to The Salvation Army toward its response to the hurricanes and earthquakes in Mexico. An additional \$145,000 in product donations was provided by MSD in Mexico.

## RESPONSE TO WILDFIRES IN CALIFORNIA

California saw its most destructive and largest wildfire season ever in 2017. Heavy, thick smoke caused by the wildfires affected people throughout the region, a particular danger to first responders and people suffering from respiratory issues. Our company supported relief efforts by providing \$200,000 in cash and product to assist Direct Relief in its delivery of respiratory supplies, emergency medicines and other goods to facilities and shelters caring for affected people.

## AMERICAN RED CROSS

Our company is a long-standing member of the American Red Cross Annual Disaster Giving Program ([ADGP](#)). In 2014, our company's Foundation pledged \$2.4 million over four years to support the ADGP and to help ensure that the Red Cross can be on the scene of a disaster as quickly as possible. Our support helps the Red Cross to work with local agencies to deliver assistance immediately across affected areas in the U.S. and globally.



Our company's Foundation (the "Foundation")—established in 1957—is funded entirely by the company and is our chief source of funding support for qualified nonprofit charitable organizations.

#### RESOURCES

[Grant Application Website](#)  
[Grant Application Guidelines](#)

The Foundation supports eligible nonprofit organizations and innovative programs that are aligned with our two focus areas: [Health](#) and [Community](#).

Since its inception, the Foundation has contributed more than \$896 million to support initiatives that address important societal needs in a manner consistent with our company's overall mission of inventing for life by bringing forward medicines and vaccines for many of the world's most challenging diseases.

The following [priorities](#) guide the Foundation's strategic partnerships and program investments:

## HEALTH

We strive to improve health care quality and health system capacity and to increase access to care for underserved populations in selected disease areas of global need and relevance to our company. We focus on the following noncommunicable or chronic conditions: Alzheimer's disease, cancer, diabetes and HIV/AIDS.

Key initiatives include:

- [Alliance to Advance Patient-Centered Cancer Care](#)
- [Alzheimer's Association, Massachusetts/New Hampshire Chapter](#)
- [American Cancer Society—Care Coordination Navigation Program](#)
- [Bridging the Gap: Reducing Disparities in Diabetes Care](#)
- [HealthPartners Center for Memory and Aging](#)
- [Marshall Health—Great Rivers Regional System for Addiction Care in West Virginia](#)
- [North Carolina A&T State University Center for Outreach in Alzheimer's, Aging and Community Health \(COACH\)](#)
- [Project ECHO® in India and Vietnam](#)

- [University of North Carolina School of Public Health—Peer Support Diabetes Program in Shanghai, China](#)
- [YMCA's Diabetes Prevention Program](#)

## COMMUNITY

We provide financial support and share the expertise of our employees through grant and volunteer programs that address critical health and selected social issues in communities where we have a presence.

Key initiatives include:

- [Neighbor of Choice Program](#)
- [Partnership for Giving](#)
- [The Children's Inn at NIH](#)



It's not enough to discover and develop new medicines and vaccines. We also need to help get them to the people who need them.

One important way to achieve that goal is through donations of medicines and vaccines that address specific health needs, whether in communities with a fundamental lack of access to health care and services or in acute or protracted humanitarian crises.

Our product donation programs and initiatives include:

**MECTIZAN® Donation Program**

This program is one of the most significant initiatives undertaken by our company to help enable access to medicines in developing countries. Currently in its 31st year, the MECTIZAN Donation Program is the longest-running disease-specific drug donation program and public-private partnership of its kind. Initially focused on control of onchocerciasis (river blindness), the company expanded the program in 1998 to include lymphatic filariasis (LF). Both diseases are now candidates for elimination, and our company is engaged in several global partnerships to help achieve that goal.

[Learn more.](#)

**Medical Outreach Program**

Established 60 years ago, our company's Medical Outreach Program is the primary mechanism through which we donate our pharmaceuticals and vaccines for humanitarian aid in the developing world and in support of disaster relief and emergency response worldwide.

