MERCK

Environmental, Social & Governance (ESG)

Progress Report 2021/2022

2 Overview

3 A letter from our CEO
5 Our Company
6 Our ESG approach
7 ESG focus areas
14 Access to Health
18 Employees
21 Environmental Sustainability
23 Ethics & Values
25 References

26 GRI/SASB disclosures

27 General disclosures
52 Economic
83 Environmental
124 Social

178 Indices

178 Global Reporting Initiative (GRI)
186 Sustainability Accounting Standards Board (SASB)
189 UN Global Compact
190 UN Sustainable Development Goals (SDGs)
192 Culture of Health for Business (COH4B)
194 World Economic Forum (WEF) Stakeholder Capitalism Metrics

About this report

This is the 2021/2022 Environmental, Social & Governance (ESG) Progress Report of Merck & Co., Inc., Rahway, NJ, USA, which is known as MSD outside the United States and Canada. This report also serves as our Communication on Progress to the United Nations Global Compact (UNGC). All data is current as of December 31, 2021, unless otherwise noted. Information on documents filed with the Securities and Exchange Commission (SEC), such as our **2021 Form 10-K and 2022 Proxy Statement**, can be found on our corporate website, which is intended only for residents of the U.S. and Canada.

To align with U.S. government reporting requirements, the ESG data for gender diversity in this report uses the terms *men* and *women*. We recognize and embrace the gender spectrum and diversity in our employees, and have internally established voluntary Self-ID options for employees to self-report on their gender identity. The totals in this report may not equal 100 percent due to rounding or employees who have not reported their gender and/or race/ethnicity.

A letter from our CEO

Robert M. Davis
Chief Executive Officer
and President

Dear Stakeholders,

At Merck, we're proud to use the power of leading-edge science to save and improve lives around the world. This is our purpose, and it anchors every decision we make. Although our global community has faced no shortage of challenges in recent years, our ability to navigate and respond to these difficulties with speed, agility and ingenuity has demonstrated the power of our purpose and has made our Company stronger and more resilient. We're excited and energized about the road ahead as we continue to enable a safe, sustainable, and healthy future for people and communities everywhere.

An ongoing strength of our Company has been our enduring commitments to operating responsibly and creating value for society. For more than 130 years, our global team has pursued environmental, social and governance (ESG) excellence. Today, our ESG approach helps propel and enable our business strategy in ways that make us a better company—and a better corporate citizen.

Our four ESG focus areas are 1) expanding access to health; 2) developing and rewarding a diverse, inclusive and healthy workforce; 3) protecting the environment; and 4) operating with the highest standards of ethics and values. We have specific goals in each area, and I am pleased to share our continued progress in this report, along with these critical highlights:

Expanding access to health

Merck has a long track record of making our medicines and vaccines accessible and affordable globally, and we began executing on a comprehensive supply and access strategy early on in the pandemic to accelerate equitable global access to LAGEVRIO™ (molnupiravir), an investigational oral antiviral COVID-19 medicine. Our approach includes investing at risk to produce millions of courses of therapy; tiered pricing based on the ability of governments to finance health care; entering into supply agreements with governments of approximately 40 markets worldwide; allocating 3 million courses of therapy for distribution through UNICEF to low- and middle-income countries; and granting voluntary licenses to multiple generic manufacturers and to the Medicines Patent Pool to make generic molnupiravir available in more than 100 low- and middle-income countries following approvals or emergency authorization by local regulatory agencies.

Developing and rewarding a diverse, inclusive and healthy workforce

We've remained intensely focused on building a more diverse and inclusive workforce. Our team's diversity fuels innovation, and we've made ambitious commitments to increase representation at all leadership levels with strategies to elevate historically underrepresented ethnic groups (UEGs). From 2020 to 2021, we grew our total UEG representation,

including a five percent increase in senior management in the U.S. We've also initiated several collaborations with external partners and joined key initiatives to ensure we continue to accelerate and expand our efforts in this area.

Protecting the environment and operating sustainably

In environmental sustainability, we made progress toward our climate action goals last year and are also developing the tools and processes needed to lower our Company's carbon footprint. We're on track to achieve carbon neutrality by 2025, and we're working towards transitioning to renewables to meet our 2025 renewable energy target as well.

Operating with the highest standards of ethics and values

At Merck, we operate responsibly every day, with an unrelenting commitment to conducting ourselves according to the highest standards. Our code of conduct is at the core of our character, helping us to maintain our reputation as a trustworthy company. To that end, we maintain 100 percent compliance to regulatory requirements for active incident monitoring, risk/harm analysis and on-time notification of data breaches. We also foster a culture where employees are encouraged to speak up and ensure our ethics and values are represented in everything we do.

As a signatory to the UN Global Compact, Merck remains committed to improving our communities globally, engaging locally and building sustainability across all our business operations. We continue to support environmental protections, human rights, labor protections and anti-corruption efforts worldwide. In December 2021, we announced the issuance of our inaugural $1 billion sustainability bond, which will support projects and partnerships in our priority ESG areas and contribute to the advancement of the UN Sustainable Development Goals.

Lastly, but certainly not least, I want to thank my Merck colleagues around the world for their unwavering dedication and passion for creating and sustaining societal value. And on behalf of Team Merck, I want to express my deepest and sincerest appreciation and thanks for your interest, support and partnership. We recognize that ESG is not a destination, but instead a journey. While we're pleased with our progress, we know we have more work to do. We look forward to embracing opportunities, with all our internal and external stakeholders, that enable us to gain momentum, deliver on our commitments and make even greater strides in the years to come.

Very best regards,

Rob Davis
Chief Executive Officer and President

Our Company

We use the power of leading-edge science to save and improve lives around the world.

At Merck, known as MSD outside of the United States and Canada, we are unified around our purpose: We use the power of leading-edge science to save and improve lives around the world. For more than 130 years, we have brought hope to humanity through the development of important medicines and vaccines. We aspire to be the premier research-intensive biopharmaceutical company in the world—and today, we are at the forefront of research to deliver innovative health solutions that advance the prevention and treatment of diseases in people and animals. We foster a diverse and inclusive global workforce and operate responsibly every day to enable a safe, sustainable and healthy future for all people and communities.

How we operate

We have two operating segments: Pharmaceutical and Animal Health.

Our Pharmaceutical segment includes human health pharmaceutical and vaccine products. Our human health pharmaceutical products consist of therapeutic and preventive agents generally sold by prescription. Our human health vaccine products consist of preventive pediatric, adolescent and adult vaccines. We sell these products to a variety of public and private medical institutions to aid in the prevention and treatment of human disorders.

Our Animal Health segment offers one of the widest ranges of veterinary pharmaceuticals, vaccines, and health management solutions and services, as well as an extensive suite of connected technology that includes identification, traceability and monitoring products. This business is dedicated to preserving and improving the health, wellbeing, and performance of animals and the people who care for them in all livestock and companion animal species.

Research and products

We bring a diversity of thought, leadership and perspective together to transform world-class science into life-changing products. Our scientists are revolutionizing how we discover and develop medicines and vaccines to address unmet medical needs, including in the areas of oncology, vaccines, infectious diseases, cardio-metabolic disorders, and other diseases affecting animals and humans.

79% of countries
around the world reached with our products[1]

68,000
employees[2]

$12.2 billion
in R&D spend

Our ESG approach

Our purpose, which serves as the foundation of our Company's overall strategic framework, is to use the power of leading-edge science to save and improve lives around the world. Encompassing our commitment to ESG, the strategic framework sets our growth and direction against the backdrop of a rapidly changing health care ecosystem.

Merck's strategic framework includes our commitment to operate responsibly to enable a safe, sustainable, and healthy future for people and communities. Building on our legacy of stewardship, and in line with our ESG **materiality assessment**, we direct resources to drive progress in the four long-standing ESG focus areas that matter most to our Company and create value for our stakeholders: Access to Health, Employees, Environmental Sustainability, and Ethics & Values. We continue to strategically embed actions in each of these areas across our business operations to support and lift our purpose through our ESG approach.

Our Purpose

We use the power of leading-edge science to save and improve lives around the world

Our Aspiration

We aspire to be the premier research-intensive biopharmaceutical company

Our Strategic Framework

Our Priorities

- Invest in, augment, and accelerate our pipeline to deliver life-changing products
- Demonstrate value to our stakeholders and extend access to solutions that address unmet medical needs
- Drive innovation, growth and productivity enabled by digital and data
- Invest in the growth, success, and wellbeing of our people

Our Ways of Working

Win as one team

Focus on what matters

Act with urgency

Experiment, learn and adapt

Embrace diversity and inclusion

Speak up and be open-minded

Our Values

- Patients First
- Ethics and Integrity
- Respect for People
- Innovation and Scientific Excellence

We operate responsibly every day to enable a safe, sustainable and healthy future for people and communities everywhere

Our ESG focus areas

Access to Health

In collaboration with key stakeholders, we work to ensure our science advances health care, and our products are accessible and affordable to those in need.

*To learn more, see **page 14**.*

Employees

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

*To learn more, see **page 18**.*

Environmental Sustainability

We consider the impacts of our operations and strive to operate our business sustainably to support the health of our planet and its people.

*To learn more, see **page 21**.*

Ethics & Values

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

*To learn more, see **page 23**.*

ESG goals and performance

Our ESG goals represent our public commitments to delivering greater value to society. Included below is the progress we made in 2021.

Access to Health

GOAL	PROGRESS
Further advance health equity by reaching **30 million** people in low- and middle-income countries and in U.S. underserved populations with our social investments, by 2025.[3]	**15 million** people reached[4]
Reach at least **75%** of countries around the world annually with our products.[5]	**79%** of countries reached in 2021
Enable **100 million** more people to access our innovative portfolio globally, through access strategies, solutions and partnerships, by 2025.[6]	Enabled access for **66.7 million** people[4]

*Read more about our access to health progress and results on **pages 14-17**.*

Employees

GOAL	PROGRESS
Increase representation in senior management roles,[7] by 2024:	
Women globally to **40%**, up from 31% in 2020.	**36%** women
Black/African Americans in the U.S. to **10%**, up from 3% in 2020.	**7%** Black/African Americans in the U.S.
Hispanics/Latinos in the U.S. to **10%**, up from 5% in 2020.	**6%** Hispanics/Latinos in the U.S.
Maintain or exceed our current inclusion index score, by 2025.[8]	**On track**
Maintain or exceed our current employee engagement index score, by 2025.[9]	**On track**

*Read more about our employee progress and results on **pages 18-20**.*

Environmental Sustainability

GOAL	PROGRESS
Reduce our operational greenhouse gas (GHG) emissions (i.e., Scopes 1 & 2) **46%** by 2030, from a 2019 baseline.[10]	**9% reduction** in Scope 1 and 2 emissions from 2019 baseline
Achieve **carbon neutrality** across our operations by 2025 (Scopes 1 & 2 emissions).[10]	In progress. Any remaining emissions will be offset with **high-quality offsets** in 2025.
Source **100%** of our purchased electricity from renewables by 2025.[11]	**41%** of purchased electricity sourced from renewables in 2021
Reduce our value chain (Scope 3) GHG emissions by **30%** by 2030, from a 2019 baseline.[12]	**9%** increase in Scope 3 emissions from 2019 baseline

*Read more about our environmental sustainability progress and results on **pages 21-22**.*

Ethics & Values

GOAL	PROGRESS
Foster a "Speak Up" culture by maintaining or exceeding our current percentage of employees responding favorably to the "Willingness to Report" question in the Pulse survey as an annual average.[13]	**On track**
Maintain **100%** compliance to regulatory requirements for active incident monitoring, risk/harm analysis and on-time notification of data breaches.[14]	**100%** compliance maintained

*Read more about our ethics and values progress and results on **pages 23-24**.*

A framework for the greater good

In December 2021, we launched our **Sustainability Financing Framework** to raise and direct funds to the most critical projects we're supporting to meet our ESG goals and support our overall ESG strategy. Our first offering under this framework was a $1 billion sustainability bond, which we intend to use to support projects and partnerships in our priority ESG areas.

These projects and partnerships range from increasing access to essential health care services to water and waste management initiatives. We're excited about the potential to pair the meaningful impact of this framework with our broader business objectives.

ESG materiality

Understanding and prioritizing the ESG issues that matter most to our business and stakeholders enables us to focus, act and report on them effectively and transparently. Our ESG materiality assessment process offers insight into future trends and potential business risks and opportunities that influence our ability to create value. It helps us determine where we should be prioritizing our efforts in order to maximize the benefit for our stakeholders, our Company and the world.

Our priority topics

From our ESG materiality assessment conducted in 2021, we identified the following top priorities for our stakeholders from among the 32 most significant ESG topics for our sector. We perform these assessments every two years to ensure continuing alignment across stakeholders. Our next assessment will take place in 2023.

*To learn more about our ESG materiality process, please see **page 48**.*

Sustainable Development Goals (SDGs)

The SDGs represent the international community's plan of action for "people, planet and prosperity." The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 SDGs, which are an urgent call for action by all countries in a global partnership.

At Merck, we believe we have an important role and responsibility to help reduce the burden of disease and improve access to medicines and vaccines around the world. That is why SDG 3 (Good Health and Well-being) is at the core of our business and is aligned with our purpose to save and improve lives. While all of the SDGs are essential to fostering sustainable development, we have prioritized eight global goals where we are positioned to have the biggest impact.

*A full SDG index can be found on **page 190**.*

Select awards and recognition

Fortune

World's Most Admired Companies 2021 and 2022
Ranked #2 most admired company in the Pharmaceutical category for both years

Disability:IN®

Best Places to Work for Disability Inclusion 2021 and 2022
8th year in a row

3BL Media

100 Best Corporate Citizens of 2021 and 2022
Ranked #1 in the Pharmaceuticals, Biotechnology & Life Sciences category

Just Capital / Forbes

Just 100 List 2021 and 2022
Ranked #1 in the Pharmaceuticals & Biotech category for both years

Newsweek

America's Most Responsible Companies 2021 and 2022
Ranked #9 in 2022

Forbes

America's Best Employers 2021 and 2022
8th year in a row

The Human Rights Campaign Foundation

Best Places to Work for LGBTQ+ Equality 2021 and 2022
9th year in a row

Bloomberg

Gender-Equality Index 2021 and 2022
3rd year in a row

Barron's

100 Most Sustainable Companies 2021 and 2022
Ranked #1 in the Pharmaceuticals category

How our ESG priorities contribute to a better and healthier society

Over the past year, we challenged ourselves to innovate and make ambitious commitments within each of our ESG focus areas. Through collaborative partnerships and a holistic approach, we're creating scalable solutions to major global issues. The following pages highlight why each of our ESG focus areas matter to our success, the results we've achieved and our goals for the future.

Access to Health

Employees

Environmental Sustainability

Ethics & Values

ESG focus area:

Access to Health

We aspire to improve access to health by discovering, developing and providing innovative products and services that save and improve lives. We also recognize a robust health care ecosystem expands Merck's impact, opportunities and value.

Our Public Policy and Responsibility Council (PPRC), an internal body of senior leaders who govern our policy and ESG efforts, guides our global approach to access in tandem with our **Access to Health Guiding Principles**. We embed strategies and actions across the Company to enable access.

Access to Health Guiding Principles:

- Discovery and Invention
- Availability
- Affordability
- Strengthening Systems and Addressing Inequity

Discovery and invention

Merck discovers and invents medicines and vaccines that address vital global health needs where we can have the greatest impact, now and in the future. In 2021 alone, our research and development (R&D) spend was $12.2 billion. We systematically evaluate our R&D candidates to identify the potential to address significant public health challenges and unmet medical needs of patients, including in resource-constrained settings. Our approach involves assessing the existing burden of disease, the availability of alternative medicines and vaccines and the appropriateness of our products to improve public health. Understanding where health system infrastructure and funding mechanisms are in place is an important component of enabling safe and effective usage and facilitating meaningful patient access. This process informs our product access solutions with the goal of making our medicines and vaccines available to as many people as possible.

Diversity in clinical trials

In the many countries where we conduct clinical trials, one of our most important ongoing efforts is to design studies that reflect the diverse populations we serve. This process begins with selection of clinical trial sites in communities serving underrepresented ethnic groups. We plan and conduct our trials in a way that incorporates enrollment and other diversity-focused goals, to help drive inclusion and access across our programs with our clinical trial sites.

Additionally, we continue to be a vocal contributor and participant in various partnerships and sponsorships intended to connect with, support and train more U.S.-based clinicians from diverse backgrounds to help drive access to clinical research at the community level. This makes our continued work as a co-sponsor of the **Improving Patient Access to Cancer Clinical Trials (IMPACT)** study at the Lazarex Cancer Foundation even more important. IMPACT is a 3-year pilot study that strives to improve patient enrollment, retention, minority participation and equitable access in oncology trials. We've also developed and implemented novel tools and approaches intended to build relationships and reach potential study participants within their own communities, including partnerships with local pharmacies and mobile study sites.

Availability

Merck makes available a reliable, safe global supply of quality medicines and vaccines, and invests in solutions to enable timely access to our products in a responsible and sustainable manner. We have strict quality standards and effective supply chain management to ensure the safety and security of our products, no matter where they are manufactured.

Goal

We are committed to reaching at least **75%** of countries around the world annually with our products.

A new rabies contract for Animal Health

In May, our Company won the rabies tender for the World Organisation for Animal Health (WOAH, founded as OIE) Vaccine Bank to provide rabies vaccines as a part of initiatives to eliminate human deaths from dog-mediated rabies for the years 2022-2025. The WOAH Rabies Vaccine Bank is co-funded by donors and partners of WOAH. This bank supports vital distribution of the rabies vaccine to dogs in countries where the disease is endemic. The program provides access to countries to these vaccines for targeted vaccination programs with at-risk populations. Over the first five years of its existence (2012-2016), the WOAH Rabies Vaccine Bank delivered almost 16 million doses of rabies vaccine, making a significant impact on animal and human health.

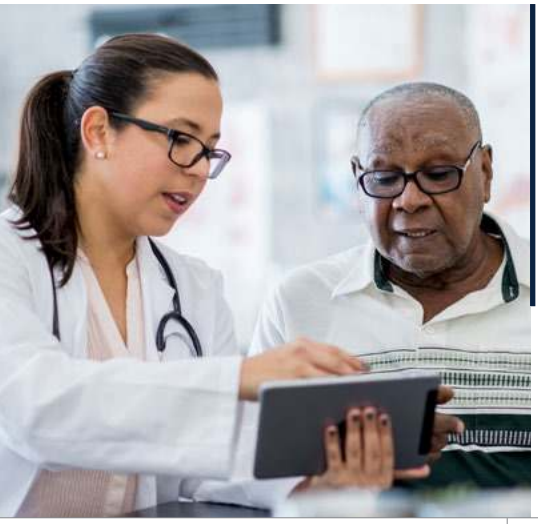
Expanded manufacturing capabilities for broad, equitable vaccine access

Merck's partnership with UNICEF and Gavi, the Vaccine Alliance to bring human papillomavirus (HPV) vaccines to those most in need has been longstanding, with Merck most recently committing to provide 91.5 million doses for use in Gavi-supported countries from 2021 to 2025. Expansions to our Elkton, Virginia, manufacturing facility were completed in 2022 to increase capacity and supply of HPV vaccines following regulatory reviews and approvals. With plans for additional expansions to existing and new facilities, we expect supply of HPV vaccines to double between 2020 and 2023.

Affordability

We aspire to enable solutions and shape an ecosystem that delivers sustainable access to innovative medicines for patients. We collaborate with different stakeholders, including private, governmental, multilateral and non-profit organizations, to design and deliver solutions that address the access challenges at the payer, provider and patient levels.

When market-based solutions are inadequate or unavailable, we pursue programs to provide direct access to our medicines and vaccines, including product donations and patient assistance programs. As the war in Ukraine continues, we're committed to getting life-saving support, medicines, vaccines and supplies to those who need them most. In the first half of 2022, we committed donations of more than $93 million in essential products and funds[15] to various organizations, working in tandem with our own subsidiary in the region to ensure that refugees and those who remain inside the country have access to health care.



Goal

By 2025, our goal is to enable **100 million** more people to access Merck's innovative portfolio globally, through access strategies, solutions and partnerships.

Our current portfolio of projects focused on dedicated sustainable access solutions is global, inclusive of the U.S. and low- and middle-income countries (LMICs). These projects are in various stages of development, from diagnosing the access challenges to delivering solutions in the market.

*Learn more about these efforts on **page 59**.*

Strengthening systems and health equity

Our approach to expanding access and patient reach is built on the belief that broadening our impact requires sustained effort and is best achieved through solving underlying health care system challenges.

We have a long history of partnering to strengthen health systems and address health equity. Since 1957, our Company's Foundation has contributed nearly $1 billion to support programs that address important global health and societal needs.

Goal

We are committed to advancing health equity by reaching **30 million** people in LMICs and in U.S. underserved populations with our social investments, by 2025.[3]

Merck for Mothers

Merck for Mothers is our global initiative to help create a world where no woman has to die while giving life. Applying our business and scientific expertise, we are working across sectors to improve the health and wellbeing of women during pregnancy, childbirth and postpartum. We're proud to announce that following the 10th anniversary of our initial $500 million investment, we have extended the program with an additional investment of $150 million, with a goal of reaching 25 million women by 2025.

ESG focus area:

Employees

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

The success of our Company is built on a culture that embraces different perspectives and values the contributions of each individual, and we recognize that our competitiveness is strengthened by a diverse, skilled and engaged workforce.

We take a thoughtful approach to workplace inclusion and belonging. Our Company invests in employee development and wellbeing. These investments are guided by our global diversity and inclusion strategy as well as our Pulse survey, which is conducted multiple times a year.

Progress towards pay equity

Our commitment to fair and equitable pay for all employees is consistent with our core values, and we engage external partners annually to ensure this commitment is carried out in the U.S. and abroad. As of 2021, approximately 75 percent of our global employee population has undergone a pay equity study. We anticipate these pay equity studies will achieve nearly global workforce coverage by the end of 2022.

*Read more about our efforts toward pay equity in GRI 405 on **page 149**.*

Global diversity and inclusion (GD&I)

Our ability to accomplish our GD&I objectives is linked to our GD&I Strategy—our framework for a sustainable competitive advantage. Through it, we aim to create an environment of belonging, engagement, equity and empowerment that aligns with our purpose to save and improve lives. Ultimately, our globally diverse and inclusive workforce uses this foundation as a means to improve patient health.

Our diversity and inclusion efforts focus on:

- **Our People:** Strengthen the foundational elements of diversity
- **Our Culture:** Ensure accountability to drive an inclusive culture
- **Our Business:** Continue to leverage diversity and inclusion to ensure business value
- **Our World:** Transform the environment, culture and business landscape

These business objectives are fully aligned to drive long-term, sustainable business performance. Our GD&I Center of Excellence (CoE) is composed of five diversity ambassador teams to oversee this alignment. Each team brings together leaders from across functional areas to ensure integration throughout the business.

GD&I is a commitment at the highest levels of the Company. Our CEO routinely reviews diversity metrics to ensure progress against goals, and drives accountability with Company leaders.

>99% pay equity

in the U.S. for female and male employees, and for non-white (including Black, Hispanic and Asian employees) and white employees, in each case, in equivalent positions

Accountability in leadership

Our Company's Board of Directors believes in the business value of having diverse perspectives in the boardroom and is deliberate in ensuring the Board has the right mix of perspectives, skills and expertise to address the Company's current and anticipated needs as opportunities and challenges facing the Company evolve. Today, 43 percent of our Company's Board members are female and 21 percent are from underrepresented ethnic groups.

From a management perspective, women represent 36 percent of our senior management teams and 44 percent of all managers. Forty-two percent of our executive team and 25 percent of our senior management teams are from underrepresented ethnic groups.

Goals

Our goals are to continue to increase representation in senior management roles by 2024:

- Women globally to **40%**, up from 31% in 2020
- Black/African Americans in the U.S. to **10%**, up from 3% in 2020
- Hispanics/Latinos in the U.S. to **10%**, up from 5% in 2020

Expanding our pipeline of diverse talent

In the past year, we greatly expanded outreach to Historically Black Colleges and Universities (HBCUs) by partnering with several organizations, including the College Diversity Network and the National Urban League, to focus on building deep partnerships with colleges, students, faculty and alumni of HBCUs.

We also focus on systemic barriers that limit the candidate pool based on geographic location of open positions and talent residency, and on job prerequisites of having prior pharmaceutical experience. To broaden our access to diverse talent, we post some positions with an option to work virtually, offer relocation services and are agnostic about prior pharmaceutical experience.

*For more on how our GD&I strategic framework aligns with our priorities, see GRI 405 on **page 148**.*

A culture of wellbeing

As a company that aspires to improve access to health and save and improve lives, we know that to be truly successful, we must prioritize the health, wellbeing and safety of our employees. We placed a special emphasis on employees' mental health during the pandemic, and we're keeping true to that commitment moving forward.

We focus our comprehensive approach to wellbeing on four pillars: prevention, balance, fuel and movement. These represent a continuum of actions focused on creating healthy habits and changing behaviors one step at a time. It includes physical, emotional and mental health, financial wellbeing and safety. It gives our employees and their families a wide range of programs, resources, tips and tools to help make healthy choices and enrich their lives.

Our Pulse surveys, which are conducted multiple times a year, allow us to measure our employees' perceptions on inclusion and other critical workforce issues. These surveys are just one of the avenues we use to directly engage employees and remain accountable to their needs. By prioritizing our employees, we will continue to attract and retain highly qualified people who better serve our stakeholders and contribute to the long-term success of our ESG performance and our business.

Equipping managers to respond to mental health challenges

Merck promotes a culture of mental health and wellness—one that surrounds employees with the environment, programs and services that support making healthy choices. Managers play a critical role in supporting team members who may be experiencing mental health issues and challenges. To equip our managers further, we provide a Mental Health Awareness for Managers e-Learning module as support before starting any conversation with an employee about mental wellbeing. Launched in September 2020, the e-Learning program R U OK? provides facts, talking points and tips managers can use to discuss emotional wellbeing and mental health in a safe, nonjudgmental way. Over 4,000 employees have completed the training and approximately 2,000 employees have signed the Stamp Out the Stigma pledge.

▶▶▶ *To learn more about how we support employee wellbeing, please see GRI 405 on **page 153**.*

Goals

Our goals are to **maintain or exceed** our current inclusion index and employee engagement index scores by 2025, by continuing to respond to employee feedback on workforce issues and integrating their input into decision-making.

ESG focus area:

Environmental Sustainability

A healthy planet is essential to human health and the sustainability of our business, while also enhancing opportunities for product innovation and reducing cost and risk.

Our Company has a long history of environmental stewardship and compliance, and we realize that our strategy and efforts need to continuously evolve in the face of a changing climate.

Our environmental sustainability strategy has three focus areas:

- Driving operational efficiency
- Designing new products to minimize environmental impact
- Reducing any impacts in our upstream and downstream value chain

A primary focus in each of these areas is on climate action. In last year's report, we established climate goals to meet and exceed the evolving expectations of our stakeholders and employees. In 2021, our Scopes 1 & 2 and Scope 3 reduction targets were verified by the Science-Based Targets initiative (SBTi).

Goals

- We will achieve a **46%** reduction of operational greenhouse gas emissions (i.e., Scopes 1 & 2), by 2030, from a 2019 baseline
- Achieve **carbon neutrality** across our operations by 2025 (Scopes 1 & 2 emissions)
- We will source **100%** of our purchased electricity from renewables by 2025
- We will achieve a **30%** reduction in Scope 3 GHG emissions by 2030, from a 2019 baseline

Low Carbon Transition Playbook

In 2021, we launched Merck's Low Carbon Transition Playbook—a tool to help create a site strategy by identifying gaps, uncovering opportunities and creating a common platform for assessment of levers and resource deployment across a range of sustainability initiatives. It also details how employees and stakeholders can accelerate the Company's environmental work, along with explanations of the collective benefits of these actions for the business and for stakeholders.

We expect functions across the Company to take advantage of this document to strategize and develop new ways to meet many of our broader sustainability goals and streamline our tracking and reporting of specific metrics and categories.

Partnering for progress across our value chain

In October 2021, we were one of 10 pharmaceutical companies to sign on to Schneider Electric's *Energize* program, a pioneering collaboration to help pharmaceutical and health care suppliers address their own operational Scope 2 greenhouse gas emissions through green power procurement, which in turn will help the signatories reduce their Scope 3 emissions. We anticipate being able to report initial progress from this endeavor next year.

Product stewardship and green and sustainable science

Our product stewardship program focuses on identifying and either preventing or minimizing potential safety and environmental hazards throughout a product's life cycle. We are also committed to understanding, managing and reducing the environmental impacts of our products and the materials associated with discovering and producing them. Our green and sustainable science program uses a "green-by-design" approach. By using more efficient and innovative processing methods and technologies, we are reducing the amount of energy, water and raw materials we use to make our products, thereby minimizing the amount of waste we generate and lowering our production costs.

For more information on our product stewardship approach, see our **Global Antimicrobial Resistance Action Plan**, policy on the **Responsible Disposal of Medicines** and our approach to **Pharmaceuticals in the Environment** on our corporate website.

ESG focus area:

Ethics & Values

Ethics and integrity are the foundation for how we operate, and through our unwavering commitment to transparency, we earn the trust and confidence of our stakeholders. A fully ethical, values-based and accountable culture improves the Company's decision-making, adaptability and reliability. We strive to maintain a culture where employees can and are encouraged to speak up and ensure our ethics and values are represented in everything we do.

Approach to ethics and compliance

Merck's Office of Ethics is responsible for ensuring that employees are aware of and trained on the **Code of Conduct**, **Our Values and Standards,** and Corporate Policies addressing ethics and compliance.

Our Code of Conduct details clear ethical expectations and principles to guide the operations of the Company. It is available in 19 languages and applies to all employees worldwide. The Code of Conduct sets out core values and principles and helps us to protect the reputation we have earned.

At Merck, we recognize that when we invest in compliance, risk management and transparency, it enhances stakeholder trust and confidence in our ability to consistently deliver high-quality products and services for future generations.

We use our **Business Partner Code of Conduct** to communicate our expectations for human rights; labor unemployment; health, safety and environment; and ethical business practices. This code, along with our Company's **supplier performance expectations**, is communicated to existing and potential third parties with which we now, or potentially will, engage in support of our sourcing initiatives. We offer these documents in 26 languages to promote these standards across our thousands of suppliers.

Our Code of Conduct training series is annually completed by more than

99% of our employees

*For more information on our ethics and compliance policies, please see GRI 205 on **page 78**.*

Promoting a “Speak Up” culture

In the U.S., Merck’s “Speak Up” reporting tool is operated by an independent third party and is available 24 hours a day, seven days a week to allow employees and suppliers to raise concerns or ask questions in their chosen language online or via telephone. Outside of the U.S., we have three regional ethics officers who manage a network of site-based ethics ambassadors. The ethics ambassadors are trained to answer employee questions about the Company's reporting and investigation process, guide employees to appropriate channels for raising concerns and actively support the “Speak Up” culture. These services are anonymous where permitted by local law, but always confidential.

Goal

On an annual basis, we will endeavor to foster this “Speak Up” culture by **maintaining or exceeding** the average percentage of employees responding favorably to the “Willingness to Report” question in our Pulse survey, which is conducted multiple times a year.

Ethical Leadership workshops

As an example of an industry-leading best practice to build on an already strong culture of ethics and integrity, in 2021 our Company hosted Ethical Leadership workshops focusing on workplace respect in all eight Latin American markets. These workshops helped train leaders in building and sustaining a culture of ethics and integrity and provided tools for successful team conversations.

A post-workshop survey revealed that in comparison to previous surveys, employee responses had improved in willingness to “Speak up and be open minded” and to “Challenge the status quo.” Both categories are now performing three points above the Company average for these markets.

Managing digital risk

We recognize that cybersecurity events and innovative uses of data pose an increased risk to our business and stakeholders. In response, we are continually refining our global privacy program, which is designed to promote organizational accountability for privacy, data governance and data protection across our business and with our collaborative partners and suppliers.

Goal

Commitment to maintain **100%** compliance to regulatory requirements for active incident monitoring, risk/harm analysis and on-time notification of data breaches.

*To learn more about our approach to data security and privacy, please visit GRI 418 on **page 175**.*

References

[1] As defined by the **World Bank Country and Lending Groups**. Includes only human health products.

[2] As of December 31, 2021.

[3] Social investments include our Company's philanthropic partnerships, programs and impact investments. Underserved populations are defined as those that face health disparities due to disadvantages related to insurance status, social determinants of health, race, ethnicity, gender identity/sexual orientation, age and/or language preference. The goal is cumulative across the reporting period of 2021-2025, and is independent of a baseline period.

[4] Third-party reporting is used to calculate the number of people reached through social investments. In some cases, third-party reports may include cumulative people reached for the reporting period, and/or data that is attributable to other partners as well as our Company's philanthropic investment.

[5] Countries are as defined by the World Bank Country and Lending Groups. Includes only human health products.

[6] 100 million total is cumulative. Access strategies, solutions and partnerships include U.S. patient assistance programs, voluntary license agreements and partnerships. "Enable more people" is defined as implemented and launched in market and is in comparison to the baseline in 2020. "Access" is defined as products registered, launched and available in the market. Portfolio of products include Oncology, Vaccines, HIV treatments and COVID-19 treatments.

[7] Senior management roles reflect Band 700, which comprises our vice presidents and senior vice presidents.

[8] The inclusion index is the average favorability score for employees' responses to three items in the employee Pulse survey (manager supports inclusion, sense of belonging, leaders value perspective) across all surveys in that year.

[9] The employee engagement index is the average favorability score for employees' responses to items in the employee Pulse survey (happiness, recommend the Company, intent to stay).

[10] Scope 1 emissions are direct greenhouse gas (GHG) emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces or vehicles). Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat or cooling.

[11] 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.

[12] Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly impacts in its value chain.

[13] Favorable response indicates the percentage of respondents who respond "yes" to the question stating, "I am willing to report employee misconduct and potential ethics or compliance issues." To align with where the industry is moving regarding future-oriented ethics and business integrity metrics, this year we have selected a Pulse survey question directly focused on measuring how well Company culture aligns with ethics and integrity principles.

[14] Regulatory requirements differ by region.

[15] Product donations and funding to Ukraine remain on-going in 2022.

GRI/SASB disclosures

General disclosures

See our GRI Index on **page 178**.

Organizational profile

GRI 102-1	Organization name (Core)
GRI 102-2	Primary brands, products, and services (Core)
GRI 102-3	Headquarters location (Core)
GRI 102-4	Location of operations (Core)
GRI 102-5	Ownership and legal form (Core)
GRI 102-6	Markets served (Core)
GRI 102-7	Scale of the organization (Core)
GRI 102-8	Information on employees and other workers (Core)
SASB 000.B	Number of drugs (1) in portfolio and (2) in research and development (Phases 1-3)

We are a global health care Company that delivers innovative health solutions through our prescription medicines, vaccines, biologic therapies and animal health products. In the U.S. and Canada, we are known as Merck & Co., Inc., Rahway, NJ, USA. Elsewhere we are known as MSD.

Operating segments

Our operations are principally managed on a products basis and include two operating segments:

- Pharmaceutical
- Animal Health

Our Pharmaceutical segment includes human health pharmaceutical and vaccine products. Human health pharmaceutical products consist of therapeutic and preventive agents, generally sold by prescription, for the treatment of human disorders. We sell these human health pharmaceutical products primarily to drug wholesalers and retailers, hospitals, government agencies and managed health care providers such as health maintenance organizations, pharmacy benefit managers and other institutions.

Human health vaccine products consist of preventive pediatric, adolescent and adult vaccines. We sell these human health vaccines primarily to physicians, wholesalers, physician distributors and government entities.

The Animal Health segment discovers, develops, manufactures and markets a wide range of veterinary pharmaceutical and vaccine products, as well as health management solutions and services, for the prevention, treatment and control of disease in all major livestock and companion animal species. We also offer an extensive suite of digitally connected identification, traceability and monitoring products. The primary customers for our animal health products are veterinarians, distributors and animal producers.

*You can find a list of our **products**, as well as our **pipeline**, on our corporate website.*

*For more information on our financials, please see GRI 201-1 on **page 52**, as well as our **2021 Form 10-K**.*

Locations

Our corporate headquarters are located in Rahway, New Jersey, USA. We will be consolidating our New Jersey campuses into Rahway by the end of 2023. We maintain operational or divisional headquarters in Madison, New Jersey, and Upper Gwynedd, Pennsylvania.

Principal U.S. research facilities are located in Rahway and Kenilworth, New Jersey; West Point, Pennsylvania; Boston and Cambridge, Massachusetts; South San Francisco, California; DeSoto, Kansas (Animal Health); and Elkhorn, Nebraska (Animal Health).

Principal research facilities outside the U.S. are located in the United Kingdom, Switzerland, China, Germany (Animal Health) and the Netherlands (Animal Health). Our manufacturing operations are currently headquartered in Rahway, New Jersey. We also have production facilities for human health products at seven locations in the U.S. and Puerto Rico. Outside the U.S., the Company owns or has an interest in manufacturing plants or other properties in Japan, Singapore, South Africa, and other countries in Western Europe, Central and South America, and Asia. A number of properties were transferred to a new, independent, publicly traded company named Organon & Co. that was spun-off from Merck in June 2021, and more information on this transaction can be found in GRI 102-10 on **page 34**.

Ownership

The principal market for trading of our common stock is the New York Stock Exchange (NYSE) under the symbol MRK. As of January 31, 2022, there were approximately 99,900 shareholders of record of the Company's common stock.

Employees

As of December 31, 2021, we had approximately 68,000 employees worldwide, which includes approximately 27,000 employed in the U.S. (including Puerto Rico) and approximately 14,000 third-party contractors globally. Approximately 67,000 employees are full-time. Women and individuals with ethnically diverse backgrounds comprised approximately 50 percent and 32 percent of the workforce in the U.S., respectively.

Employees by region (2021)

Number of employees | **Worldwide percentage**[1]

Canada
562 | 0.8%

Europe (Western)
17,943 | 26.3%

Japan
3,147 | 4.6%

U.S.
26,727 | 39.1%

China
6,396 | 9.4%

Asia-Pacific
5,997 | 8.8%

Latin America
4,672 | 6.8%

Eastern Europe, Middle East and Africa
2,855 | 4.2%

[1] Numbers may not add up to 100 percent due to rounding.

*For more information on our diversity, equity and inclusion figures, please see GRI 405-1 on **page 159**.*

GRI 102-9 Supply chain (Core)

Our Company is committed to the highest ethical standards to help maximize the long-term sustainability of our business and of the communities in which we operate. We strive to conduct business with third parties that share our commitment to high ethical standards and operate in a responsible and ethical manner. The term "third party" is broadly interpreted to include any individual or entity that provides any type of goods or services in support of our sourcing initiatives. We expect all third parties with whom we engage to comply with all applicable regulations, as well as share in our commitment to the principles outlined in our **Business Partner Code of Conduct**.

We manufacture, package and distribute products to more than 140 markets around the world. We have established business relationships with thousands of suppliers including direct suppliers (including external manufacturing providers), capital expenditure suppliers, indirect suppliers and research providers. Our direct suppliers provide us with goods such as packaging, components and ingredients. Capital expenditure suppliers provide goods and services such as engineering and construction. Our indirect suppliers include those that provide services such as logistics, travel and meetings, facility management and marketing. Our research providers include lab supplies and other research and development-related services.

Our approach to sustainable sourcing

We have a sourcing management process in which environmental sustainability, social responsibility, and economic inclusion and supplier diversity (EI&SD) principles are integrated in each stage. Throughout the supplier life cycle, our Company establishes expectations, assesses risk, supports supplier development and manages performance.

Our Global Supplier Management Group (GSMG) is responsible for driving our Sustainable Sourcing program and maintaining the associated standards and processes by which suppliers are identified, qualified and managed.

Our Sustainable Sourcing program has the following key elements:

- Integration into our Global Sourcing & Procurement Strategy and processes
- A cross-functional team that oversees program development and the processes and guidelines to encourage best practices, prevent violations of supply chain standards and limit risk
- Established sustainability requirements that are communicated to our suppliers and included in supplier selection
- Review, tracking and communication of supplier sustainability programs
- Collaboration as we educate and learn from our supply chain, peer companies and best-in-class organizations

Third-Party Risk Management team

To help manage and address potential areas of risk associated with third party business relationships, we have an established Third-Party Risk Management program and committee chaired by the senior vice president for Global Procurement. The committee establishes, implements and monitors environmentally, socially responsible and ethical sourcing practices to ensure that performance is aligned with our purpose. The cross-functional team includes leaders from our business areas as well as functional areas that monitor risk, including Compliance, Global Safety and the Environment, Information Technology Risk Management & Security, Business Development, and ESG Strategy & Engagement. Representatives from each function meet regularly to discuss, assess and manage issues on a risk-driven basis.

Supplier selection and setting expectations

We select suppliers that share our commitment to our values and principles. We expect appropriate standards of conduct and respect for human rights from our suppliers, contractors, vendors and external partners to be consistent with our own. We use our Business Partner Code of Conduct to communicate our expectations for Human Rights, Labor & Employment, Health, Safety & Environment, and Ethical Business Practices. Our Business Partner Code of Conduct, along with our **Supplier Performance Expectations**, are communicated to existing and potential third parties. They are included in requests for information, proposals and quotes, as well as in our purchase order terms and conditions. We make our Business Partner Code of Conduct available in 26 languages.