[Learn more.](#)

**U.S. Patient Assistance Programs**

Our company provides selected medicines and adult vaccines for free to people who do not have prescription drug or health insurance coverage and who, without our assistance, could not otherwise afford them.

[Learn more.](#)





Around the world, our employees take an active role in giving back to their communities through a variety of programs.

Each year, our employees donate thousands of hours to help to improve the health and well-being of communities around the world through programs such as [MSD for Mothers](#), the [MSD Fellowship for Global Health](#), and a range of volunteer activities. Employee volunteers also complement the support we provide to organizations through our Neighbor of Choice grants program.

Our corporate policy on volunteerism provides employees worldwide with the opportunity to take up to 40 hours of paid time off annually to engage in volunteer activities that support eligible nonprofit organizations. Additionally, employees in the U.S. and Puerto Rico are encouraged to participate in Partnership for Giving, our dollar-for-dollar matching gift program, and Dollars for Doers, a volunteer rewards program. In 2017, we saw a reduction in the total number of recorded volunteer hours as compared to 2016, when we had our 125th anniversary challenge. However, we continue to encourage employees to volunteer in their communities and with organizations and causes they care about.

In 2018, our company joined [IMPACT2030](#), a private sector-led initiative, in collaboration with the United Nations, the social and public sectors, and academia, with the mission to activate human capital investments through employee volunteer programs to advance the achievement of the UN Sustainable Development Goals (SDGs). We also recently became a member of the Global Corporate Volunteer Council (GCVC), an initiative of the [International Association for Volunteer Effort](#). The GCVC highlights both proven and promising practices in corporate volunteering while raising awareness of how companies are affecting critical human, social, environmental and economic problems throughout the world.

## Volunteering

### MSD FELLOWSHIP FOR GLOBAL HEALTH

The [MSD Fellowship for Global Health](#) is a three-month, field-based corporate pro bono program designed to leverage the skills and talents of our employees. Teams of highly skilled Fellows, who are passionate about our company's mission to save and improve lives around the world, are assigned to NGO partners to help build their capacity. [Learn more.](#)

## SKILLS-BASED VOLUNTEER PROGRAM

Our innovative skills-based volunteer program is available to our employees in the U.S. and Puerto Rico. The program offers employees the opportunity to donate their professional skills through virtual, short-term projects that provide important capacity-building support for nonprofit organizations. Whether volunteering for a one-hour phone consultation or a 30-hour project, employees are given the opportunity to provide meaningful volunteer support for nonprofits in need, while using and developing their professional skills.

Our employees find these projects to be enjoyable and gratifying experiences that provide opportunities to enhance their individual skill sets. Since its launch in 2015, more than 650 employees have registered on the site and over 85 projects have been completed or are under way, representing over 2,000 volunteer hours donated.

## MAKING POSITIVE CHOICES

Through the Making Positive Choices initiative, employees from New Jersey and Pennsylvania volunteered to have a positive influence on the lives of underserved and at-risk children and young adults through the three programs offered and administered by Street Law, Inc.:

- **Community Works:** Helping teens to prepare to participate in their communities in a positive way
- **Career Exploration:** Preparing high school students to achieve academic and career goals
- **Youth in Transition:** Providing youth in the foster care system with instruction in basic life skills and guidance in navigating community resources to help them live independently

Throughout 2017, more than 100 employees contributed 1,200 volunteer hours, reaching more than 620 students in school and community settings.

## PRO BONO LEGAL PROGRAM

Our company's Pro Bono Legal Program has been serving the poor and disadvantaged for nearly 25 years. Our legal professionals have been nationally recognized for their commitment to providing pro bono assistance in areas such as guardianship, domestic violence, family law, child advocacy, Social Security disability benefits, veterans' affairs, and bankruptcy, as well as legal support for nonprofit organizations.

During 2017, 175 attorneys, paralegals and administrative associates provided approximately 4,300 hours of pro bono legal services.