Our Business Partner Code of Conduct references the **Pharmaceutical Supply Chain Initiative (PSCI)** Principles for Responsible Supply Chain Management (the Principles). PSCI is a group of more than 50 pharmaceutical and health care companies which promotes sustainable sourcing and better business conditions across the industry, and the Principles set the standard for human rights, ethics, labor, health and safety, environment and related management systems. In 2020, the Principles were updated to include a specific reference to human rights, the UN Guiding Principles on Business and Human Rights, an enhanced ethics section and new clauses on resource efficiency and sustainable sourcing.

Supplier certification and material review

In 2021, GSMG continued a program to certify our suppliers' social and environmental sustainability program capabilities. We request select suppliers provide sustainability certifications and assurance, which are evaluated to determine if the supplier can be certified as a member of our GREEN Supplier Program.

Travel and Meetings (including Fleet), Integrated Logistics and Paper-based Packaging Categories are currently included in this program, which:

- Encourages supplier engagement
- Shares best practices and improves sustainability practices
- Tracks supplier sustainability goals
- Generates a list of GREEN Suppliers and proposed sustainability projects
- Monitors progress utilizing a key performance indicator (KPI) on the GSMG Scorecard

Additionally, we initiated and participated in a collaborative research project with PSCI to identify risks associated with our suppliers, including prioritizing materials that are considered sensitive. PSCI has identified materials commonly used within our industry that warrant further examination.

These materials include:

- Rubber
- Corn
- Palm oil
- Aluminum
- Shellac
- Glass
- Sugar
- Talc
- Fish oil
- Castor seed/oil
- Soy
- Cellulose
- Ethanol
- Carnaúba wax

We are incorporating findings from the PSCI joint project into our internal risk assessment and mitigation approaches. In addition, we have developed a method for evaluating certifications and materials of concern. We have also been mapping our supply chain to identify which of our suppliers operate in countries that are known to present significant risks. We use this information to help us decide the appropriate level of due diligence.

We recognize that potential risks associated with these materials may also exist beyond our Tier 2 suppliers, and we plan to participate in efforts (in collaboration with PSCI) to ensure that the materials we use are sourced responsibly.

In 2022, we also surveyed select packaging suppliers and found that most of the suppliers were able to offer certified materials.

Supplier due diligence assessments

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, 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 with senior management across the Company.

Our due diligence includes:

- Anti-bribery and corruption
- Conflict minerals
- Denied-party screening
- Ethics and compliance
- Financial solvency
- Information security and cybersecurity
- Intellectual property
- Labor and human rights
- Privacy (data protection)
- Supply-chain security

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. Additional review(s) are performed for external manufacturing suppliers and suppliers that manage personal and private information.

External manufacturers of our products

Prospective external manufacturers of active pharmaceutical ingredients and finished products are screened for environmental, health and safety (EHS) compliance in addition to quality, 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 Quality, Global Safety and the Environment, Global Technical Operations and GSMG 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.

Protecting the privacy of personal information

Some of our suppliers, such as contract research organizations, market research agencies, information technology systems developers, corporate card suppliers, and travel and meeting agencies process personal information in connection with their performance of services for our Company. We require these suppliers to provide appropriate privacy protection for personal information that they handle in accordance with our privacy policies and applicable privacy laws, regulations and guidelines.

Protecting against cyberattacks and assuring business continuity

We recognize that cybersecurity events at suppliers pose an increased risk to our business continuity. In 2021, we continued our supplier cyber resiliency risk management program to conduct assessments and review risks and remediation actions with key suppliers. We also expanded the program by rolling out cybersecurity contract language with selected key suppliers. The program fosters mutually beneficial working relationships with our suppliers. We continue to enhance the program to improve operational excellence and continuous monitoring capabilities.

Collaboration is key

We are an active member of PSCI. The member companies share a vision of better social, health, safety and environmental outcomes in the communities where we buy. Collectively, PSCI members share knowledge and expertise across our industry to drive complex, global change more effectively with our suppliers than any one organization alone.

In 2021, our Company held a one-year position on the PSCI board. We also continue to co-lead the Environment Team, and be active members on the Capability Committee and the Human Rights and Labor team.

Training

We understand the importance of training and, in 2021, developed and provided numerous training events assigned to employees, industry peers and suppliers. Most of our internal classes are assigned through our centralized learning system. In addition to providing training through our internal systems, we also work with PSCI to develop and provide training to our suppliers and peers.

Some examples of our training and associated tools include:

- Procurement Onboarding
- Third-Party Risk Management
- Business Partner Code of Conduct Training (Edition 2)
- Mitigating Modern Slavery Risks in Our Supply Chain
- 10 Environmental Sustainability Guides*
- 14 Responsible Sourcing Guides for Key Materials*
- Responsible Sourcing of Raw Materials Training*
- Sustainable Packaging*
- Revised PSCI Principles*
- Regulatory Overviews*
- Supplier Maturity Matrix*

*Training is available internally and externally; all other trainings are available for internal use only.

Communication to our stakeholders

We have an internal webpage maintained by GSMG that provides information on our Sustainable Sourcing programs to employees and contractors. Examples of materials provided include our program summary, supplier data, benchmarking, supplier programs, training materials and newsletters. We also have a quarterly GREEN Supplier Spotlight newsletter, where we provide an overview of a supplier with a robust sustainability strategy.

*Additional details regarding our supplier-focused ESG programs can be found in GRI 204 on **page 75**, GRI 308 on **page 122**, and GRI 414 on **page 164**.*

Assessing the effectiveness of our program

During 2021, we reviewed the following KPIs to help us assess the effectiveness of our efforts in our business and supply chain. We use these measures to monitor our performance and identify opportunities to help improve our programs.

Supply chain	2017	2018	2019	2020	**2021**
Employees trained on mitigating modern slavery risks in our supply chain[1,2]	N/A	451	4	8	**4**
Employees trained on updated Business Partner Code of Conduct (Edition II)[1]	195	148	190	183	**137**
Employees trained on Third-Party Risk Management[1,3]	N/A	N/A	N/A	185	**997**
Supplier Self-Assessments[4]	466	595	706	547	**127**
Supplier Labor and Human Rights (LHR) audits conducted[5]	32	104	39	47	**10**
Supplier Labor and Human Rights (LHR) audit observations addressed/remediated[6]	100%	100%	99%	99%	**13%**
Supplier personnel trained in ESG[7]	N/A	N/A	N/A	1,492	**1,856**
GREEN supplier spend (in millions)[8,9]	N/A	N/A	N/A	$247	**$212**

N/A: Not available.
[1] Primary target: Procurement and business development staff with responsibility for supplier management.
[2] Training on modern slavery risks in our supply chain began in 2018 with applicable employees and is provided to all new relevant hires going forward.
[3] Formal training was created and rolled out in late 2020; prior to 2020, informal training was provided on an as needed basis.
[4] Undertaken as part of initial supplier due diligence, managed and overseen by GSMG; Scope includes labor and human rights, environment and safety, and ethical business practices. Decrease in number of assessments was due to the change in criteria in late 2020 for when a Supplier Self-Assessment is required using a risk-based approach.
[5] Announced on-site audits, independently performed by third-party audit firms; primary focus on direct material (Tier 1) supplier facilities located in China, India, Mexico and Indonesia. Decrease in number of LHR audits was due to the ongoing COVID-19 related restrictions and challenges for conducting on-site audits. A virtual LHR audit program is being adopted.
[6] Monitoring closure of past audit observations revealed by supplier LHR audits; not all Corrective Action Plan Assessments (CAPAs) are due within the same year. Remediation of LHR audits observations are in progress; some of these LHR audits were conducted in Dec 2021, hence the lower percentage for remediation.
[7] Formal training was created and conducted as joint effort with PSCI for responsible sourcing, environmental, and human rights and labor topics.
[8] 2021 metric represents 2020 spend data for the 2021 list of GREEN Suppliers.
[9] Our GREEN supplier program officially launched in 2020. The spend decreased in 2021 as a result of the Organon & Co. spin-off and the associated change in our supplier base.

GRI 102-10 Organizational changes during the reporting period (Core)

In April 2021, Merck acquired Pandion Therapeutics, Inc., a clinical-stage biotechnology company developing novel therapeutics designed to address the unmet needs of patients living with autoimmune diseases.

On June 2, 2021, we completed the spin-off of products from our women's health, biosimilars and established brands businesses into a new, independent, publicly traded company named Organon & Co. (Organon) through a distribution of Organon's publicly traded stock to Company shareholders. The established brands included in the transaction consisted of dermatology, non-opioid pain management, respiratory, select cardiovascular products, as well as the rest of our diversified brands franchise. Our existing research pipeline programs continue to be owned and developed within Merck as planned.

In November 2021, Merck acquired Acceleron Pharma, Inc. (Acceleron), a publicly traded biopharmaceutical company, which is evaluating the TGF-beta superfamily of proteins through the development of pulmonary and hematologic therapies.

In certain instances, to aid year-to-year comparability, we have restated data from prior years to exclude facilities that were part of the Organon spin-off. In the event that information from prior years has been restated, these changes are described in the footnotes beneath the specific performance data tables.

▶▶▶ *For more information on these organizational changes, please visit our **2021 Form 10-K**, pages 65–66, 83, 89–90, and 92–93.*

GRI 102-11 Precautionary principle (Core)

We take a precautionary approach when evaluating potential human exposures and environmental impacts resulting from our manufacturing processes. Conservative assumptions are made when data is 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, biosafety and environmental protection.

For more information on our approach to the precautionary principle, please refer to the following sections:

GRI 301 – Materials (page 83)

GRI 302 – Energy (page 88)

GRI 303 – Water and Effluents (page 93)

GRI 305 – Emissions (page 104)

GRI 306 – Waste (page 110)

GRI 307 – Environmental Compliance (page 116)

GRI 403 – Occupational Health and Safety (page 131)

GRI 102-12 External initiatives (Core)

Below are select examples of external charters, principles and initiatives which guide our work in our four ESG focus areas, or which we have endorsed. There is more information on each of these charters, principles and initiatives throughout this report, in addition to other multi-party collaborations mentioned in relation to specific disclosures.

Access to Health

- AMR Alliance Common Antibiotic Manufacturing Framework
- Antibiotic Commitment
- Declaration of Helsinki
- Industry Roadmap for Progress on Combating AMR
- International Council for Harmonisation: Good Clinical Practice (ICH-GCP)
- International Federation of Pharmaceutical Manufacturers & Associations (IFPMA) Code of Practice
- Kigali Declaration on Neglected Tropical Diseases
- U.S. National Academy of Sciences guidelines

*For more information on our approach to access, please see GRI 203 on **page 55**. For more information on Merck Animal Health, please visit our **Animal Health website**.*

Employees

- CEO Action for Diversity and Inclusion
- International Labour Office (ILO) Code of Practice on Recording and Notification of Occupational Accidents and Diseases
- OneTen Initiative
- Paradigm for Parity
- United Nations Women's Empowerment Principles

*For more information on our employees, please see GRI 401 to GRI 405 on **page 124**.*

Environmental Sustainability

- American Chemistry Council's (ACC) Green Chemistry Initiative
- Eco-Pharmaco-Stewardship (EPS) initiative
- Paris Climate Agreement
- Science-Based Target initiative (SBTi)
- UN CEO Water Mandate
- We Mean Business Coalition
- Conference Board Product Stewardship Council
- ACS Green Chemistry Institute Pharmaceutical Roundtable (ACS GCIPR)

*For more information on our approach to environmental sustainability, please see GRI 301 to GRI 308 on **page 83**.*

Ethics & Values

- European Federation of Pharmaceutical Industries and Associations (EFPIA) Code of Practice
- International Covenant on Civil and Political Rights
- International Covenant on Economic, Social and Cultural Rights
- International Federation of Pharmaceutical Manufacturers & Associations (IFPMA) Code of Practice
- International Labor Organization core labor standards
- Organization for Economic Cooperation and Development Guidelines for Multinational Enterprises
- Pharmaceutical Supply Chain Initiative (PSCI) Principles for Responsible Supply Chain Management
- PhRMA Code on Interactions with Health Care Professionals
- UN Guiding Principles on Business and Human Rights
- UN Global Compact
- UN Universal Declaration of Human Rights

*For more information on our approach to ethics and values, please see GRI 102-16 and GRI 102-17 on **page 39**, and GRI 412 on **page 161**. For more information on our supply chain, please see GRI 102-9 on **page 30**, GRI 204 on **page 75**, GRI 308 on **page 122** and GRI 404 on **page 142**.*

GRI 102-13 Membership associations (Core)

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.

Our top three trade associations in 2021:

- Pharmaceutical Research and Manufacturers of America (PhRMA)
- U.S. Chamber of Commerce
- Biotechnology Industry Organization (BIO)

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 purpose. 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.

The Governance Committee of the Board of Directors has ongoing oversight of our membership in trade associations and grassroots lobbying activities. Each year, the full Board of Directors receives a report that lists for the previous year (a) the U.S. industry and trade groups in which we are a member for which our dues are greater than $25,000 and (b) the amount of our dues that were spent by these groups on lobbying and political activity in the U.S.

Below is a list of these U.S. industry and trade groups:

Trade association dues used for lobbying	2017	2018	2019	2020	**2021**
Animal Health Institute	$39,271	$70,687	$70,687	$56,550	**$49,481**
Bio New Jersey*	$4,860	$5,100	$10,140	$8,490	**$13,200**
Biotechnology Industry Organization	$231,679	$237,468	$274,964	$320,471	**$345,716**
California Life Sciences Association	$11,300	$49,980	$49,980	$47,760	**$36,740**
Council of the Americas*	$1,250	$1,250	$1,250	$1,500	**$1,500**
Chemistry Council of New Jersey	$8,775	$8,951	—	—	**$9,000**
Healthcare Distribution Alliance (HDA)	—	—	—	—	**$2,538**
Healthcare Institute of New Jersey	$122,100	$114,404	$113,645	$116,983	**$147,342**
Healthcare Leadership Council	$90,000	$90,000	$90,000	$90,000	**$90,000**
Life Sciences Pennsylvania*	$4,500	$4,520	$6,360	$4,858	**$5,200**
Massachusetts Biotechnology Council	$9,884	$10,164	$10,461	$11,055	**$11,715**
National Association for Biomedical Research	$20,000	$20,000	$20,000	$20,000	**$20,000**
National Association of Manufacturers	$61,792	$56,443	$59,083	$62,132	**$80,882**
New Jersey Chamber of Commerce	$4,142	$4,245	$4,374	$3,003	**$4,641**
New Jersey Civil Justice Institute	$30,000	$30,000	$30,000	$30,000	**$13,500**
Personalized Medicine Coalition	—	—	—	—	**$3,158**
Pharmaceutical Research and Manufacturers of America	$11,630,454	$12,548,663	$11,743,028	$18,730,134	**$18,146,820**
Texas Healthcare & Bioscience Institute*	$5,500	$5,500	$5,500	$5,500	**$13,200**
U.S. Chamber of Commerce	$206,250	$237,500	$297,000	$130,000	**$311,250**
U.S. Council for International Business	—	$3,445	$3,728	$7,456	**—**

*Includes associations where dues are > $25,000. Because the U.S. tax law that requires this reporting does not apply outside the U.S., trade associations that are not subject to this do not provide breakouts of lobbying expenditures from membership dues.

Through our top three trade associations (listed on the previous page), we engaged on the following policy issues in 2021.

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

- Medicare Part B
- Medicare Part D
- Corporate tax reform

In the U.S., we lobbied at the state level to address these key issues:

- Drug price transparency and price controls
- Market-based solutions for access to innovative pharmaceutical, vaccine and biologic products
- Maintaining a strong business environment for U.S. operations in the states
- Support for a strong immunization infrastructure
- Advocating for legislative and regulatory structures that support access to animal health products

In Europe, the top issues we focused our advocacy on included:

- Addressing the European Commission's review of incentives for biopharmaceutical products
- Fostering frameworks for sound pricing and procurement regimes in and across diverse European Union (EU) member state economies
- Supporting government vaccination, hepatitis and diabetes programs
- Advancing the dialogue for sustainable models to fund future cancer care
- Improving standards for health technology assessment and health literacy
- Ensuring science-based policies for biological medicines
- Strengthening access to animal health products
  - Science-based trade policy
  - New Veterinary Regulation (NVR)
  - Pharmaceuticals in the Environment
  - Antimicrobial Resistance (AMR)
  - One Health strategy
  - New technological developments

In 2022, we conducted a climate policy alignment assessment of the trade associations listed above by determining whether they had publicly disclosed formal positions on climate change and, if so, reviewing those positions in the context of our Company's own position on climate change. This assessment can be found on the **ESG Resources page** on our corporate website.

▶▶▶ *Information on our approach to climate change, and related performance data, can be found in GRI 305 on **page 104**.*

Strategy

GRI 102-14	**CEO letter (Core)**

*Please see the letter from our President and CEO on **page 3**.*

Ethics and integrity

GRI 102-16	**Values, principles, standards, and norms of behavior (Core)**
GRI 102-17	**Mechanisms for advice and concerns about ethics**
SASB 510a.2	**Code of ethics governing interactions with health care professionals**

Our Company's Office of Ethics is responsible for ensuring that employees are aware of and trained on the **Code of Conduct** and Corporate Policies addressing ethics and compliance.

Our **Code of Conduct** is available in 19 languages and applies to all employees worldwide. Our Code of Conduct establishes clear ethical expectations and principles to guide the operations of the Company. It sets out core values and principles and helps us to protect the reputation we have earned. In addition to publishing a PDF version of our Code of Conduct to our external website, our Company's internal website allows employees to download a PDF of the Code of Conduct, search for a policy, ask a question or raise a concern through **MSDethics.com**. It also offers tools and resources to help employees make appropriate decisions and take appropriate actions by putting our values and ethical standards into practice.

Corporate policies are reviewed every three years by business content owners and updated as needed. We abide by strict ethical standards in our own operations and, to the extent applicable, we insist on equivalent standards from our suppliers. Our **Business Partner Code of Conduct** presents similar and consistent principles for our business partners. We expect all our business partners to adhere to these principles and operate in full compliance. Our Business Partner Code of Conduct is based on the **PSCI Pharmaceutical Industry Principles** and the **Ten Principles of the UN Global Compact**.

Ethics and integrity are the bedrock of all that we do, and the Company strives to maintain a transparent work environment where employees can and are encouraged to report concerns without fear of retaliation. The Office of Ethics also serves as a channel for the receipt, triaging and redress of ethics and compliance related concerns. Depending on the concern type, the concerns will be investigated by the Office of Ethics, the Office of General Counsel, Global Security or Human Resources. Employees are encouraged, prepared and empowered to raise their concerns to their management, Human Resources, Legal, Compliance or the Office of Ethics.

The Office of Ethics maintains a global Speak Up program and the **MSDethics.com** reporting tool. The reporting tool is operated by an independent third party and is available 24/7. **MSDethics.com** allows employees and suppliers to raise concerns or ask questions confidentially and anonymously (where permitted by law) in their preferred language via phone or internet. The Company communicates regularly with employees to ensure they understand how they can report potential misconduct or concerns.

In alignment with our priority to protect and enhance our Company's reputation through safe, ethical and compliant behaviors, and to foster a strong culture of ethics and compliance, Regional Ethics Officers manage a network of site-based volunteer Ethics Ambassadors outside of the U.S. The Ethics Ambassadors are trained to answer employee questions about the Company's reporting and investigation process and actively support the Speak Up Program.

We maintain a fulsome process for escalation and investigation of potential compliance related concerns. The process is designed to ensure that we promptly and discreetly investigate all reports of conduct and/or behavior that could violate our Company's policies, values or standards.

If allegations of misconduct are substantiated, appropriate remediation and disciplinary actions are taken to ensure that those who were responsible are held accountable and recurrence is prevented. Disciplinary actions can include, but are not limited to, dismissal from the Company, issuance of final written warning letters and/or financial penalties. In addition, we take appropriate steps to address any needed improvements in organizational and process controls.

The Company also has the discretion to reduce incentive payments made to employees in certain instances of misconduct. This may apply when employees engage 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.

Retaliation against employees who report concerns is a violation of corporate policy and is strictly prohibited.

The Office of Ethics and the Office of General Counsel are 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.

Code of ethics governing interactions with health care professionals

Our Continuing Medical Education (CME) and Continuing Education (CE) programs support independent medical education to maintain, develop or enhance the knowledge, skills and/or professional performance of health care professionals. We are committed to ensuring that our CME/CE programs are primarily driven by educational needs. Through these programs, we seek to increase health care professionals' knowledge about the latest scientific data in relevant therapeutic areas 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 all applicable laws, regulations and guidelines required for CME/CE 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 including, among other things, transparency reporting, independence and financial disclosure.

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 based on their expertise in the relevant subject matter. By attending one of our Medical Forums, health care professionals learn about 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 ensure 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.

Governance

GRI 102-18	Governance structure of the organization (Core)
GRI 102-19	Delegation of responsibility
GRI 102-20	High-level accountability for sustainability topics
GRI 102-21	Access to the Board
GRI 102-22	Composition of the Board and its committees
GRI 102-23	Chair of the highest governance body

The primary mission of our Board is to represent and protect the interests of our shareholders. The Board generally meets at least 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 composed solely of independent directors:

- Audit
- Compensation & Management Development
- Governance
- Research

All of these committees are governed by **Board-approved charters** that are available on our corporate website. Additional information on these committees can be found in our **2022 Proxy Statement** (pages 14-16).

Robert M. Davis, our chief executive officer and president, currently serves on our Board. Our former chief executive officer, Kenneth C. Frazier, is currently the executive chairman of the Board.

Environmental, Social and Governance (ESG) management structure

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.

Board

The work to address our environmental footprint and social impact begins with the Board, which, as a whole and through its committees, has responsibility for overseeing ESG matters.

Responsible party	Oversight for ESG topics
Board	Provides oversight with respect to the Company's ESG matters and strategy related thereto.
Governance Committee	Monitors and assists the Board in its oversight of our ESG matters, including ensuring that applicable ESG matters are subject to review by Board committees with relevant areas of competency, by monitoring and evaluating programs and activities, reviewing strategy regarding political engagement and reviewing environmental sustainability practices.
Compensation & Management Development Committee	Assists the Board with its oversight of human capital management, including our policies and practices related to talent management, culture, diversity, equity and inclusion. This includes maintaining fair hiring and promotion practices and a commitment to sustain pay equity for employees of all genders, races and ethnicities.
Audit Committee	Monitors compliance with the Company's policies on ethical business practices.
Research Committee	Monitors compliance with the highest standards of scientific integrity in the conduct of our research and development.
Management	Management is responsible for reviewing, refining and implementing long-term ESG strategy, including through its Public Policy & Responsibility Council comprising diverse cross-functional members, and for updating the Board and its committees, as applicable, on ESG matters.

Public Policy and Responsibility Council (PPRC)

The PPRC is a high-level forum for strategic input and guidance on our social business investments, ESG 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 PPRC enables policy and ESG issue identification and debate; makes recommendations to our CEO's Executive Team, as necessary; informs policy and ESG strategy; and reviews performance and reporting against defined objectives. Overall, the PPRC promotes further integration of ESG and policy considerations into our business activities.

ESG Strategy Management Team

This team, comprising functional experts throughout our Company, helps drive our long-term ESG strategy. This includes identifying risks and opportunities and advising on long-term goals and metrics. Members of this team include senior leaders from each of our four focus areas (Access to Health, Employees, Environmental Sustainability and Ethics & Values), as well as leaders in our Office of the Secretary, Investor Relations and Corporate Strategy, among others.

Corporate governance	2017	2018	2019	2020	**2021**
Independent directors on the Board	12	11	12	12	**12**
Percent of Board members who are independent	92%	92%	92%	92%	**86%**
Separate chairman of the Board and CEO[1]	No	No	No	No	**Yes**
Lead independent director	Yes	Yes	Yes	Yes	**Yes**
Independent audit committee	Yes	Yes	Yes	Yes	**Yes**
Independent compensation and management development committee	Yes	Yes	Yes	Yes	**Yes**
Independent governance committee	Yes	Yes	Yes	Yes	**Yes**
Women on the Board	23%	33%	46%	46%	**43%**
Members of underrepresented ethnic groups on the Board	15%	17%	23%	31%	**21%**
Number of Board meetings scheduled or held[2]	8	6	6	7	**7**
Shareholder support of the advisory vote on executive compensation[3]	95%	93%	92%	91%	**92%**

Note: Except as otherwise noted, all figures above are derived from our proxy statement filed the following year and are rounded.
[1] As of July 1, 2021, the positions of Board chairman and CEO are separate.
[2] Refers to number of meetings held in the given calendar year; meetings were held in person and/or via video conference.
[3] Percentages derived from Current Reports on **Form 8-K** filed with the U.S. Securities and Exchange Commission after the applicable annual meeting of shareholders.

ESG Strategy & Engagement

Our ESG Strategy & Engagement team is responsible for raising the visibility of ESG issues and activities across the Company. This includes fostering connections across business units and functional areas to integrate our approach to ESG into business policies, strategies and practices, including the enterprise risk management (ERM) process. Its aim is to bring the views of external stakeholders into our decision-making processes. The ESG team also coordinates the development, implementation and communication of our global approach and, with strategic guidance from the ESG Strategy Management Team, Public Policy and Responsibility Council (PPRC), Executive Team and the Board's Governance Committee is responsible for publishing our annual ESG Progress Report.

ESG Report Working Group

The members of the ESG 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 ESG Strategy & Engagement team to help set goals and develop metrics that support and measure our overall ESG strategy and objectives. Individual members have been chosen to be active advocates for ESG within their respective departments, and coordinate the content writing for this report with subject-matter experts in their functional areas.

For more information on our approach to governance, please visit GRI 102-29 to 102-32.

*For information on communicating with the Board, please see our **2022 Proxy Statement** on pages 26 and 95.*

GRI 102-24	**Board nomination and selection processes**
GRI 102-25	**Board conflicts of interest**
GRI 102-26	**Board's and senior executives' roles in the development, approval, and updating of the organization's purpose, value or mission statements, strategies, policies, and goals related to ESG topics**

*For information on our Board of Directors nomination process, please see our **2022 Proxy Statement** on pages 21–23.*

*Information on our Board conflict of interest policy can be found in our **Policies of the Board**, in Section 13 (pages 8–9).*

*For information on the development, approval and updating of our Company's purpose and values, strategies and policies, see GRI 102-16 on **page 39** of this report, GRI 102-19 and GRI 102-20 on **page 41**, and page 17 of our **2022 Proxy Statement**.*

GRI 102-27	**Board ESG knowledge**
GRI 102-29	**Board identification of ESG impacts, risks, and opportunities**
GRI 102-30	**Board review of ESG risk management processes**
GRI 102-31	**Frequency of Board review**
GRI 102-32	**Highest committee or position that formally reviews and approves the organization's ESG report**

Our Board has responsibility for overseeing ESG matters, and does so as a whole and through its four independent Committees, depending on the topic.

This oversight includes participating in periodic reviews and discussions related to risks, impacts and opportunities related to ESG. Management is responsible for reviewing, refining and implementing long-term ESG strategy, including through its Public Policy & Responsibility Council (PPRC) comprising diverse cross-functional team members, and for updating the Board and its Committees, as applicable, on ESG matters.

Chaired by our independent lead director, the Governance Committee is responsible for monitoring and assisting the Board in its oversight of ESG matters and related strategy. This includes ensuring that applicable ESG matters are subject to review by Board Committees with relevant areas of competency. The Governance Committee's role also includes reviewing public policy positions, strategy regarding political engagement and ESG-related initiatives with significant financial and/or reputational impact.

This Committee also monitors and evaluates our Company's ESG programs and activities, including the support of charitable, political and educational organizations and political candidates and causes. In addition, the Governance Committee is responsible for reviewing our environmental sustainability practices, supply chain manufacturing strategy and governance, and third-party sourcing programs.

The Governance Committee reviews trends against our current practices and structures, and considers input received from shareholders and other stakeholders as part of this review. Lastly, it identifies and communicates external and internal training and educational opportunities for directors in various areas, including ESG.

The Compensation & Management Development Committee assists the Board with its oversight of human capital management. This includes overseeing the programs, policies and practices related to talent management, culture, diversity, equity and inclusion; maintaining fair hiring and promotion practices; and sustaining our pay equity commitment for Merck employees of all genders, races and ethnicities.

In addition to the Governance Committee and the Compensation & Management Development Committee, the Board's other two Committees oversee certain ESG matters as well. For example, the Research Committee monitors compliance with the highest standards of scientific integrity in the conduct of the Company's research and development, and the Audit Committee monitors compliance with our policies on ethical business practices.

*Information on our Board's and its Committees' responsibilities generally and with regard to ESG can be found on pages 14–16 and 20 of our **2022 Proxy Statement**, and in its **Committees' charters**, which are available on our corporate website.*

*For information on our Board structure, please see GRI 102-19 and GRI 102-20 on **page 41**.*

GRI 102-33 Process for communicating critical concerns to the Board

The Board welcomes input from shareholders and other interested parties and has established a process to receive these communications. Shareholders and interested parties may communicate directly with the Board, the independent lead director, the non-management or independent Directors as a group or other members of the Board by emailing **office.secretary@merck.com**, or by writing to the following address:

Board of Directors
Merck & Co., Inc.
126 East Lincoln Avenue
P.O. Box 2000
Rahway, NJ 07065 USA

*For information on communicating to the Board, please visit our **2022 Proxy Statement** (page 26).*

GRI 102-35 Remuneration policies for the Board and senior executives

GRI 102-36 Process for determining remuneration

GRI 102-37 Remuneration shareholder resolutions

*A full discussion of our approach to remuneration for our Board and for Named Executive Officers (NEOs) can be found on pages 40–64 of our **2022 Proxy Statement**.*

*To learn more about the non-binding advisory vote to approve the compensation of our NEOs, please see our **Form 8-K** from May 26, 2022. This proposal received a 91.88 percent approval vote at our annual meeting on May 24, 2022.*

GRI 102-38 CEO/employee pay ratio

The total annual compensation of our median employee in 2021 was $102,803. This figure was comprised of base salary, annual incentive, savings plan Company match and change in pension value. The total annual compensation for our CEO was $13,722,121. A reasonable estimation of the ratio of our CEO's compensation to our median employee's compensation was 133 to 1. Under the SEC rules, companies may identify the median total annual compensation using a wide variety of methods, including reasonable assumptions and estimations. It is therefore difficult to compare this ratio to those of other companies.

*For more information on our methodology for determining this ratio, please see page 65 of our **2022 Proxy Statement**.*

Stakeholder engagement

GRI 102-40	**A list of stakeholder groups engaged by the organization (Core)**
GRI 102-41	**Union representation (Core)**
GRI 102-42	**Basis for identifying and selecting stakeholders with whom to engage (Core)**
GRI 102-43	**Approach to stakeholder engagement (Core)**
GRI 102-44	**Key topics and concerns raised by stakeholders (Core)**

We engage with a diverse group of stakeholders 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.

Many of these engagements with partners can be found throughout this report. The groups of stakeholders with which we regularly engage include:

Patients and caregivers

For patient communities, which includes individual patients, their caregivers and family members, patient advocacy leaders and patient organizations, it is critical that we respect and honor their life experiences to better understand their health care journeys, expected outcomes and decision-making considerations.

Through patient engagement and active listening we can:

- Understand patient and caregiver perspectives and insights
- Learn how we can better help them
- Ask for guidance and consult with them on issues that directly affect them
- Take their views and opinions into account in our Company strategy and all that we do, from the very early stages of research to the time that a medicine is widely available

In our interactions with patient communities, we are guided by these principles:

- Human connection: We strive for our interactions with patient communities to be "human"—in other words, health literate, uncomplicated (clear), meaningful, authentic and natural
- Commitment to health equity: We are actively working to reduce health inequities, as we believe everyone should have the same chance to be as healthy as possible. This means seeking more chances to work with people who have not had the same opportunities to access health care and medicines, and those with greater need.
- Ethics and integrity: We follow applicable laws, regulations and ethical codes in the regions and countries where we operate
- Independence: The independence of patient communities, especially patient organizations, is of utmost importance. We support patient communities and respect their need for autonomy, transparency and fairness.
- Purpose: We want our work with patient communities to have meaning and purpose

*For more information on our work with patient groups, please see our **Patients & Caregivers** page on our corporate website as well as our work on health equity on **page 55** of this report.*

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. Throughout the year, we regularly engage with our investors on both financial and ESG performance, and seek to better understand their perspectives.

We have established a proactive shareholder engagement program, in which members of Investor Relations, the Office of the Secretary, Human Resources and the ESG Strategy and Engagement Team, as well as other subject-matter experts within the Company, engage with our shareholders to remain well informed regarding their perspectives on current issues and to address any questions or concerns. These teams serve as liaisons between shareholders, members of senior management and the Board.

In addition, we conduct an extensive shareholder outreach program twice a year focused on governance, executive compensation and ESG matters. We believe it is most productive to discuss these matters

well in advance of the Annual Meeting to enable management and the Board to gather information about investor perspectives and make educated and deliberate decisions that are balanced and appropriate for our diverse shareholder base and in the Company's best interests.

During 2021, we held discussions with a number of our shareholders in the spring before the annual meeting, and once again in late fall. Our lead director, who is also chair of the Governance Committee, participated in substantive engagements with some of the Company's shareholders.

In February 2022, we hosted a virtual investor event with our CEO and other members of his Executive Team to discuss our Company's ESG priorities and goals, and how this strategy is fundamental to our long-term business value and success. A **webcast of this event** is available on our corporate website.

*For more information on our engagements with shareholders, including topics discussed, please see our **2021 Form 10-K** (pages 34, 51, 67 and 113) as well as our **2022 Proxy Statement** (pages 3, 20–21 and 24–26).*

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 work with health care professionals, please see GRI 102-16 on **page 39**, GRI 206 on **page 80** and GRI 417 on **page 174**.*

*For our disclosures on payments to health care professionals, visit the **Transparency Disclosures** page on our corporate website.*

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.

As part of our purpose 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 Employee Pulse Survey, our Company's all-employee engagement survey, is our flagship employee feedback mechanism and is conducted multiple times a year.

*To learn more about our work with employees, please see GRI 401 to 405 on **page 124**.*

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.

*For more information on our work with payers, please visit our **2021 Form 10-K**, pages 7–12, and our **Pricing and Access Position Statement**, as well as our **2021 Pricing Action Transparency Report**.*

Union membership	2017	2018	2019	2020	**2021**
Employees represented by an independent trade union or covered by a collective bargaining agreement (approximate)	29%	30%	30%	30%	**23%**

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 these environments are conducive to ethical business practices, science and innovation.

*For more information on these engagements, please see GRI 415 on **page 166**, as well as in our **2021 Form 10-K**, pages 7-12.*

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.

*To learn more, please see GRI 102-9 on **page 30**, GRI 204 on **page 75**, GRI 308 on **page 122**, GRI 412 on **page 161**, and GRI 414 on **page 164**.*

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.

*To learn more about work with membership organizations, please see GRI 102-13 on **page 36**.*

Veterinary professionals and animal caretakers

We value our partnership with veterinary professionals and animal caretakers to contribute to the health of their animals with innovative products and services for farm and companion animal species. We regularly communicate and collaborate with our customers and industry leaders in our shared pursuit of continuously improving the health of animals.

*To learn more about our work with veterinarians and animal caretakers, please visit the **Animal Health website**.*

Local communities

We work toward developing culturally appropriate mechanisms to engage and build relationships with our local community stakeholders and nongovernmental organizations (NGOs). We conduct this engagement predominantly through our philanthropic efforts, which can be found on the **Philanthropy** page on our corporate website.

Reporting practice

GRI 102-45 **Entities included in financial statements (Core)**

All of our Company's global operations, including those of subsidiaries, are in scope for this report unless stated otherwise. This report 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 can be found in our **2021 Form 10-K**.

*For information regarding spin-off and acquisitions that occurred in 2021, please see GRI 102-10 on **page 34**.*

GRI 102-46 **Defining report content and topic boundaries (Core)**

GRI 102-47 **Material aspects included (Core)**

An ESG materiality assessment helps us to prioritize the environmental, social and governance topics that matter most to our stakeholders, our Company and the world. Our assessment provides insight into future trends and potential business risks and opportunities.

Our priority ESG topics

In our 2021 ESG materiality assessment, the following 10 topics emerged as the most critical for our Company to address, and are grouped below by our four ESG focus areas:

Access to Health

- **Access to medicine** (**pages 55-74**)
- **Product quality and safety** (**pages 30-34**, **55-74**, **78-79**, **167-175**, **Clinical trials page**)
- **Public health risks** (**pages 55-74**)

Employees

- **Employee health and safety** (**pages 131-141**)
- **Employee engagement and diversity** (**pages 29**, **45-47**, **148-161**)

Environmental Sustainability

- **Climate change** (**pages 53-54**, **88-92**, **104-109**)

Ethics & Values

- **Business ethics** (**pages 39-40**, **78-79**, **174-175**, **Code of Conduct & Compliance**)
- **Data security and privacy** (**pages 175-177**)
- **Ethics in R&D** (**pages 39-40**, **55-74**, **167-173**, **Clinical trials page**)
- **Governance structures and mechanisms** (**pages 39**, **41-47**, **132-136**, **159-161**, **177**)

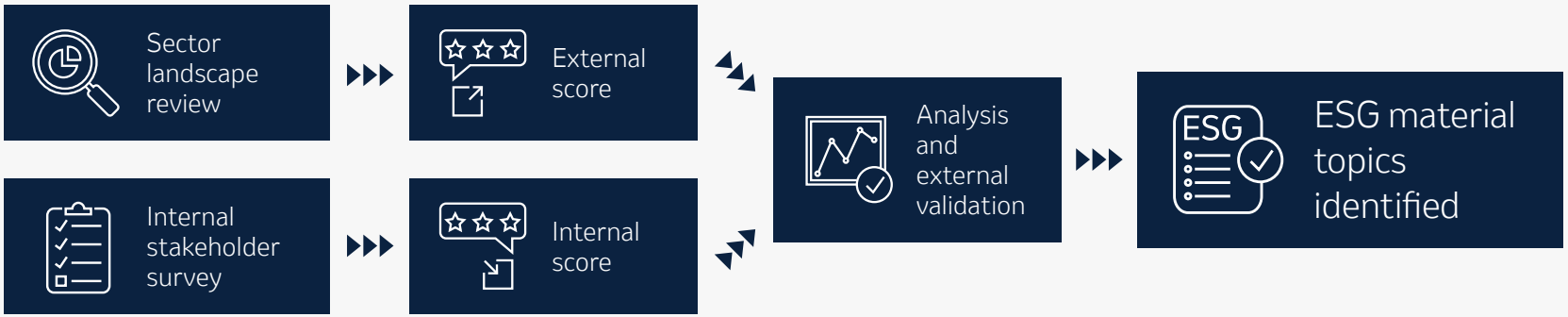
Our approach

To conduct the assessment, we partnered with Datamaran, a materiality and ESG risk-management software company that uses a comprehensive and data-driven process for evaluating the relevance of ESG topics and trends to our business and our stakeholders. We leveraged Datamaran's business intelligence platform, which applies SASB Accounting Metrics and is GRI-certified software, to evaluate the external landscape.

We began our assessment focused on the following 32 topics specific to the pharmaceutical sector.

- Access to health care and medicine
- Air quality
- Business ethics
- Business model resilience
- Climate change risks
- Community relations
- Competitive behavior
- Critical incident risk management
- Customer welfare
- Data security and customer privacy
- Ecological impacts
- Employee engagement and diversity
- Employee health and safety
- Energy management
- Ethics in R&D
- GHG emissions
- Governance
- Human rights
- Inclusion and affordability
- Innovation and technology
- Labor practices
- Regulation
- Product design and life cycle
- Product quality and safety
- Public health risks
- Responsible and smart transportation
- Selling practices and product labeling
- Supply chain management
- Transparency
- Waste and hazardous materials management
- Water and wastewater management
- Workforce management

ESG materiality assessment process



The external sources drawn from included:

- Corporate reports (financial, sustainability/ESG and integrated annual reports)
- Global regulations and initiatives (mandatory laws and soft norms)
- Social media (Twitter)
- Online news sources

To supplement the data-driven analysis, we also engaged with internal stakeholders through an online survey, and interviews with external stakeholders, to validate and prioritize the topics that have the greatest impact to our business and our stakeholders.

We have included the management approach disclosures for our top 10 priority topics in this report as well as disclosures for many of the 32 material topics above that are specific to our industry. We used this assessment in the development of our ESG goals (found on **page 8**), and we will continue to leverage the findings to help to set the direction of our future work.

GRI 102-48	**Restatements (Core)**
GRI 102-49	**Reporting changes (Core)**

All entities that were part of Merck & Co., Inc. on December 31, 2021 are represented in this report.

On June 2, 2021, we completed the spin-off of products from our women's health, biosimilars and established brands businesses into a new, independent, publicly traded company named Organon through a distribution of Organon's publicly traded stock to Company shareholders. The established brands included in the transaction consisted of dermatology, non-opioid pain management, respiratory and select cardiovascular products, as well as the rest of our diversified brands franchise. Our existing research pipeline programs continue to be owned and developed within the Company as planned.

To facilitate year-to-year comparability in certain performance data tables, we have restated data from prior years to exclude facilities that were part of this spin-off. These exclusions are noted in the footnotes of the applicable tables. To the extent other information from prior years has been restated, these changes are described in the footnotes beneath the specific performance data tables as well.

GRI 102-50	**Reporting period (Core)**
GRI 102-51	**Date of most recent report (Core)**
GRI 102-52	**Reporting cycle (Core)**
GRI 102-53	**Report contact (Core)**

Except as otherwise noted, we report on our ESG policies, initiatives and performance annually. The data in this report cover the prior calendar year, from January 1 to December 31, 2021. In some cases, the narrative in the report also includes content regarding decisions and initiatives that took place in the first half of 2022.

Our last report was published in September 2021.

We welcome your feedback on this ESG Progress Report as well as any other comments or questions you may have. You may contact us at the address, email, phone number or web address below.

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merck.com/contact-us/

GRI 102-54	**Claims of reporting in accordance with the GRI Standards (Core)**
GRI 102-55	**GRI content index (Core)**

This report has been prepared in accordance with the GRI Standards at the Core option. An index for all our GRI disclosures, as well as other frameworks disclosures, can be found on **page 178**.

GRI 102-56	**External assurance (Core)**

ERM CVS conducted an independent third-party review of our 2021 greenhouse gas and water inventories, and provided limited assurance for the data that we submit to CDP and for inclusion in this report. To view their limited assurance letter for our environmental data, please visit the **ESG Resources page** on our corporate website. We did not obtain external verification for this ESG Progress Report in its entirety.

Economic

*See our GRI index on **page 181**.*

Economic performance

GRI 201-1 **Direct economic value generated and distributed**

We believe that addressing the environmental, social and governance aspects of our business is critical to our Company's success and can provide us with new opportunities to create shared value and to demonstrate our purpose to stakeholders. Our principal economic contribution to society is made through the discovery, development, manufacturing and marketing of our products, which help to save and improve lives around the world.

*For additional information about our business and economic performance, please see our **2021 Form 10-K** for the year ended December 31, 2021, on our corporate website.*

*For information on our overall tax strategy, please see 207-1 on **page 82**.*

Impact investing

Impact investing is one of our core approaches to advancing sustainable global health solutions in line with our 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.

Impact investing is led by our Office of Social Business Innovation with guidance from the Impact Investing Committee. Established in 2019, the Impact Investing Committee is a cross-functional team of senior Company leaders that reviews and approves new investments in line with established policies and guidelines and monitors the financial and social returns of the impact portfolio.

We are members of the **Global Impact Investing Network (GIIN)**, through which we can contribute to and benefit from the growing body of expertise in the impact investing ecosystem.

*For more information, please visit our **Impact Investing** page on our corporate website.*

Financial information	2019	2020	**2021**
Sales[1]	$39.1B	$41.5B	**$48.7B**
Research and development expenses[1,2]	$9.7B	$13.4B	**$12.2B**
Number of employees (approximate)	71,000	74,000	**68,000**
Number of stockholders of record[3]	109,500	104,900	**99,900**
Annual cash dividend declared per share	$2.26	$2.48	**$2.64**
Global tax expense as reported on income statement[1]	$1.6B	$1.3B	**$1.5B**

Note: Financial information is in accordance with Generally Accepted Accounting Principles in the U.S. (GAAP).

[1] The historical results of the businesses that were contributed to Organon in the spin-off have been reflected as discontinued operations in the Company's consolidated financial statements through the date of the spin-off and are therefore excluded from the figures presented.

[2] Includes restructuring costs, acquisition-related charges and upfront payments related to collaborations and licensing arrangements.

[3] Approximate number as of January 31 of the year immediately following the reported year.

GRI 201-2 Financial implications and other risks and opportunities due to climate change

Climate change, or legal, regulatory or market measures to address climate change, may negatively affect our business, results of operations, cash flows and prospects.

We believe that climate change has the potential to negatively affect our business and results of operations, cash flows and prospects. We are exposed to physical risks (such as extreme weather conditions or rising sea levels), risks in transitioning to a low-carbon economy (such as additional legal or regulatory requirements, changes in technology, market risk and reputational risk) and social and human effects (such as population dislocations and harm to health and wellbeing) associated with climate change. These risks can be either acute (short-term) or chronic (long-term).

The adverse impacts of climate change include increased frequency and severity of natural disasters and extreme weather events such as hurricanes, tornados, wildfires (exacerbated by drought), flooding and extreme heat. Extreme weather and sea-level rise pose physical risks to our facilities as well as those of our suppliers. Such risks include losses incurred as a result of physical damage to facilities, loss or spoilage of inventory, and business interruption caused by such natural disasters and extreme weather events. Other potential physical impacts due to climate change include reduced access to high-quality water in certain regions and the loss of biodiversity, which could impact future product development. These risks could disrupt our operations and our supply chain, which may result in increased costs.

New legal or regulatory requirements may be enacted to prevent, mitigate or adapt to the implications of a changing climate and its effects on the environment. These regulations, which may differ across jurisdictions, could result in our Company being subject to new or expanded carbon pricing or taxes, increased compliance costs, restrictions on greenhouse gas emissions, investment in new technologies, increased carbon disclosure and transparency, upgrade of facilities to meet new building codes, and the redesign of utility systems which could increase our operating costs, including the cost of electricity and energy we use. Our supply chain would likely be subject to these same transitional risks and would likely look to pass along any increased costs to our Company.

While we understand the potential risks to our Company, there is limited data around the potential financial implications of these risks. Therefore, in 2021, we began performing a Task Force on Climate-related Financial Disclosures (TCFD) gap analysis and will be conducting a scenario-planning analysis to examine which parts of our business are at highest risk due to climate change, and the costs associated with them.

These potential risks are integrated into our business planning, including investment in reducing energy usage, water use and greenhouse gas emissions (GHG).

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 our sites and minimizing GHG generation throughout the Company. By taking these steps, we are not only minimizing GHG emissions but also reducing operating costs and mitigating the business impacts expected to be associated with future climate change requirements.

Our Sustainability Capital Fund is used exclusively for sustainability projects at our sites around the world that bring long-term value to the Company and focus on carbon footprint, water use and solid waste reduction. The fund allocates up to $12 million per year, which allows us to adopt low carbon technology, better positions us to respond to climate change and supports a more circular[1] economy. Since 2015, our sites have completed more than 124 projects through the Sustainability Capital Fund, which has avoided the production of an estimated 50,000 metric tons of carbon emissions per year.

In December 2021, we completed our inaugural issuance of a $1 billion sustainability bond, which was part of an $8 billion underwritten bond offering. Our Company intends to use the net proceeds from the sustainability bond offering to support projects and partnerships in our priority ESG areas and contribute to the advancement of the United Nations Sustainable Development Goals.

Management does not believe that expenditures related to our environmental sustainability initiatives should have a material adverse effect on our financial condition, results of operations, liquidity or capital resources for any year.

*For more information, please see GRI 305 on **page 104**. Our CDP Climate Change Questionnaire is available on **CDP's website**, which CDP has aligned to the TCFD reporting recommendations.*

[1] As defined by the **Ellen MacArthur Foundation**, "a circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems."

GRI 201-3 Benefit plan coverage

Our compensation and benefits programs are rooted in maintaining our competitive position in the market by providing a comprehensive and valuable package to attract and retain a talented and diverse workforce while building a supportive culture. Our compensation programs include competitive base pay, short-term and long-term incentives, and recognition awards. These programs target different aspects of individual and Company performance. They are monitored to ensure that they are competitive with those of other companies—and appropriate for the markets in which we compete for talent.

Our health, insurance, retirement and wellbeing programs draw from best practices to ensure quality, competitive value, financial protection, and access to resources to help employees and their families live their lives well—no matter what that looks like for them. Benefits vary based on region and country, employee group and status, collective bargaining agreements and local legal requirements.

*For more information on these benefits, please see GRI 401-2 on **page 127**.*

Indirect economic impacts

GRI 203	Management approach
SASB 240a.1	Access to health care for priority diseases and in priority countries
SASB 240a.2	Products on WHO's List of Prequalified Medicinal Products
SASB 240b.2	Percentage change in: (1) average list price and (2) average net price across U.S. product portfolio compared to previous year
SASB 240b.3	Percentage change in: (1) list price and (2) net price of product with largest increase compared to previous year

For more than a century, we have been inventing medicines and vaccines for many of the world's most challenging diseases. We are committed to addressing unmet medical needs through innovative research and development (R&D). R&D expenses in 2021 reflected robust clinical development spending as well as increased investment in discovery research and early drug development.

Our success is largely dependent on our continued ability to attract and retain highly qualified scientific, technical and management personnel, as well as personnel with expertise in clinical R&D, governmental regulation and commercialization.

We have strategically located discovery centers in regions with active biomedical research communities in California and Massachusetts, as well as principal sites outside of the U.S., including the United Kingdom, Switzerland and China. These centers allow us to recruit talented local scientists and facilitate collaboration with local academic institutions and companies. These discovery sites complement and connect with our strong R&D capabilities and expertise based at our New Jersey and Pennsylvania sites.

Global burden of disease

As defined by the Global Burden of Disease (GBD) Visualization tools developed by the **Institute for Health Metrics and Evaluation (IHME)**, the diseases that our products address rank high on the list of worldwide causes of illness, disability and death. Our research into vaccines and infectious diseases seeks to address major burdens of disease that are prevalent in all countries, and our preventative treatments could have the greatest impact in lower income countries, where health care infrastructure may be limited or nonexistent.

Considering **our pipeline**, the list of products we currently market and our external collaborations, we estimate that our Company is seeking to address 71 percent of the top 20 global burdens of disease as defined by the IHME. This figure excludes road injuries, age-related hearing loss and neonatal disorders. This number is lower in 2021 than in 2020 due to spinoff of products to Organon in June 2021.

Compliance

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

The Compliance Committee is composed of members of the Research Leadership Team (RLT). Including the RLT in the Compliance Committee ensures cross-functional awareness and ownership of ethics and compliance at the senior-management level and throughout the whole organization. As a result, compliance is focused not only on the conduct of clinical trials but well beyond it, helping to ensure robust oversight of effective policies and procedures, training, auditing and risk management, as well as sponsoring risk identification, prioritization and mitigation for all of Merck Research Laboratories (MRL).

The Compliance Committee 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.

Clinical research

Our Global Clinical Development organization is responsible for conducting clinical trials worldwide to evaluate the safety and efficacy of our products.

In accordance with our **Public Policy Position Statement on Clinical Trial Ethics**, 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 Council for Harmonisation: Good Clinical Practice (ICH- GCP)**. However, individual country regulations and guidelines remain the primary determinant of specific requirements for the conduct of medical research.

We are committed to the study of appropriately diverse patient populations—including underrepresented groups, women and children, people of varying ages, sexual orientation and gender identities, various socioeconomic backgrounds and other characteristics—in our clinical trials in all appropriate regions of the world. Currently we conduct our clinical trials in more than 50 countries worldwide.

In support of this commitment, we have implemented a number of internal and external programs and processes over the past several years.

Internally, we have a team of clinical trial operations experts focused on promoting the inclusion of patients from diverse backgrounds and on identifying and implementing best practices in the conduct of clinical trials globally. This begins with selection of clinical trial sites in communities serving underrepresented ethnic groups. We provide resources and training to increase awareness of the importance of, and best practices for, inclusion of underrepresented populations in clinical research. Clinical research studies sponsored by our Company are also being planned and conducted in a way that incorporates enrollment and other diversity-focused goals to help drive inclusion and access across our programs with our clinical trial sites.

Externally, our Company continues to be a vocal contributor and participant in various partnerships and sponsorships intended to connect with, support and train more U.S.-based clinicians from diverse backgrounds to help drive access to clinical research at the community level. We also co-sponsor the Improving Patient Access to Clinical Trials (IMPACT) study at the Lazarex Cancer Foundation.

IMPACT is a three-year pilot study that strives to improve patient enrollment, retention, minority participation and equitable access in oncology trials. We also have developed and implemented novel tools and approaches intended to build relationships and reach potential study participants within their own communities (e.g., partnerships with local pharmacies and mobile study sites).

Consistent with ICH-GCP requirements, as part of the informed consent process, clinical trial patients are made aware of the compensation and/or treatment available to them in the event of a trial-related injury. They are also informed of the person(s) to contact in the event of a trial-related injury. We maintain policies and procedures that address the costs of treatment of trial subjects in the event of trial-related injuries in accordance with applicable regulatory requirement(s).

Genetic research

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.

We conduct 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.

We also conduct genetic and genomic analysis of our clinical trial samples, 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 and understand how genetics contribute to the underlying disease, which has the potential to identify new drug targets.

We obtain subject consent for use of genetic and genomic samples in accordance with ethical principles of human-subjects research, which include respect for persons/autonomy, beneficence and justice, consistent with the Declaration of Helsinki, U.S. FDA requirements, ICH E6 Good Clinical Practices guidelines and the 1997 UNESCO Declaration on the Human Genome and Human Rights. 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.

Use of stem cells

Together with the scientific community, we believe that research using stem cells has the potential to help identify medicines, therapies and vaccines to help treat, cure or prevent disease.

Many of the most advanced scientific technologies in regenerative medicine involve animal or human embryonic stem cells. For more than a decade, we have been applying advances made in stem-cell technologies to support our research and development. The capacity of stem cells to differentiate into specific cell types underscores their versatility and utility, from early target validation and identification, to screening and testing of potential new therapeutics, disease-modeling and pre-clinical proof of concept.

We conduct research using stem cells in full accordance with all applicable laws and regulations, and our own internal research policies. Our research policy involving stem cells adheres to the **U.S. National Academy of Sciences** guidelines as well as those of the **International Society for Stem Cell Research**.

Our Regenerative Medicine Oversight Committee, which comprises both internal and external experts, oversees Company-sponsored research involving stem cells, including highly targeted research using human embryonic stem cells and induced pluripotent stem cells. The committee is responsible for ensuring that all projects involving stem cells adhere to our policies.

▶▶▶ *For more information on our R&D efforts, please visit the **Research & Products** page on our corporate website.*

Access to Health

As we pursue our core purpose to use the power of leading-edge science to save and improve lives around the world, we also work with key stakeholders to help ensure that our science advances health care and that our products are accessible and affordable to those in need.

Research and development	2017	2018	2019	2020	**2021**
Research and development expenses (in billions)[1,2]	$10.3	$9.8	$9.7	$13.4	**$12.2**
Employees involved in research activities (approximate)[3]	9,800	12,900	13,600	14,800	**17,500**
New Human Health products approved (U.S.)[4]	4	2	2	1	**3**
New Animal Health products approved (global)	18	14	15	18	**16**
Products in the pipeline and under regulatory review[5]	26	24	36	39	**31**
Top 20 global burdens of diseases addressed by our products and pipeline[6,7]	88%	88%	100%	88%	**71%**
Established significant external licenses and collaborations	55	64	78	123	**92**

[1] R&D expenses include a 2020 $2.7 billion charge related to the acquisition of VelosBio and a 2017 $2.4 billion charge related to the formation of a collaboration with AstraZeneca.
[2] The historical results of the businesses that were contributed to Organon in the spin-off have been reflected as discontinued operations in the Company's consolidated financial statements through the date of the spin-off and therefore are excluded from the 2019, 2020 and 2021 figures presented. Recast figures for 2017 and 2018 are not available.
[3] A change in methodology to ensure greater accuracy, together with a restatement of the Company's Medical Research Laboratories organization in 2021 resulted in revised numbers of employees from prior years.
[4] Approval of new products only. This does not include approvals for supplemental indications.
[5] Candidates in our Company's research pipeline or under regulatory review as reported in the Company's Form 10-K, filed on February 25, 2022. When candidates attain regulatory approval, they are removed from this pipeline view.
[6] As defined by the Institute for Health Metrics and Evaluation (IHME) using GBD 2019 data excluding road injuries, age related hearing loss and neonatal disorders.
[7] This number is lower in 2021 than in 2020 due to spin-off of products to Organon in 2021 in categories of Lower back pain, Headache disorders and Other musculoskeletal.

We do this in several ways, including:

- Discovering and inventing medicines and vaccines that address vital global health needs where we can have the greatest impact, now and in the future
- Making available a reliable, safe global supply of quality medicines and vaccines, and investing in solutions to enable timely access to our products in a responsible and sustainable manner
- Developing, testing and implementing innovative solutions that address barriers to access and affordability of our medicines and vaccines
- Through partnerships, investment and innovation, applying our expertise and investing our human and financial resources to address systematic barriers to access to health and health equity

Our multi-pronged, enterprise-wide approach to access is guided by our **Access to Health Guiding Principles**, and is responsive to internationally recognized standards and priorities.

Systematic evaluation to inform product access strategies

Embedded within our research and development process, we systematically evaluate our candidates to identify the potential to address significant public health burden and unmet medical needs in underserved health care settings. This evaluation process informs our product access strategies, with the goal of making our medicines and vaccines available to as many people as possible through sustainable solutions.

To facilitate this access, we undertake a systematic evaluation at the onset of Phase 2 clinical studies to determine a candidate's potential to meet unmet medical needs in low- and middle-income countries (LMIC). Our approach involves evaluating the level of disease burden that exists, the availability of alternative medications and the appropriateness of our candidates to improve public health. For candidates with significant potential in underserved settings, access planning may start in the pre-clinical phase.

Additionally, understanding where health system infrastructure and funding mechanisms are in place is an important component of enabling safe and effective usage, which ultimately facilitates meaningful patient access. Our R&D Governance Committee is accountable for the evaluation process, and all recommendations are reviewed by our Public Policy and Responsibility Council (PPRC), an internal cross-divisional forum of senior leaders.

When a drug or vaccine candidate with the potential to address significant public health burden in underserved health care settings is identified, the access planning process includes engaging all parts of our enterprise, as well as external stakeholders, to identify the most optimal solution.

Once a product is approved, we commit to registration and availability of the product in all countries where clinical trials have been conducted, including LMICs. Products continue to be evaluated for their potential throughout their life cycle to account for changes in the external environment.

Sometimes the evaluation of a candidate reveals barriers to access in an underserved setting. In these situations, the evaluation process can inform our approach to strengthening health systems and improving health equity. We recognize that addressing the complex and multi-faceted challenges to accessing health care in LMICs requires the collaboration of multiple stakeholders. We actively seek partnerships to achieve solutions that enable access.

One example of our approach to early planning is our global access strategy for our Company's investigational COVID-19 antiviral candidate. In the face of the global pandemic, and realizing our opportunity to help meet a significant unmet medical need globally, including in under-resourced settings, we implemented a global strategy to facilitate timely and widespread access. To accelerate broad global access, our comprehensive supply and access approach includes producing millions of courses of our investigational COVID-19 antiviral candidate through our global network, which includes manufacturing sites in nine countries across three continents.

Additionally, we have entered into advance purchase and supply agreements with the governments of several countries worldwide and are currently in discussions with additional governments. We have signed voluntary license agreements with multiple established Indian generic manufacturers and the Medicines Patent Pool to facilitate the availability of generic versions of our medicine to more than 100 low- and middle-income countries. Through our licensing agreements with generics manufacturers and the Medicines Patent Pool, more than three million courses of generic therapy have been delivered to more than 15 low-and-middle-income markets included in the licenses through March 2022. We've also allocated up to three million courses of therapy to UNICEF for low-and-middle-income countries.

We welcomed the Bill & Melinda Gates Foundation's commitment of $120 million to accelerate access to generic versions of our medicine. This commitment complements our voluntary license agreements with generic manufacturers and highlights the importance of actions from multiple stakeholders to effectively increase timely access to medicines for patients globally.

Maintaining a global supply network

Through our manufacturing and supply division, we strive to maintain a compliant, reliable and highest-quality global supply network. Our supply chain is designed to ensure we operate a lean and efficient network that produces our medicines and vaccines to the highest quality, safety and environmental standards in full compliance with regulations and Good Manufacturing Practices (cGMPs) based on U.S. and international requirements and industry best practices.

Through digitally enabled "end-to-end supply planning," we are digitizing our shop floors and conducting efficient and balanced planning decisions to maximize business results and deliver medicines and vaccines to customers, which include hospitals, retail outlets and patients, when and where they need them. With both an environmental and socially conscious mindset, our facilities, along with our external contractors, suppliers and partners, make up an integrated, interdependent global manufacturing network.

Availability[1]	2020	**2021**
Logistics partners with security risk assessment completed, annually (Target: 100%)	100%	**100%**
Countries[2] around the world reached annually with our products (Target: 75%)	78%	**79%**
Orders shipped on time and in full (Target: 95%)	98.3%	**98.3%**

[1] Reporting on KPIs started with 2020 performance data.
[2] As defined by the **World Bank Country and Lending Groups.** Includes only human health products.

Solving affordability challenges through dedicated sustainable access solutions

We aspire to enable solutions and shape the ecosystem that delivers sustainable access to innovative medicines for patients. We collaborate with different stakeholders, including private, governmental, multilateral and non-profit organizations, to design and deliver solutions that address the access challenges at the payer, provider and patient levels.

Our approach is predicated on the belief that broadening access requires sustained effort and is best achieved through solving the underlying challenges in the health care system that constrain access for patients from care delivery to capacity and financing. We also believe that we exist within a wider ecosystem, comprising multiple stakeholders, each playing a unique and varied role. Therefore, key to our approach is a focus on solutions and collaboration that help make access to care affordable.

We have focused on making this approach systematic. We have established a framework, which is available to all our markets, for assessing, designing and delivering practical solutions that solve access and affordability challenges. We have also established a dedicated internal unit to systematically accelerate innovation, develop the relevant capabilities and capture learnings across various countries. Through this approach we have been able to accelerate the development of innovation in patient access models and solutions to expand the accessible population across the globe.

We also recognize that the policy environment is critical to solving access and affordability challenges. Therefore, we engage with governments, industry associations, trade and economic forums, think tanks and academia to advocate for evidence-based policy solutions. For example, we are actively involved in the Asia-Pacific Economic Cooperation's (APEC) Health Financing initiatives including the creation of a roadmap that outlines priorities, objectives and targets for strengthening health care financing, sharing best practices from APEC economies and strengthening the dialogue across industry, governments and academia to diagnose and solve pressing affordability challenges. Similarly, we are engaged in the Global Coalition for Value in Healthcare to accelerate the transition to value-based health care throughout the world. We also work with organizations like ThinkWell and the *Financial Times* to study, document and advocate for policies that promote sustainable financing for immunizations and cancer care.

Our current portfolio of projects is focused on dedicated sustainable access solutions globally, inclusive of the U.S. and LMICs. These projects are in various stages of development, from diagnosing the access challenges to delivering solutions in the market.

We operate as an integrated Company across global, regional and market teams to address affordability through multiple initiatives. The goal is always consistent: helping to establish a more sustainable access environment that delivers broader and more equitable access to medicines and vaccines for people wherever they might be.

For example, one of the recurring access challenges in LMICs is the potentially high out-of-pocket costs for critical illness treatments. Recognizing this issue, we have continued collaboration with reinsurers and insurance companies in South Africa, Thailand and Indonesia to enable them to develop affordable health insurance products for the population, including covering innovative cancer therapies. We are also actively collaborating with public health authorities through a public-private partnership to provide access to immunotherapy financing via supplemental medical insurance in China. This provides much needed optionality for the population and drives greater health care inclusion.

As the reach of insurance products further expands, we expect major access hurdles to be solved and access to innovative cancer therapies for patients widened in a commercially sustainable way. This collaborative approach to addressing out-of-pocket costs

We expand access to our products through dedicated, market-based sustainable access solutions that expand the reach to at-need populations and patients—including those in LMICs—taking into consideration public health need, economic conditions and health care infrastructure.

Affordability	2019	2020	**2021**
Number of countries where dedicated affordability solutions have been initiated	40	40	**NR**
Number of people reached directly with innovative products through access strategies, solutions and partnerships (in millions)*	NR	NR	**9.1**
People reached with sustainable access solutions that enable access to innovative medicines and vaccines (in millions)*	NR	NR	**57.6**
People reached globally through product donation and patient assistance programs and partnerships (estimate in millions)*[1,2]	404	268	**197**
Patents filed in low-income countries, as defined by The World Bank in its country and lending groups classifications (annual)*	0	0	**0**

NR: Not reported.

* New key performance indicators (KPI) in this table starting in 2021 to provide more information on the reach of our access strategies, partnerships and solutions to support our Access to Health goals.

[1] Estimate includes product donations through our Company's Office of Social Business Innovation and patient assistance program.

[2] The significant decrease in people reached in 2020 and 2021 vs 2019 is due to postponed mass drug administration programs as well as shipping delays as a result of the COVID-19 pandemic in 2020 and 2021.

reinforces our commitment to being part of a wider ecosystem, collaborating with others with complementary capabilities to tackle these challenges. Additional information on sustainable solutions for innovative treatments can be found on the **sustainable access website**.

We also recognize that in some environments, the challenge lies in having resilient health care systems able to reach patients at the right time with the right intervention. That is why we also collaborate with health care and service providers to understand challenges in the care pathway and help advance solutions that can establish a more efficient and effective health care system.

Our efforts focus on utilizing our deep clinical understanding, particularly in oncology, to better understand inefficiencies in the pathway and the use of infrastructure and services, and to help support health care system efforts to achieve more impact with the same or less resources. Through these efforts, health care systems might better ensure that people receive the care they need when they need it, whether to treat or prevent disease, while also better coping with growing fiscal pressures.

Addressing barriers to access

Pursuing health equity—addressing preventable differences in the burden of disease and health outcomes—is deeply embedded in our DNA. Through partnerships, investment and innovation, we apply our expertise and invest our human and financial resources to address systemic barriers to access to health where we believe we can make the strongest contributions to health systems, communities and our patients around the world. We provide this support in several ways, including through philanthropic social investments, key initiatives and impact investing. To be most effective, where appropriate we align our investments with country and community-led priorities and partner with governmental, multilateral and non-profit organizations.

Our investments are guided and approved by internal and external expert advisory bodies, including an internal advisory board for our corporate Foundation, an internal Impact Investing Council, an internal Economic Inclusion, Workforce Development and Health Equity Council and external expert advisory committees for the MECTIZAN® Donation Program and Merck for Mothers.

Health equity investments and commitments

In 2021, we invested $35.8 million in partnerships, programs and impact investments that support health care capacity building and address underlying barriers to access to health. We are improving cancer prevention, diagnosis and treatment, strengthening the vaccination ecosystem and increasing diversity in clinical trials to advance equitable health outcomes for all patients.

Addressing cancer disparity

Through a range of collaborations, we are strengthening cancer prevention, care and support systems to help improve health equity in underserved communities. In the U.S., we have supported the American Cancer Society's (ACS) Get Screened Initiative aimed at reducing existing disparities in cancer screening that have been exacerbated by the COVID-19 pandemic.

Through the **CEO Roundtable on Cancer**, we partner with Historically Black Colleges and Universities and Hispanic Serving Institutions in **"Going for Gold"** to help improve health equity, education, navigation

Patient assistance programs	2017	2018	2019	2020	**2021**
Patients utilizing our U.S. Patient Assistance Programs[1]	244,000	233,000	239,000	189,500	**130,002**
30-day prescriptions filled (in millions)	2.1	2.1	2.2	1.6	**0.8**[2]

[1] Totals represent 2017–2021 volumes of our U.S. Patient Assistance Program. Volumes vary across years based on changes in covered product offerings and changes across the health care landscape. Volumes in 2021 reflect a decline as a result of products transitioned to Organon.
[2] Overall volumes were impacted by products transitioned to Organon.

and access in communities disproportionately affected by cancer. Our Understand Cancer Together website provides selected information from various organizations that are experts in cancer to help patients improve their cancer health literacy and better partner with their doctors to make informed decisions. To address disparities among Black women who are at increased risk of triple negative breast cancer (TNBC), our **Uncovering TNBC** initiative sheds light on the challenges they face and empowers women to advocate for themselves with their health care team.

Globally, we collaborate with City Cancer Challenge Foundation to improve equitable access to quality cancer care in nine cities around the world by strengthening patient navigation, care coordination and data capacity through the integration of digital platforms in health systems. And, in working with Go Further, we have created a partnership that aims to reduce the incidence of cervical cancer in women living with HIV who reside in one of 12 African countries, which have some of the highest rates of HIV prevalence and cervical cancer incidence in the world.

Integrating vaccination equity strategies across the value chain

Improving vaccination equity is critical to global public health and our Company's vision of helping to protect approximately three billion people globally by 2030 through vaccination. Our Global Vaccines division has leveraged the Health Equity Strategic Framework (i.e., our internal strategy and roadmap for advancing health equity for the patients and communities we serve) to improve vaccination equity in underserved populations by leveraging our resources and capabilities throughout the life cycle of our vaccines. This includes equity-driven R&D, sustainable supply, equitable access and delivery, and broader confidence and demand.

Here are nine examples of how we are addressing vaccination equity across our value chain:

1. We are piloting the use of mobile vaccination clinics to expand access to clinical trials to underserved populations and meet participants where they are. (R&D)
2. We are working to develop vaccines for diseases that disproportionately affect historically marginalized groups. Our pipeline includes new investigational vaccines for dengue, pneumococcal disease, chikungunya virus and RSV. (R&D)
3. New or expanded vaccination programs around the world have created a higher global demand for vaccines. To meet this demand, the Company plans to invest approximately $20 billion in capital projects from 2021-2025 including expanding manufacturing capacity for oncology, vaccine and animal health product. (Supply)
4. We piloted the first-ever drone delivery of medicines that require cold-chains within the U.S., which could improve supply chain resilience, access and health equity. (Supply)
5. We renewed our pledge to enable broad equitable access to HPV vaccines in Gavi-supported countries from 2021 through 2025. (Access & Delivery)
6. We support regional efforts to provide expanded, affordable access to vaccines, such as through the Pan American Health Organization (PAHO) Revolving Fund for Vaccine Procurement. (Access & Delivery)
7. Our Company and other leaders from the technology, health, global development and academic sectors have come together to launch the Alliance for Advancing Health Online, a new initiative to advance public understanding of how social media, online engagement and behavioral sciences can be leveraged to improve the health and resiliency of communities around the world. (Confidence & Demand)
8. In Canada, our team is working with community partners to raise vaccine confidence and coverage rates among groups that are historically marginalized (migrants, indigenous people, rural populations). (Confidence & Demand)
9. In Brazil, our team is supporting the INTERFARMA program, which is focused on raising vaccine coverage rates among people living in favelas (informal settlements). They have created campaigns through social media and with local influencers to educate local girls about the importance of vaccination. (Confidence & Demand)

Advancing clinical trial diversity

We are committed to the study of appropriately diverse patient populations—including underrepresented groups, women and children, people of varying ages, sexual orientation and gender identities, various socioeconomic backgrounds and other characteristics—in our clinical trials in all appropriate regions of the world. Currently we conduct our clinical trials in more than 50 countries worldwide.

Internally, we have a team of clinical trial operations experts focused on promoting the inclusion of diverse patients and identifying and implementing best practices in the conduct of clinical trials globally. This begins with selection of clinical trial sites in communities serving underrepresented ethnic groups. We provide resources and training to increase awareness of the importance of, and best practices for, inclusion of underrepresented populations in clinical research. Clinical research studies sponsored by our Company also are being planned and conducted in a way that incorporates enrollment and other diversity-focused goals, to help drive inclusion and access across our programs with our clinical trial sites.

Externally, we continue to be a vocal contributor and participant in various partnerships and sponsorships intended to connect with, support and train more diverse U.S. clinicians to help drive access to clinical research at the community level. We also co-sponsor the Improving Patient Access to Clinical Trials (IMPACT) program of the Lazarex Cancer Foundation, striving to remove financial barriers to improve cancer health outcomes within marginalized communities to diversify trial enrollment and ensure equitable access to cancer clinical trials. We have also developed and implemented novel tools and approaches intended to build relationships and reach potential study participants within their own communities, including partnership with local pharmacies and mobile study sites.

Integrating health equity across our business

Our approach to health equity is key to our ESG and Global Diversity & Inclusion (GD&I) commitments, and is reflected in how business units across the enterprise and value chain are integrating health equity goals and capabilities in their business strategies and performance objectives. These efforts are guided by an enterprise Health Equity Strategic Framework that lays out clear goals, a roadmap and implementation plan that guides how we integrate health equity across our core business functions and practices.

In addition to measuring impact through our health equity target of reaching 30 million people in LMICs and U.S. underserved populations, progress on internal efforts is tracked using a key performance indicator dashboard that is reported into an internal Health Equity Steering Committee comprised of senior leaders. The KPI dashboard enables alignment, accountability, and transparency and acceleration of efforts across the organization.

Investments in capabilities building

We are making a commitment to our people, investing in our talent to strengthen their capabilities and evolve our ways of working. In 2022, we launched a $1 million Health Equity Catalyst Fund to empower teams at the local and regional levels to create solutions that promote more equitable health outcomes and care experiences, particularly for populations who are underserved, by engaging at the community level to remove barriers to care and/or strengthening health systems to deliver on high quality and accountable care.

We are investing in strengthening internal data capabilities to ensure we can utilize and apply social determinants of health data to support the design and rollout of effective solutions and partnerships, as well as track key metrics that help us to better understand the impact of our actions/investments. We are ensuring that our employees have the latest knowledge and data through the development of training resources, guidelines, tools and a new health equity learning network.

Vaccines

Key accomplishments and milestones

The total number of our vaccine doses that have been distributed has increased significantly since 2013, and our global reach has also increased dramatically. In 2021, approximately 76 percent of our vaccines were distributed outside the U.S., up from 34 percent in 2013. More than 73 million doses of two of our vaccines—GARDASIL® [Human Papillomavirus Quadrivalent (Types 6, 11, 16, and 18) Vaccine, Recombinant] and RotaTeq® (Rotavirus Vaccine, Live, Oral, Pentavalent)—have been distributed in Gavi-eligible countries through 2021. This represents important progress toward ensuring that these vaccines reach people in low-income settings who are at high risk for certain vaccine-preventable illnesses.

By December 2019, ERVEBO® (Ebola Zaire Vaccine, Live) had been approved by the U.S. FDA and conditionally approved by the European Medicines Agency, received WHO prequalification and been approved in two African countries, including the Democratic Republic of Congo and Burundi. As of April 2022, the vaccine has also been approved in nine African countries, the United Kingdom and Switzerland.

In January 2021, our Company confirmed an agreement with UNICEF to establish the world's first global Ebola vaccine stockpile with ERVEBO, which represents a new and important tool in supporting future outbreak preparedness and response efforts. The stockpile inventory is being built over time and will be maintained by our Company.

Since establishing the agreement to build the stockpile, we have been working with UNICEF to deliver licensed doses. As of August 2022, the currently available doses of licensed vaccine in the stockpile is over 400,000. The global stockpile, governed by the International Coordinating Group on Vaccine Provision, will offer a critical, rapid-response tool to help combat future outbreaks of disease caused by Zaire ebolavirus.

Access pricing

We work with governments, international health and development organizations, donor groups, nongovernmental organizations (NGOs) and others to support countries' population health aims and help improve sustainable vaccination programs.

Our 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 purpose. We offer GARDASIL, which is indicated to help reduce the risk of certain HPV-related diseases later in life, at an access price that is significantly less than the value-based price in other countries. The access price for vaccines 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 GARDASIL through 2025 to Gavi-graduated countries with a per-capita gross national income (GNI) not exceeding $3,200, as well as Gavi-accelerated transition or fully self-financing countries that meet Gavi's Exceptional Opportunity criteria. This greatly assists countries that have transitioned out of Gavi support by facilitating access to these vaccines in those countries, while also ensuring that they remain affordable and sustainable in the long term. In the short period of time since we made our price commitment to countries transitioning out of Gavi support, numerous countries have taken advantage of the offer to introduce or continue existing national HPV vaccination programs.

We also remain actively engaged with Gavi on policy efforts to improve access to vaccines in Gavi-transitioned countries. We believe that our pricing approach contributes to broader access to our vaccines while taking into account our need to continue investing in vaccine research, development and production.

Manufacturing and supply

In the last few years, countries around the world have enacted new or expanded vaccination programs. This has contributed to an unprecedented increase in global demand for vaccines. We are committed to increasing our capacity and supply capability.

Our commitment across the Company to invest in capital projects over five years has increased to $20 billion, with a portion dedicated to vaccines. We continue to invest in manufacturing and end-to-end supply improvements in both capability and capacity to help ensure a sustainable, reliable supply of quality and affordable vaccines to serve global needs. Our manufacturing division continuously works to improve manufacturing processes and reduce operating costs 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. That is why we continue to explore potential strategic partnerships with other manufacturers to increase supply and promote greater access in local markets.

COVID-19 manufacturing agreements

In response to the COVID-19 pandemic, we entered multiple agreements to support efforts to expand the manufacturing capacity and supply of COVID-19 medicines and vaccines. Under our agreement with the Biomedical Advanced Research and Development Authority (BARDA), a division of the Office of the Assistant Secretary for

Preparedness and Response (ASPR) within the U.S. Department of Health and Human Services (HHS), we received funding that allowed us to adapt and make available a number of existing manufacturing facilities for the production of COVID-19 vaccines and medicines.

Registration and prequalification

We seek to ensure global access to our vaccines by obtaining and maintaining up-to-date product registrations around the globe. In order to make our products available to the people who need them throughout the world, we registered 141 products and devices in 2021. The majority of these products were registered in LMICs in the Asia-Pacific, Central and Eastern Europe, Middle East and Africa, and Americas regions.

In addition to having our medicines and vaccines approved by stringent regulatory authorities, when relevant to enhancing access in LMICs we also work to have certain medicines and vaccines prequalified through the WHO prequalification process so that our products may be easily obtained and distributed to underserved populations.

The table below summarizes the registration and WHO prequalification status of a select list of our vaccines.

WHO prequalification can facilitate product procurement by international procurement agencies. WHO's prequalification program covers medicines for HIV, tuberculosis (TB), malaria, neglected tropical diseases, influenza, reproductive health and diarrhea, in addition to vaccines. In the absence of reliable national medicine authorities that can certify that health care products meet required quality, safety and efficacy standards, stringent regulatory authority and WHO prequalification can serve as a basis for quality assurance for procurement by international agencies and national programs in lower-income countries.

We have made efforts to address the unique needs of low-income countries where the infrastructure and personnel to deliver immunization services can be severely limited. Specifically, we focused on product improvements that included features such as vaccine vial monitors (VVMs) and use in controlled-temperature-chain conditions. In May 2022, we obtained WHO Prequalification for GARDASIL and GARDASIL 9 vaccines compatibility for use outside the cold chain for up to four days. This helps enhance accessibility for hard-to-reach populations.

Select vaccine registrations and prequalification	GARDASIL® [Human Papillomavirus Quadrivalent (Types 6, 11, 16 and 18) Vaccine, Recombinant]	GARDASIL® 9 (Human Papillomavirus 9-valent Vaccine, Recombinant)	ROTATEQ® (Rotavirus Vaccine, Live, Oral, Pentavalent)	M-M-R®II (Measles, Mumps & Rubella Virus Vaccine Live)	VARIVAX® (Varicella Virus Vaccine Live)	ERVEBO® (Ebola Zaire Vaccine, Live)
Product is WHO prequalified	Yes	Yes	Yes	Yes	Yes	Yes
Date of prequalification	May 20, 2009	February 9, 2018	October 7, 2008	January 6, 2009	February 9, 2018	November 12, 2019
Approximate number of countries where product is registered (as of March 2022)	130	87	125	77	86	44

U.S. product pricing

We have a long history of making our medicines and vaccines accessible and affordable through responsible pricing practices and industry-leading patient access programs. In 2017, we began disclosing information about the price of our medicines in the U.S.

We are working to bring our medicines and vaccines to more people around the world in ways that are as accessible and affordable as possible for the patients who need them.

While each individual situation varies based on factual circumstances and market dynamics, generally we consider:

- Value provided to patients
- Value provided to health care systems
- Unmet need
- Access
- R&D sustainability
- Competition

In our sixth annual report, our **2021 U.S. Pricing Transparency Report** shows an average annual net price increase for our products of 1.7 percent in 2021.

The average annual list price across our portfolio increased by 4.4 percent in 2021, and the Company's gross U.S. sales were reduced by 43.5 percent as a result of rebates, discounts and returns.

Medicine Assistance Tool (MAT)

As a demonstration of our commitment to helping low-income, uninsured patients gain access to our medicines and adult vaccines, we also participate in Pharmaceutical Research and Manufacturers of America's **Medicine Assistance Tool (MAT)**. MAT is a search engine designed to help patients, caregivers and health care providers learn more about access resources available through the various biopharmaceutical industry programs. MAT provides information to approximately 900 public and private assistance programs that help those with financial need get access to their prescriptions.

To date, this tool has helped millions of Americans get free or reduced-cost prescription medicines.