Although pro bono work is not common outside the United States, our international attorneys provided more than 250 hours of pro bono assistance overseas, through collaboration with external partners, attorneys from other multinational pro bono programs, and local law firms. In 2017, our company was recognized by TrustLaw for promoting pro bono efforts among the 70 MSD lawyers who work outside the United States.

[The Pro Bono Partnership](#), a nationally recognized organization, provides free business and transactional legal services to assist nonprofits in New York, New Jersey and Connecticut in achieving their goals, avoiding risk, and better serving their constituencies. Throughout 2017, 24 attorneys from our company's Pro Bono Legal Program completed 38 matters for 33 nonprofit organizations, and our company was a special honoree at Pro Bono Partnership's 20th Anniversary Celebration in 2017.

We continued our support of the [National Veterans Legal Services Program \(NVLSP\)](#) and its Combat-Related Special Compensation Program, which helps veterans who have suffered disabilities as a result of combat-related service. Throughout 2017, nearly 30 of our lawyers and staff volunteered on 15 cases. Our legal professionals also served on the

board of NVLSP and assisted with NVLSP's Disability Benefits program, contributing in total more than 200 hours in 2017.

## Partnership for Giving

Partnership for Giving (P4G) is our company's year-round matching gift program. P4G supports active employees in the U.S. and Puerto Rico who donate to causes that are important to them. Contributions to eligible organizations are matched dollar-for-dollar by our company's Foundation in support of nonprofits that help to promote a healthier society, advance education, foster the arts, address the welfare of animals, and preserve the environment.

Through the Dollars for Doers program, funded by our company's Foundation, active employees in the U.S. and Puerto Rico can have their volunteer hours matched by a cash contribution. Employees investing 40 hours or more of service with an eligible nonprofit organization can apply for a \$500 contribution to that nonprofit, with an annual limit of two donations per eligible employee or volunteer team.

## Performance

### EMPLOYEE GIVING SUMMARY

VOLUNTEERING	2013	2014	2015	2016	2017
Employees who volunteered <sup>1</sup>	NA	NA	9,381	16,446	6,560
Percent of total company population <sup>2</sup>	NA	NA	14%	24%	10%
Employees who used paid time off (PTO) <sup>3</sup>	NA	NA	6,123	14,376	4,870
Percent of total company population	NA	NA	9%	21%	7%
PTO hours <sup>1</sup>	NA	NA	52,372	187,818	67,239
Total recorded volunteer hours (TRVH) <sup>1</sup>	NA	109,932	80,585	214,862	114,903
Ratio of PTO/TRVH	NA	NA	65%	87%	58%
SkillShare Volunteer Program <sup>4</sup>	NA	NA	1,500	520	96
MSD Fellowship for Global Health	NA	12,144	16,120	15,080	15,080
Pro Bono Legal	NA	3,200	2,400	1,126	4,292
Skilled volunteer hours as percentage of TRVH	NA	8%	25%	8%	17%

1. 2017 figures are based on employee self-recorded volunteer hours and volunteer hours communicated directly to the Office of Corporate Responsibility for certain countries. 2015 marked the first year in which volunteer hour reporting was based solely on employee self-reporting. Prior years included estimates for unrecorded volunteer hours. 2. Company population figures are based on an estimated workforce of approximately 66,000 in 2017. 3. Figures based on estimated data. 4. Our skill-based volunteer program launched in 2015.

PARTNERSHIP FOR GIVING (P4G)	2013	2014	2015	2016	2017
Total contribution (in millions) <sup>1</sup>	\$28	\$26	\$21	\$26	\$25
Number of organizations that benefited <sup>2</sup>	7,649	9,038	7,145	6,200	8,770
Number of employee/retiree participants <sup>3</sup>	11,544	10,365	9,400	8,200	8,302

1. Total contribution includes Foundation matching funds for Dollars for Doers, Direct Giving, and 4Q 2016 Payroll Deduction programs, and employee and retiree donations to the Direct Giving and the 4Q 2016 Payroll Deduction programs. The P4G Payroll Deduction program was discontinued as of January 1, 2017. Related 4th quarter funds were distributed in January 2017. 2. Includes organizations receiving funds through the P4G Direct Match, 4Q 2016 Payroll Deduction and Dollars for Doers programs. 3. Includes active and retiree participants in the P4G Direct Match program and active employee participants in the 4Q 2016 Payroll Deduction program.