U.S. product portfolio pricing[1,2]	2017	2018	2019	2020	**2021[6]**
List price change (wholesale acquisition cost) vs. prior year[3]	6.6%	5.5%	4.3%	3.1%	**4.4%**
Net price change vs. prior year[4]	-1.9%	2.99%	1.8%	-0.9%	**1.7%**
Average discount[5]	45.1%	44.3%	43.7%	45.5%	**43.5%**

Note: The amount of rebates, discounts and returns is estimated by the Company, and methodologies used may differ from methodologies used by other companies. This data is not audited and should be read in conjunction with the Company's filings with the U.S. Securities and Exchange Commission.

[1] U.S. Product Portfolio includes human health pharmaceutical and vaccine products marketed by the Company, excluding partnered products. The product sales utilized in the analysis represent ~97 percent of the total U.S. Product Portfolio in 2010 and approached 100 percent of coverage in 2021. 2021 values exclude the impact of LAGEVRIO™ given all revenue was through the U.S. Emergency Use Authorization (EUA).

[2] Annual percent change vs. prior year was calculated at a product level and weighted across the Company's U.S. Product Portfolio.

[3] Represents the year-over-year change in the average list price or wholesale acquisition cost (WAC).

[4] Represents the year-over-year change in average net price, which is WAC less rebates, discounts and returns.

[5] Weighted average annual discount is calculated by dividing annual rebates, discounts and returns by annual gross sales.

[6] 2021 values exclude the impact of our Organon portfolio; prior year values have not been restated.

GRI 203-1	**Infrastructure investments and services supported**
GRI 203-2	**Indirect economic impacts**

Product registration	2017	2018	2019	2020	**2021**
New product and device registrations (annual)[1,2]	143	124	97	79	**141**
Products submitted that have achieved WHO prequalification (cumulative)[3,4,5]	13	13	13	13	**7**
Number of patent applications filed in low-income countries[6]	NR	NR	0	0	**0**

NR: Not reported.
[1] Data include new products and new indications.
[2] Data for all years have been updated based on a tracking system upgrade that corrected miscounts in prior years.
[3] Three products previously reported are no longer part of the Company's product portfolio due to the Organon spin-off in 2021.
[4] The three GARDASIL products that had been previously reported separately are reported as one product starting in 2021.
[5] CRIXIVAN® (indinavir sulfate) was removed from our product list in 2019 and is no longer included in the total number of products that have achieved WHO prequalification.
[6] Countries classified as low-income countries in the 2019 World Bank Country and Lending Group classifications.

Below is a list of products that have been prequalified by WHO as of April 1, 2021.

Products prequalified by WHO	International Nonproprietary Name (INN)	Date of prequalification
Vaccines		
MMR-II®	Measles, Mumps, Rubella Virus Vaccine Live	January 2009
ROTATEQ®	Rotavirus Vaccine, Live, Oral, Pentavalent	October 2008
GARDASIL®	Human Papillomavirus Quadrivalent (Types 6, 11, 16, 18) Vaccine, Recombinant (including a VVM)	May 2009
	Human Papillomavirus Quadrivalent (Types 6, 11, 16, 18) Vaccine, Recombinant (two-dose regimen to support its programmatic feasibility in developing countries)	October 2014
	Human Papillomavirus Quadrivalent (Types 6, 11, 16, 18) Vaccine, Recombinant (compatibility for use for up to three days in a controlled temperature chain to facilitate its administration in high-temperature, low-cold chain infrastructure areas of developing countries)	May 2016
GARDASIL®9	Human Papillomavirus Quadrivalent (Types 6, 11, 16, 18) Vaccine, Recombinant (including a two-dose-regimen variation)[1]	February 2018
VARIVAX®	Varicella Virus Vaccine Live (first varicella vaccine to receive WHO prequalification)	February 2018
ERVEBO®	Ebola Zaire Vaccine, Live	November 2019
HIV/AIDS treatments		
STOCRIN®	Efavirenz (600mg tablet, Oral Solution 30mg) Efavirenz (50mg tablet, 200mg tablet)	May 2006 May 2008

[1] Not currently available through UNICEF procurement; awaiting Vaccine Vial Monitor (VVM).

Long-standing access initiatives

We have made substantial contributions to strengthening health systems and access to health through long-standing key initiatives. These initiatives include Merck for Mothers, the MECTIZAN® Donation Program and our Medical Outreach Program (MMOP).

Merck for Mothers

Merck for Mothers is our $650 million global initiative to help create a world where no woman has to die while giving life. For a decade and counting through Merck for Mothers, we have brought Merck's scientific and business expertise to help improve maternal health outcomes. Our efforts are focused on generating fresh thinking and infusing new approaches to help end the longstanding challenge of maternal mortality. We focus on strengthening health systems to sustain the delivery of high-quality maternity care services that benefit women and their communities. With our grantees and collaborators, we are improving health systems for women today and for the long term by advancing quality standards, catalyzing solutions that respond to community needs and harnessing private sector innovations for maternal health.

▶▶▶ *For more information, please visit the **Merck for Mothers website**.*

The MECTIZAN Donation Program

The MECTIZAN Donation Program (MDP) is the longest-running disease-specific drug donation program and partnership of its kind and is widely regarded as one of the most successful public-private health collaborations in the world. MDP operationalizes the commitment we made 35 years ago to donate MECTIZAN for the treatment of onchocerciasis (also known as river blindness) to all who need it, for as long as needed. Since then, the program has expanded to include additional commitments to donate MECTIZAN for the treatment of lymphatic filariasis. Since the program's inception, we have donated more than four billion MECTIZAN treatments. In addition to providing direct access for communities in need of treatment, the program has made significant impacts on health systems in some of the hardest-to-reach communities.

*For more information on our efforts, please see the **MECTIZAN story** on Merck.com.*

MECTIZAN Donation Program	2017	2018	2019	2020	**2021**
Direct financial investment in the program (in millions)[1, 2]	$3.10	$2.20	$3.10	$2.74	**$1.88**
Total treatments approved (in millions)	300	346	403	417	**364**
Treatments approved for river blindness (in millions)	97	111	131	139	**105**
Treatments approved for lymphatic filariasis (LF) in river blindness endemic countries (in millions)	89	140	141	141	**95**
Treatments approved for joint river blindness and LF programs (in millions)	114	83	70.7	75	**101**
Treatments approved for lymphatic filariasis (LF) in countries not endemic for river blindness[2]	N/A	12	60	62	**63**
River blindness endemic countries where elimination of LF has been validated by the World Health Organization (Target: 30)	1	1	2	3	**3**
Latin American countries where the elimination of river blindness has been verified by the World Health Organization (Target: 6)	4	4	4	4	**4**

N/A: Not available.
[1] Direct investment includes operational support and grants.
[2] Following our Company's commitment in 2017 to expand the donation of Mectizan to support the implementation of triple-therapy for the elimination of LF in certain settings, the Mectizan Donation Program expanded in 2018 to include donations for LF elimination in countries not endemic for river blindness.

Medical Outreach Program

Our Company's Medical Outreach Program (MMOP) is the primary means through which we donate pharmaceuticals and vaccines for humanitarian assistance in the developing world and in support of disaster relief worldwide. The MMOP helps expand access to our products, particularly in developing countries, by donating pharmaceuticals and vaccines to a limited number of qualified, U.S.- based NGO partners. The scope and reach of the MMOP 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.

*For more information, please visit the **MMOP** page on our corporate website.*

Disaster relief

We are committed to supporting communities around the world that are affected by natural disasters. We look to local authorities and humanitarian relief agencies to first assess need and then respond in a timely, coordinated manner. We provide aid through financial and product donations to meet the immediate needs of affected communities.

Medical Outreach Program (MMOP)	2017	2018	2019	2020	**2021**
Countries and territories reached by the MMOP[1]	62	72	56	46	**56**
Estimated number of people reached[2,3]	376,300	349,570	457,520	283,100	**138,900**

[1] Distribution of product by country is managed and provided by third party partners who provide the related reporting.
[2] Estimated figures, which assume all product reached patients, are based on converting volume of medicines and vaccines donated. Conversion factors for this estimate were developed using a combination of QuintilesIMS SMART Data and U.S. product information found on **our product website**.
[3] Decline in patients reached in 2020 and 2021 primarily due to the decreased availability of certain products offered for donation because they moved to Organon in the 2021 spin-off.

Disaster relief	2017	2018	2019	2020	**2021**
Total giving value of disaster relief contributions (cash and products, in millions)[1, 2]	$23.9	$10.2	$16.7	$20.3	**$9.0**

[1] Support provided through the Office of Social Business Innovation.
[2] We set the value of our product donations based on the U.S. wholesale acquisition cost.

Addressing barriers to health	2017	2018	2019	2020	**2021**
Health care workers trained through major programs and partnerships (estimate)[1]	74,000	67,000	68,000	78,000	**99,000**
Annual investment in partnerships, programs and impact investments that support health care capacity-building and address underlying barriers to access to health (in millions)[1,2]	$40	$37	$63	$49	**$36**
People reached through investment in partnerships, programs and impact investment that support health care capacity-building and address underlying barriers to access to health[1,2,3] (estimate in millions)	311	357	422	285	**212**
Investment in patient-and-provider education programs (estimate in millions)	$90	$115	$102	$96	**$90**

[1] Represents investments made by our Office of Social Business Innovation.
[2] Support provided through the Office of Social Business Innovation.
[3] The decrease in people reached in 2020 and 2021 is due to postponed mass drug administration programs as well as shipping delays as a result of the COVID-19 pandemic.

Philanthropic social investments

Our philanthropic investments help advance health equity around the world by addressing the barriers that many individuals face in seeking and receiving high-quality health care.

Our approach to these investments is guided by several key principles: meeting critical global health needs where we can have a meaningful impact; promoting health equity by helping to reduce health disparities in underserved communities; collaborating with diverse partners across sectors to build healthier, stronger communities; and leveraging our range of resources (financial, product and expertise) to improve population health outcomes.

Established in 1957, our Foundation is funded entirely by the Company and is our chief source of financial support for qualified, eligible nonprofit organizations whose programs align with our philanthropic priorities. Our Company and Foundation support innovative programs and partnerships to improve the health and wellbeing of people around the world. Through these programs, we believe that by working closely with others—governments, donors, patient groups, health care professionals, nonprofit organizations, academic institutions, multilateral agencies and the private sector—we can help build stronger health systems that provide better and more equitable care.

Our Foundation has invested in programs that help people living with chronic conditions, including cancer, receive high-quality health care. Over the past five years, we have supported efforts to increase timely access to patient-centered care and reduce disparities in cancer care across the U.S. through the **Alliance to Advance Patient-Centered Cancer Care**. This $15 million initiative supported evidence-informed, multi-faceted programs to enhance the delivery of equitable cancer care in underserved communities across six U.S. cities.

Building on the successes of the Alliance to Advance Patient-Centered Cancer Care, the Foundation launched a new U.S.-based initiative—Alliance for Equity in Cancer Care—in 2022 to address persistent disparities across the cancer care continuum and improve the delivery of high-quality, culturally-responsive care in underserved communities. With a $20 million commitment over five years, the Foundation will support the development and implementation of innovative, comprehensive cancer care programs that can improve patient outcomes and help ensure equitable care by addressing access barriers related to social determinants of health.

The Foundation also supports programs that aim to improve the delivery of cancer care in low- and middle-income countries. Through an approximate $2 million grant over five years, the Foundation is supporting the **American Cancer Society** to establish patient navigation programs in resource-limited settings in sub-Saharan Africa and develop a toolkit to help other countries adopt navigation programs as part of delivering comprehensive cancer care.

▶▶▶ *For more information on our philanthropy programs, please visit the **Philanthropy** page on our corporate website.*

▶▶▶ *For information on philanthropic programs specific to our Animal Health business please visit our **Animal Health website**.*

We also recognize that our success depends in large part on our relationships and interactions with local communities, including community leaders, nonprofit organizations, local businesses, schools, elected officials and local media. The communities where we operate are home to our workforce as well as many of our suppliers. It is critical to understand the concerns and needs of our communities and address local challenges so that we can help build stronger communities and support the sustainability of our business.

We contribute to the economy of local communities directly and indirectly through employment, training, support of local suppliers, local R&D and paying taxes. We also strive to have a positive impact on communities by protecting the environment, maintaining safe operations and respecting human rights.

Our community engagement programs aim to strengthen communities where our employees live and work by helping address critical health and social needs. Our **Neighbor of Choice (NOC)** grants program supports the work of local nonprofit organizations dedicated to promoting the wellbeing of community residents in areas where we have a major presence.

Additionally, our Partnership for Giving (P4G) matching gift program doubles the donations made by employees in the U.S. and Puerto Rico to causes that are important to them. Through a dollar-for-dollar match of employee contributions, our Foundation supports nonprofits that promote a healthier society, advance education, foster the arts, address the welfare of animals and preserve the environment.

Grants and contributions	2017	2018	2019	2020	**2021**
Grants and contributions (total cash, in-kind and product) (estimate in millions)[1,2]	$2,722	$2,793	$3,096	$2,988	**$1,849**
Cash grants and contributions (estimate in millions)	$94	$84	$82	$104	**$102**
Product donations through U.S. Patient Assistance Program (in millions)	$1,112	$1,242	$1,460	$1,603	**$1,455**
Product donations for ex-U.S. programs and U.S. disaster relief (in millions)[2,3]	$1,513	$1,464	$1,550	$1,280	**$284**
Valuation of employee volunteer time (in-kind, in millions)[4,5]	$3.2	$3.1	$4.1	$0.9	**$3.5**

[1] Total contributions for 2021 include approximately $4.9 million for in-kind donations of PPE and other equipment in response to COVID-19 pandemic.
[2] In 2021, we stopped reporting on the market value of donated MECTIZAN, leading in large part to a decrease in our overall reporting of the value of product donations for ex-U.S. programs.
[3] Includes our Medical Outreach Program, the MECTIZAN Donation Program, and MSD division and subsidiary donations.
[4] Includes valuation of volunteer time for only those employees who participated in the MSD Fellowship for Global Health program and our Pro Bono Legal and other skills-based volunteer programs.
[5] 2020 decrease in employee volunteering valuation was due to the temporary suspension of the MSD Fellowship for Global Health Program and decreased in-person volunteering as a result of COVID-19.

Partnership for Giving (P4G)	2017	2018	2019	2020	**2021**
Total contribution (in millions)[1, 2]	$25	$22	$15.1	$19.3	**$18**
Number of organizations that benefited[3]	8,770	7,350	5,645	6,468	**5,757**
Number of employee participants[4]	8,302	6,503	5,083	5,396	**5,370**

[1] Total contribution includes Foundation matching funds for Dollars for Doers and P4G matching gift programs, and 2021 active-employee participant funds donated through the P4G Direct Giving program.
[2] 2020 increase is largely due to increase in employee giving and matching gifts to support COVID-19 response efforts.
[3] Includes organizations receiving funds through the P4G matching gift and Dollars for Doers programs.
[4] Includes active employee participants in the P4G matching gift program.

*For more information on access and pricing, see GRI 203 on **page 55**.*

Procurement practices

GRI 204 **Management approach**

Global Economic Inclusion & Supplier Diversity

Global Economic Inclusion & Supplier Diversity (EI&SD) is integrated into our overall Global Diversity & Inclusion (GD&I) strategy and supports our corporate aspiration. The EI&SD Center of Excellence (CoE) 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
- Driving shareholder value

EI&SD is the epicenter of our Company's diverse and inclusive procurement practices. We create economic opportunities for underrepresented communities by procuring products and services from minority-; women-; veteran-; lesbian-, gay-, bisexual- and transgender- (LGBT); and disability-owned enterprises.

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 supporting the small and diverse businesses that are the economic engine of growth around the world through global economic inclusion.

Advanced Leadership Program for Diverse Suppliers

High-performing businesses not only build diverse workforces, but also effectively leverage talent to fully realize diverse perspectives. Part of leveraging diverse talent involves partnering with suppliers that understand how to lead and motivate others to achieve common goals, communicate strategies effectively and make sound financial decisions. The Advanced Leadership Program for Diverse Suppliers (ALP) provides an executive development opportunity for diverse business owners to enhance their leadership and business acumen to strengthen and grow their business.

Designed in collaboration with Drexel University and Diversity Alliance for Science (DA4S), this experiential development program focuses on application, and is supported by evidenced-based research and practitioner-industry experience. Participants have an opportunity to engage with Drexel University faculty, their peers and organizational leaders from our Company in thought-provoking, facilitated discussion that enhances self-reflection and personal development while building relationships across the broader community network.

The ALP integrated program modules support an overarching theme of growing and scaling small and/or diverse businesses by building the leadership abilities and business acumen of diverse business owners. Led by an interdisciplinary faculty and subject-matter-expert team, each module provides an experiential and applied approach to executive development.

Topic areas include:

- Leadership, Communication and Teams
- Building Personal Brand and Storytelling
- Strategic Networking
- Digital Presence and Strategy
- Customer Digital Journey
- Digital Media Metrics and Measurement
- Financial Reporting, Planning and Budgeting
- Short-term and Long-term Business Decisions
- Intersecting Finance and Operations
- Operations and Production Planning
- Purchasing and Contract Management

Request for Proposal Culminating Capstone Challenge

The ALP concludes with a Request for Proposal (RFP) Culminating Capstone Challenge. Participants use the RFP portfolio elements they have been building throughout the program to prepare and present their business to the challenge panel. The RFP Challenge offers an invaluable experience through the coaching and feedback participants receive on their presentations and overall performance.

Participants also complete a customized Drexel LeBow leadership assessment, which provides them with an individualized report used to guide their leadership and development plan.

In 2021, we had 19 diverse suppliers graduate from our inaugural cohort. We are proud to continue with this program in 2022.

2021 Economic Inclusion Virtual Lab

The challenges posed by the COVID-19 pandemic haven't changed our commitment to economic inclusion and supplier diversity. Instead, they've continued to inspire innovation.

The Economic Inclusion Virtual Lab is an evolution of our Virtual Business Opportunity Fair. The Economic Inclusion Virtual Lab was a successful new approach to reach and teach diverse suppliers interested in growing capacity and accessing procurement opportunities. Even during times like these when in-person contact is limited, we continued our commitment to developing relationships with scalable, sustainable diverse suppliers, which positively impacts the communities in which we all live and work.

Attendees of the virtual events included nearly 550 diverse suppliers, partners and advocacy representatives from the U.S., Puerto Rico, Canada, Brazil, Mexico, Colombia, the United Kingdom, Germany, India, China, Vietnam and South Africa. We also had **senior leader representation** from Latin America and Asia-Pacific engaging with attendees of the Virtual Lab. The event included webinars, speaker sessions, panel discussions and a virtual tradeshow. Throughout the course of the event, attendees engaged in over 1,900 chats connecting suppliers, our procurement specialists and advocacy groups. This event was recognized as "2021 Best DIY Virtual Event" by Notified, the world's only communications cloud for events, public relations and investor relations to drive meaningful insights and outcomes.

Performance

In 2021, diverse spend represented 12 percent of our total procurement spend, exceeding our corporate goal in spend with minority-owned, women-owned, veteran-owned, LGBT-owned and disability-owned business enterprises.

$2.9 billion

in spending with diverse suppliers globally

Supplier diversity (in millions)	2017	2018	2019	2020	**2021**
Diverse-supplier spend: Global[1]	N/A	N/A	N/A	N/A	**$2,858**
Diverse-supplier spend: U.S.	$1,962	$2,111	$2,433	$2,270	**$2,374**
Small-business spend: U.S.[2]	$802	$973	$979	$775	**$1,027**

N/A: Not available.
[1] Starting in 2021, our reports include global spend data.
[2] The acquisition of small suppliers may have impacted their small business status and therefore affected the small business spend reflected above.

Impact spend in the U.S.[1,2]

$2.374 billion
spending with diverse suppliers

$5.0 billion
economic impact through supplier diversity

31,815
jobs supported through small and diverse suppliers

$1.4 billion
earnings through jobs created/sustained

[1] Based on 2021 data.
[2] Billion Dollar Roundtable Economic Impact Study. University of Washington, Foster School of Business.

Billion Dollar Roundtable

Our ongoing economic inclusion and supplier diversity 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-, women-, veteran-, LGBT- and disability-owned enterprises headquartered in the U.S. and globally.

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. As part of our 35 years of inclusion and impact, we hosted the 2022 Billion Dollar Roundtable Summit with the theme, “The Future is Now: Supplier Diversity as a Force of Sustainability, Economic Equality and Societal Impact.” The Summit provided another opportunity to chart a course for the bold and transformative steps which are urgently needed to ensure we are optimizing positive economic impact to some of our most distressed areas, share best practices and encourage global partners to continue to deliver on our purpose.

In addition to the Billion Dollar Roundtable, we work in partnership with others, including:

- Disability:IN
- Integrare—Integrare Centro de Integração de Negócios (Brazil)
- LGBT-owned Business Certification in Canada (CGLCC)
- Minority Supplier Development Council UK (MSDUK)
- Minority-owned Business Certification in Canada (CAMSC)
- National LGBT Chamber of Commerce (NGLCC)
- National Minority Supplier Development Council (NMSDC)
- National Veterans Business Development Council (NVBDC)
- United States Hispanic Chamber of Commerce (USHCC)
- United States Pan Asian American Chamber of Commerce (USPAACC)
- South Africa Supplier Diversity Council (SASDC)
- SupplyNation
- WeConnect International
- Women Business Enterprise National Council (WBENC)

377,293
meals served

8
NGOs supported

2021 meal program for underrepresented communities

When the COVID-19 pandemic hit, **our cafeterias stepped up to serve people in need**. A meal distribution program that started at the beginning of the pandemic continues to deliver thousands of meals a week to underserved communities through nonprofit organizations serving communities in New Jersey and Pennsylvania, such as:

- Raphael's Life House
- New Community Harmony House
- St. Johns Hospice
- MTN Organizations, Inc.
- City Team Chester
- Community Food Bank of New Jersey
- The Hoboken Shelter
- DePaul USA

*For more information on our procurement practices and supplier diversity, please also see GRI 102-9 on **page 30**, GRI 308 on **page 122** and GRI 405 on **page 148**.*

Anticorruption

GRI 205 **Management approach**

Our Company is built on its reputation for ethics and integrity forged with health care professionals (HCPs), patients and other stakeholders. Bribery and corruption are illegal, tarnish our reputation and undermine public trust. Offering or paying bribes or kickbacks is against the laws of the markets where we do business.

We are committed to observing the laws and regulations that govern our operations and activities wherever we do business. To that end, we maintain policies, procedures and processes that apply to Company activities involving transfer of value (TOV), including TOV to HCPs and third-party intermediaries that perform agreed-to services on our behalf.

We have a well-established global ethics and 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 Industries and Associations (EFPIA)**.

Our Board of Directors and senior management, including the Chief Ethics and Compliance Officer, provide the foundational elements of leadership, accountability and structure to oversee the Company's global ethics and compliance program. The Chief Ethics and Compliance Officer reports directly to our CEO, and provides regular updates to senior leaders and the **Audit Committee** of the Board of Directors on key indicators of ethical culture and compliance and risk trends. This reporting structure supports transparent and independent communication of relevant risk information relating to ethics and compliance issues.

Our Company's anti-bribery/anticorruption program and policies give employees (and third-parties with whom we engage) the awareness, knowledge and resources to operate with integrity and comply with applicable laws and regulations, and to understand that we will not tolerate any act, or even the appearance, of impropriety.

Our corporate anticorruption policy 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. The policy also prohibits any act that may give the appearance of offering anything of value for a business advantage. It applies to direct engagements (i.e., those conducted by our Company) as well as to indirect engagements (i.e., those managed through a third-party intermediary or partner). There are additional divisional policies reinforcing these principles in connection with certain activities.

Our Business Partner Code of Conduct presents similar and consistent principles for our business partners. It states that business partners shall not offer pay, ask for or accept anything of value—or give the appearance that they do—in order to improperly influence decisions or actions with respect to any Company business or government activities. We expect all our business partners to adhere to these principles and operate in full compliance, including maintaining processes and procedures to prevent and detect corrupt activities.

GRI 205-2 **Communications and training on anticorruption**

Annual ethics and policy certification

An important component of our corporate ethics and compliance program is our annual ethics and policy certification. The annual review process requires selected employees to certify adherence to the Code of Conduct and corporate policies on preventing bribery and corruption, antitrust-law compliance, 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, U.S.-based (including Puerto Rico) employees must certify compliance with our policy on the effects of exclusions, debarments, suspensions and health care-related criminal convictions, reporting and screening. The annual compliance certification process is supplemented by periodic market and regional risk-based discussions and ongoing risk data monitoring.

Training is an important part of creating a strong ethics and compliance culture. To ensure that all employees understand our ethical expectations and principles, we provide an annual ethics and compliance training series that includes relevant content to enable employees to perform with integrity and to make appropriate value-based decisions in the course of their work.

In 2021, more than 99 percent of our employees completed assigned training on four specific modules:

- Code of Conduct
- Speaking up
- Anti-bribery and anti-corruption
- Privacy

Supplemental training on anti-bribery and anti-corruption is provided for employees who engage with non-U.S. government officials. As our Company is headquartered in the U.S., with a global footprint, our employees in the Human Health Division outside of the U.S. are made aware of the implication of statutes like the Foreign Corrupt Practices Act.

Employees in the Human Health Division in the U.S. are also required to understand, among other things, their responsibilities under the Anti-Kickback Statute, the U.S. Prescription Drug Marketing Act and applicable FDA promotional regulations.

>99%

employees trained on the Ethics and Compliance training series

Anti-competitive behavior

GRI 206 **Management approach**

Our Company believes that our customers—and society as a whole—benefit from fair, free and open markets. While ours is a competitive industry where it is important that we compete aggressively, it is equally important that we do so fairly, legally and based on the merits of our products and services.

Our interactions with customers, suppliers and competitors are governed by antitrust and competition laws and corporate policies. We enforce these external and internal standards through our ethics and compliance program.

We recognize that our reputation for integrity, trust, honesty and fair dealing continues to be dependent on our ethical practices. Consequently, we want to make certain that the ways in which we promote customer choice, business relationships and business practices are positive and fair. Our professional sales representatives are guided through our policies to recognize that competitive advantage is gained through the merits of our products and services, never through unethical or illegal business practices.

Fostering pro-competition practices

We believe that our marketing, sales, and advertising activities make an important contribution to medicine by informing our customers of treatment options based on the most recent scientific information and findings from rigorous clinical studies.

Our sales and marketing practices are governed by external laws and regulations and industry codes of conduct, and by our own global **Code of Conduct**, our corporate policies and procedures, and our ethics and compliance program.

Our ethics and compliance program seeks to address and prevent inappropriate practices, and we evaluate our policies and practices as appropriate. Our practices are monitored, and compliance is enforced, to ensure that our interactions with customers and consumers do not include making unsubstantiated competitive claims.

Also, a part of the business requires the Company to communicate with policy makers or other stakeholders to address certain gaps in a market and promote patient access. In such interactions, we are careful not to develop tactics aimed at preventing or delaying access of generic products into the market and such communications are governed by our marketing communications principles.

GRI 206-1 Anti-competitive behavior

All new employees receive training and testing and must be certified on relevant policies and our Company's ethical operating standards. Although many of our employees who market and sell our medicines and vaccines have advanced scientific or medical degrees and backgrounds, all our sales representatives must complete general sales and product training. Training is specific to the country where an employee is based and covers the scope of the employee's responsibilities in ensuring compliance with applicable laws and regulations. We stress that if our employees are unsure about the appropriateness of the conduct that they ask for help. There are several places where employees can turn for assistance.

The first option is to talk with their manager. If they do not feel comfortable with that course of action, the other resources they may contact are:

- Divisional Compliance Departments
- Office of Ethics
- Privacy Office
- Office of General Counsel
- Human Resources Department
- **MSDethics.com**

In addition to mandatory training on our Code of Conduct, employees receive training on other levels of business practice and compliance according to their roles and responsibilities. We evaluate and update the content for all marketing and sales training periodically to ensure that it remains relevant and current.

While antitrust and competition laws may differ in the countries where our Company operates, the fundamental principles remain the same. From a broad perspective, antitrust and competition laws are legislated to promote competitive markets with the notion that when competitors and sellers can compete effectively against each other, customers will be the ultimate beneficiary. All employees are educated on the overall principles and, with the help of the relevant legal and compliance functions, they are expected to carry out their duties in a pro-competitive manner while safeguarding and advancing the Company's interests.

Tax

GRI 207-1 Approach to tax

We recognize our role as a responsible taxpayer to pay our full share of taxes, including corporate income taxes. We also recognize that our contribution is much more than the corporate income tax we pay.

We pay a significant amount of taxes to national and local governments in the form of employment taxes, value-added taxes, sales taxes, excise taxes, property taxes and customs duties. We also collect numerous taxes paid by our employees. We pay all taxes due in full and on time in the jurisdictions in which we operate. The way we conduct business, including the economic impact from the taxes we pay, also reflects our commitment to striving to reach those in need with our medicines and vaccines and helping to build robust, durable health systems worldwide through partnership, investment and innovation.

Our chief financial officer (CFO) is ultimately responsible for our overall tax position. The day-to-day management of tax is performed by the Company's global corporate tax department, which is led by the senior vice president of Tax. Effective oversight of the tax function is maintained by at least an annual tax presentation to the Audit Committee of our Board and regular meetings with the CFO; senior vice president, Tax and Treasury; and other executive leaders to discuss emerging tax matters.

We comply with tax rules and regulations on a worldwide basis and only engage in tax planning that is aligned with our commercial business activities and reputation. We are committed to the arm's length standard in transfer pricing and Organisation for Economic Co-operation and Development (OECD) guidelines for international tax matters. We have a zero-tolerance approach to tax evasion and the facilitation of tax evasion. Where uncertainty exists, and when appropriate, we seek clarification from our external advisors and/or governmental authorities. This can take the form of tax rulings or advanced pricing agreements from governmental authorities.

We monitor proposals and changes to tax incentives and regulations in the countries in which we operate in order to assess their impact on our business, and we actively participate in industry groups interacting with government representatives to support the development of effective tax systems that encourage innovation and growth. We utilize available tax incentives and opportunities, such as Research and Development tax reliefs, in the spirit in which they were intended.

The effective income tax rates from continuing operations were 11.0 percent in 2021, 22.9 percent in 2020 and 21.8 percent in 2019.

▶▶▶ *To learn more, please see our **Global Tax Strategy** on our corporate website, as well as page 63 of our **2021 Form 10-K**.*

Environmental

See our GRI Index on **page 182**.

Materials

GRI 301 **Management approach**

By using more efficient and innovative processing methods and technologies, we are reducing the amount of energy, water and raw materials we use to make our products, thereby minimizing the amount of waste we generate. We go to great lengths to ensure that our products are designed and made 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.

We have set environmental sustainability goals with concrete targets and timelines to demonstrate this commitment. 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 (ACS) and the European Federation of Pharmaceutical Industries and Associations (EFPIA).

Products

We conduct extensive testing of our products to identify and understand any potential safety, health and environmental hazards. We manage and communicate information about hazardous materials to keep our employees, contractors, transporters and other partners safe. We are actively engaged in conversations on product stewardship to understand and act on the issues specific to our industry worldwide.

We share best practices within the industry via our membership in the Conference Board Product Stewardship Council, the American Chemistry Council's (ACC) Green Chemistry Initiative, the EFPIA, the International Federation of Pharmaceutical Manufacturers & Associations (IFPMA) and the ACS Green Chemistry Institute Pharmaceutical Roundtable (ACS GCIPR).

Our objective is to maintain compliance and assure supply of life-saving medicines as we look to further minimize our future environmental footprint.

Governance

Our efforts in this area are overseen by our Green & Sustainable Science Steering Committee and our Environmental Health and Safety (EHS) Council.

Programs and initiatives

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 with which we work and submit the required regulatory notifications.

Additionally, we provide details on product use and risk-based control measures in accordance with applicable regulations.

Packaging

Our product stewardship program extends 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 and their packaging in accordance with regional requirements. For more information, see our **position statement on responsible disposal of medicines**, which can be found on our corporate website.

The materials we use for packaging our finished products serve 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.

In addition to these critical functions of packaging, there is also the consideration of the environmental impact of the materials we use. After it has served its critical function(s), packaging becomes our customer's waste and therefore must be accounted for in our designs.

We have adopted "Design for Environment" practices 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.

As a standard business practice, we review all of our new human health packaging designs prior to launch to understand and minimize environmental impacts as much as possible, while still providing adequate protection for 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.

In addition, we are working to establish foundational, environmentally-focused packaging principles for the future of our packaging design. These principles, in addition to our LCA tool, serve to guide decision making for packaging design.

We continue to monitor global trends around material use, such as the New Plastics Economy, and how we might incorporate circular economy concepts into the critical functions of packaging for pharmaceuticals. It is unclear how these trends will impact our industry, however, these are important signals of a changing external approach to the use and recovery of specific materials like fiber-based products, plastics such as PVC, metals and others.

Governance

Packaging design is managed by the Global Pharmaceutical Operations area of the Company with oversight from our Environmental Health and Safety Council.

In 2021, we responded to the CDP forest questionnaire for timber products, specifically for paper and secondary and tertiary packaging. CDP graded our disclosure with a C "Awareness" rating, indicating that we have "Knowledge of impacts on, and of, forests issues". According to CDP, our Company is among 60 percent of companies that reached "Awareness" level in our Activity Group (Biotech and pharma) for timber. We performed a gap assessment of our questionnaire response and developed a roadmap for improvements in this area over the next several years. We are in the early stages of our program development and are in the process of assessing the impact of other forest risk commodities.

Solvent use

Solvents play a key role in the research and manufacturing 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 and Sustainable Science program (see **page 86**) to design our new processes using fewer, less toxic, 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 where they are as 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 work with suppliers who recover the spent solvents for resale to other industries or safely burn them as a source of energy, where feasible. 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 in place procedures, systems and processes 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.

Green and sustainable science

Developing innovative, cost-efficient manufacturing processes with low environmental impact aligns with our Company's environmental sustainability strategy. Green and sustainable science is the design of new products and processes that reduce or eliminate the use or generation of hazardous substances.

The concept applies across the life cycle of a product, including its design, manufacture, use and ultimate disposal. There is a trend towards more regulatory restrictions and increased oversight in many jurisdictions around the world. Our strategy for green and sustainable commercial chemical route development could help to avoid potential future issues in the supply chain.

Our Company's overall objective is to be viewed as the industry leader for the development of innovative, efficient, green and sustainable commercial syntheses of our small molecule active pharmaceutical ingredients (API) from sustainable commodity raw materials. We are also exploring ways to reduce the environmental impact of biologics and vaccine manufacturing.

Governance

Our Company's Process Research and Development department is responsible for process development. The progress toward our goals is overseen by various internal bodies including the Scientific Advisory Council (SAC), the Development and Commercialization Oversight (DCO) and our Environmental Health and Safety (EHS) Council.

Strategy

Our integrated strategy involves several stages and aims to provide innovative solutions rather than incremental improvements to historical practices. We see transformative science/engineering and innovation as critical enablers to developing sustainable, low-cost manufacturing processes that provide both environmental and economic benefits over the life cycles of our products. We aim to develop the most efficient and sustainable processes at product launch, with the goal of minimizing material use and waste from our commercial manufacturing. Our Company's research laboratories utilize an innovative "green-by-design" development strategy to progress from an initial early clinical supply route to a fully optimized and sustainable commercial manufacturing process.

Programs and initiatives

As part of our Green & Sustainable Science program, we calculate the process mass intensity (PMI) of our small molecule human health products. PMI represents the number of kilograms of raw materials (including water) used to produce one kilogram of an API. PMI indicates the efficiency by which we convert raw materials into final products. We use this metric internally to compare different manufacturing methods, identify process improvement opportunities and track our progress.

We have developed aggressive PMI targets for our API processes that leverage an internally developed SMART PMI tool and regularly evaluate PMI at every stage of development. We continue to use this tool to drive the development of all our new small molecule processes to achieve our aspirational goals for green and sustainable processes. For our large molecule processes, we are still evaluating different sustainability metrics and ways to reduce the environmental impact of biologics and vaccine manufacturing.

We are also using LCA tools to further evaluate the environmental impacts of our processes.

American Chemical Society (ACS) Green Chemistry Institute (GCI)

We are a founding member of the ACS Green Chemistry Institute® Pharmaceutical Roundtable, a partnership between the ACS GCI and member pharmaceutical companies. The Roundtable assists with the development of tools, such as solvent selection, reagent guides and the PMI calculator, which drive the integration of sustainability into process design. Roundtable members also work together to support and advance academic research and education on new ways to apply green and sustainable science to pharmaceutical discovery and manufacture, which have resulted in several industry publications on more sustainable processes and technologies. More recently, the ACS GCI member companies are exploring tools and guidelines for sustainable production practices relevant to bioprocessing.

Awards and recognition in green chemistry

For the last five years, our Company has been honored by the Environmental Protection Agency (EPA) and the ACS as a winner of the Green Chemistry Challenge Awards. Since the establishment of the annual Green Chemistry Challenge Awards in 1996, we have been recognized with eight Green Chemistry Awards for innovative process improvements. In both 2020 and 2021, our Company was honored by the ACS as the winner of the Peter J. Dunn Award for Green Chemistry & Engineering Impact in the Pharmaceutical Industry.

In 2021, we were recognized for the application of an immobilized biocatalytic process to convert a biorenewable feedstock into a key intermediate for the commercial manufacture of nemtabrutinib, a novel investigational oral Bruton's tyrosine kinase inhibitor.

We were again recognized in 2021 for combining green chemistry principles and a SMART PMI prediction tool to spur the development of a green and sustainable commercial manufacturing process for gefapixant citrate, an investigational medicine for refractory and unexplained chronic cough.

Energy

GRI 302 **Management approach**

As a global biopharmaceutical Company, we recognize the important role we play in identifying, adapting 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 long-standing support of stronger health systems in underserved areas is even more important given the evidence that certain disease patterns are associated with changing climate conditions.

Our Energy Management Standard requires responsible and efficient energy management and associated greenhouse gas (GHG) emission reductions. Energy-demand reduction and efficiency will always be part of our energy management strategy, as it positively impacts our efforts to reduce our global footprint.

Utilization of renewable energy is a growing expectation of industry. The advancements in renewable technology, and incentives through legislation, have facilitated the creation of a robust renewable energy market.

Programs and initiatives

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 our sites and minimizing 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.

Energy-efficiency and demand-reduction projects will continue to contribute to reducing both our energy consumption and direct GHG emissions. In addition, we will continue to optimize systems, consolidate excess facility space when possible and utilize renewable energy sources. We have launched initiatives around the world to improve energy use, reduce GHG emissions from our operations and understand our supply chain-related impacts.

Our Global Energy & Sustainability Center of Excellence (CoE) identifies, shares and standardizes best practices and prioritizes the funding of energy projects to reduce energy use across our Company. Our manufacturing facilities, warehouses, laboratories, offices and vehicle fleet are the primary targets of our energy-demand-reduction programs, as they represent the majority of our energy consumption.

Our Sustainability Capital Fund is used exclusively for sustainability projects at sites around the world that bring long-term value to the Company, and focuses on carbon footprint, water use and solid waste reduction. The fund allocates up to $12 million per year to adopt low-carbon technology, better position us to respond to climate change and support a more circular economy. Since 2015, our sites have completed more than 124 projects through the Sustainability Capital Fund, which has avoided the production of an estimated 50,000 metric tons of carbon emissions per year.

Facilities

We continuously strive to make our facilities energy-efficient. Our Global Energy & Sustainability 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, the efficient operation of utility systems and building efficiencies into systems design.

We have also created a Low Carbon Transition Playbook (LCTP). The LCTP was a result of a cross-functional effort at our Company that pulled together experts into a "design-thinking" workshop organized to develop strategies to reduce GHG emissions. The LCTP includes a gap assessment for sites to evaluate the maturity of their energy programs and helps create short- and long-term plans to reduce sites' carbon intensity and build toward a low carbon future.

All our new facilities are required to comply with our Energy Design Guide and Energy Conservation Planner. When we purchase a facility, it is evaluated for energy efficiency and assessed against our energy scorecard as part of its integration into our Company.

All new laboratories, offices and major renovations are built following cost-effective and energy-efficient practices, and are designed to meet the Leadership in Energy and Environmental Design (LEED) rating system, or a comparable country standard (e.g. BREEAM, EXEED, HQE, etc.). Offices and laboratories are expected to achieve LEED Gold certification at a minimum.

- Our South San Francisco, California, research facility is certified as LEED Gold, WELL Silver and Fitwel® (2 star). In 2021, it became the first facility of its kind to achieve LEED Zero Carbon and LEED Zero Energy certification.
- Our China head office is certified as LEED Gold
- An operations support facility at our facility in Durham, North Carolina, is certified as LEED Silver
- Our lab in Carlow, Ireland, received LEED Gold and Excellence in Energy Efficiency Design (EXEED) certifications
- Development labs in New Jersey and Pennsylvania are pursuing LEED Silver certification
- Two sites, one in New Jersey and one in Virginia, have received LEED Campus certification

We require our facilities to have a plan to manage their energy use. Examples of these plans and resources include:

- Eleven European sites have adopted energy management programs to manage their energy use and maintain and/or achieve their certification of ISO 50001:2018 for energy management in order to comply with the EU Energy Efficiency Directive audit requirements
- The EU Energy Efficiency Directive (EED) Phase Two compliance assessment was completed for all entities in the EU region, and all qualifying sites are undertaking energy audits to ensure compliance
- Our Global Energy & Sustainability CoE has provided tools for facility managers to identify opportunities to reduce energy use and eliminate waste. These tools include the Low Carbon Transition Playbook, Global Energy Scorecard, and sustainability meetings and newsletters for best practices sharing.
- 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. Site energy managers from more than 70 of our facilities are expected to complete the basic energy efficiency training curriculum.

Work practices and recognition

We take advantage of technological advances to save energy, time and money while also reducing emissions.

The strategies we employ include:

- Site energy use is tracked monthly by our Global Energy & Sustainability 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 dropped from an "A-" to "B" in 2021 due to capital expansion.
- A rollout of Energy Utility Analytics Technology for multiple sites that will enable continuous commissioning, energy efficiency improvements and reliability of assets
- The development of 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.

Throughout the year, sites are encouraged to share their sustainability projects relating to energy, waste and water savings. Each quarter, a project is chosen to be featured in the Global Energy & Sustainability CoE's newsletter.

Selected energy/greenhouse gas (GHG) reduction projects in 2021 included:

- A Condensate Kaizen Task Force was created to monitor approximately 75 Condensate Recovery Units (CRUs) for potential energy and water losses and to enter work orders to correct identified issues. The team then estimates water, energy and GHG emission reductions due to the work.
- A site has implemented a new automated monitoring and metering project in order to support its 10-year sustainability strategy. The new system will allow the site to track real-time data from the site's significant energy users (SEUs) at designated equipment and buildings.
- South San Francisco's LEED Zero Carbon & LEED Zero Energy certifications and their ambitious sustainability strategy
- A site's completion of a multi-year wastewater treatment plant upgrade to fine bubble aeration

Renewable energy

We have committed to sourcing 100 percent of our purchased electricity from renewable energy by 2025. Photovoltaic arrays, wind turbines and other renewable-energy installations avoid emissions, help reduce energy demand peaks and postpone or preclude adding new power plants. We continually 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 2021, three sites in Europe completed the installation of solar arrays which are expected to generate about 0.5 MW worth of renewable energy. By the end of 2022, one site in the U.S. and two sites in Europe are expected to complete the installation of solar arrays, generating an additional 10.8 MW of energy.

We signed three VPPAs in 2021 for utility-scale energy projects based in Texas and Spain. These agreements follow a 2018 U.S. wind VPPA, which has added 60 MW of new renewable energy capacity while providing us with the associated renewable energy credits.

Vehicle fleet

Approximately nine percent of our total Scope 1 and 2 GHG emissions are associated with our vehicle fleet. We calculate our fleet's GHG emissions based on estimated fuel economy and actual total miles driven.

We have a roadmap to transition to a full battery electric vehicle fleet. The implementation depends on the availability of like-for-like electric vehicles and the development of public charging infrastructure. Our current emphasis is on introducing hybrid vehicles as a bridge, which account for 12 percent of our fleet in Europe, Middle East and Africa (EMEA); 56 percent in Japan, China and Asia Pacific; 1 percent in Latin America; and 2 percent in North America. However, the worldwide vehicle supply shortage has slowed our transition.

GRI 302-1	**Energy consumption within the organization (Scopes 1+2)**
GRI 302-4	**Energy reductions**

Total energy use[1]	2017	2018	2019	2020	**2021**
Total energy use (GJ)	18,402,400	18,274,900	17,710,000	17,182,600	**17,224,600**

Scope 1 and location-based Scope 2 energy use (% of total)[1,2]	2017	2018	2019	2020	**2021**
Natural gas (Scope 1)	59%	63%	62%	64%	**62%**
Renewable energy generated and used on site (Scope 1)[3]	0.05%	0.06%	0.07%	0.06%	**0.06%**
Fleet fuel (Scope 1)	13%	10%	9%	7%	**8%**
Fuel oil (Scope 1)	2%	2%	2%	2%	**2%**
Biofuel (Scope 1)	0.7%	0.7%	0.6%	0.7%	**0.8%**
Spent solvents (Scope 1)	0%	0%	0%	0%	**0%**
Coal (Scope 1)	0%	0%	0%	0%	**0%**
Purchased electricity (Scope 2)[4,5]	22%	21%	23%	23%	**24%**
Purchased steam (Scope 2)	3%	3%	3%	3%	**3%**

Note: 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. GHG figures have been changed from our 2020/2021 report due to a collection methodology update since our last report.

[1] Values are adjusted to reflect the effects of the Organon spin-off on our energy consumption.

[2] May not add to 100 percent due to rounding.

[3] Includes solar, wind and other renewables generated on site, where renewable energy credits or guarantees of origin have been retained or retired.

[4] Reported using Scope 2 location-based value in accordance with the Greenhouse Gas Protocol.

[5] Includes solar, wind and other renewables generated on site, where renewable energy credits (RECs) have been sold.

ERM conducted an independent third-party review of our 2021 GHG and water inventories, and provided limited assurance for the data that we submit to CDP and for inclusion in this report. To view ERM's limited assurance letter for our environmental data, please visit the **ESG Resources page** of our corporate website. The verification standard used is ERM CVS' assurance methodology, which is aligned with the International Standard for Assurance Engagements ISAE 3000 (Revised) and ISO 14064:3 for the verification of GHG emissions.

In 2021, our purchased electricity consumption increased due to capital expansion, but our sites' fuel usage continued to decrease due to energy efficiency projects.

In March 2021, the U.S. EPA again recognized our Company with our 15th consecutive Sustained Excellence Award. This is also the 17th consecutive year in which we have been recognized by ENERGY STAR for excellence in energy management.

In 2021, we continued to successfully use ENERGY STAR benchmarking tools such as the ENERGY STAR Portfolio Manager to obtain the ENERGY STAR Certified Building label for four buildings including:

- A data center in New Jersey that obtained a perfect score of 100
- A research office in Pennsylvania for the 11th consecutive year
- One office building in New Jersey for the second consecutive year

Our Puerto Rico facility was awarded the ENERGY STAR Pharma Energy Performance Indicator (EPI) for superior energy efficiency and environmental performance among U.S. pharmaceutical manufacturing plants for the 13th consecutive year.

*For more information, please see GRI 305-5 on **page 106**.*
*Our CDP Climate Change Questionnaire is available on **CDP's website**.*

Scope 1 & market-based Scope 2 energy use (% of total)[1,2]	2017	2018	2019	2020	**2021**
Natural gas (Scope 1)	58%	61%	61%	63%	**62%**
Renewable energy generated and used on site, or purchased (Scope 1)[3]	1%	3%	6%	9%	**10%**
Fleet fuel (Scope 1)	13%	10%	9%	7%	**8%**
Fuel oil (Scope 1)	2%	2%	2%	2%	**2%**
Biofuel (Scope 1)	0.7%	0.6%	0.6%	0.7%	**0.8%**
Spent solvents (Scope 1)	0%	0%	0%	0%	**0%**
Coal (Scope 1)	0%	0%	0%	0%	**0%**
Purchased electricity (Scope 2)[4,5]	23%	20%	18%	15%	**14%**
Purchased steam (Scope 2)	3%	3%	3%	3%	**3%**

[1] May not add to 100 percent due to rounding.
[2] Values are adjusted to reflect the effects of the Organon spin-off on our energy consumption.
[3] Includes solar, wind and other renewables generated on site, where renewable energy credits or guarantees of origin have been retained or retired.
[4] Reported using Scope 2 market-based value in accordance with the Greenhouse Gas Protocol.
[5] Includes solar, wind and other renewables generated on site, where renewable energy credits (RECs) have been sold.
ERM conducted an independent third-party review of our 2021 GHG and water inventories, and provided limited assurance for the data that we submit to CDP and for inclusion in this report. To view ERM's limited assurance letter for our environmental data, please visit the **ESG Resources page** of our corporate website. The verification standard used is ERM CVS' assurance methodology, which is aligned with the International Standard for Assurance Engagements ISAE 3000 (Revised) and ISO 14064:3 for the verification of GHG emissions.

Water and effluents

GRI 303 **Management approach**

As we strive to meet the health needs of our patients, we understand that we may encounter water risks in the areas in which we operate. Our global water strategy aims to achieve sustainable water management within our operations and our supply chain, which supports UN SDG 6, "Clean Water and Sanitation."

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 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

In our **Business Partner Code of Conduct**, we request that suppliers conserve natural resources and engage in activities aimed at reducing water usage. We also ask that they have systems in place to quantify the amount of water used.

*For more information on supplier engagement on water related topics, please see GRI 308 on **page 122**.*

Governance

Each site is responsible for management of water resources. Water management is overseen globally by the Water Center of Excellence (CoE). This CoE reviews water data to monitor sites' progress and provides assistance as needed to support sites' work towards meeting our goals. The Environmental Review Committee provides oversight in establishing our internal Environmental Quality Criteria (EQC) standards.

*For more detailed information on our environmental management and governance, please see GRI 307 on **page 116**.*

We have established water goals to help us manage water-related risks in our operations and supply chain:

Internal operations

Goal

By 2025, we will maintain global water use at or below 2015 levels.

Progress:

3.6 million m^3 below 2015 levels (16% reduction).

Stewardship

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, NGOs, 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.

These projects also support the goals of SDG 15, which strives to "protect, restore and promote sustainable use of terrestrial ecosystems."

We report our water security annually through CDP. In 2021, CDP graded our disclosure with a B "management" rating, indicating that we "provide evidence of actions associated with good environmental management" and are "taking coordinated action on water security."

In 2021, through The Nature Conservancy (TNC), we supported a reforestation project in Montes Claros, Minas Gerais, Brazil, with a contribution of $100,000 to the Belo Horizonte Water Fund. This project included the restoration of native forest, implementation of soil conservation techniques, improvements to dirt roads and conservation of existing forests in the Juramento River watershed. The Juramento River is a source of potable water for the City of Montes Claros. TNC expects that this project will improve water security in the city of Montes Claros through:

- Increasing rainwater infiltration
- Creating a more stable outflow of water over the course of the year
- Reducing erosion and sedimentation.

Water security at our manufacturing operations located in Montes Claros is directly impacted by this project.

Our 2020 contribution of $100,000 to the One Tree Planted Keystone 10 Million Tree Partnership project funded the planting of 100,000 trees in Pennsylvania to help protect the Chesapeake Bay. Over the years, the Chesapeake Bay has suffered degradation due to development and changing sea levels, as well as pollution. Planting trees restores degraded areas as well as assists in the restoration and filtration of this sensitive water system. This project resulted in the contribution of 64 different native species in the riparian, suburban and abandoned mine-land properties, across 387 hectares along streams, streets and other landscapes. A coalition of 188 organizations collaborated on this project. The planting of trees upstream of the bay in Pennsylvania will result in improvements in biodiversity, reduce pollution and benefit the local community. Our site located in Riverside, Pennsylvania, is within the Chesapeake Bay catchment.

GRI 303-1 Water as a shared resource

Access to clean water is critical for human health and is a key input to our manufacturing operations, and we assess water risk throughout our network as a standard business practice.

Our process is as follows:

1. The World Resource Institute's (WRI) Aqueduct Water Risk Atlas tool is used as an initial step to map water risk. Sites are categorized annually using the "Baseline Water Stress" indicator, which is the ratio of total annual water withdrawals to total annual renewable supply and accounts for upstream consumptive use. Higher stress values indicate more competition among water users.
2. Sites that are identified as high risk are further assessed utilizing a catchment-specific approach to confirm that the catchments are experiencing high water stress.
3. Sites that are known to experience water risk, regardless of the Aqueduct Water Risk Atlas tool assessment, are included as high-risk sites.
4. Water conservation plans are put in place at high-risk sites that use more than 100,000 m^3 of water per year. We work with a third party, water-use expert to evaluate opportunities for water-use reductions at these sites, resulting in site-specific water conservation plans.
5. Sites that do not meet the water-use threshold will continue to be monitored for operational risk and conservation plans will be put in place as needed.

Performing this assessment ensures that we can adapt our strategy to changing stressors in each catchment. It enables us to better prioritize facilities and catchments for water stewardship activities and lays the foundation for potential future water targets in priority locations.

In 2021, the WRI Aqueduct Water Risk Atlas tool identified two of our manufacturing and/or research facilities as being in areas with "extremely high" Baseline Water Stress and eight as being in areas with "high" Baseline Water Stress. In 2021, there were three fewer sites in areas of "extremely high" risk than in 2020 due to changes to our site network.

As a result of the above methodology, we have two sites that have water conservation plans in place.

The sites that use the most water in our network are located in the U.S. Of these, two are in areas of "high" Baseline Water Stress according to the Aqueduct Water Risk Atlas tool but, through the assessment process described above, are considered medium risk.

GRI 303-2 Water discharge-related impacts

We conduct environmental risk assessments on our products (small molecules, biologics and vaccines) from the development phase through product launch, to understand and manage product impacts both 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.

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 levels of 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.

Each facility uses the internal EQC standards to:

- Assess the potential risk from its operations using science-based and industry-accepted risk assessment methods
- Minimize environmental impacts from wastewater discharges in the local watershed
- Establish procedures for managing, treating or controlling APIs in wastewater prior to discharge where needed

Our production facilities have, or will be provided with, API-treatment technology such as advanced oxidation where needed, so that our wastewater discharges meet both regulatory requirements and these internal standards.

We also provide EQC information to suppliers that manufacture pharmaceutical compounds for us and have initiated detailed assessments of our suppliers to better understand and address potential impacts.

In addition, as a member of the Antimicrobial Resistance (AMR) Industry Alliance and signatory to the Industry Roadmap for Progress on Combating AMR, we are working to deliver on our commitments to reduce the environmental impacts from antibiotic residues in wastewater through implementation of the AMR Alliance Common Antibiotic Manufacturing Framework. We have reviewed the operations of our human health antibiotic chemical synthesis facilities and third-party human health antibiotic suppliers to assess their wastewater treatment controls. This includes recommended improvements where needed, which we will follow through to completion. We have developed a mechanism for transparently demonstrating that our supply chain meets the standards in this framework, which is presented in the **AMR Industry Alliance 2021 Progress Report**.

We participate in efforts to address water discharge related impacts 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. This includes public services, the pharmaceutical industry, environmental experts, doctors, pharmacists and patients.

*For more information on our supply chain, please see section GRI 102-9 on **page 30**.*

Please refer to the following resources for additional information related to water related discharge impacts on the **ESG Resources page** of our corporate website:

- **Public Policy Statement: Water Stewardship**
- **Public Policy Statement: Pharmaceuticals in the Environment**
- **Global Antimicrobial Resistance Action Plan**
- **CDP-Water Security**
- **Business Partner Code of Conduct**

GRI 303-3 Water withdrawal

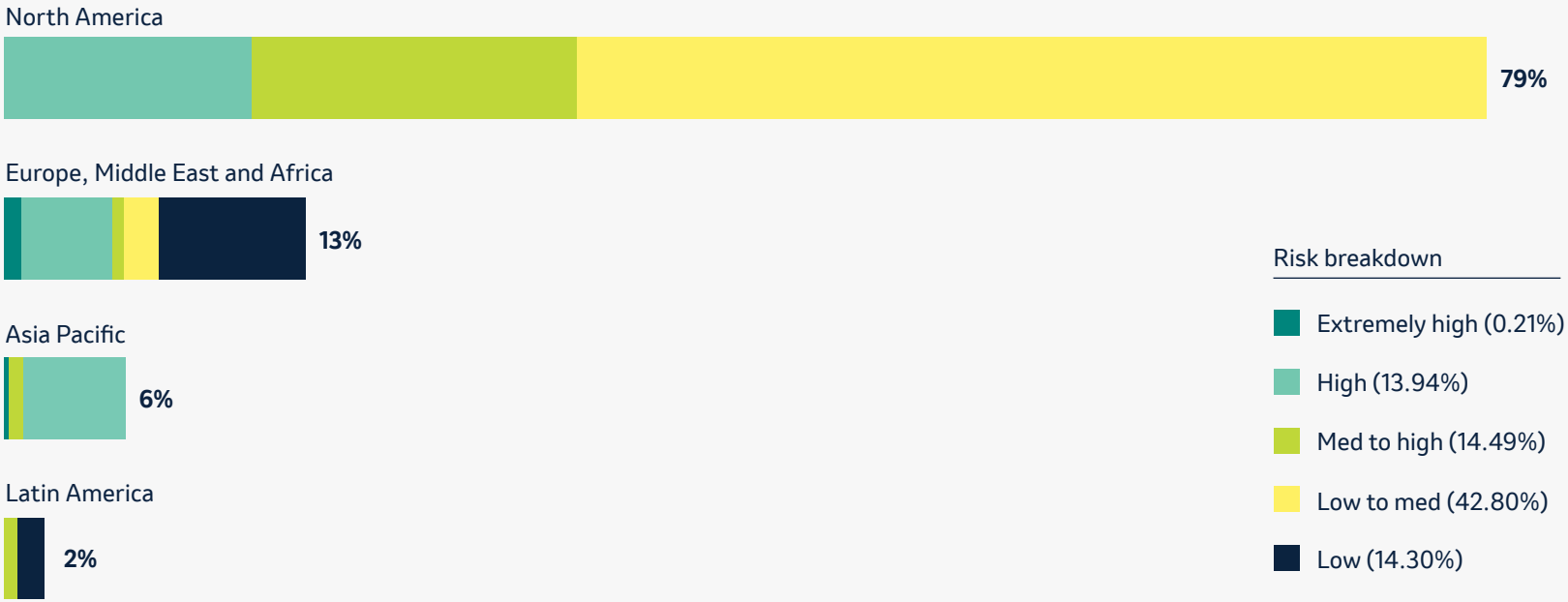
Water use by source (million m³)[1]	2015	2016	2017	2018	2019	2020	**2021**
Groundwater	12.0	10.2	10.0	10.3	10.2	10.1	**9.7**
Purchased water	7.1	6.5	6.1	7.2	6.9	7.0	**7.1**
Surface water	3.9	3.1	2.7	2.3	2.6	2.9	**2.6**
Total[2]	23.0	19.8	18.8	19.9	19.7	20.0	**19.4**

ERM conducted an independent third-party review of our 2021 GHG and water inventories, and provided limited assurance for the data that we submit to CDP and for inclusion in this report. To view ERM's limited assurance letter for our environmental data, please visit the **ESG Resources page** of our corporate website. The verification standard used is ERM CVS' assurance methodology, which is aligned with the International Standard for Assurance Engagements ISAE 3000 (Revised) and ISO 14064:3 for the verification of GHG emissions.

[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. For example, prior-year data in this table has been adjusted to remove facilities that were spun-off as part of the Organon spin-off. Adjustments also reflect changes in methodology to ensure consistency from year to year.

[2] All values above are rounded to one decimal place. As a result, the total values shown may not equal the sum of the individual source totals.

Water use by risk in the following tables is categorized according to data obtained via the WRI Aqueduct Water Risk Atlas tool and our internal risk assessment.



Water use and risk by region (million m³)—WRI Aqueduct Risk Tool output (2021)	Extremely high	High	Med to high	Low to med	Low	N/A	% of Total	**Total**
North America	0.00	2.18	2.90	7.88	0.23	2.08	79%	**15.27**
Europe, Middle East and Africa	0.03	0.41	0.02	0.41	1.40	0.20	13%	**2.48**
Asia Pacific	0.01	0.00	0.08	0.00	0.94	0.21	6%	**1.24**
Latin America	0.00	0.11	0.00	0.00	0.20	0.07	2%	**0.38**
Total[1]	0.04	2.70	3.00	8.29	2.77	2.57	100%	**19.37**

N/A: Not available.
[1] All values above are rounded. As a result, the total values shown may not equal the sum of the individual source totals.

Water use in areas of high to extremely high water risk by region (million m^3)—WRI Aqueduct Risk Tool output (2021)	Groundwater	Surface water	Purchased water	**Total**
North America	0.32	0.00	1.86	**2.18**
Europe, Middle East and Africa	0.03	0.00	0.41	**0.44**
Latin America	0.00	0.00	0.01	**0.01**
Asia Pacific	0.03	0.00	0.08	**0.11**
Total[1]	0.39	0.00	2.36	**2.75**

[1] All values above are rounded. As a result, the total values shown may not equal the sum of the individual source totals.

Water use in areas of high to extremely high water risk by region (million m^3)—after internal risk assessment methodology (2021)	Groundwater	Surface water	Purchased water	**Total**
North America	0.00	0.00	0.00	**0.00**
Europe, Middle East and Africa	0.03	0.00	0.04	**0.07**
Latin America	0.00	0.00	0.64	**0.64**
Asia Pacific	0.03	0.00	0.08	**0.11**
Total[1]	0.07	0.00	0.75	**0.82**

[1] All values above are rounded. As a result, the total values shown may not equal the sum of the individual source totals.

*For information on our water risk assessment approach, please see GRI 303-1 on **page 95**.*

In 2021, we used 19.4 million cubic meters of water globally, versus 23.0 million cubic meters in 2015, representing a 16 percent reduction in water use. Water withdrawal is variable based on manufacturing and research activities year to year.

Approximately 13 percent of the total water we used in 2021 was supplied from surface water sources, and 50 percent was supplied by groundwater water sources, with the balance sourced from municipal water supplies.

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 many of our facilities worldwide. Reverse osmosis (RO) "reject water" is reused for non-potable and non-process applications such as cooling tower feed water. In all, 1.0 million cubic meters of water was recovered, reused or recycled at our facilities in 2021, which is equivalent to five percent of our total water use.

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

An innovative project was completed at MSD Oss Biotech in the Netherlands in 2021. The site constructed an energy-neutral site entrance building and a new parking area for staff and visitors. Underneath the parking area a large underground rainwater storage area was created. During heavy showers, the basin collects and stores rainwater for soil infiltration. As a result of climate change, maintaining groundwater levels has proved to be increasingly challenging, even in a relatively wet country such as the Netherlands. This initiative not only reduces the amount of rainwater discharged to the sewer, but also has a beneficial impact on the surrounding area's ecosystem.

In 2021, the Sustainability Capital Fund was utilized to fund water reduction projects at our site in Rahway, New Jersey. These projects included a smart irrigation system and condensate return projects.

*For information on the specific water sources affected in areas experiencing high and extremely-high water risk, please see **our CDP Water Security** response. For our water assurance letter, please visit the **ESG Resources** page on our corporate website.*

GRI 303-4 Water discharge

In the following tables, water discharge by receiving water body risk is categorized according to data obtained via the WRI Aqueduct Water Risk Atlas tool and our internal assessment. We understand that following the annual assessment, site water-risk categorization could change.

Total water discharge by region (million m³) (2021)	Surface water	External treatment facilities	Total[1]	% of total
North America	9.86	3.82	13.68	**80%**
Europe, Middle East and Africa	1.03	1.28	2.31	**13%**
Asia Pacific	0.04	0.79	0.84	**5%**
Latin America	0.00	0.28	0.28	**2%**
Total[1]	10.93	6.17	17.11	**100%**

[1] All values above are rounded. As a result, the total values shown may not equal the sum of the individual source totals.

Water discharge in areas of high to extremely high water risk, by region (million m³)—WRI Aqueduct Risk Assessment output (2021)	Surface water	External treatment facilities	Total
North America	0.53	1.64	**2.17**
Europe, Middle East and Africa	0.02	0.36	**0.38**
Asia Pacific	0.00	0.01	**0.01**
Latin America	0.00	0.10	**0.10**
Total[1]	0.55	2.11	**2.66**

[1] All values above are rounded. As a result, the total values shown may not equal the sum of the individual source totals.

Water discharge in areas of high to extremely high water risk, by region (million m^3)—after internal risk assessment methodology (2021)	Surface water	External treatment facilities	**Total**
North America	0.00	0.00	**0.00**
Europe, Middle East and Africa	0.02	0.03	**0.05**
Asia Pacific	0.02	0.38	**0.40**
Latin America	0.00	0.10	**0.10**
Total[1]	0.03	0.51	**0.54**

[1] All values above are rounded. As a result, the total values shown may not equal the sum of the individual source totals.

Wastewater from our facilities is managed and treated to meet regulatory standards and minimize environmental impacts prior to discharge. On-site wastewater treatment facilities are operated at many of our production and research facilities. Where on-site treatment is not provided, wastewater is discharged to local municipal wastewater treatment facilities that have the technology and capacity to treat our wastewater. We currently do not differentiate discharges to freshwater and seawater in our enterprise system. The majority of our facilities discharge to freshwater environments.

As described in GRI 303-2 on **page 95**, many of our production facilities are equipped with advanced wastewater treatment technologies to ensure that our facilities meet both regulatory requirements and the internal standards required by our EQC Program.

Biodiversity

GRI 304-2 **Significant impacts of activities, products, and services on biodiversity**

Due to human influence on the world's ecosystems, the Convention on Biological Diversity (CBD) notes that species have been disappearing at 50-100 times the natural rate. This is predicted to rise dramatically as climate change continues and population grows. Without biodiversity, ecosystem services are not as productive, which, along with other things, exacerbates the rate of climate change. To slow climate change, we need to slow biodiversity loss by aligning our demands with nature's ability to produce and safely absorb our waste.

Loss of biodiversity will reduce our ability to discover and develop medicines. Plants and bacteria are well-recognized sources of new medicines. According to the World Economic Forum (WEF), more than half of the world's total gross domestic product, or $44 trillion, involves activities that are moderately or highly dependent on nature, including around half of pharmaceutical products.

While we recognize that protecting biodiversity is important to the planet and our Company's growth, we do not fully understand the impacts we have on biodiversity either directly or indirectly through our products. We do, however, have a long history of managing pharmaceuticals in the environment and remediation projects. These actions prevent and reduce pollution in the areas in which we operate, protecting species and ecosystems from harm.

We are currently conducting an ingredient risk assessment to better understand if the sourcing of certain inputs to the manufacture of our products potentially contribute to global deforestation. This assessment is in support of our **CDP Forest** response, which includes high-risk deforestation commodities such as timber, palm oil derivatives, soy, cattle by-products and rubber. The results of this assessment will be incorporated into our responsible sourcing strategy.

Each of our sites in Ireland has developed a biodiversity team to perform biodiversity assessments. These sites worked with external biodiversity professionals to identify areas that could be improved from a biodiversity perspective, with particular emphasis on pollinators such as wild bees and butterflies. As a result of our commitment to these actions, we are delighted to announce that MSD Dunboyne has

been awarded accreditation to the All-Ireland Pollinator Plan (AIPP). The AIPP is run by the National Biodiversity Data Centre and aims to reverse the dramatic downward trend in the number of pollinators in Ireland over the past decade by supporting businesses, communities and individuals to take small actions to help our native pollinators.

Animal Health and biodiversity

Through our Animal Health aqua business, our Company monitors numerous aquatic species by utilizing passive integrated transponder (PIT) tags. In 2021, we sold over four million PIT tags which provide lifetime identification and tracking for the animals they tag. The technology can also be used to provide real-time monitoring of fish and wildlife without impacting their natural behavior. The insights gleaned from the monitoring data allow for more accurate estimations of wild populations, survival rates and migration patterns. That data provides fish and wildlife managers with information for the conservation of keystone, threatened and endangered species.

These tools also track invasive species, helping researchers assess how these animals distribute throughout the environment and interact with native flora and fauna. The management of invasive population spread is a key factor to maintaining current levels of native species and encouraging recovery of endangered species. Characterizing the spread of invasive species also allows stakeholders to predict how that spread may be influenced by human-impacted habitat and ecosystems.

When stakeholders initiate a habitat restoration or enhancement project, these tools aide researchers in adaptive management by measuring the project's benefits on animal species. This data refines mitigation of habitat degradation while also improving overall ecosystem health.

GRI 304-3 Habitats protected or restored

Since 2016, as part of our UN CEO Water Mandate commitment, we have invested annually in habitat restoration and/or reforestation projects that improve water quality, restore biodiversity and remove carbon dioxide from the atmosphere. Working with organizations such as The Nature Conservancy and One Tree Planted, we have identified projects near our sites in which to invest. By investing in watershed management with these collective-action projects, we have also been able to integrate community mobilization by facilitating volunteer opportunities for our employees that live near our sites and for the communities in which they reside.

*For more information on the most recent water-related projects, please see GRI 303 on **page 93** for more information.*

Our Neighbor of Choice program supports the work of local nonprofit organizations dedicated to the wellbeing of community residents in areas where we have a presence. Through charitable grants and employee volunteerism, we support community efforts to improve the health and quality of life for underserved populations. This includes support for projects that protect the environment and/or environmental health of the local community, improve the quality of local water sources, mitigate the impacts of climate change, reduce waste generation and improve waste recycling capabilities.

For example, in 2021 we provided a $50,000 charitable grant to the Shenandoah National Park Trust to support biodiversity and climate change resilience in the Shenandoah National Park and surrounding region. Our support helped the Shenandoah National Park Trust to identify and remove targeted invasive plants in high-priority acres, plant native trees, treat threatened tree species and support volunteers.

Emissions

GRI 305 **Management approach**

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.

We have adopted a set of environmental sustainability goals to help position our Company to succeed in an increasingly resource-constrained world. These were developed to address the rising expectations of our customers, investors, external stakeholders and employees regarding the environmental impact of our operations and supply chain.

We have made progress on these goals and remain on track to achieve them. We continue to find ways to decrease energy demand and have increased the amount of renewable energy we purchase. Our procurement team is engaging our strategic suppliers in our efforts to reduce the environmental footprint outside of our operations. In our **Business Partner Code of Conduct**, we request that suppliers conserve energy and engage in activities aimed at reducing greenhouse gas emissions.

The World Resource Institute's Greenhouse Gas Protocol defines Scope 1 greenhouse gas (GHG) emissions as emissions from owned or controlled sources such as on-site fuel combustion and fleet vehicles. Scope 2 emissions are those from indirect sources such as purchased electricity. Scope 3 includes indirect emissions in a company's value chain.

GHG emissions goals

Goal

Reduce our operational greenhouse gas (GHG) emissions (i.e., Scopes 1 & 2) 46% by 2030 from a 2019 baseline.

Progress:

9% reduction in Scope 1 and 2 emissions from 2019 baseline.

Goal

Reduce our value chain (Scope 3) GHG emissions by 30% by 2030 from a 2019 baseline.

Progress:

9% increase in Scope 3 emissions from 2019 baseline.

Goal

Achieve carbon neutrality across our operations by 2025 (Scopes 1 & 2 emissions).

Progress:

In progress. Any remaining emissions will be offset with high-quality offsets in 2025.

Renewable energy goal

Goal

Source 100% of our purchased electricity from renewables by 2025.

Progress:

41% of purchased electricity sourced from renewables in 2021.

We have committed to becoming carbon neutral across our operations (Scopes 1 & 2 GHG emissions) by 2025, to reduce our Scopes 1 & 2 GHG emissions 46 percent by 2030 from a 2019 baseline (including biogenic emissions and removals from bioenergy feedstocks), and to reduce our value chain (Scope 3 GHG emissions) by 30 percent by 2030, also from a 2019 baseline. Our Scopes 1 & 2 and Scope 3 reduction targets have been verified by the Science-Based Target initiative (SBTi). We have also committed to sourcing 100 percent of our purchased electricity from renewable energy by 2025.

We will achieve carbon neutrality in our operations with ongoing innovation to increase energy efficiency, applying sustainable building standards and continuing to transition away from fossil fuel use. Remaining Scope 1 emissions will be balanced each year by investing in high-quality carbon offsets, including carbon removal offsets.

Governance

Our climate strategy is overseen by our Environmental Sustainability Center of Excellence (CoE), in partnership with our Global Energy & Sustainability CoE and Energy Procurement CoE. Each CoE reviews and reports data, monitors progress and provides assistance as needed to support sites' work toward meeting our goals and review potential virtual power purchase agreements (VPPAs). Leadership from the Environmental Sustainability CoE and Global Energy & Sustainability CoE meet quarterly with an internal Environmental Sustainability Steering Committee to provide updates on progress and to seek guidance on our initiatives. Furthermore, the EHS Council is responsible for approving new corporate environmental sustainability goals that the Environmental Sustainability CoE proposes in order to align with stakeholders' expectations. Both the Environmental Sustainability Steering Committee and EHS Council are comprised of top-level executives.

Each site is responsible for the management of its energy use. In many cases, we partner with our third-party Integrated Facility Management (IFM) providers to manage energy use and work toward achieving the corporate goals.

In 2022, we conducted a climate policy alignment assessment of the trade associations listed in GRI 102-13 by determining whether they had publicly disclosed formal positions on climate change and, if so, reviewing those positions in the context of our Company's own position on climate change. This assessment can be found on the **ESG Resources page** on our corporate website.

*For information regarding our environmental management and governance, please see GRI 307 on **page 116**.*

GRI 305-1	Direct GHG emissions (Scope 1)
GRI 305-2	Indirect GHG emissions (Scope 2)
GRI 305-3	Other indirect GHG emissions (Scope 3)
GRI 305-4	GHG emissions intensity
GRI 305-5	Reduction of GHG emissions

GHG Emissions in 2021

Scope 1:	695,700 MT CO_2e
Scope 2 (market-based):	230,000 MT CO_2e
Scope 3:	6,958,900 MT CO_2e

Total GHGs (MT CO_2e)[1]	2017	2018	2019	2020	**2021**
Scope 1[1,3,5]	777,400	768,900	732,900	715,000	**695,700**
Scope 2 location-based[1,3,5]	420,300	398,600	381,900	367,000	**374,200**
Scope 2 market-based[1,3,5]	438,100	363,300	285,900	227,800	**230,000**
Total GHGs (Scope 1 & 2 market-based)[1,3]	1,215,500	1,132,200	1,018,800	942,800	**925,700**
Scope 3 GHGs[1,3]	5,940,500	5,668,400	6,380,500	6,457,800	**6,958,900**
GHG intensity[2,4]	19.73	18.38	16.02	14.16	**13.61**

[1] In accordance with the Greenhouse Gas Protocol, prior-year data have been adjusted to add or remove facilities that have been acquired, sold or spun-off. Adjustments also reflect changes in methodology to ensure consistency from year to year, including Scope 2 emission factor updates [E-GRID (2021), IEA (2021), EU Residual (2021), UK Defra (2021) & Inventarios Corporativos (2021)] and Scope 1 & 3 emission factor updates [EPA Climate Leaders (2021)].

[2] Total Scope 1 & Scope 2 market-based metric tons CO_2e per employee.

[3] Values are adjusted to reflect the effects of the Organon spin-off on our emissions.

[4] Adjusted to remove employees transferred to Organon in connection with the spin-off.

[5] The operational control approach is used to account for GHG emissions for Company facilities globally. Only those facilities over which Merck has operational control are included in the GHG inventory.

ERM conducted an independent third-party review of our 2021 greenhouse gas and water inventories and provided limited assurance for the data that we submit to CDP and for inclusion in this report. To view ERM's limited assurance letter for our environmental data, please visit the **ESG Resources page** of our corporate website. The verification standard used is ERM CVS' assurance methodology, which is aligned with the International Standard for Assurance Engagements ISAE 3000 (Revised) and ISO 14064:3 for the verification of GHG emissions.

Scope 3 GHG details (MT CO_2e)	2017	2018	2019	2020	**2021**
Purchased goods and services[1,2]	4,671,300	4,295,500	4,827,900	5,050,900	**5,465,800**
Capital goods[1,2]	186,700	221,800	329,000	455,100	**453,200**
GHG emissions from fuel and energy-related activities not included in Scopes 1 & 2[2,3]	250,600	232,100	220,200	194,100	**216,500**
Upstream transportation and distribution[1,2]	236,400	242,600	240,000	232,800	**237,800**
Waste generated in operations (excluding recycled and composted waste)[2,4,5]	16,400	17,700	18,800	21,900	**23,800**
GHG emissions related to employee business travel[2,6,7]	209,800	289,400	327,200	208,600	**241,100**
Employee commuting[2,8]	213,400	213,400	243,700	114,800	**117,200**
Downstream transportation and distribution[2,9]	114,200	113,200	124,800	136,000	**155,200**
GHG emissions from use of sold products[2,10]	2200	600	600	600	**700**
End-of-life treatment of sold products[2,11]	39,500	42,100	48,300	43,000	**47,600**
Total[2,12]	5,940,500	5,668,400	6,380,500	6,457,800	**6,958,900**

Limited Data Assurance was granted for 22,652 or 9% 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 2021 third-party spend data and an Economic Input-Output Model performed by Climate Earth, Inc.

[1] Based on third-party spend data and an Economic Input-Output Model performed by Climate Earth, Inc.

[2] Values are adjusted to reflect the effects of the Organon spin-off on our emissions.

[3] 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.

[4] Primary-waste data were used with the U.S. EPA's WARM Model (https://www.epa.gov/warm).

[5] Including recycled and composted waste in these calculations would result in negative emissions in 2017 (-41,200 MT CO_2e), 2018 (-43,700 MT CO_2e), 2019 (-62,400 MT CO_2e), 2020 (-48,900 MT CO_2e) and 2021 (-46,300 MT CO_2e).

[6] Based on primary travel vendor data, employee-reimbursable mileage and UK Defra factors.

[7] Emissions are based on primary vendor data where available and economic input-output modeling performed by Climate Earth, Inc., using spend data.

[8] 2020 and 2021 reductions caused by shifts to remote working due to the COVID-19 pandemic.

[9] 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."

[10] Due to recent acquisitions, we are currently evaluating the applicability of additional products to this category. This category currently includes the impacts of our Animal Health products ENGEMYCIN® (oxytetracycline), NEO SPRAY CAF® (oxytetracyclinum), OXYTETRIN® LA (oxytetracycline) only.

[11] 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.

[12] May not add up to total due to rounding.

Reduction of GHG emissions

From 2020 to 2021, our year-over-year Scope 1 and Scope 2 market-based GHG emissions decreased by about 2 percent due to our continued focus on energy efficiency and an increased utilization of renewable energy. While we implemented several projects that reduced our GHG emissions, we also experienced capital expansion, which resulted in a smaller drop in GHG emissions than last year.

We have analyzed and reported our Scope 3 impacts using primary operating data, and accepted emission factors and an economic input-output model based on our third-party spend. In 2021, our Scope 3 GHG emissions increased as compared to 2020. While our business travel decreased sharply due to the pandemic and many employees were able to work from home offices, we continued our manufacturing and research operations, as well as continued the execution of many ongoing capital projects.

Our analysis shows that our Scope 3 GHG emissions impacts are nearly eight 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, creating more sustainable packaging, and changing the way we commute to work and travel for business. We are also engaging with our strategic suppliers to identify ways to reduce GHG emissions in our supply chain. These actions not only reduce our environmental impact, but also benefit the business by reducing costs.

We report our GHG emissions as required by regulations in certain countries and annually through CDP (formerly Carbon Disclosure Project). In 2021, CDP graded our Climate Change disclosure as a "B" or a rating of "management," indicating that we are "taking coordinated action on climate issues." Additionally, we received an "A-" on our Supplier Engagement Rating (SER) score, which puts us on CDP's supplier engagement leaderboard. By receiving an A-, we are demonstrating our commitment to engaging with our suppliers on climate change.

Our CDP Climate Change Questionnaire is available on **CDP's website**.

*For more information on our initiatives, policies and accomplishments, please see Section GRI-302 energy and the following resources on the **ESG Resources page** of our corporate website:*

- **Corporate Policy: Respect for Environmental Health and Safety (EHS)**
- **Public Policy Position Statement: Climate Change**
- **Business Partner Code of Conduct**

GRI 305-6	**Ozone-depleting substances (ODS)**
GRI 305-7	**NOx, SOx and other emissions**

We are committed to controlling air emissions from our facilities to reduce local, regional and global environmental impacts.

Air emissions are generated by our manufacturing and research operations, as well as by burning fuel in on-site equipment and fleet vehicles. Our Air Management Standard requires our facilities to quantify and control air emissions to comply with both applicable regulations and emission standards.

Any increase in production can negatively impact our emissions trends. Though there are efforts to minimize solvent use in production, solvents are needed for cleaning and disinfecting purposes. As we transform from manufacturing of pharmaceuticals to biopharmaceuticals, mandatory cleaning and disinfection protocols associated with biologics and vaccines are increasing solvent-based emissions. The Montreal Protocol mandates phase-out of refrigerants that are ozone-depleting substances (ODS) per schedules approved for individual countries. Our facilities strive to maintain compliance with applicable regulatory requirements that have been established in accordance with each country's commitments.

Our Air Center of Excellence (CoE) provides assistance as needed to our facilities to obtain appropriate environmental permits, and to quantify and control air emissions to comply with applicable regulations and emission standards.

Production and research emissions

Many of our pharmaceutical manufacturing processes, cleaning/disinfection operations and research laboratories require the use of solvents. Evaporation of solvents into the air is our 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 (see GRI 301 on **page 83** for more information).

Key elements of the program include designing efficient processes that use fewer and less-hazardous organic solvents, and using water-based methods for cleaning our process equipment where they are as effective as solvent-based methods. To reduce emissions from processes where organic solvents are used, we use pollution-control technologies such as conservation vents, carbon filters, thermal oxidizers, condensers and scrubbers.

Fossil fuel combustion emissions

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_2), nitrogen oxides (NOx), sulfur oxides (SOx) and volatile organic compounds (VOCs). We strive to make our facilities more energy efficient through our energy-management programs and to improve the fuel efficiency of our fleet vehicles. By making these improvements, we also reduce emissions of CO_2, NOx, SOx and VOCs from our operations.