Our mission to save and improve lives underpins the idea behind the MSD Fellowship for Global Health.

#### RESOURCES

[Emerging World—2017 Corporate International Service Learning Benchmark Study](#)  
[Case Study: Collaborating to Advance Health Care in Africa](#)  
[2017 RTC Fellows](#)  
[Alumni Fellows](#)  
[Case Study: RTC Fellow Brings HIV Learnings Full Circle](#)  
[Past Partners](#)

The MSD Fellowship for Global Health is a three-month, field-based corporate pro bono program designed to leverage the skills and talents of our employees worldwide. Selected employees are referred to as Richard T. Clark (RTC) Fellows, in recognition of retired Chairman and CEO Dick Clark. Teams of highly skilled Fellows, who are passionate about our company's mission to save and improve lives around the world, are assigned to NGO partners to help build their capacity and provide increased access to health products, services and education in the communities they serve. In turn, the RTC Fellows bring back experiences that contribute to our company's future success and our ability to deliver innovative health solutions to patients and customers around the world.

The program aims to:

- Strengthen the capacity and reach of NGO partners with technical and human capital support
- Provide rich professional-development experiences for our selected employees
- Apply key learning across the company



Between 2012 and 2017, 159 RTC Fellows from 29 countries worked with 36 nonprofit organizations.

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The 2017 RTC Fellows gathered for a reintegration workshop and recognition ceremony after completing their three-month assignments working with nonprofit organizations around the world to improve global health.

## EMPLOYEE DEVELOPMENT

The MSD Fellowship for Global Health works in collaboration with our Human Resources department to integrate diverse skill sets, experience and points of view into each team to increase the level of creativity and innovation, yielding sustainable results for the NGO partners. The Fellow selection process, preparation activities, manager support and reintegration activities all align with our objectives to attract, develop and retain the best and brightest talent.

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“The Fellowship program gave me the opportunity to improve myself and help others through my knowledge and professional experience in a totally different environment. Definitely, it was an inspiring, life-changing experience for me.”

2017 RTC FELLOW

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## PROGRAM IMPACT

“It was fantastic. The Fellowship happened at a time in which we are changing the strategic direction of the organization and the Fellows helped a great deal in getting us to both articulate and document the process and communicate this direction. They helped us in development of systems and tools that will enable us to achieve our mission.”

2017 NGO PARTNER

Our annual survey of Fellows and nonprofit hosts demonstrated the program’s significant benefits and improvements, as well as measurable benefits for our company’s business and reputation.

- **100 percent** of NGO partners were “satisfied” or “extremely satisfied” with the overall Fellowship experience
- **93 percent** of Fellows will apply learnings to their professional roles at MSD to a “significant” or “extraordinary” degree
- **90 percent** of NGOs agreed that it was “likely” or “extremely likely” that they would implement the solutions delivered by the Fellows

In addition, we’ve made significant progress in aligning the program with the geographic diversity of the company, specifically incorporating a greater proportion of colleagues from outside the U.S.; however, we are still working hard to expand the program’s global reach. In 2017, 51 percent of Fellows came from company locations outside the U.S., an increase of 33 percent since 2013.

## Performance

MSD FELLOWSHIP FOR GLOBAL HEALTH IMPACT	2013 <sup>1</sup>	2014	2015	2016	2017
NGO Partners reporting extraordinary or substantial capacity gains	NA	85%	100%	100%	100%
NGO Partners reporting that they are extremely or very likely to implement the Fellows’ recommendations <sup>2</sup>	NA	NA	NA	100%	90%
Fellows reporting that the experience helped them better connect (or reconnect) with the purpose of their global health work at MSD to a significant or extraordinary degree	NA	81%	96%	96%	100%
Fellows who say they will apply learnings from the program to their role at MSD	NA	NA	NA	93%	93%

Note: This table shows annual survey data from the RTC Fellows and NGO Partners to gauge the success of the program and understand its impact. The survey is sent to each Fellow and NGO Partner at the end of the assignment.

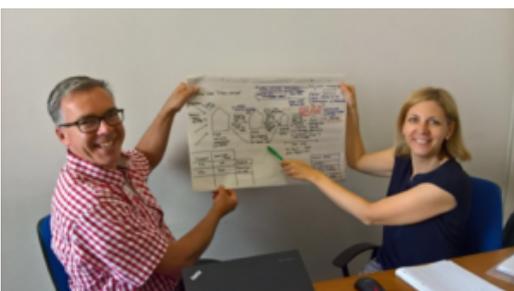
1. 2014 is the first year we conducted a survey to measure program impact.

2. New question introduced in the 2016 impact survey.



RTC Fellows Nadim Akar (United Arab Emirates) and Digna Simone (United States) worked with Population Services International in Uganda to develop business strategies to increase the NGO's impact, reach and activities.

Twenty-nine Fellows from 14 countries around the world supported 10 nonprofit organizations working in Africa, India, North America, South America and the Caribbean from August through October of 2017. Specific examples of program impact include:



#### **Africa Resource Center (ARC)—Senegal**

The NGO Africa Resource Center aims to improve the availability of medicines and health products by supporting ministries of health to build efficient supply chains in Africa. The goal of this team of RTC Fellows was to strengthen the public health supply chains in francophone West Africa through public and private partnership. They supported the NGO in positioning itself as a strong partner and specialist in supply chain management (SCM) topics among key stakeholders; developed a strategic plan for SCM including realistic timelines and a road map; analyzed a public-sector warehouse and introduced improvements; obtained and analyzed consumption and stock data to help the government make informed decisions on stock levels; and created an SCM toolbox for the NGO to use long after the Fellows had returned home.



#### **BIO Ventures for Global Health (BVGH)—Mozambique**

BVGH establishes partnerships between pharmaceutical companies and nonprofit researchers to accelerate the development of drugs, vaccines, and diagnostics for neglected tropical diseases, malaria and tuberculosis. BVGH also builds biomedical R&D capacity at research centers in low- and middle-income countries through training opportunities for center scientists at leading academic institutes and pharmaceutical companies. This team of RTC Fellows worked to assess clinical trial capacity and strengthen biomedical research and clinical trials in Africa. They developed standard operating procedures (SOPs) for clinical trial activities, created training materials and presentations, provided support and suggestions for studies based on pressure testing of newly created SOP documents, prepared and presented seminars on requested scientific topics, met with researchers to critique manuscripts, grants and other scientific documents, and helped BVGH better understand the overall clinical trials landscape.



#### **Project Hope—Dominican Republic**

For three intense months, a team of RTC Fellows from Hungary, Mexico and Spain collaborated with Project Hope in the Dominican Republic. Project Hope provides health education and humanitarian assistance programs in areas of need. The Fellows designed the NGO's business strategy and marketing plan, as well as print and online promotional materials for an online training platform, targeting Latin American health care professionals, about diabetes prevention and self-management, called IDEEL (International Diabetes Educator E-Learning).

## **BECOME A FELLOWSHIP PARTNER**

The 2018 Fellowship application period has closed. The 2019 application period will open in November 2018. To learn more about the program, you may reference the documents below; however, please note that the application materials for the 2019 cycle may be changed or updated.