The increase in SOx emissions from 2020 to 2021 can be attributed to more accurate emission-tracking methods, increase in combustion of diesel fuel at one of our facilities, and contribution from increase in usage of jets.

The decrease in NOx emissions from 2020 to 2021 can be attributed to the reduced combustion of fuel due to variations in production, as well as our reduced use of emergency generators. VOC emissions decreased from 2020 to 2021 due to variations in production, as well as data collection improvements with the adoption of more accurate emission-tracking methods. Emissions of ozone-depleting substances are the result of non-routine releases from temperature-control and fire-suppression systems and can vary from year to year.

▶▶▶ *For more information, please refer to the other sections of GRI 305 and GRI 307 on **pages 104** and **116**, respectively.*

Air pollutant emissions (MT)[1]	2017	2018	2019	2020	**2021**
Nitrogen oxides (NOx)	458	470	369	367	**348**
Sulfur oxides (SOx)	36	29	26	22	**25**
Volatile organic compounds (VOCs)	354	382	368	356	**310**
Ozone-depleting substances (ODS)	0.1	0.3	0.6	0.3	**0.3**

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 or spun-off.

[1] Data are estimated using conservative assumptions and factors, not measured or weighed.

Waste

GRI 306 **Management approach**

The proper management of waste from our facilities is important to the communities in which we operate and is a focus of our environmental permits and other regulatory requirements.

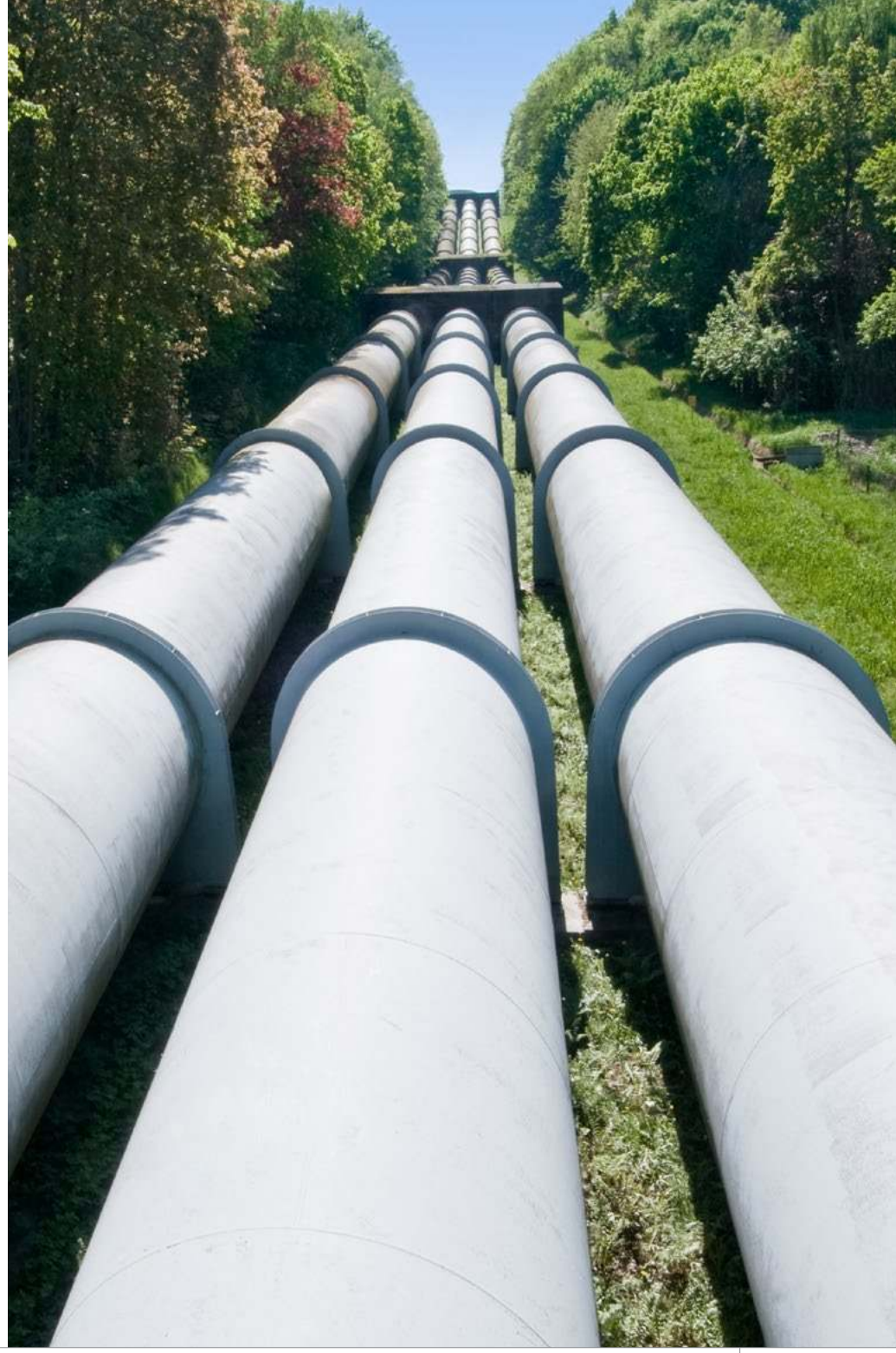
Our waste management standard requires our facilities to comply with applicable generation, management and disposal regulations and standards. To minimize our environmental footprint and align with the UN Sustainable Development Goals, we look for opportunities to avoid the use of hazardous materials, to reuse or recycle materials and to prevent the generation of waste. When prevention, reuse and recycling are not practical or feasible, we apply controls and treatment technologies to prevent human health impacts and minimize environmental impacts.

Governance

Waste management is overseen globally by our Waste and Dangerous Goods Center of Excellence (CoE).

Each site is responsible for the management of its waste. In many cases, we partner with our third-party Integrated Facility Management (IFM) partners to manage site waste and work toward realizing the waste goals.

*For information regarding our environmental management and governance, and processes used to collect and monitor waste-related data, please see GRI 307 on **page 116**.*



GRI 306-1	**Waste generation and significant waste-related impacts**
GRI 306-2	**Management of significant waste-related impacts**

Operational waste

The amount of waste we generate reflects the efficiency of our manufacturing processes.

Operational waste is primarily generated from the following activities:

- Manufacturing
- Packaging
- On-site wastewater treatment
- Research

Waste minimization begins with the upfront evaluation of our product designs and manufacturing processes. Through our Green and Sustainable Science program (see GRI 301 on **page 83**), 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.

We continuously strive to reduce the amount of operational waste we generate and to maximize the use of environmentally beneficial disposal methods such as recycling, composting and waste-to-energy.

To ensure 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:** Highly 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
- **Non-hazardous waste:** This includes all other operational waste

The amount of construction project-related waste can vary significantly from year to year based on the number and size of projects. Therefore, our definition of operational waste does not include construction or demolition waste from construction projects.

Over the past few years, a number of countries in Asia have enacted legislation restricting the acceptance of solid waste from other countries. Historically, a large percentage of recyclable waste collected in the U.S. has been shipped to Asia for recycling, so this change had and continues to have the potential to affect the percentage of our non-hazardous waste sent for recycling. However, this change had minimal impact on our recycling rates in the past year. The percentage of our non-hazardous waste sent for recycling increased from 39 percent to 42 percent from 2020 to 2021.

In 2021, we allocated approximately $100,000 to waste projects through the Sustainability Capital Fund.

Value chain waste

Potential waste-related impacts are also associated with upstream activities such as external manufacturing of active ingredients, the purchase of raw materials and goods, and the return of off-spec product. Similarly, the impacts downstream of the packaging and waste generated from the use of our products is estimated in our Scope 3 GHG emissions.

*For more information, please refer to section GRI 305 on **page 104**.*

While we may not be in full control of the waste generated in our value chain, we pursue various initiatives to reduce the impact, for instance, through our product and material choices.

Some of these waste-reduction initiatives across our value chain include:

- Eliminating substances of concern from packaging
- Our Green Supplier program
- Solvent recovery and beneficial reuse
- Packaging design efficiency
- Re-usable shippers (in product distribution)

According to our **Business Partner Code of Conduct**, partners shall operate in an environmentally responsible and efficient manner to minimize adverse impacts on the environment. Partners are encouraged to conserve natural resources, to avoid the use of hazardous materials where possible and to engage in activities that reuse and recycle.

*For more information on supplier engagement, please see GRI 308 on **page 122**.*

Waste management goals

Goal

By 2025, no more than 20% of our global operational waste will be sent to landfills and incinerators (without energy recovery).

Progress:

In 2021, 33% of operational waste was sent to landfill and incinerators (without energy recovery).

Goal

By 2025, at least 50% of our sites will send zero waste to landfills.

Progress:

In 2021, 52% of sites sent zero waste to landfill.

GRI 306-3	**Waste generated**
GRI 306-4	**Waste diverted from disposal**
GRI 306-5	**Waste directed to disposal**
SASB 250a.4	**Amount of product accepted for takeback, reuse, or disposal**

Global operational waste (% of total)	2017	2018	2019	2020	**2021**
Incinerated (without energy recovery)	19%	24%	19%	23%	**28%**
Landfilled	10%	9%	7%	5%	**5%**
Total (2025 Goal <20%)	29%	33%	26%	28%	**33%**

Hazardous waste (MT)	2017	2018	2019	2020	**2021**
Incinerated (without energy recovery)[1]	13,462	17,639	14,025	16,649	**22,086**
Energy recovery	9,538	10,300	13,655	15,330	**14,029**
Recycled	7,979	6,827	8,034	8,685	**9,824**
Other	2,423	2,221	1,865	1,662	**2,824**
Reused	1,505	695	1,147	480	**1,510**
Landfilled	745	731	938	198	**315**
Composted	0	0	0	0	**0**
Total	35,652	38,413	39,674	43,004	**50,588**

Note: Data from the Animal Health Intelligence facilities, which were acquired in 2019 and thereafter, are not included in the figures above. These metrics will be reported in the future as these sites become fully integrated into the Company internal reporting processes.

[1] A data collection error was discovered at one of our sites in 2021 that resulted in the amount of hazardous waste being sent for incineration (without energy recovery) to be underreported by that site. The data collection process was revised in 2021 to correct this. As a result, the reported values for Hazardous Waste Incinerated (without energy recovery) show an increase from the values reported in 2020. This is primarily due to this error and is not an actual increase in the quantity of waste sent for incineration (without energy recovery).

Approximately 19 percent of our hazardous waste was sent offsite for recycling and was either returned to us for reuse or sold to other industries. Another 28 percent was burned to generate power, down from 36 percent in 2020. Regarding the hazardous waste that could not be recycled or beneficially reused, 44 percent of the total hazardous waste generated was incinerated without energy recovery, up from 39 percent in 2020. Less than one percent was sent to hazardous-waste landfills.

Non-hazardous waste (MT)	2017	2018	2019	2020	**2021**
Recycled	15,188	12,975	14,188	13,537	**13,073**
Energy recovery	8,576	9,273	10,030	8,280	**7,066**
Composted	4,668	4,798	4,843	4,892	**5,872**
Landfilled	6,633	5,684	4,603	4,061	**3,702**
Other	212	209	1,025	1,717	**266**
Reused	1,071	2,204	660	963	**583**
Incinerated (without energy recovery)	426	374	477	1,124	**850**
Total	36,774	35,517	35,826	34,574	**31,412**

Note: Data from the Animal Health Intelligence facilities, which were acquired in 2019 and thereafter, are not included in the figures above. These metrics will be reported in the future as these sites become fully integrated into the Company internal reporting processes.

19 percent of our non-hazardous waste was composted in 2021, an increase from 14 percent in the previous year. Approximately 42 percent of our non-hazardous waste was sent offsite for recycling, an increase from 39 percent in 2020. Another 22 percent was burned to generate power, down from 24 percent in 2020. Regarding the non-hazardous waste that could not be recycled or beneficially reused, three percent of the total non-hazardous waste generated was incinerated without energy recovery, and 12 percent was sent to non-hazardous waste landfills, both unchanged from 2020.

Total waste (MT)	2017	2018	2019	2020	**2021**
Recycled	23,167	19,802	22,222	22,222	**22,897**
Energy recovery	18,114	19,573	23,685	23,610	**21,095**
Composted	4,668	4,798	4,843	4,892	**5,872**
Landfilled	7,378	6,415	5,541	4,259	**4,017**
Other	2,635	2,430	2,890	3,379	**3,090**
Reused	2,576	2,899	1,807	1,443	**2,093**
Incinerated (without energy recovery)[1]	13,888	18,013	14,512	17,773	**22,936**
Total	72,426	73,930	75,500	77,578	**82,000**

Note: Data from the Animal Health Intelligence facilities, which were acquired in 2019 and thereafter, are not included in the figures above. These metrics will be reported in the future as these sites become fully integrated into the Company internal reporting processes.

[1] A data collection error was discovered at one of our sites in 2021 that resulted in the amount of hazardous waste being sent for incineration (without energy recovery) to be underreported by that site. The data collection process was revised in 2021 to correct this. As a result, the reported values for Hazardous Waste Incinerated (without energy recovery) show an increase from the values reported in 2020. This is primarily due to this error and is not an actual increase in the quantity of waste sent for incineration (without energy recovery).

In 2021, we managed approximately 82,000 metric tons of waste from our operations, a 6 percent increase from 2020. Of this total, 50,588 metric tons were hazardous waste.

Of the hazardous waste we generated in 2021, 50 percent was beneficially reused (reused, recycled or sent for energy recovery), down from 57 percent in 2020.

We beneficially reused 85 percent of the 31,412 metric tons of nonhazardous waste we generated in 2021. We are evaluating and refining the programs currently in place at our manufacturing, research and office sites to reduce waste generation and increase recycling.

Approximately 52 percent of our facilities sent zero operational waste to landfill in 2021, up from 48 percent in 2020, and the percentage of waste sent to landfill was unchanged from 2020 at five percent.

We continue to work to identify alternate methods of waste management that will reduce the amount of waste sent to incinerators (without energy recovery) and landfills.

We do not collect data on the amount of product accepted for takeback, reuse or disposal.

For additional information on this topic, please review the following documents located on the **ESG Resources page** of our corporate website:

- **Corporate Policy: Respect for Environmental Health and Safety (EHS)**
- **Public Policy Position Statement: Responsible Disposal of Medicines in the Household**
- **Sharps Management Plan-CalRecycle**

Environmental compliance[1]

GRI 307 Management approach

Protecting our people, our communities and the environment is fundamentally important to the way our Company operates, and we strive every day 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. Our core values are focused upon promoting the health and safety of our employees and respect for the environment. This is reflected in our **Corporate Policy: Respect for EHS**.

In addition to complying with all applicable country, regional, state, provincial 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 science, 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

[1] Note: Data from the Animal Health Intelligence facilities, which were acquired in 2019 and thereafter, are not yet included in the figures above. However, NOVs and fines from these facilities are included in this section.

The Global Safety and Environment (GSE) department is responsible for the global EHS Management System which is based on the "Plan, Do, Check, Act" model. This enables 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 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 business unit performance and progress against objectives throughout the year. EHS audits and self-assessments are also performed 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. We track our corrective actions centrally to ensure proper oversight. (ACT)

We have robust programs and initiatives to address global challenges and opportunities related to achievement of our short- and long-term environmental management and compliance objectives.

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 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 designed to expand technical expertise and improve our EHS capabilities around the world
- Employee training covering the specific information our employees need to perform their jobs in a safe and environmentally compliant manner, focusing on hazards they encounter on the job and the corresponding control measures

These training programs are updated when there are changes to our EHS Standards and/or applicable national, regional, state or local requirements, and are reviewed periodically to ensure that they remain current. Site EHS professionals complete an assessment of the activities performed at their sites and ensure that relevant topics are included in their site-specific training plans. They develop employee training curricula to comply with both regulatory and internal training requirements specific to their country.

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, standards and Company practices.

Recently, we developed a new e-learning course to build organizational awareness about environmental sustainability. The training's objective is to help employees understand how they might be able to promote environmental sustainability in their role at the Company. It defines the concept of environmental sustainability and then takes a closer look at what it means for our business and our industry.

EHS governance

Our commitment to the environment and employee health and safety begins with our Executive Team, which has established the EHS Council. The EHS Council comprises senior-level executives representing all business units, and is responsible for overall EHS governance, as well as for leading and driving enterprise-wide excellence in EHS management and performance. The EHS Council met on a quarterly basis in 2021.

The EHS Council's responsibilities include:

- Establishing EHS strategy, policy and business risk mitigation controls
- Ensuring cross-divisional engagement in the design and implementation of EHS business processes
- Sponsoring and implementing a sustainability strategy
- Monitoring our EHS performance and establishing continuous improvement targets
- Enhancing visibility and transparency of EHS risks, processes and issues

An EHS Standards Committee has been chartered by the EHS Council to provide stewardship over our EHS Standards and enable business engagement in the development of new or revised Standards. Each area of the business is responsible for executing against these Standards, contributing to the development of programs, supporting internal audits and communicating significant EHS events. Divisional EHS compliance committees have also been established to manage, execute and resolve EHS issues as they arise.

The vice president (VP) of GSE is responsible for communicating to our Board of Directors, Executive Team and the EHS Council regarding progress on goals, objectives and metrics, as well as other material issues. In addition, this VP partners with business leaders to establish long- and short-term goals and performance metrics to drive EHS excellence. Safety and environmental performance targets are included in divisional management objectives.

*Learn more about corporate governance at our Company in GRI 102-18 on **page 41**.*

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 charged with 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
- Tracking EHS performance of individual sites, divisions and the Company as a whole, and communicating performance versus established targets

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 EHS Standards
- Establishing, assessing and improving programs
- Providing regulatory and technical support to employees and the operating areas
- Routinely assessing performance against our standards, regulatory requirements and performance targets
- 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 recurrence

Internal auditing

We have a detailed and rigorous EHS audit program. Our audit leaders are full-time professional EHS auditors with extensive experience in auditing a broad range of EHS programs. The individual audit teams consist of EHS professionals with extensive site and subject-matter expertise. In many cases, particularly outside of the U.S., 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 (CAPA) plans, which are reviewed, approved by the audit leader and regional EHS leader, and tracked to completion. This process includes senior management oversight. Findings from our audit program are communicated to appropriate parts of the organization so that learnings may be shared and preventative actions can be taken, and audit performance and key program metrics are reviewed as part of our governance process.

We use multiple factors to determine the audit frequency of our facilities, including facility size, operational complexity, compliance status and performance history. Our most complex operations are audited every year, and all manufacturing and research operations are audited at least every three years. Less complex facilities, such as sales and business offices, are audited less frequently. In 2021, we performed 53 corporate EHS audits, involving 669 auditor days of remote review and on-site activities.

To support safety and environmental compliance on our capital projects, EHS audits of selected Global Engineering Solution (GES) projects were initiated in 2021. Three GES capital projects were audited in 2021, and four project audits are planned in 2022. According to the 10th Biennial EHS Audit Practices Survey by International Audit Practice Consortium (IAPC©), approximately 25 percent of the companies surveyed include major capital/construction projects in the scope of their EHS audit programs.

In 2021, the EHS audit process continued to be affected by COVID-19 pandemic restrictions, with a remote audit methodology predominant. Remote audits were accomplished using technology tools such as video conferencing, use of electronic document repositories and both real-time and recorded videography, and 92 percent of the remote audits were followed up with an on-site field review of the findings identified.

A survey by the National Association for Environmental, Health & Safety and Sustainability Management (NAEM) found that remote EHS auditing has increased since the onset of the pandemic for the companies responding to the survey. Most companies (68 percent) responded that they were currently piloting or conducting virtual audits in some capacity.

Regular internal Quality Assurance Reviews of the program are performed by our Corporate Audit and Assurance Services at least every three years. The most recent review of the EHS auditing program was performed in March 2021, and resulted in a rating of "Effective" with controls and practices deemed to be in line with our requirements and expectations.

In addition to our corporate EHS audit program, our sites regularly perform self-inspections and review compliance with permit conditions, regulatory requirements and Company EHS Standards, with all programs being evaluated at least once every three years.

Certification

We are certified in the Responsible Care Management System® Technical Specification RC101.06, 2019. The RCMS® recertification occurred on December 4, 2019.

Additionally, our corporate EHS management system is generally aligned with the requirements of the International Standards Organization (ISO), but we do not pursue certification under the Environmental (ISO 14001) or Safety (ISO 45001) frameworks at the global level. Some of our facilities have individually achieved ISO 14001 certification to meet customer requirements.

Remediation

Environmental management practices have evolved significantly over the past few decades.

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 we are responsible 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.

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.

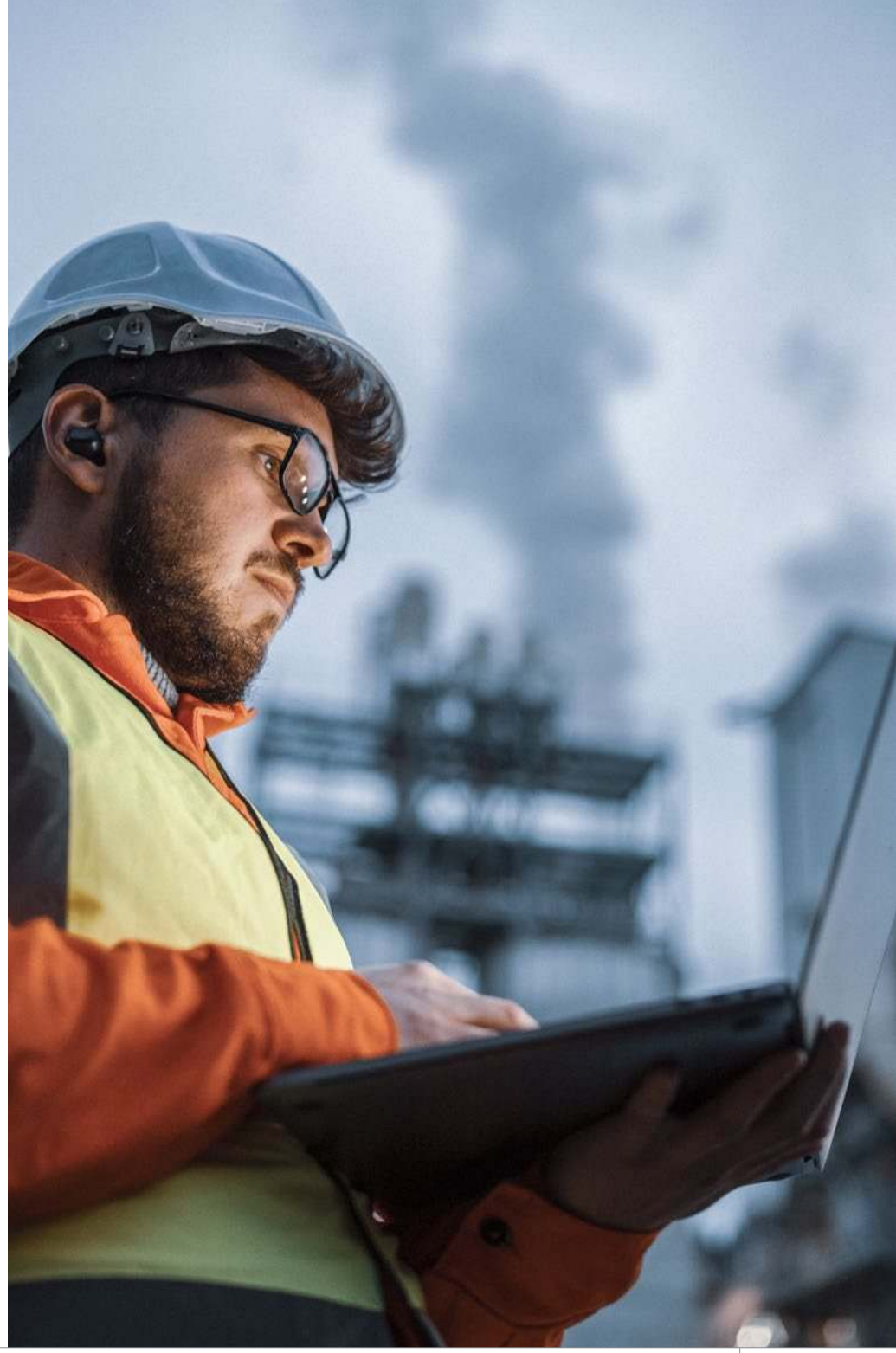
Expenditures for remediation and environmental liabilities were $12 million in 2021 and are estimated to be $24 million in the aggregate for the years 2022 through 2026. In management's opinion, the liabilities for all environmental matters that are probable and reasonably estimable have been accrued and totaled $40 million and $43 million at December 31, 2021 and 2020, respectively.

Environmental data collection

We measure and monitor environmental data for all global manufacturing and research sites, as well as large office buildings. All metrics are entered quarterly by sites into an enterprise data collection and reporting software system as part of our internal Environmental Data Collection (EDC) process. The data is reviewed at the corporate level on a quarterly basis to monitor sites' progress and assist the sites as needed to support work toward our goals.

▶▶▶ *For additional information on this topic please review the following documents located on the **ESG Resources page** of our corporate website:*

- *Corporate Policy: Respect for EHS*
- *Public Policy Position Statement: Pharmaceuticals in the Environment*
- *Public Policy Position Statement: Responsible Disposal of Medicines in the Household*
- *Global Antimicrobial Resistance Action Plan*



GRI 307-1 Non-compliance with environmental laws and regulations

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.

Safety and environmental performance targets are included in divisional management objectives. In addition, all employees are eligible for special recognition for innovative ideas and projects related to improving EHS aspects of our operations.

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 2021, we had 156 EHS-related regulatory agency inspections of our facilities around the world. We received two safety-related and 16 environmental-related NOVs, and paid $192,606 in fines in 2021. None of the environmental-related NOVs were the result of a significant spill.

Notices of violations (NOVs) and citations	2017	2018	2019	2020	**2021**
Environmental	5	6	9	9	**16**
Safety	3	1	4	3	**2**

Fines	2017	2018	2019	2020	**2021**
Environmental fines paid	$0	$0	$17,690	$21,022	**$191,870**
Number of environmental fines	0	0	3	3	**4**
Safety fines paid	$0	$0	$0	$0	**$736**
Number of safety fines	0	0	0	0	**1**

Supplier environmental assessment

GRI 308 **Management approach**

Environmental sustainability principles are integrated in each stage of our supplier management program. Our Global Supplier Management Group (GSMG) drives the program and maintains the associated standards and processes by which suppliers are identified, qualified and managed. The environmental sustainability program is integrated with social responsibility and economic inclusion and supplier diversity (EI&SD).

*Please visit GRI 102-9 on **page 30**, GRI 204 on **page 75** and GRI 404 on **page 142** for additional information regarding our integrated approach with our suppliers.*

External manufacturing

External manufacturers of active pharmaceutical ingredients and finished products are screened for Environmental Health and Safety (EHS) compliance, in addition to quality, supply and technical competence requirements. The EHS screening and on-site assessment is led by Global Safety and the Environment (GSE) and 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 Quality, GSE, Global Technical Operations and GSMG 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.

Since 2020, the EHS audit schedule has been impacted by the COVID-19 pandemic. Priority was given to new supplier reviews (due diligence) versus current supplier reviews, in our support of the supply chain. Whenever possible, assessments were completed in person. However, some assessments were completely virtual or a combination thereof.

Pharmaceutical Supply Chain Initiative (PSCI) Environment Task Team

We co-lead the PSCI Environment Team and work together with GSE and peer organizations to develop supplier survey(s), training, tools and maturity modeling.

Since 2016, this team has been working together to standardize PSCI's environmental supplier data request to reduce the number of different requests to suppliers and to minimize the number of surveys suppliers receive.

The survey covers greenhouse gas emissions, energy, waste and water, and is in four sections:

- Established program: alignment with the Code of Conduct
- Manage impact: data for each environmental indicator
- Reduce emissions: environmental targets
- Apportion emissions: supplier emissions that are specific to each company

In 2020, we updated the survey to include questions related to science-based targets (SBT) for greenhouse gas (GHG) emissions reductions. In 2021, we focused on collecting GHG data at the category level in lieu of the PSCI Environmental Survey in the Ecodesk system. We are continuing to evaluate our supplier environmental data and what is required to track progress toward our new, more robust Scope 3 goals.

Below is a summary of the training and tools developed and/or provided by the Environment Team in 2021:

- 10 environmental sustainability guides
- 14 responsible sourcing guides for key materials
- Responsible Sourcing of Raw Materials training
- Sustainable Packaging training
- Revised PSCI Principles training
  - Scope 3 Guidance
  - Scope 3 Awareness Training
  - Supplier Maturity Model
  - Supplier Training Matrix
  - Responsible Sourcing Training
  - Product Stewardship Regulation Overview
  - Chemical Legislation Overview

We worked with PSCI to provide environmental training to our suppliers. These initiatives ensure a consistent message and approach with our suppliers across the industry. Working together with PSCI, we provide these tools and resources on **PSCI's platform** and in webinars. We also provide these tools for our employees on an internal GSMG webpage.

Pharmaceutical Environmental Group (PEG)

PEG is a group of large pharmaceutical organizations that develop training and strategy for environmental matters specific to the pharmaceutical industry. We are active members and are involved with all PEG sub-teams. In 2021, the PEG Climate sub-team developed the Energize program to educate suppliers on sourcing renewable energy. Ten members worked with Schneider Electric to design the **Energize** website, training materials and outreach programs. We are currently working with numerous organizations to ensure supplier awareness and utilization of the program.

External manufacturing EHS assessments	2017	2018	2019	2020	**2021**
Prospective external manufacturers	37	65	43	50	**42**
Current external manufacturers	53	61	48	27	**54**
Total	90	126	91	77	**96**

Social

See our GRI index on **page 183**.

Employment

GRI 401 **Management approach**

We hire passionate people who believe in taking on the world's most pressing health issues. Our people are one of our greatest assets, and we seek to maximize each employee's potential and the contributions they bring each day to deliver on the Company's purpose. Our focus is to enable every employee to continuously learn and grow, creating a greater connection to the organization and accelerating the development of all talent.

We aspire to enrich the entire employee career experience while also ensuring we develop and execute on talent strategies aligned to our business priorities. Our commitment to our employees remains unchanged throughout the years. We believe our employees are at the center of everything we do. Leading from this foundation fuels our efforts to ensure we are succeeding in attracting, developing, retaining and inspiring our employees. To execute on these priorities and ensure success, we have enhanced our development program offerings while also remaining anchored in driving our culture transformation forward.

We expanded our enterprise-wide leadership development programs in 2021 by offering new affinity group offerings that are focused on developing strengths and addressing challenges that are unique to a given demographic. In the U.S., underrepresented ethnic groups represented 38 percent of our enterprise-wide leadership development program participants in 2021.

Throughout 2021, we remained anchored in driving greater cultural transformation by focusing on our Ways of Working mindsets and behaviors. We encouraged colleagues to engage deeper in the five behavioral and mindset shifts, reinforcing a culture that values how we work as much as what we achieve.

We continue to measure the impact of our Ways of Working. At the end of 2021, approximately 18,000 employees completed a self-assessment on the Ways of Working to build their capabilities and achieve the mindsets required to foster innovation. We piloted a new Ways of Working 360 assessment to help leaders identify behavior strengths and areas of opportunity. Colleagues continue to use our internal recognition platform, INSPIRE, to recognize others in their Ways of Working journey. In 2021, we surpassed 1,000,000 INSPIRE moments of recognition in the platform.

GRI 401-1	**New employee hires and turnover**
SASB 330a.1	**Talent recruitment and retention efforts for R&D personnel**
SASB 330a.2	**Voluntary and involuntary turnover rate for: executives and senior managers, midlevel managers, professionals and all others**

Turnover (global)	2017	2018	2019	2020	**2021**
Overall turnover rate[1]	10.7%	11.8%	9.9%	8.5%	**11.1%**
Voluntary turnover rate	6.5%	6.8%	6.9%	6.0%	**8.8%**

[1] Includes all types of turnover of regular employees. Regular employees are defined as employees who do not have a predetermined end date to employment.

Turnover by region (2021)	Overall turnover rate [1]	Voluntary turnover rate
Asia Pacific	12.6%	10.3%
Latin America	11.3%	5.7%
EEMEA (Eastern Europe, Middle East and Africa)	15.5%	9.4%
Japan	3.1%	2.6%
Europe	8.6%	5.4%
U.S.	8.7%	8.0%
China	29.2%	25.0%
Canada	9.5%	8.4%

[1] Includes all types of turnover of regular employees. Regular employees are defined as employees who do not have a predetermined end date to employment.

Turnover by division (2021)	Overall turnover rate [1]	Voluntary turnover rate
Animal Health	8.4%	6.2%
Communication and Policy	8.4%	7.9%
Corp Compliance	4.4%	4.4%
Global Services	9.8%	8.2%
Global Human Health	16.2%	12.6%
Human Resources	13.9%	9.5%
Legal, Security, Safety & Environment	8.3%	6.9%
Manufacturing Division	8.7%	6.1%
Research Laboratories	9.6%	8.9%
Population Health & Sustainability	9.2%	7.4%
Strategy, BD, IT	8.0%	6.7%

Note: As of third quarter, 2021, new divisions (Communication and Policy, Population Health & Sustainability and Strategy, BD, IT) added to our organization.

[1] Includes all types of turnover of regular employees. Regular employees are defined as employees who do not have a predetermined end date to employment.

Turnover distribution by gender and region (2021)	Female	Male
Overall	48%	52%
Asia Pacific	49%	51%
EEMEA	50%	50%
Latin America	48%	52%
Europe	45%	55%
Japan	42%	58%
U.S.	47%	53%
China	52%	48%
Canada	54%	46%

Notes: Data above includes all types of turnover of regular employees. Regular employees are defined as employees who do not have a predetermined end date to employment. To align with U.S. government reporting requirements, the ESG data for gender diversity in this report uses the terms *men* and *women*. We recognize and embrace the gender spectrum and diversity in our employees, and have internally established voluntary Self-ID options for employees to self-report on their gender identity. The totals in this report may not equal 100 percent due to rounding or employees who have not reported their gender and/or race/ethnicity.

Employee hires by region	2017	2018	2019	2020	**2021**
Asia Pacific (excl. China for years 2020 & 2021)					
Number of hires	1,909	3,071	2,727	597	**588**
Hire rate[1]	16.1%	24.4%	20.8%	8.9%	**10.0%**
EEMEA					
Number of hires	378	505	605	360	**373**
Hire rate[1]	13.7%	16.7%	18.8%	10.7%	**13.8%**
Latin America					
Number of hires	1,246	714	558	459	**496**
Hire rate[1]	23.8%	13.1%	10.5%	8.4%	**10.5%**
Europe and Canada (excl. Canada for years 2020 & 2021)					
Number of hires	1,865	2,495	2,624	1,754	**1,709**
Hire rate[1]	9.8%	12.3%	12.3%	8.4%	**9.5%**
Japan					
Number of hires	109	153	121	143	**120**
Hire rate[1]	2.8%	4.3%	3.4%	4.4%	**3.8%**
U.S.					
Number of hires	2,173	3,019	2,654	3,193	**3,443**
Hire rate[1]	9.1%	12.4%	10.5%	11.9%	**13.1%**
China					
Number of hires	NR	NR	NR	2,149	**1,907**
Hire rate[1]	NR	NR	NR	29.5%	**31.5%**
Canada					
Number of hires	NR	NR	NR	50	**73**
Hire rate[1]	NR	NR	NR	7.5%	**12.8%**

NR: Not reported.
[1] Percentage of new hires in the total onboard head count; regular employees only. Regular employees are defined as employees who do not have a predetermined end date to employment.

We use a strategic approach to ensure recruiting, retention and leadership development goals are systematically executed throughout the Company. We hire talented leaders to achieve improved gender parity and representation across all dimensions of diversity. We provide training to our managers and external recruiting organizations on strategies to mitigate unconscious bias in the candidate selection and hiring process. In addition, we utilize a comprehensive communications strategy, marketing outreach, social media and strategic alliance partnerships to reach a broad and diverse pool of talent across our business.

In 2021, our turnover increased by 2.6 percent from 2020. This is a current trend we continue to see across the general marketplace. However, we are thankful we still remain below external market benchmarks. Our largest area of turnover was China, which is an extremely buoyant market. From a divisional perspective, our Human Health division experienced the highest turnover.

However, despite a continuing pandemic, we did not see a slowdown in recruitment. Hiring in 2021 saw consistent or increased demand for headcount in line with our 2020 needs. In the U.S., our highest volume hiring market, hiring increased in 2021 versus 2020 by eight percent, largely due to growth and investment in our U.S. manufacturing division plants and continued growth in our R&D division.

China's 2021 hiring also remained on pace with 2020, which was as expected to support our growth strategy in that market across Oncology and Vaccines in Global Human Health, and in our R&D division. We continue to focus on securing digital, analytical and automation skillsets across all divisions.

We significantly increased our efforts around creating a diverse workforce through our sourcing, branding and selection processes. We successfully collaborated with a number of external partners to attract diverse candidates across many different demographics to our Company. Our 2021 hiring achieved an overall 50/50 split across gender. We have continued to invest in two diversity hiring programs in the U.S.:

- OneTen: Focused on creating sustainable jobs for Black Americans without a four-year degree
- Year Up: A diverse, early talent intern program

Our aim for 2022 is to increase our hiring commitments across both programs along with other early talent initiatives, in addition to introducing a new apprenticeship program. Overall, we were successful in identifying, sourcing and attracting critical talent during another highly unusual year.

GRI 401-2	**Benefits provided to full-time employees**
SASB 330a.1	**Talent recruitment and retention efforts for R&D personnel**
SASB 330a.2	**Voluntary and involuntary turnover rate for: executives and senior managers, midlevel managers, professionals and all others**

We recognize that our employees are vital to our purpose of improving and saving lives worldwide. One way we recognize the importance of our people is to provide a valuable suite of benefits and wellbeing programs and resources for every stage of life.

Our comprehensive benefits package is aligned to the Company's values and culture, designed to provide high-quality and cost-efficient programs that support the needs of our business and those of our diverse workforce with what they need when they need it.

Health and wellbeing

Employees across the world enjoy health and welfare coverage, which varies by region and country, and focuses on our commitment to physical, mental and social wellbeing.

Our integrated approach to wellbeing is based on employee needs. It offers our employees and their dependents a wide range of health programs, resources, activity challenges and tools to cultivate healthy behaviors and enhance their lives.

Our **Wellbeing Report** demonstrates the priority we place on employee wellbeing and our commitment to hold ourselves accountable to measure our progress, celebrate successes and constantly raise the bar for our employees and their families.

Health advocacy (U.S.)

Within the U.S., our medical plan helps support our members with an advocacy solution, designed to help them navigate the health care system and save time by:

- Providing help with health care insurance claims and estimates
- Finding providers, specialists, facilities and experts
- Coordinating care and helping to manage complex medical conditions
- Scheduling appointments for physicians, treatments and tests
- Offering referrals to other Company programs

Commitment to mental health (global)

We firmly believe in the importance of emotional wellbeing awareness, and pride ourselves in providing colleagues globally with resources to help them balance their personal and professional lives.

As part of this offering, every employee and their household members have access to our global Employee Assistance Program, which provides:

- In-the-moment telephone support for daily relationship challenges, work issues and everyday stress
- Professional counseling sessions
- Work-life services for everyday help and everyday needs, such as finding assisted living for an aging parent or support with childcare services
- Crisis support for unanticipated events

In addition to this program, we provide other resources such as mental health awareness training and webcasts by world-class speakers on mental health topics. Also available are live and recorded exercise classes, mindfulness sessions and a network of mental-health champions that provide local support. In 2021, we introduced Calm, an app designed to reduce stress and anxiety, free for all employees and their dependents globally. Also in 2021, we added Lyra Health in the U.S. This high-quality mental health provider network matches employees in need with clinically appropriate treatments to help them get better faster.

Other programs to support wellbeing (U.S.)

We offer many programs to help make it easier for employees to balance their various responsibilities. The following is a non-exhaustive sampling:

- Caregiving support
- Transportation services
- Backup dependent care
- Childcare support
- K–12 educational guidance
- Special-needs counseling
- Adoption and surrogacy assistance
- Fast access to high-quality cancer care
- Employee assistance and work-life services program
- Summer hours
- Paid parental time off (for more information, please see GRI 401-3 on **page 131**)
- Disaster relief benefits
- Breastmilk shipping
- Tobacco cessation

How we have helped employees through COVID-19

During the pandemic, we updated and added programs to assist employees and their families with the many challenges resulting from COVID-19.

Outside the U.S., we support 100 percent coverage of COVID-19-related testing, diagnosis and treatment, as well as paid leave during quarantine.

In the U.S., we have offered:

- 100 percent coverage for testing, diagnosis and treatment of COVID-19 and telemedicine for any reason through the medical plan
- Subsidized on-site daycare centers with expanded safety protocols
- Regular and backup childcare
- Remote tutoring
- Caregiving coordinator for employees and their loved ones
- Flexible Spending Account updates (e.g., allow rollovers and midyear changes)
- Free online fitness classes
- High-quality mental health provider network
- Mental health training for managers and employees
- 401(k) withdrawals

Flexible work arrangements (global)

We believe flexible work arrangements offer a different way of working and can enhance employees' commitment to the Company, foster teamwork, increase productivity and support work-life balance. We have had a global flexible work arrangement policy since 2008.