- [2018 NGO Overview Deck](#) [PDF]
- [2018 Proposal Guidelines](#) [PDF]
- [2018 Proposal Template](#) [PDF]

- [2018 Project Line Item Budget Template](#) [Excel]
- [Grant Submission Instructions](#) [PDF]

## Current-Year Partners

### **Africa Resource Center**

The [Africa Resource Centre \(ARC\)](#) for supply chain in francophone West Africa, managed by Africa Consulting and Trading (ACT), aims to improve availability of medicines and health products by building more efficient and effective supply chain systems in Africa.

### **Africare**

[Africare](#)'s mission is to improve the quality of life of people in Africa. Africare centers its development approach on active community participation and partners with local organizations to ensure institutional strengthening and capacity-building.

### **BIO Ventures for Global Health**

[BVGH](#) is a results-oriented nonprofit organization dedicated to solving global health issues by forming connections between people, resources and ideas. BVGH was established to engage biotechnology, pharmaceutical and diagnostic companies in meaningful initiatives to impact and improve the lives of individuals living in low- and middle-income countries (LMICs).

### **Infectious Disease Research Institute**

[IDRI \(Infectious Disease Research Institute\)](#) takes a comprehensive approach to combatting infectious diseases, combining the high-quality science of a research organization with the product development capabilities of a biotech company to create new diagnostics, drugs and vaccines to eliminate infectious diseases of global health importance.

### **Jhpiego**

[Jhpiego](#) is an international, nonprofit health organization affiliated with the Johns Hopkins University. Jhpiego empowers frontline health workers by designing and implementing effective, low-cost, hands-on solutions to strengthen the delivery of health care services for women and their families.

### **Population Services International**

[PSI \(Population Services International\)](#) makes it easier for people in the developing world to live healthier lives and plan the families they desire by marketing affordable products and services. PSI focuses mainly on family planning, oral rehydration therapy and safe water, as well as HIV, malaria and tuberculosis prevention.

### **Purdue University**

[Kilimanjaro School of Pharmacy \(KSP\)](#) is a part of the Good Samaritan Foundation in Northern Tanzania and partners with Purdue University in the U.S. The vision of KSP is to achieve self-production, ownership, responsibility and identity leading to quality health care for all in Africa.

### **Sightsavers**

[Sightsavers](#) is an international organization working with partners in developing countries to eliminate avoidable blindness and promote equality of opportunity for people with disabilities.

# FORWARD-LOOKING STATEMENT

This communication of Merck & Co., Inc., Kenilworth, N.J., U.S.A. (the “company”) includes “forward-looking statements” within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. These statements are based upon the current beliefs and expectations of the company’s management and are subject to significant risks and uncertainties. There can be no guarantees with respect to pipeline products that the products will receive the necessary regulatory approvals or that they will prove to be commercially successful. If underlying assumptions prove inaccurate or risks or uncertainties materialize, actual results may differ materially from those set forth in the forward-looking statements.

Risks and uncertainties include, but are not limited to, general industry conditions and competition; general economic factors, including interest rate and currency exchange rate fluctuations; the impact of pharmaceutical industry regulation and health care legislation in the United States and internationally; global trends toward health care cost containment; technological advances, new products and patents attained by competitors; challenges inherent in new product development, including obtaining regulatory approval; the company’s ability to accurately predict future market conditions; manufacturing difficulties or delays; financial instability of international economies and sovereign risk; dependence on the effectiveness of the company’s patents and other protections for innovative products; and the exposure to litigation, including patent litigation, and/or regulatory actions.

The company undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise. Additional factors that could cause results to differ materially from those described in the forward-looking statements can be found in the company’s 2017 Annual Report on Form 10-K and the company’s other filings with the Securities and Exchange Commission (SEC) available at the SEC’s Internet site ([www.sec.gov](http://www.sec.gov)).

Merck & Co., Inc., Kenilworth, N.J., U.S.A., is known as MSD outside the United States and Canada.



The Office of Corporate Responsibility  
2000 Galloping Hill Road (K1-3181)  
Kenilworth, NJ 07033 USA

[www.MSDresponsibility.com](http://www.MSDresponsibility.com)

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