In 2021, we expanded our policy and introduced a hybrid workplace strategy for employees in office-based roles. This model helps us be even more agile and productive as we deliver outcomes for the people who depend on our work. Flexibility reflects our belief that job effectiveness is determined by employee performance and results, not by the number of hours seen in the office. What is produced or accomplished is more important than when or where the work is completed.

To show our commitment to workplace flexibility, we provide a wide range of resources to help employees with home office setup, including tips for ergonomics, wellbeing office stretches and more. In 2021, we introduced an employee purchase program to make ordering supplies and equipment easy for employees in the U.S.

Time off and leave policies

For employees outside the U.S., time off and leave benefits are based on local laws and market practices. For U.S.-based employees not subject to a collective bargaining agreement, we offer three to six weeks of vacation depending on years of service, 16 holidays and various other paid time off or leaves of absence to help employees take time off when they need it.

Financial security and retirement benefits

Worldwide, we offer core and ancillary financial security and retirement benefits that routinely rank amongst the most valuable and progressive of other large multinational corporations.

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.

In the U.S., we offer a defined benefit pension plan as well as a 401(k) plan with matching contributions. The average contribution rate of pay into this plan is approximately 9.26 percent. Approximately 97 percent of U.S.-based employees participate in this retirement plan, and 100 percent participate in the pension plan. Additionally, U.S.-based employees who are at least age 55 and those who have at least 10 years of service after age 40 are eligible for subsidized medical benefits at retirement.

Employees and compensation	2017	2018	2019	2020	**2021**
Total compensation paid to employees/payroll, including benefits (in billions)	$8.65	$8.98	$9.56	$10.18	**$9.92**

Also, in the U.S., we offer:

- Comprehensive financial planning, a valuable benefit provided at no cost to employees. This service helps with budgeting, saving, investing, estate and tax planning, as well as selecting benefits options and other financial planning guidance.
- Educational assistance, which provides financial support for higher education
- Access to student loan consolidation and refinancing options
- Banking through our credit union, which offers competitive interest rates on savings accounts and lending
- Employee discounts on a wide range of products and services
- Pet insurance for the eligible other members of our employees' families
- Access to legal services benefit

Employee volunteering

Each year, our employees around the world take an active role in giving back to their communities by donating thousands of volunteer hours to help improve health and wellbeing through a range of volunteer activities. In 2021, we saw an increase in employee volunteer hours over 2020. However, the COVID-19 pandemic continued to impact the total number of hours reported by employees.

Fellowship for Global Health

Our purpose to save and improve lives underpins the idea behind the Fellowship for Global Health.

The Fellowship for Global Health is a three-month, corporate pro bono program designed to leverage the skills and talents of our employees worldwide. The Company continually seeks innovative ways to increase access to health around the world while also growing and developing our talent. The Fellowship for Global Health is one way that we can accomplish both objectives. In 2021, the program resumed in a completely virtual format.

*Learn more about how our **Fellows are helping communities.***

Skills-based volunteer program

Our skills-based volunteer program operated through 2021 and offered employees the opportunity to donate their professional skills through virtual, short-term projects that provide important capacity-building support for nonprofit organizations. The program expanded opportunities for employees to grow and develop while giving back to the community.

Pro bono program

Our Company's pro bono program provides voluntary legal services to those in need and has been serving the poor and disadvantaged for 27 years. It is led by the Office of General Counsel. The program provides opportunities for our staff and legal professionals worldwide to provide their expertise, free of charge, to members of the community who would otherwise be unable to access legal advice or support on a range of issues including family law, veterans' affairs, child advocacy and others. Throughout 2021, attorneys, non-attorney professionals, paralegals and administrative associates provided more than 2,300 hours of pro bono legal services.

Medical volunteering—COVID-19

In 2020, in response to the pandemic, we changed our volunteer policy to support employees with medical backgrounds. Recognizing the need for additional health care professionals—including doctors, nurses and medical laboratory technicians—to assist in regions where COVID-19 had spread, we removed the cap of 40 hours of paid time off to volunteer for these individuals. We continued this policy in 2021 as the pandemic continued to challenge health systems globally. In the U.S. for example, employees with a medical background reported volunteering more than 2,800 hours in 2021.

Over 2,800

hours volunteered through COVID-19 medical volunteering program in 2021

Over 2,300

hours of pro bono legal services in 2021

Employee volunteering	2017	2018	2019	2020	**2021**
Employees who volunteered [1]	6,560	6,557	14,395	985	**1,786**
Employees who used paid time off (PTO) [2]	4,870	4,795	7,301	411	**883**
Total recorded volunteer hours (TRVH)	114,903	114,393	136,014	46,278	**68,300**
Skilled volunteer hours [3]	19,468	18,317	19,907	3,977	**16,904**

[1] 2021 figures are based on employee self-recorded volunteer hours and volunteer hours communicated directly to the Office of Social Business Innovation for certain countries and functions.
[2] Figures based on estimated data.
[3] Figure includes aggregate reported hours from our major skills-based volunteer initiatives—the MSD Fellowship for Global Health, SkillShare and Pro Bono program. It also includes hours recorded for U.S. employees with a health care background that volunteered to assist with the COVID-19 pandemic.

GRI 401-3 Parental leave

In 2021, we increased the amount of paid parental time off in the U.S. from six weeks to 12 weeks for employees who become parents through the birth, adoption or surrogacy of a child regardless of the employee's sex, marital status, sexual orientation or gender identity. A 12-week minimum of paid parental leave will be applied to employees globally by the end of 2022. In addition to parental leave, U.S. employees receive separate, paid, unpaid and job-protected leave to care for a newborn child, adopted child or child placed in foster care following the child's birth.

Occupational health and safety

GRI 403 Management approach

As a global health care Company, we strive to provide a safe and healthy workplace. We seek to reduce environmental, health and safety (EHS) risks to eliminate work-related injuries, illnesses and unplanned events from all aspects of our operations through a comprehensive EHS program. Each year, we set targets and track leading and lagging safety metrics. These metrics include safety observations, near-miss incidents, peer safety reviews, Recordable Injury Rates (RIR), Lost Time Injury Rates (LTIR) and Days Away, Restricted or Transferred (DART) rates. Please see GRI 403-9 on **page 138** for our performance on these metrics.

All employees, service providers and Company-managed contractors must follow the standards and requirements in our EHS management system. Compliance with these requirements is measured through site audit processes and through peer reviews for construction.

*More information on our approach to occupational health and safety, specifically our key operating principles, EHS governance, internal auditing and certification, can be found in GRI 307 on **page 116**.*

*For more information regarding the occupational health and safety expectations in our value chain, please refer to our **Business Partner Code of Conduct**.*

International standards

We are committed to providing a safe and healthy workplace that complies with all applicable safety laws and regulations. In addition, we aim for EHS performance that is among the best in the pharmaceutical industry.

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) in countries that have adopted the Code. In countries that have not adopted the Code, we report to governments in a manner that is consistent with 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 OSHA recordkeeping criteria for recording and tracking work-related injuries and illnesses. We require all injuries, illnesses and incidents involving our employees to be reported and investigated to determine their cause. We also require corrective and preventative actions be taken to prevent recurrence. We have reviewed the ISO 18001 Standard; however, we have not pursued certification because we believe that our current EHS management systems are robust and achieve our desired levels of EHS performance.

GRI 403-1 Occupational health and safety management system

Our Company's EHS management system includes comprehensive programs focused on reducing risks, work-related injuries/illnesses and other safety incidents from our operations. We focus on safe facility design, process controls, operation and maintenance procedures, protection systems and emergency-response capabilities.

Our EHS Management System supports a proactive EHS culture and our Company's objectives. We strive to achieve a strong EHS culture through visible leadership, active employee engagement and a focus on proactive identification and elimination of hazards.

An example of employee EHS engagement is our active Employee Safety Committees. These Committees include workers and management and are designed to allow for a partnership to proactively address EHS issues.

*We address the following areas in our approach to employee and contractor safety, which are discussed in more detail in GRI 403-2 on **page 132** and GRI 403-3 on **page 136**:*

- Hazard identification, risk assessment and incident investigation (403-2)
- Non-routine hazardous work (403-2)
- Capital projects construction safety (403-2)
- Safety for non-Company personnel (403-2)
- Motor-vehicle safety (403-2)
- Emergency response (403-2)
- Loss prevention (403-2)
- Industrial hygiene (403-3)
- Biological safety (403-3)
- Ergonomics (403-3)

*For information on our Global Safety and Environment (GSE) EHS Management System, please visit GRI 307 on **page 116**.*

GRI 403-2 Hazard identification, risk assessment, and incident investigation

Our process safety program identifies controls and manages risks associated with the manufacturing and handling of our human and animal health products. The program applies to operations that are subject to process safety regulations and 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 the life cycle of each product to assure that we are aware of the process risks of each material and can properly manage these risks. Global process safety professionals work with operations and engineering personnel to conduct process hazard analyses to thoroughly evaluate our operations. These structured reviews take place during the initial process design, final process design, initial start-up and throughout the life of the process. This ensures our facility design, equipment, operating controls and maintenance procedures are effective in identifying, evaluating, managing and mitigating 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 and safe approach to risk reduction when performing these nonroutine, high-hazard 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. Our Global Engineering Solutions (GES) group oversees hundreds of contractors and thousands of skilled craftworkers on our construction projects worldwide. Safety is integrated into all stages of our construction projects, beginning with the concept and design phases, and is carried through to Detailed Design, Construction and Commissioning/Qualification.

Our construction safety program mandates pre-job planning, hazard assessments and daily safety checks. We also conduct peer reviews by bringing together in-house engineers, contractors, the EHS construction team and other partners to conduct thorough project safety evaluations and sharing of best practices. We completed 125 peer safety reviews in 2021, covering 95 percent of our active projects that were chosen for Peer Safety Reviews.

The construction industry continues to see a negative trend related to the availability of contractor and craft resources. The impacts of this trend require management of resource availability issues, varied levels of experience and safety competencies. GES continues to use a “hyper-care” program to ensure additional supervision and safety oversight of new contractors, high-risk work scope contractors and less-experienced contractors.

GES also uses a rigorous, third-party prequalification program to evaluate, score and prequalify contractors and subcontractors. This tool allows the team to evaluate contractors’ safety programs, past safety performance, safety incident rates, experience modifier rate (EMR) and training verification of craft, and reviews any regulatory citations prior to allowing them to bid on any projects.

Safety for non-Company personnel

All contractors working at our sites are required to follow a prequalification and EHS evaluation process. They are assigned an internal “contractor liaison” to monitor EHS compliance, perform EHS inspections and evaluations and ensure they follow their safety compliance plans. Contractors are required to report and investigate all EHS incidents and near-miss events. They also work with site-based EHS contacts to identify and implement corrective and preventive actions, which are tracked to completion.

Integrated Facilities Management (IFM) partners are globally sourced companies that are responsible for performing various maintenance tasks at our sites. IFM partners are required to follow our Company's EHS standards and site EHS procedures, and to monitor compliance activities associated with their scope of services and meet safety-related performance objectives.

IFM partners are managed through a central governance team. The governance process includes dedicated resources to measure, monitor and evaluate IFM partner EHS performance and adherence to Company EHS requirements on an ongoing basis. IFM partners proactively follow a continuous improvement process whereby each year, in addition to our Company requirements, specific targets are set up and monitored at the governance level.

Motor vehicle safety

The aim of our motor vehicle safety program is to promote a strong safety culture for our employees who operate vehicles while conducting Company business. Our program is designed to reduce the frequency and severity of motor vehicle injuries and reduce the number of collisions, violations and vehicle-related incidents across our global network. We have implemented a global motor vehicle safety standard and adopted programs, such as predictive analytics assessments that allow us to develop employee-specific defensive driving action plans, to promote safe driving skills and behaviors to our sales and marketing employees who operate the majority of our business-use vehicles.

Emergency response

We prioritize the prevention of incidents through equipment and facility design, operational and maintenance procedures and employee training. However, in the event that unplanned incidents occur, we maintain emergency preparedness and response capabilities at our facilities. Emergency response programs help secure the safety and wellbeing of our employees and visitors, the protection of the environment and nearby communities, as well as protecting our physical assets. We also conduct pre-emergency planning for credible emergency scenarios such as process upsets, fires, spills, releases, severe weather and security-related incidents.

Site-specific emergency-response procedures include incident reporting and management, personnel evacuation, medical response and incident response and control. We routinely conduct emergency response drills and train employees in both job-and site-specific emergency-response duties.

Many of our manufacturing plants have on-site, trained emergency response teams and mobile fire and rescue apparatus that can respond to 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

We proactively assess and manage the risks associated with fires and natural catastrophes (i.e., hurricanes, floods, windstorms and earthquakes) through our Loss Prevention Program. This program focuses on eliminating or reducing the impact of potential loss events through:

- Facility and process designs
- Inspection, prevention and maintenance procedures
- Fire suppression, detection and specialized protection systems
- Emergency response and business continuity programs.

We engage globally recognized, external loss-prevention engineering service providers to routinely inspect and review new designs and modifications of facilities. This helps us to maintain a high standard of loss prevention that corresponds to the level of operational risk, monetary value and supply-chain importance.

Industrial hygiene

Our industrial hygiene program helps safeguard employee health throughout all stages of research and manufacturing. Our professionals identify chemical, physical and biological hazards and assess exposures and control risks. Based on industry-leading best practices, we accomplish this through a hierarchy of controls.

These include:

- Prevention
- Substitution
- Engineering
- Administrative
- Personal protective equipment (PPE)

For example, when designing new processes and facilities, we build safety into our designs organically by eliminating risks, substituting less hazardous processes or materials and installing effective engineering and operational controls. We also confirm the ongoing effectiveness of these controls after installation through a robust monitoring program.

When addressing existing processes and facilities we use a similar approach. First, we seek to eliminate hazardous materials and processes. When not possible, we use less hazardous substitutes and then evaluate potential engineering controls to mitigate the remaining risk.

Where engineering controls are insufficient, or not feasible, we establish effective work practice controls including those that may require selected types of PPE. In 2021, over 13,000 data points were collected and used to evaluate risk or to confirm effectiveness of risk reduction investments, and 250 risk reduction actions were completed.

We have delivered nearly four million reusable cloth masks to our workers and their families during the COVID-19 pandemic. These masks follow the performance criteria of the ASTM (American Society for Testing and Materials) International Standard Specifications for Barrier Face Coverings. Wearing reusable masks supports our mission to preserve surgical masks and respirators for health care workers who need them, and to reduce waste by minimizing daily discard of disposable masks.

Biological safety

Our biological safety program aims to protect our employees, customers, vendors, partners and neighboring communities by identifying, assessing and controlling biosafety and biosecurity risks associated with the research, development and manufacture of our vaccines and therapeutic proteins. Our biological risk management team ensures there is an effective biological safety program to prevent biological exposure.

In 2021, our Global Engineering Services (GES) team launched an updated engineering design standard that governs fit-for-purpose, large-scale biological facility design. This enabled our Company to establish multiple, production-ready facilities for safe development and manufacturing of vaccines and therapeutics to combat endemic or emerging infectious diseases like COVID-19. In an effort to improve biosafety capabilities, the biological risk management team conducted a Biosafety in Project Management training series to increase the biosafety knowledge base of our engineers.

We partner with our community of public and private sector biosafety professionals in order to help educate biorisk professionals globally and develop guidelines that protect human and animal health and the environment. In 2021, we presented “Industry Perspective on Biosecurity Management” at ABSA International’s 1st Biosecurity Symposium and the Chesapeake Area Biological Safety Association's annual symposium. We also volunteered with the ABSA International to support ISO Technical Committee 212’s Working Group 5 to develop ISO 35001 Implementation Guide and to draft a new ISO Biosafety Professional Competency Standard.

Our biological safety professionals facilitated 369 biorisk assessments to support research and development and manufacturing activities across all Company divisions. By developing an asset called Biorisk Assessment and Repository (BAR), we believe that we have set new biorisk management standards for the industry. BAR evaluates biosafety and biosecurity risk associated with biological materials, and establishes risk-control strategies that protect human health and the environment.

Ergonomics

Approximately 20 percent of our 160 recordable injury cases are ergonomic-related. We have implemented an ergonomic program focused on the reduction of ergonomic risk in process, equipment design and the work environment. We identify ergonomic risk and exposure of tasks in all areas of the organization. Our site ergonomic programs encourage employee participation in workplace assessments, risk identification and implementation of sustainable engineering controls. Where engineering controls are not feasible, administrative and behavioral controls are implemented including, but not limited to, job rotation, job hazard identification and body mechanics training. We also use ergonomic design standards for new or renovated facilities to maximize worker comfort and health and minimize ergonomics hazards and risk factors.

In response to the COVID-19 pandemic, the Company had an increase of non-essential employees working from home. In 2021, a remote worker ergonomic assessment process and Work from Home Furniture policy was created which resulted in a 75 percent reduction in work-from-home, OSHA-recordable injuries and a 66 percent reduction in work-from-home first aid cases when compared with 2020. This initiative was developed and deployed in collaboration with GWES (Global Workplace and Enterprise Services), HR, Procurement, IT and Live It (our health and wellbeing group). This new process provides worker access to resources that guide proper home office workstation setup and identify appropriate furniture, equipment and solutions needed to maintain a healthy work-from-home environment.

GRI 403-3 Occupational health services

Occupational health principles apply to all employees and directly supervised contingent workers. We promote compliance with both the letter and the spirit of applicable occupational health laws, Company policies and requirements. We prioritize continuous improvement and assess our improvements objectively through internal measurement and external benchmarking, incorporating best practices and participating in occupational health research where appropriate.

To meet the Company's objectives, we focus on seven key areas:

- Prevention and risk minimization
- Performance management
- Global standards and communication
- Education and training
- Management
- Safety
- Global employee health

Prevention and risk minimization

Our employees are our most valuable asset, and our Company commits every day to protecting their health. The best way to maintain the occupational health of our employees is to reduce risk and prevent illnesses and injuries. Occupational Health Services collaborates closely with the Environmental Health & Safety (EHS) organization to identify and evaluate potential health risks to our employees in an effort to reduce adverse impacts. We take proactive steps to prevent occupational injury and illness through our Medical Surveillance program. This program evaluates new and existing workplace hazards and allows the teams to identify and implement procedures and clinical protocols to eliminate these hazards and prevent future occurrences. In the event of an occupational injury or illness, Occupational Health Services performs joint follow-up investigations with the EHS organization and conducts analyses to further refine our preventive efforts and reduce avoidable risks.

When employees are ill or injured at work or through personal circumstances, we support their recovery so they can return to work healthy to perform their jobs. When an employee experiences an occupational injury or illness, we promote and facilitate appropriate treatment and rehabilitation.

Performance management

Our occupational health programs are not static, and we drive continuous improvement in their performance. We establish programs, policies and procedures that tie our occupational health performance to corporate and divisional goals and objectives. We regularly report our progress against our goals to management and refine them as necessary at regular intervals.

Global standards and communication

We adhere to and promote Company goals, programs, procedures and policies designed to provide a high level of respect for the health of our employees globally. We foster openness and respectful dialogue with our employees, anticipating and responding to concerns about our operations.

Education and training

Well-informed and trained employees provide the backbone for maintaining employee health in the workplace. We assist in providing appropriate education and training programs for our employees so they understand potential health hazards and necessary precautions related to their job duties. We also invest in our occupational health team's professional growth to foster business excellence in conscientious execution of their responsibilities.

Management

Leaders of employees or managers of other resources are responsible for implementing and adhering to local and regional occupational health policies. They may also provide input into Global Employee Occupational Health policy and strategies that promote the Company's occupational health leadership in accordance with our purpose and values. Similarly, we expect division and business unit leaders to make sure their teams provide input on occupational health strategies, policies and programs, as appropriate. Above all, leaders make sure their organization provides adequate resources to support occupational health performance.

Safety

EHS provides input to Global Employee Occupational Health policy and strategies that promote the Company's occupational health leadership. Activities include:

- Developing and implementing occupational health programs
- Assessing potential workplace health hazards (chemical, biological and physical)
- Preventing adverse health effects from hazards
- Evaluating employees' ability to perform job tasks
- Identifying causal factors associated with injuries and illnesses
- Working with site health professionals to track the safety performance of the Company

Global employee health

Our executive vice president and chief human resources officer (EVP/chief HR officer) is the senior Company official who advises the Executive Team on occupational health strategies, policies and programs, and reports to the team on occupational health matters that impact employee health and human performance. Together, our EVP/chief HR officer, senior vice president of compensation and benefits, and vice president of global safety and the environment promote effective collaboration on occupational health and safety matters. Their mission is to achieve the Company's occupational goals and other relevant safety policies, and to provide expert subject-matter advice to management.

GRI 403-5 Worker training on occupational health and safety

EHS training is critical to build employee EHS competencies to improve compliance, reduce risks and drive continuous improvement. EHS professionals complete an assessment of the activities performed and identify relevant EHS topics in EHS training plans. These plans comply with internal and regulatory training requirements specific to each particular country and are reviewed periodically to ensure that they remain current.

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, standards and Company practices.

We have a global standard that defines the EHS training expectations for employees:

- Manager training covers specific management responsibilities with regard to EHS compliance
- EHS professional training is designed to expand technical expertise
- Employee training covers the specific information our employees need to perform their jobs, focusing on hazards they encounter on the job and any corresponding control measures

During the COVID-19 pandemic, the Company ensured social distancing during training by modifying classroom training formats when in-person training was required, and shifting to web-based interactive training modules, where possible.

GRI 403-6 Promotion of worker health

Global Employee Health provides workers access to nonoccupational medical and health care services to address major nonwork-related health risks. The team operates both globally and locally. Global Employee Health also provides occupational and health care services to employees such as:

- Medical clearances for job placement and evaluations to assess capability to perform a job task
- Regulatory assessments for potential health hazards and reproductive health hazards
- Consultations that prevent injury and illness, like those related to travel and unique workplace hazards
- Treatment for employees with a work-related injury or illness

On-site Global Employee Health personnel support the Company's people through employee health services clinics located on many sites. All facilities provide occupational and preventive health services that work to keep employees healthy, on the job and functioning at optimal capacity. Global Employee Health supports many of the programs, including biometric screenings for employee personal health assessments, flu and other vaccinations.

Our most vital occupational health services relate to medical advice and consultation, medical evaluations, medical surveillance, care of occupational injuries and illnesses, identification and reporting of new potential hazards and adverse health effects, emergency medical response and—most importantly—prevention.

To develop and maintain awareness of all workplace health hazards, Global Employee Health Services maintains a close functional working relationship with site management, safety and industrial hygiene professionals. They are also responsible for maintaining employee health records in accordance with local regulatory requirements. Employee health is a Company priority, so we strive to continuously improve our programs globally and at each site. These efforts include communication of our global policies, procedures and protocols; administering regulatory and compliance audits; and providing critical oversight for our occupational health programs.

GRI 403-9 Work-related injuries
GRI 403-10 Work-related ill health

In 2021, our Lost Time Incident rate (LTIR) was 0.08, a 60 percent increase from 2020. Our recordable incident rate (RIR) was 0.20, a 25 percent increase from 2020. There were no fatalities in 2021.

The increase in our LTIR and RIR from 2020 to 2021 is likely due to the impact of the pandemic, with employees returning to sites and regular operations in 2021. Although we experienced a year-over-year increase in injury rate, when comparing 2019 (a pre-pandemic year) to 2021 safety results, our LTIR decreased by 27 percent and RIR decreased by 33 percent. Additionally, our 2021 safety results are within the top 25 percent of our pharmaceutical industry peers, per the Pharmaceutical Safety Group (PSG).

In 2021, our top three types of recordable injuries were as follows:

- 28% related to "struck-by/caught-in"
- 27% related to slips, trips and falls
- 20% related to ergonomics

We focus on eliminating high-risk tasks, improving engineering controls, and performing coaching and training to our workforce to aid in identification and elimination of EHS risks.

In 2021, we experienced a 21 percent increase in the collisions-per-million-miles (CPMM) indicator compared with 2020, and a 13 percent reduction compared with 2019 (pre-pandemic year). We believe comparing 2021 with 2019 is more appropriate because in 2020 we had fewer field-based employees due to the pandemic restrictions. In 2021, we focused on a safe and controlled return to work for these employees as COVID-19 restrictions lifted. In 2021, we also focused on deploying a standard predictive analytics approach to increase defensive driving awareness in markets where motor vehicle safety data collection is restricted due to privacy regulations. Our global vehicle safety program includes a standard duty of care by holding both employees and managers accountable for achieving safe driving expectations.

Construction

Our injury rates continue to decrease and are better than construction industry averages.

In 2021, Global Engineering Solutions (GES) received two safety excellence awards for the MSD Biotech Dublin Project and the WP38 Laboratory Operations Microbiology Sterility Assurance Project from the Construction Users Roundtable (CURT). CURT is a global organization that provides an international forum for the exchange of information and expertise to improve safety, productivity and competitive advantage for the construction industry.

We had 10.7 million construction hours globally and achieved zero injuries on 95 percent of our capital construction projects. The construction RIR result was 0.28, reflecting a 53 percent decrease from our 2020 rate. Our capital construction projects also achieved a DART rate of 0.11. GES had 15 injuries on projects in 2021, representing a 50 percent reduction in injuries. The top two 2021 injury categories included six lacerations requiring stitches and two slips, trips and falls from the same elevation causing strains. In 2021, the impact of COVID-19 did not affect our construction safety performance. Lastly, construction projects also set a record with over 174,000 Tap Ins (safety observations) being reported in 2021.

Non-employees—Integrated Facility Management (IFM)

In 2021, our IFM partners had a total RIR of 0.60 and a LTIR of 0.27. Our IFM providers' injury rates continue to be significantly better than industry averages.

Lost time injuries by business area (total: 63) (2021)	% of total[1]
Manufacturing (MMD)	**39.7**
Animal Health Intelligence	**22.2**
Human Health (HH)	**17.5**
Animal Health	**12.7**
Research (MRL)	**3.2**
Facility Management	**3.2**
Global Support Functions (Legal, HR, IT, S&E et al.)	**1.6**

Cases by business area (#) (2021)	Lost time cases	Recordable cases
Manufacturing (MMD)	25	84
Animal Health Intelligence	14	22
Human Health (HH)	11	22
Animal Health	8	12
Research (MRL)	2	10
Facility Management	2	7
Global Support Functions (Legal, HR, IT, S&E et al.)	1	3
Total	63	160

[1] May not total 100 percent due to rounding.

Recordable injuries by casual factors (total: 160) (2021)	% of total
Slips/trips/fall	**26.9**
Struck by/caught in	**28.1**
Motor vehicle	**7.5**
Ergonomic	**20.0**
Chemical exposure	**3.1**
Biological exposure	**2.5**
Other	**1.3**
Non-ergonomic	**2.5**
Physical/environmental exposure	**8.1**

Lost time injuries/illnesses by casual factors (2021)	Lost time cases	% of lost time cases
Slips/trips/fall	21	33.3
Struck by/caught in	10	15.9
Motor vehicle	8	12.7
Ergonomic	15	23.8
Chemical exposure	2	3.2
Biological exposure	1	1.6
Other	0	0.0
Non-ergonomic	0	0.0
Physical/environmental exposure	6	9.5
Total	63	100

Global safety performance (employees)[1, 2]	2017	2018	2019	2020	**2021**
Workplace safety					
Recordable incident rate (RIR)	0.33	0.30	0.30	0.16	**0.20**
RIR percentage change	-6%	-9%	0%	-47%	**25%**
Lost time incident rate (LTIR)	0.13	0.10	0.11	0.05	**0.08**
Fatalities[3]	0	2	0	0	**0**
Motor vehicle safety					
Collisions per million miles (CPMM)[4]	7.29	6.93	7.01	5.07	**6.11**

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] LTIR/RIR: Calculated per OSHA methodology.
[2] Newly acquired facilities are not included in this data set.
[3] In 2018, one fatality was transportation-related, one high-risk work related.
[4] CPMM: Reflects both personal and business use of Company-owned or -leased vehicles.

Global safety performance (non-employees)	2017	2018	2019	2020	**2021**
Capital projects construction safety[1,2]					
RIR	0.59	0.73	0.42	0.60	**0.28**
DART[3]	0.32	0.28	0.15	0.24	**0.11**
Fatalities	0	0	0	0	**0**
Facility management contractor safety[4]					
RIR	N/A	0.71	0.55	0.35	**0.60**
LTIR	N/A	0.47	0.42	0.26	**0.27**
Fatalities	N/A	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.
N/A: Not available.
[1] LTIR/RIR: Calculated per OSHA methodology.
[2] Primarily reflects capital projects over $100,000 managed by our global engineering group.
[3] DART: days away, reassigned or transferred, calculated per OSHA 300 methodology.
[4] Incident rates for IFM partners; reporting initiated in 2018.

Training and education

GRI 404 Management approach

Whether we are inventing the next breakthrough treatment or simply challenging and supporting one another for ongoing development, we lead through a culture of applied curiosity.

The Global Learning and Development (GL&D) organization's primary focus is to enable a diverse and accessible environment in which all can learn and thrive. We accomplish this by collaborating with business partners across the Company to understand, align and prioritize learning solutions to critical business challenges. We then design, develop and execute innovative learning experiences to strengthen our workforce.

GL&D ensures all learning opportunities are developed to allow for diversity of thought, experience and an enriched accessible learning environment. We identify learning needs of our global diverse employee population through extensive discovery of learner personas, requirements and environments. Our strategy allows us to anticipate, identify, prioritize, design, develop and implement learning solutions that provide growth and development across six moments of an employee's career.

These moments include:

- Onboarding
- In-role growth
- Career acceleration
- Leader development
- Culture
- Mandatory training

GL&D understands employee skills and capabilities must support our aspiration and purpose. As a result, we continuously evaluate our organizational capability needs and retool the learning culture and strategy to support employees.

GRI 404-1 Average hours of employee training

Training and education[1]	2017	2018	2019	2020	**2021**
Total course completions for all learners (in millions)	5.3	4.4	5.3	7.2	**6.3**
Hours of training for all learners (in millions)[2]	2.6	2.2	2.7	3.6	**3.2**
Average course completions per learner	48	43	55	69	**51**

[1] "All learners" is defined as all active regular and part time employees, as well as contingent workers.
[2] Based on average of 30 minutes per course.

GRI 404-2 **Programs for upgrading employee skills and transition assistance programs**

Tools and resources

Our current talent management practices provide performance management, leadership development, talent assessments, talent reviews and succession planning. Global Talent Management designs and implements the enterprise-wide talent management and leadership strategy aligned to business strategy in order to retain and attract talent, support and develop a diverse workforce and create a strong succession pipeline. Talent practices are supported by a human capital management system, which enables managers and employees to keep track of business and development priorities, performance ratings, career aspirations, job experiences, skills, language proficiency, certifications and education.

Managers and employees are encouraged to meet throughout the year to discuss progress and accomplishments against their priorities. Emphasis is placed on creating a culture of ongoing coaching and future-focused feedback. At year-end, colleagues summarize their achievements and assess the impact they have had on the organization, their team and their own development. Managers conduct annual performance reviews of employees at all levels (except those subject to collective bargaining agreements) to guide individual decisions relating to development, compensation and rewards. Feedback on employee performance includes how well employees demonstrate our aspirational culture and Ways of Working. We seek to emphasize not just what an employee achieves, but also how they achieve. Managers gather feedback about their employees and write performance reviews providing holistic feedback on employees' accomplishments.

Transition assistance programs may be provided to support employees who are exited as part of a workforce restructuring. Such benefits which may include the following, however, are subject to local plans, laws and country guidelines:

- Severance benefits which may include severance pay based on employee level and service
- Outplacement job transition assistance
- Continued health and wellness benefits for a defined period of time

Management and leadership programs

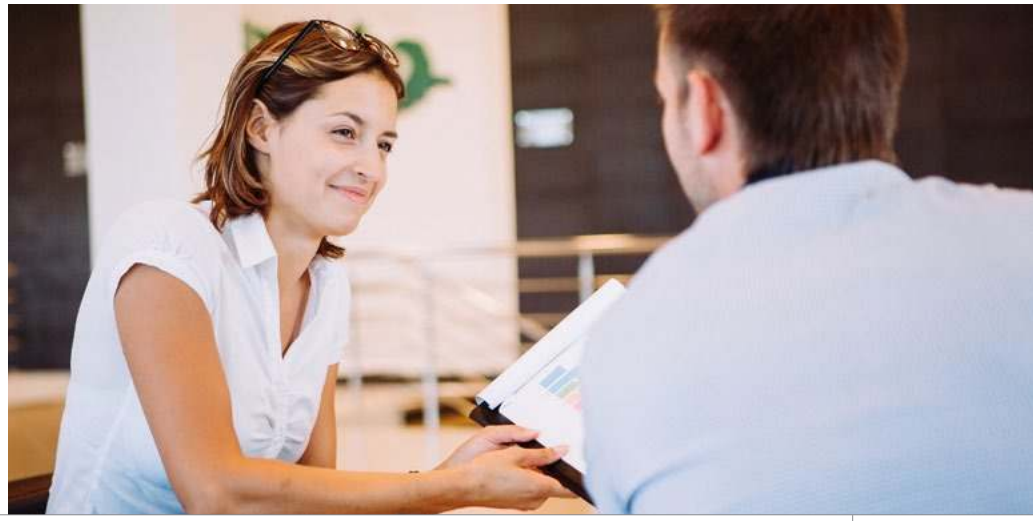
First Line Essentials (FLE) is a program which develops the core, common and critical capabilities needed by all people managers at our Company, regardless of country, region or division. The program is designed to enhance the foundational skills and knowledge base that people managers will need to effectively perform their responsibilities. There are four pillars of focus within the program:

- Think Like a Leader
- Coach Your Team
- Getting Results Through Others
- Engage People

Leaders can continue their development through self-guided resources as curated by Leadership Learning Journeys by level, participate in live webinars on focus topics (e.g., developing strategic initiatives, building trust, correcting performance problems, etc.), as well as engage in multi-modal resources to develop their areas of opportunity.

Team and individual development

Employees can register for free events and webinars to drive their development in areas of leadership, teaming and professional skills. Training can be done on the learner's time and focus can be set to close areas of development or to further strengthen skills of interest. The various platforms offer multi-modal resources with trainings to accommodate all schedules.



Talent development focus

We advance the learning and development of our global talent at all levels of the organization to support the advancement of our future leader pipeline along with the realization of the diversity and inclusion strategy.

These learning experiences include:

General Management Acceleration Program (GMAP)

The General Management Acceleration Program (GMAP) is an application-based, early talent development program sponsored by the Office of the CEO. The objective of GMAP is to create a robust global acceleration program for internal and external talent, providing the right experiences and learning opportunities to help meet our future business demand. This two-year, cross-divisional and global rotational program enables participants to increase their business and financial acumen and develop critical strategic thinking abilities through targeted learning opportunities and networking with key leaders at our Company. Successful participants broaden their experience and perspective, enhance their leadership abilities, and are well-positioned to move into areas of greater responsibility following their rotations.

GMAP	2021
Post-program retention	**92%**
Lateral moves	**33%**
Promotions	**24%**

Business Leadership Program

The Business Leadership program is a global, nomination-based program on advanced concepts in business and financial management and cross-functional leadership. Participants experience the language of finance through simulated experiences focused on developing and executing a global strategy through marketing, sales, manufacturing, supply chain and R&D across three different regions (North America, Europe and China) and managing the Company's balance sheet, income statement and cash flow. Additionally, concepts and tools are incorporated to enhance individual leadership capabilities of leading others by learning how to integrate long-term plans with short-term actions, and how to create a strategy that will drive decisions.

Business Leadership Program	2021
Post-program retention	**85%**
Lateral moves	**34%**
Promotions	**31%**

Leadership Pathway

The Leadership Pathway focuses on the director level. The purpose of this nomination-based offering is to develop individuals to be change makers who engender inclusion and trust; inspire experimentation, feedback and learning; and achieve aspirational business outcomes both for today and for tomorrow. The Leadership Pathway is designed so that participants select their area of focus and take responsibility for their development with the goal of becoming a more confident and capable leader. This approach ensures individuals at this mid-level are empowered and know they have a greater impact than they may realize. As a result, Leadership Pathway participants are then able to build and lead teams in a way that makes them more productive and engaged.

Leadership Pathway	2021
Post-program retention	**96%**
Lateral moves	**23%**
Promotions	**14%**

Women's Leadership Program

The Women's Leadership program is a global nomination program focused on enhancing women's capabilities to recognize and seize strategic career opportunities by developing critical capabilities and confidence while contributing to core objectives of our Company. Areas of focus include strengthening the ability to navigate within the organization while maintaining an authentic leadership style, increasing cultural competence regionally, advancing skills in influence and negotiations, increasing one's ability to recognize and manage gender differences and subtle "micro-inequities" by leading through courageous action.

Women's Leadership Program	2021
Post-program retention	78%
Lateral moves	37%
Promotions	27%

Diverse Leader Program (U.S. only)

This thought-provoking nomination program is an interactive leadership journey designed to create a safe place where participants can hone their leadership skills while exploring what it means to be a person of color in a leadership role within the Company. While building leadership proficiency, participants investigate the similarities and differences of leaders from other racial and ethnic groups. There are scheduled opportunities to deepen relationships with senior leaders through engaging activities and conversations.

Diverse Leader Program	2021
Post-program retention	82%
Lateral moves	34%
Promotions	36%

Rise

Rise is an exclusive experiential program leveraging some of the best-in-class institutions from around the world and designed for our executive directors and associate vice presidents. This program increases our talent pipeline and succession planning for critical roles with a focus on critical leadership capabilities. This program submerges leaders into creative and critical thinking environments while cracking real-world challenges to amplify their enterprise view in preparation for future upward succession. The participants have influence to drive productive change, to attract, retain, lead and develop diverse talent, and ultimately to drive business results. We view this talented group as change agents who can lead the organization into the future.

Rise	2021
Post-program retention	97%
Lateral moves	12%
Promotions	12%

Affinity-based development programs

In addition to the women and ethnically diverse talent offerings mentioned above, we expanded to offer a greater number of affinity-based leadership development programs. In 2021, we created several development offerings to provide opportunities for diverse talent to accelerate their careers.

Diverse Leader Acceleration Program

The new Diverse Leader Acceleration Program was designed to support the readiness and career growth of Black and Hispanic individual contributors and mid-level leaders to achieve positions at higher levels. The program develops leadership capabilities and improves business acumen. The program identifies and supports the participants with managing diversity-related challenges to development. There is an emphasis on empowering strong reporting relationships through manager education and reporting-pairs dialogues. The program creates a community of support through cohort interaction and peer coaching. Participants also leverage the influence of leaders as mentors/sponsors.

Merck Líderes Institute

The Merck Líderes Institute is a six-month experience designed to accelerate the growth and development of Hispanic/Latino leaders. The program equips participants to drive their own careers and create personal and professional success by providing structured learning and consistent support from managers, sponsors, coaches and peers. Participants focus on exploring their identity and culture, their unique personal and workplace experiences, the obstacles to their career and personal development and the strategies they can use to increase their contribution and personal growth.

Advancing Latino Leadership

This research-based virtual program offers a Latino-specific lens on leadership opportunities and challenges in the corporate sector. Included are tailored modules designed to help participants develop self-awareness, self-empowerment and skill development. Also included are follow up discussions with small group work, ongoing meetings with participants' managers and a plan for extended learning beyond the end of the program. Designed around peer-to-peer interactions, the program provides strategies and tips for how, when and with whom to leverage networks in support of one's professional advancement.

Diverse Executive Coaching Circles

Through the benefits of executive coaching and developing executive leadership strategies, this offering is designed for executive director and associate vice president level underrepresented ethnic group (UEG) colleagues. This offering provides valuable insights in the areas of career development, relationship management, strategic thinking and decision making. The intent is to support leaders as they ascend to new heights in the Company. Participants gain valuable insights that give them the know-how and confidence to excel, and the program connects the leaders with executive advocates/sponsors to develop a defined career action plan.

FOCUS

The FOCUS program lasers in on exploring the development of leadership capabilities with our midlevel Black professionals. FOCUS hones in on Leadership and Brand Development. The program supports building a peer network with whom they can exchange perspectives, challenges and insights. Participants create a values-based leadership philosophy while exploring Black executive themes related to identity and success. Emphasis is placed on giving and receiving feedback, influence and peer coaching strategies that support proficiency in management and leadership competencies.

Our partners

Partnerships have been formed with global diverse thought leaders, along with academic institutions, to support the Leadership Development Portfolio and Affinity offerings. We work with these external partners to provide the highest quality and impactful learning experiences.

Examples of our partnerships include:

- Duke Corporate Education
- Saïd Business School, University of Oxford
- Cornell University
- Center for Creative Leadership
- IESE Business School
- McKinsey
- Korn Ferry
- Hispanic Association on Corporate Responsibility (HACR)
- Executive Leadership Council

Promotion metrics[1]	2019	2020	**2021**
Men	47%	48%	**47%**
Women	53%	52%	**53%**

[1] Breakdown by gender, of all regular employees promoted during the fiscal year. "Regular employees" are defined as employees who do not have a predetermined end date to employment.

GRI 404-3 Percentage of employees receiving regular performance reviews

Performance reviews	2017	2018	2019	2020	**2021**
Executives[1]	100%	100%	100%	100%	**100%**
Senior managers[2]	100%	100%	100%	100%	**100%**
All managers[3]	100%	100%	100%	100%	**100%**
All employees[4]	93%	94%	94%	95%	**95%**

[1] "Executive" is defined as leadership holding the executive vice president title.
[2] "Senior manager" is defined as leadership holding vice president and senior vice president titles.
[3] "All managers" is defined as managers with direct reports other than executives and senior managers.
[4] "All employees" are defined as all active full- and part-time workers only.

In 2021, as in years past, the percentage of performance reviews has held steady for managers and employees. As a Company, we continue to utilize our current talent management system, which supports Companywide performance management, development, talent reviews and succession planning. It helps ensure that our workforce is aligned with our objectives and focused on their ongoing professional development. The system allows managers and employees to keep track of business and development priorities, performance ratings, career aspirations, job experiences, skills, language proficiency, certifications and education.

Throughout the year, managers are encouraged to discuss with each of their employees their strengths and development opportunities to align on ways to grow capabilities and skills.

Diversity and equal opportunity

GRI 405 **Management approach**

Cultivating a diverse, inclusive and healthy workforce improves all aspects of our business and enables us to better address the needs of all stakeholders. We embed a culture of inclusion and belonging at every level of the organization and strive for inclusiveness in every aspect of work. The diversity of our employees mirrors the external world, which enables us to better understand the unique needs of the customers, health care providers and patients we serve, including those with different abilities.

While our commitment to employee health is long-standing, in the face of COVID-19 and social injustice we placed special emphasis on the mental wellbeing of our employees to help them address the challenges of working in such uncertain times. We are incredibly proud of our employees' resilience during this time, which was reinforced by the legacy we have created of fostering a culture that embraces inclusion as a competitive advantage. We have consistently leveraged technology over the past several years to engage a global workforce. This skill and ability to foster inclusion with employees whether they were working on site, remotely, in the field or across global time zones was particularly beneficial as we engaged in hybrid working due to the pandemic.

Global diversity and inclusion (GD&I) objectives

Our ability to accomplish our objectives is linked to the GD&I Strategy—our framework for sustainable competitive advantage. Through it, we align with our purpose to save and improve lives and our purpose to create an environment of belonging, engagement, equity and empowerment that compels a globally diverse and inclusive workforce which works to improve patient health.

We focus our efforts on:

- **Our People:** Strengthen the foundational elements of diversity
- **Our Culture:** Ensure accountability to drive an inclusive culture
- **Our Business:** Continue to leverage diversity and inclusion to ensure business value
- **Our World:** Transform the environment, culture and business landscape

We have an enterprise-wide plan that demonstrates our commitment to diversity and inclusion as a business priority that leads to greater collaboration, innovation and agility. Our business objectives for diversity and inclusion are fully aligned to drive long-term, sustainable business performance. In addition, our objectives for diversity and equal opportunity support the Sustainable Development Goals (SDGs) of advancing gender equality, providing decent work and economic growth, reducing inequalities within and among countries and strengthening global partnerships.

Our GD&I strategic framework focuses on the following priorities:

- Continue to build the diversity and inclusion capabilities of our global workforce
- Ensure accountability at all levels of the organization
- Integrate diversity and inclusion into our business practices to drive performance
- Work to influence the environment, culture and business landscape to help achieve a more inclusive and sustainable world

GD&I ambassador teams

Our GD&I Center of Excellence (CoE) oversees diversity and inclusion across all business practices and systems. The CoE leverages five diversity ambassador teams to ensure integration into our business and people strategies.

The Global Disability Inclusion Strategic Council

This Council recognizes and values the importance of a disability-confident workforce and understands how full inclusion of people with disabilities increases creativity and innovation for its employees, customers, external partners and suppliers.

The GD&I Extended Human Resources Leadership Team

This team of human resources professionals supports the global organization by ensuring the successful adoption and integration of diversity and inclusion capabilities into all practices, programs, procedures and systems. A key outcome is to enable a diverse and inclusive culture—one that attracts, engages, develops, motivates and retains top talent globally.

Employee Business Resource Group (EBRG) Executive Leadership Council

With 10 EBRGs representing different constituencies, this Council of global EBRG leaders work together to support approximately 20,000 members worldwide, strengthen and diversify the global leadership pipeline and provide culturally relevant insights that help drive our success.

GD&I Business Consortium

This Consortium, comprised of members from key business functions, enhances our Company's performance by embedding diversity, equity and inclusion principles and strategies into our business processes and strategies, creating a competitive business advantage and driving shareholder value. This Consortium develops holistic and inclusive approaches which will break through barriers and obstacles many of our patients and customer experiences in their pursuit of optimal health outcomes. It brings together a group of internal stakeholders across the major groups in the organization.

GD&I Line Advisory Council

Serving as an advisory role to the vice president, GD&I CoE, this Council provides input and feedback on the GD&I strategy and key initiatives and offers perspectives on areas of progress, as well as opportunity, in relation to integrating GD&I into our business and people strategies.

Governance and commitments

GD&I is a strategic business lever for performance and endorsed at the highest levels of the organization. Diversity and inclusion represent a key dimension of our commitment to our ESG goals. In addition, our Board of Directors has a clearly stated Diversity Policy, which recognizes that maintaining a truly diverse membership with regards to educational and professional background, gender, race, age, sexual orientation, ethnic and national background, and other differentiating personal characteristics promotes inclusiveness, enhances the Board's deliberations and contributes to the Board's overall effectiveness to better represent the long-term interests of the Company and its shareholders.

Our commitment to GD&I is further reinforced by our CEO. He advocates for diversity and inclusion as a strategic business imperative through the following commitments:

- Approving diversity metrics and reviewing progress against aspirational talent goals
- Driving accountability through meetings with our leaders and engaging employees in Companywide events to review key strategic initiatives centered on GD&I
- Conferring with our vice president of human resources and chief diversity officer on innovation opportunities and business solutions

Pay equity

We have had a longstanding commitment to diversity and inclusion and fair and equitable pay for all employees. This commitment is consistent with our core values of integrity, fairness and treating all people with dignity and respect. Having the right culture, systems and practices for talent recruitment and development are critical in driving our ability to compete in global markets where talent is increasingly scarce and increasingly diverse. Diversity, equity and inclusion are among our ethical and strategic imperatives.

Pay equity is a critical principle at our Company. We maintain a Pay Equity Council that is deeply engaged in our pay equity initiatives. The Pay Equity Council is jointly led by our vice president of Diversity and Inclusion and senior vice president of Global Compensation, Benefits and HR Operations. Among its members are leaders within our Global Diversity & Inclusion (GD&I), Compensation and Benefits, and Employment Legal organizations.

Pay equity is a topic that is rightly receiving a great deal of attention and scrutiny. While many other organizations have only recently begun to explore how to pay their employees equitably, providing fair and equitable pay has been one of the pillars of our compensation philosophy.

Our efforts toward pay equity include:

- Regularly monitoring and evaluating our pay practices and policies to ensure that we are paying our employees equitably across all genders, races and ethnicities
- Basing compensation for new hires on their skills, work experience and other job-related factors

- Training our managers on our diversity, equity and inclusion policies to ensure that decisions regarding employees, including those related to compensation, are based on legitimate job-related criteria and not personal characteristics such as gender, race or ethnicity

We have also engaged external experts and legal partners to conduct annual pay equity studies in the U.S. and abroad. As of 2021, we have conducted such analyses including approximately 75 percent of our global employee population. These studies allow us to identify whether any adjustments to compensation would be sensible in order to ensure that we continue to pay our employees equitably and fairly. By the end of 2022, we expect our pay equity studies will achieve nearly global workforce coverage.

Our 2021 pay equity study for the U.S. showed that we have achieved greater than 99 percent pay equity for female and male employees, as well as for non-white (including Black, Hispanic and Asian employees) and white employees, in each case, in equivalent positions. Where appropriate, based on the determinations of our pay equity studies, we make base salary adjustments to support our progress toward sustained pay equity across gender, race and ethnicity. We also review and update our compensation policies and practices to minimize the risk of future pay gaps.

Our continuing focus on pay equity furthers our goal of being the employer of choice for workers of diverse backgrounds, and it supports our efforts to attract and retain the best talent and reward performance consistent with our Leadership Standards. These are clear business imperatives for our Company, and we remain firmly committed to them.

Our external commitments to pay equity and gender equality include the following:

Bloomberg Gender-Equality Index

We were named to the 2021 Bloomberg Gender-Equality Index (GEI), which recognizes companies committed to transparency in disclosing gender-related metrics and investment in workplace gender equality.

Paradigm for Parity

In 2018, we signed on to support Paradigm for Parity—a call-to-action and model for gender equality. The goal of the coalition is to achieve full gender parity by 2030, with a near-term goal of women holding at least 30 percent of senior roles. Building upon this commitment, GD&I partnered with Paradigm for Parity in 2021 to launch the Profit and Loss Leadership Accelerator Program for Multicultural Women. The program recognizes that operational oversight of a company's profit and loss, commonly referred to as P&L, is a key benchmark for C-suite potential. However, just 31 percent of women say they have P&L experience compared to 71 percent of men according to research by Seramount. Of this 31 percent of women who have P&L experience, 74 percent are white and just 26 percent are women of color. The Paradigm for Parity Profit and Loss Leadership Accelerator Program for Multicultural Women addresses this gap by providing women of color with operational financial management skills.

United Nations Women's Empowerment Principles

We continue tracking our progress against the United Nations Women's Empowerment Principles. These principles reflect seven areas of focus designed to promote gender equality in business. Research from the World Economic Forum regularly updates the current rate of progress and estimates it will take over 200 years for women to achieve economic parity. According to McKinsey, the full economic participation of women in the workforce will generate $12 trillion to $28 trillion in GDP. We have committed to gender equality as a strategy to drive business results and advance our purpose. We continue to establish leadership programs to promote equality and publicly report on our progress to achieve gender equality.

Leadership development

We remain committed to equity across gender, race and ethnicity as a strategy to drive business results and advance our purpose. We continue to establish leadership programs to promote equality and publicly report on our progress to achieve gender equality. Examples of how we achieve this objective, and our broader diversity and inclusion commitment, are as follows:

The Merck Women's Network

The Women's Network is one of 10 Employee Business Resource Groups (EBRGs) at our Company, with 10,000 members in 72 global chapters, including over 1,000 male allies. The EBRG is designed to develop and empower women within the organization through business integration and insights, talent acquisition and development and community outreach and social responsibility.

In the past year, the Women's Network has launched the Women's Network Leadership Academy to promote career development, personal branding, work life balance, empowerment, self-leadership and building influence. More than 1,700 EBRG members have participated in the program.

In addition, "Sister Circles" were launched with women and ally members of other EBRGs—LEAD, the APA and Alianza (the African American/Black, Asia Pacific Association and Hispanic/Latino EBRGs, respectively)—to address the intersectionality of women of color in the workplace.

Women's Leadership Program (WLP)

WLP is a global nomination program focused on enhancing women's key capabilities to recognize and seize strategic career opportunities by developing critical capabilities and confidence while contributing to core objectives of our Company. Areas of focus include: strengthening the ability to navigate within the organization while maintaining an authentic leadership style; increasing cultural competence regionally; advanced skills in influencing and storytelling; and advancing the ability to recognize and manage gender differences and subtle "micro-inequities" by leading through courageous action. During 2021, program participants achieved a 78 percent retention rate, 37 percent of participants received lateral moves and 27 percent were promoted.

The Emerging Women's Leadership Program

This program is designed for female professionals to begin to develop their capabilities to take on critical leadership roles in the future.

Diverse Leader Program (DLP)

The Diverse Leader Program (DLP) is a highly interactive, thought-provoking leadership program designed to create a safe place where diverse talent feels included and valued, and where they can further develop their leadership skills. This nomination-based program is open to mid-level managers of color in the U.S. and in 2022 will be expanding to global markets.

Diverse Leader Acceleration Program (U.S. only)

This thought-provoking nomination program is an interactive leadership journey designed to create a safe place where participants can hone their leadership skills while exploring what it means to be a person of color in a leadership role within the Company. While building leadership proficiency, participants investigate the similarities and differences of leaders from other racial and ethnic groups and deepen relationships with their mentors through hands-on activities and conversations. During 2021, program participants achieved an 82 percent retention rate, 34 percent received lateral moves and 36 percent were promoted.

The Re-invent program

This program supports women who are re-entering the workforce. In partnership with the Society of Women Engineers (SWE), we offer the Re-invent program, where individuals who have taken a pause in their careers can re-enter the workforce with a full-time internship role with the Company. This provides individuals with a year-long mentoring program where they can learn new skills, such as digital technology, understand the current business environment and build new relationships. The work experience enables a manager to assess performance of the individual as well.

Hiring Our Heroes

We are proud to support veterans through several programs, including Hiring Our Heroes. Job-seeking service women and men can use a military occupational specialty code to search for opportunities, making it easier for them to match their skills with potential **careers** at our Company.

NextGen Network global reverse mentoring program

Recognizing that this is the first time in history that there are five generations working together in the workforce, the NextGen Network EBRG launched a global reverse mentoring program known as GEN2GEN in 2018 which has grown exponentially since its launch. This popular program puts a spin on traditional mentoring relationships by offering co-mentoring partnerships in which our younger generation teaches the more tenured generation. GEN2GEN is a proven tool to close knowledge gaps, empower emerging and established leaders, and build multi-generational networks. The program offers a structured but flexible curriculum that covers meaningful topics like social media, technology, talent recruiting and soft skills like emotional intelligence.

Building a more inclusive workplace and a culture of belonging

Ensuring our employees feel a sense of belonging at our Company is a major priority. We promote programs for managers that support inclusion and that our leaders use to share their perspectives. Our Pulse surveys allow us to measure our employees' perceptions on inclusion and other critical workforce issues. These surveys are just one of the avenues we use to directly engage employees and remain accountable to their needs. It also allows us to be responsive to employee feedback on workforce issues and integrate their input into decision-making. We are proud of the fact that in the most recent survey, which occurred during the pandemic (and, in the case of the U.S., during a period of increased voluntary resignation known as the "Great Resignation"), 80 percent of our employees stated that they felt a sense of belonging at our Company.

Related to our focus on inclusion is our commitment to a decade-long practice of understanding, measuring and acting to sustain high employee engagement. Like many companies, and following the social unrest and injustice witnessed in the U.S. and around the world, the practice of listening deeply to our employees was critical to our own decision-making and influenced leaders across the organization. Many of our EBRGs were highly engaged in offering listening forums to colleagues to foster authentic and courageous conversations in an emotionally safe environment.

Going forward, we publicly committed to maintaining or exceeding our current employee engagement index score through 2025 measured through Pulse surveys, which are conducted multiple times a year.

Employee retention, recognition and manager capability

The past year reflects our ability to continually attract and retain highly qualified people, strengthen our competitiveness and mitigate employee turnover. We have held ourselves accountable for increasing diverse representation and have displayed our representation information each year in our ESG Progress Report. Last year, we also shared our aspirational goals for improving diverse representation in senior management, including women and people of Black/African American and Latino/Hispanic descent.

We aim to create more opportunities for underrepresented groups by evaluating our hiring processes to determine where we can remove barriers. This includes training our managers on strategies to mitigate unconscious bias in the candidate selection, hiring and recognition process.

In addition to enterprise-wide Unconscious Bias education, which was introduced to the organization in 2014, we have introduced programs to continue to drive our strategic focus and investment in building employee retention, recognition and manager capability.

Gender sensitive recruitment and retention

Talent acquisition plays a pivotal role in sourcing and attracting diverse talent and in consulting with hiring managers to eliminate unconscious bias in the selection process. Using a gender decoder tool for job postings, biased language is highlighted with suggested alternative wording, helping to create gender neutral and inclusive job descriptions.

Recognition programs for people of color in science

The Merck Research Award for Underrepresented Chemists of Color recognizes graduate students and post-doctoral fellows for their chemical science research across a range of focuses, such as computational, analytical, medicinal, biological and synthetic chemistry. David Thaisrivongs, who is a director in chemistry based in Rahway, started this initiative when, after the social unrest in 2020, he noticed that there were not many chemists of color at our Company. We developed a three-month program that attracted over 130 applicants and awarded 12 recipients. The applicants must be third-year graduate students at a minimum or postdocs doing research in chemistry at a U.S.-based institution. Awardees were paired with a Merck mentor and networked with another winner.

INSPIRE

Research indicates as much as 20-30 percent of all written communication includes some form of unconscious bias. As companies shift to a remote or hybrid work model, that poses significant risk to employee engagement. INSPIRE, developed in collaboration with Workhuman® Technology, is one example of how we are building inclusion capabilities among managers by elevating their awareness of how unconscious bias can influence the selection of candidates who receive recognition. This is a new feature added to our existing

programs to leverage principles of inclusion to recognize and reward performance and promote retention of talent. We have also worked with external talent suppliers to ensure they are focused on these priorities as well.

D&I Learning Journey

The new D&I Learning Journey, aligned with Global Learning & Development, acknowledges that everyone begins their learning journey at different levels. It recognizes that while effective, traditional classroom learning is only as impactful as the ability to leverage the learning in outside settings—in team meetings, in one-on-one conversations, in evaluations and reviews, etc. The D&I Learning Journey identifies the core capabilities and behaviors required for success. The program, available globally at our Company, creates learning opportunities for individuals to pause, reflect and consider alternative responses to D&I-related questions to build inclusion capabilities and competence. It reinforces learning for every individual within the organization, embedding diversity and inclusion more deeply into everything we do.

Opportunities for people with disabilities

We encourage a culture of transparency and pledge alliance with external organizations that have a shared vision for full disability inclusion in order to foster and support people with disabilities.

The Valuable 500

We announced our membership in The Valuable 500 in January 2020. The Valuable 500 is dedicated to unlocking the business, social and economic value of people living with disabilities, ensuring individuals with disabilities are provided ample resources to thrive in the workplace.

International Labour Organization (ILO) Global Business and Disability Network (GBDN)

We are a member of the ILO's GBDN, a partnership of multinational companies, national employers' organizations, business networks and advocacy groups working in collaboration to promote the inclusion of persons with disabilities in the workplace.

Disability inclusion in our supply chain

In 2021, we were recognized as a **Top Corporation for Disability-Owned Businesses by Disability:IN**. This recognition is given to a corporation that has demonstrated outstanding inclusion of Disability:IN certified disability-owned businesses (including businesses owned by service-disabled veterans) and demonstrated commitment to disability business inclusion in their supply chain processes and corporate supplier diversity programs.

Digital accessibility

In 2021, we implemented a global digital accessibility policy and initiated a five-year roadmap to ensure equal access to our internal and external digital landscape. This was supported by the development of accessibility training, the formalization of an Accessibility Community of Practice, and Companywide change-management communications including global webcasts, townhalls, forums and publications. We created a cross-organizational leadership team and developed and published the **Corporate Accessibility Statement**.

The built environment

Universal design in the built environment goes beyond ADA to ensure spaces are created to allow all people to the greatest extent possible the ability to access, understand and use the space. Simply put, it means "for everyone." We have created a standard for universal design and projects all around the globe are following this standard and making a difference for our employees and guests.

A culture of employee wellbeing

To be truly successful, we prioritize the health, wellbeing and safety of our employees. We placed a special emphasis on our employees' wellbeing during the pandemic, and our commitment will not wane as we continue to reinforce a collaborative culture and ways of working that will drive long-term success for our business. Extensive steps have been taken to ensure that all of our work sites, including manufacturing plants and labs, are as safe as possible. We have listened to our colleagues carefully to understand their needs, adapting existing policies and introducing new programs to help our extended family deal with the many challenges of the pandemic.

We promote a culture of mental health and wellness—one that surrounds employees with the environment, programs and services that support making healthy choices.

One Mind at Work

Our CEO signed the One Mind at Work Charter, pledging to make mental health a priority by protecting, supporting and enhancing employee wellbeing in the workplace. We collaborate with One Mind at Work to enable broad-scale transformation in how mental health is viewed and approached in the workplace, and how we can gain equity, collaboration and parity between physical and mental health.

Mind Well

We are committed to creating an inclusive culture of wellbeing and a supportive work environment that values the overall health of every employee and their family, which includes their emotional and mental wellbeing. Through Mind Well, we are working to reduce mental health stigma through storytelling, resilience building, and providing access to mental health care and resources.

R U OK? Day—Mental Health and Wellness e-Learning for managers

We recognize that the struggle with stress and emotional wellbeing can be significant, especially during a global pandemic. We also recognize the critical role managers can play in being aware and supportive of team members who may be feeling down, going through a tough time or experiencing poor mental health. As such, a Mental Health Awareness for Managers e-Learning module was launched as a resource before starting any conversation with an employee about mental or emotional wellbeing. The e-Learning program, R U OK?, launched in September 2020, provides facts, talking points and tips managers can use with team members to discuss emotional wellbeing and mental health in a safe, nonjudgmental way. Over 4,000 employees have completed the training and approximately 2,000 employees have signed the Stamp out the Stigma pledge.

CALM app

We introduced the Calm app at no cost as a resource to our employees in 2021. The Calm experience provides a nourishing way to use technology that also empowers employees to take good care of themselves so that they can respond to their lives with energy and enthusiasm. Calm offers tools to help employees find more calm and mindfulness in their everyday life, with programs that are designed to support feelings of creativity, tranquility, resilience, happiness and success.

LIVE IT

As part of our commitment to becoming a leader in employee health and wellbeing, we brought together our health and wellness offerings under one brand called LIVE IT. 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 wellbeing includes four pillars: PREVENT IT (promoting up-to-date vaccination scheduling), BALANCE IT (promoting spending time with friends and family), MOVE IT (promoting taking walks outside) and FUEL IT (promoting cooking new and healthy dishes at home). It is a holistic approach to wellbeing designed by and for our employees and their families. 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. LIVE IT has been adopted by all of our Company's markets, globally.

Support for working parents and caregivers

Using multiple listening methods—from employee focus groups and multiple employee surveys—we created a pathway to hear directly from the workforce on issues and challenges of importance so that we could leverage employee input in the design and development of resources and benefits to best support their needs. One example of a program that provides personalized support to employees is Wellthy Concierge, which provides personalized support when managing care for oneself or a loved one for the stress of what can be an otherwise confusing and lengthy process of finding care for their loved ones. The full cost of this program is covered by the Company.

*To learn more about how we support employee wellbeing, please see GRI 401-2 on **page 127**.*

Zero-tolerance policy against violence and harassment in the workplace

Our policy for Prevention of Harassment, Discrimination and Bullying in the Workplace includes a section on workplace violence in the U.S. version (including Puerto Rico), as well as other applicable regional policies.

Expanding our pipeline of diverse talent

In the past year, we greatly expanded outreach to Historically Black Colleges and Universities (HBCUs) by partnering with several organizations, including the College Diversity Network and the National Urban League, to focus on building deep partnerships with colleges, students, faculty and alumni of HBCUs.

We also focus on systemic barriers that may limit the employee candidate pool, including the geographic location of open positions and job prerequisites of prior pharmaceutical experience. To broaden our access to diverse talent, we post some positions with an option to work virtually, offer relocation services and are agnostic to prior pharmaceutical experience. We leverage key partnerships such as:

- **Executive Leadership Council (ELC)**
- **INROADS College Links**
- **National Urban League**
- **ALPFA**
- **National Action Council for Minorities in Engineering (NACME)**
- **Ascend**
- **Out & Equal**
- **Disability: IN**
- **Best Buddies**
- **The International Labour Organization (ILO) Global Business and Disability Network (GBDN)**
- **Women of Color in Pharma (WOCIP)**

Extending our GD&I commitment beyond our employees

Our work in equity does not stop at the doors of our Company. It continues outside our employee base and into communities all over the world, including communities that have historically been underserved or underfunded. We engage with partners to advance the efforts of our global diversity and inclusion commitments and to support underserved communities all over the globe.

CEO Action for Diversity & Inclusion

Four years ago, we signed a pledge to join the CEO Action for Diversity & Inclusion. This commitment extends beyond our employees to supporting businesses around the world by making a difference in global economic inclusion. We continue to leverage this vital organization for best practice sharing and identification of new opportunities to foster diversity, equity and inclusion.

Economic inclusion and supplier diversity

In 2021, diverse spend represented 12 percent of our total procurement spend, exceeding our corporate goal in spend with minority-owned, women-owned, veteran-owned, LGBT-owned and disability-owned business enterprises.

It is important to provide definitions and context for diverse suppliers. Diverse suppliers are businesses that are 51 percent managed, controlled and operated by a person or persons of the following categories:

- Minority: Black, Hispanic, Asian and Native American
- Women
- LGBTQ+
- Veteran, service-disabled veteran
- Disability-owned business

"Non-Diverse" refers to those suppliers that don't qualify per the definition above.

$2.9 billion

spending with diverse suppliers globally

In addition to the amount of dollars we spend, we focus on the investment, impact, growth and development of our suppliers to address social determinants of health (SDOH), leading to health equity and value delivery in the communities where we live and work. The correlation between our Company's diverse supplier spend and SDOH was validated in 2021 through independent research conducted by Proximo Inc., an information technology services firm that specializes in data analytics and business intelligence, data warehousing and integration, and data strategy and governance.

Two unique data sets were integrated to conduct the research:

1. Spend data for 2020 was enriched to remove duplicate supplier listings, update incomplete addresses and identify the county for each supplier
2. County Health Rankings & Roadmaps data for 2021 is inclusive of publicly available measures of health outcomes, health behaviors, clinical care, social and economic factors, and physical environment. This data was compiled to create an overall data-driven view of the "health" of nearly every county in all 50 states, excluding California[1] and Puerto Rico.[2]

The findings of this study are significant, compelling and validate a correlation between our Company's spend and SDOH variables. The following key indicators of impact in the community where diverse suppliers are located were identified: household income, percentages of babies born with low birth weight, child mortality rates, percentages of adults with frequent mental distress, the food environment index and uninsured rates.

Household income

- Increased spending with "minority-owned" suppliers—suppliers that are at least 51 percent managed, controlled and operated by individuals from minority backgrounds—leads to statistically significant increases for all households
- Increased spending with minority-owned suppliers generates disproportionately greater economic impact vs. increased spending with non-diverse suppliers among Black households (4.5x greater economic impact) and Latino households (2.8x greater economic impact)

Low birth weight

- Increased spending with minority-owned suppliers leads to statistically significant reductions in the percentage of Black babies born with low birth weight from 12.9 percent to 12.4 percent in the time this study was executed
- As a result of increased spending with minority-owned suppliers, Black and Asian child mortality rates show a statistically significant reduction of 12 infant lives saved per 100,000 births, and eight infant lives saved per 100,000 births, respectively
- Increased spending among Black- and Latino-owned suppliers leads to statistically significant reductions in both Black and Latino child mortality rates. Increased spending among Asian-owned suppliers leads to statistically significant reductions in Asian and Black child mortality rates

Mental distress

- Increased spending with minority-owned suppliers leads to statistically significant reductions in the percentage of adults with frequent mental stress from 13.2 percent to 12.7 percent

Food environment index

- Increased spending with minority-owned suppliers leads to statistically significant improvements in healthy food access from 8.3 percent to 8.7 percent

Uninsured rates

- Increased spending with minority-owned suppliers leads to statistically significant reductions in the percentage of uninsured rates for children (4.0 percent to 3.8 percent) and for adults (11.9 percent to 9.0 percent)

Our ongoing economic inclusion and supplier diversity efforts will enable us to continue our membership in the Billion Dollar Roundtable (BDR), an exclusive industry organization that recognizes and celebrates corporations that achieved spending at least $1 billion with diverse suppliers headquartered in the U.S. and globally. 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.

[1] California was removed from the analysis due to severe housing problems which caused them to be an outlier in terms of nearly all SDOH variables.

[2] The 2021 County Health Rankings & Roadmaps data did not include data for Puerto Rico, so those suppliers could not be included in the study.

We are proud to be hosting the next Billion Dollar Roundtable Summit in 2022. The Summit will provide another opportunity to chart a course for the bold transformative steps which are urgently needed to ensure we are optimizing positive economic impact to some of our most distressed areas, share best practices and encourage global partners to continue to deliver on our purpose.

*For more information on our supplier diversity program, please see GRI 204 on **page 75**.*

OneTen Initiative

In 2020, Kenneth C. Frazier, our executive chairman and former CEO, was co-chair for OneTen, a coalition of leading executives helping to close the opportunity gap for Black talent in America, and to ignite potential for generations to come. Along with over 50 leading companies, we have committed to OneTen's mission of hiring, promoting, and advancing one million Black individuals who do not have four-year degrees into family-sustaining careers over 10 years.

Consistent with our commitment to diversity, equity, and inclusion, our Company is determined to be a role model within OneTen. Over the past year, an integrated team of our business and HR stakeholders have been working collaboratively with OneTen to experiment with skills-first hiring on a small scale, focusing first on select groups to quickly learn and adapt our approach.

Highlights of key accomplishments during the first year include:

- Completing skills-first pilots in our manufacturing division (Durham and West Point) and IT
- Launching an urban marketing campaign in Philadelphia to attract diverse, non-degreed talent
- Expanding our strategic partnership with Year Up, a pipeline of skills-first talent
- Engaging external SMEs to help accelerate our skills-first transformation efforts
- Posting 400+ U.S. roles without a four-year degree requirement, driven by our manufacturing division
- Developing new approaches to community engagement, such as partnering with a local Black church in Durham to execute a community career fair on the church campus

Through our work with OneTen, we've also been able to connect with new talent partners, leading non-profits and other skill-credentialing organizations that support the development of diverse talent. By maximizing roles appropriate for a skills-first approach, both within the Company and within our supplier network, we'll continue to fuel our OneTen talent strategy and our overall hiring paradigm.

*To learn more, please visit the story on our **corporate website**.*

Year Up

We are among the more than 250 corporations partnering with an innovative nonprofit organization, Year Up. This nonprofit ensures equitable access to economic opportunity, education and justice for all young adults. They accomplish this goal by closing the opportunity gap in the job market for economically disadvantaged youth by offering six months of intensive training and a six-month corporate internship in information technology, financial operations, sales and customer support, business operations or software development and support at major corporations. To date over 40 student internships have been provided through Year Up by our Company, with plans for continued growth and expansion in the future.

*To learn more, please visit **Year Up's website**.*

Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS)

Our Animal Health Division partners with Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS) to support the identification of diverse talent from the agricultural sciences and related fields and to expose them to the variety of career paths available in animal health in addition to the veterinarian field. The growing areas of connected technology and other smart data products and services for animal health and wellbeing—where Merck Animal Health is a global, world-class leader—are examples of exciting career paths that are available to today's talent.

Merck Animal Health veterinary scholarship program

Our scholarship program partnerships offer financial awards to outstanding veterinary students to further their education as they pursue careers in animal medicine. Through our veterinary scholarship partnerships, we donated $1.3 million in 2021, reaching 275 students in 70 countries.

Since 2017, we have proudly sponsored a scholarship program in partnership with Tuskegee University College of Veterinary Medicine (TUCVM) designed to encourage diversity and inclusion in the veterinary profession. TUCVM is the only veterinary medical professional program located on the campus of a historically Black college or university in the U.S. The college has educated more than 70 percent of the nation's Black veterinarians and has been recognized as the most diverse of all 32 schools or colleges of veterinary medicine in the nation.

Lowering barriers to education

In partnership with the American Association of Veterinary Medical Colleges (AAVMC), we have provided a grant to help offset the costs of applying to veterinary school, a gap identified by communities that are underrepresented in the veterinary profession.

Measuring for impact

Women and underrepresented ethnic group (UEG) representation

Leaders and managers are highly encouraged to incorporate clear diversity and inclusion goals as part of their annual performance priorities and reviews. In addition, we utilize specific, time-bound action plans with aspirational targets to increase the representation of women globally and UEGs in U.S. leadership positions. We establish clear, measurable goals with our leaders and throughout the business enterprise and have established goals for global executive women representation to 40 percent by 2024 and for both Black/African American and Hispanic/Latino employees in the U.S. to 10 percent each by 2024.

Rewarding a culture of inclusion

Leaders and managers are held accountable for maintaining an inclusive culture across the business enterprise. We acknowledge those who excel in demonstrating inclusive behavior through the Company's INSPIRE Awards. Launched in 2019, INSPIRE fosters a culture of recognition and engagement by empowering all employees to recognize others. By the end of 2021, INSPIRE recorded over 600,000 awards across 30 countries.

*Learn more about how we engage with employees in GRI 401 on **page 124**.*

Health equity

Addressing systemic barriers to enable greater diversity and equity in clinical trials

Clinical trials function as a gateway to bringing forward new medicines and vaccines to our patients and our communities. We are advancing health equity in clinical trials by:

- Ensuring our clinical trials are diverse and inclusive through careful selection of trial sites, embedding cultural competency and health literacy in engagement materials and clinical trial investigator training, partnering with community-based organizations and providing outreach and education within diverse communities
- Pursuing new ways—including partnerships with organizations like Black Health Matters, the National Urban League and the Lazarex Cancer Foundation—to recruit and engage clinical trial participants who are racially, socioeconomically and demographically representative of the communities we aim to serve

*Learn more about our commitment to **diversity in clinical trials** on our corporate website.*

GRI 405-1 Diversity of governance bodies and employees

Female representation, by job category (global)	2017	2018	2019	2020	**2021**
Board[1]	23%	33%	46%	46%	**43%**
Executives[2]	22%	20%	20%	33%	**33%**
Senior management[3]	25%	27%	30%	31%	**36%**
All managers[4]	39%	41%	42%	42%	**44%**
All employees	49%	49%	49%	50%	**50%**
New hires	49%	51%	51%	50%	**53%**
Promotions	52%	52%	53%	52%	**53%**

Note: We have publicly disclosed EEO-1 information since 1999. Our 2021 data is available on the **ESG Resources page** of our corporate website. All data, except for those corresponding to our Board members, is as of December 31, 2021. All Board figures above are derived from our proxy statement filed the following year. To align with U.S. government reporting requirements, the ESG data for gender diversity in this report uses the terms *men* and *women*. We recognize and embrace the gender spectrum and diversity in our employees, and have internally established voluntary Self-ID options for employees to self-report on their gender identity. The totals in this report may not equal 100 percent due to rounding or employees who have not reported their gender and/or race/ethnicity.

[1] Data for Board members are derived from our proxy statement filed the following year.

[2] "Executive" is defined as the executive committee who reports to the chief executive officer.

[3] "Senior management team" is defined as vice presidents and above, not on executive committee.

[4] "Management role" is defined as all other managers with at least one direct report.

Gender and ethnicity	2017	2018	2019	2020	**2021**
Women in the workforce	49%	49%	49%	50%	**50%**
Women on the Board[1]	23%	33%	46%	46%	**43%**
Women in executive roles[2]	22%	20%	20%	33%	**33%**
Women on the senior management team[3]	25%	27%	30%	31%	**36%**
Women in management roles[4]	39%	41%	42%	42%	**44%**
Members of underrepresented ethnic groups on the Board	15%	17%	23%	31%	**21%**
Members of underrepresented ethnic groups in executive roles (U.S.)[2]	33%	30%	40%	25%	**42%**
Members of underrepresented ethnic groups on the senior management team (U.S.)[3]	17%	19%	21%	20%	**25%**
Members of underrepresented ethnic groups in the workforce (U.S.)	26%	28%	29%	30%	**32%**
Members of underrepresented ethnic groups in management roles (U.S.)[4]	20%	22%	23%	25%	**26%**
New hires that were female	49%	51%	51%	50%	**53%**
Promotions that were female	52%	52%	53%	52%	**53%**
New hires that were members of underrepresented ethnic groups (U.S.)	37%	36%	35%	40%	**46%**
Promotions that were members of underrepresented ethnic groups (U.S.)	28%	28%	30%	32%	**34%**

Note: We have publicly disclosed EEO-1 information since 1999. Our 2021 data is available on the ESG Resources page of our corporate website. To align with U.S. government reporting requirements, the ESG data for gender diversity in this report uses the terms men and women. We recognize and embrace the gender spectrum and diversity in our employees, and have internally established voluntary Self-ID options for employees to self-report on their gender identity. The totals in this report may not equal 100 percent due to rounding or employees who have not reported their gender and/or race/ethnicity.

[1] All Board figures above are derived from our proxy statement filed the following year.

[2] "Executive" is defined as the executive committee who reports to the chief executive officer.

[3] "Senior management team" is defined as vice presidents and above, not on executive committee.

[4] "Management role" is defined as all other managers with at least one direct report.

Underrepresented ethnic group (UEG) representation, by ethnicity (U.S.) (2021)	**Total**	Black/ African American	Latino/ Hispanic	Asian	All other
Board	**21%**	21%	0%	0%	0%
Executives[1]	**42%**	25%	0%	17%	0%
Senior management[2]	**25%**	7%	6%	12%	1%
All managers[3]	**26%**	5%	6%	13%	2%
All employees	**32%**	9%	6%	16%	2%
New hires	**46%**	14%	9%	21%	3%
Promotions	**34%**	10%	6%	16%	2%

Note: We have publicly disclosed EEO-1 information since 1999. Our 2021 data is available on the **ESG Resources page** of our corporate website. All Board figures above are derived from our proxy statement filed the following year. Total values shown may not equal the sum of the individual source totals.

[1] "Executive" is defined as the executive committee who reports to the chief executive officer.

[2] "Senior management team" is defined as vice presidents and above, not on executive committee.

[3] "Management role" is defined as all other managers with at least one direct report.

Human rights assessment

GRI 412 **Management approach**

As stated in our **Human Rights Public Policy Statement**, we strive to avoid causing or contributing to adverse human rights impacts through our own activities and seek to prevent or mitigate adverse impacts that are directly linked to our operations and products.

We've put in place appropriate policies, processes, training and monitoring systems to address key human rights issues. Support and respect for the protection of human rights is embedded and reflected in our operational policies and procedures, as summarized in the table below.

Human rights issue	Policies / standards											Governance
	Human Rights Public Policy	Human Resources Policy	Labor & Human Rights Policy	Health & Safety Policy	Procurement & Supplier Relations Policy	Business Partner Code of Conduct	Information Management & Protection Policy	Privacy & Data Protection Policy	Reporting & Responding to Misconduct Policy	Prevention of Violence in Workpace Standard	Possession of Firearms Standard	Lead function
Health & safety	X	X	X	X								Global Safety & Environment
Forced labor and human trafficking	X		X									Human Resources
Discrimination and harassment	X	X	X									Human Resources
Child labor	X		X									Human Resources
Freedom of association	X		X									Human Resources
Working hours	X		X									Human Resources
Privacy	X						X	X				Global Privacy Office
Security		X								X	X	Global Security
Access to grievance mechanisms	X	X	X	X	X	X	X		X	X	X	Office of Ethics
Suppliers and business partners			X		X	X						Global Supplier Management

Remedy

As part of our efforts to protect against business-related human rights abuses, we have established a grievance mechanism that allows employees and workers to report concerns in a confidential manner without fear of retaliation (see the Speak Up section in our **Public Policy Statement on Human Rights)**.

This grievance mechanism and associated reporting channels are fundamental to ensuring that employees and workers have access to an effective remedy whenever human rights impacts occur. We expect our suppliers to encourage all workers to report concerns or suspected illegal activities without threat of reprisal, intimidation or harassment, and to investigate and take corrective action if needed. In addition, we expect our suppliers to provide workers with information on how to confidentially report concerns and ensure that reporting workers are protected from retaliation.

Governance

Our oversight and monitoring of business-related human rights risks is supported by relevant internal functions and business units, including Human Resources; Global Safety & Environment; Global Supplier Management; Supply Chain Management; Ethics & Compliance; Global Security; Global Privacy Office, Information Risk Management; Enterprise Risk Management; and the Office of Social Business Innovation.

GRI 412-1 Operations that have been subjected to human rights reviews

We perform supplier labor and human rights audits (using independent third-party service providers) at select direct material suppliers' facilities located in countries that are known to present an increased risk of human rights abuses.

*For more information, please see GRI 414 on **page 164**.*

GRI 412-2 Employee training on human rights policies and procedures

Business-related human rights issues are embedded within our internal training programs to help maintain employee awareness and understanding of our Company's expectations. Examples of human rights related topics covered by existing training programs include health and safety; privacy and data protection; harassment and discrimination; diversity and inclusion; as well as training that explains how to confidentially report concerns, emphasizing the importance of speaking up. Completion of assigned training is closely monitored and reported.

*For more information on our training and development programs, please see GRI 404 on **page 142**.*

GRI 412-3 Investment agreements and contracts that include human rights clauses or underwent screening

Agreements and contracts

Our Global Supplier Management Group (GSMG) function oversees contract development and execution activities associated with the sourcing and selection of our suppliers of goods and services.

Through our standard contracts and agreements, we seek a written commitment from suppliers to respect and abide by the principles set forth in our **Business Partner Code of Conduct (BPCC)**. Our BPCC states that business partners are expected to uphold the human rights of workers, treat workers with dignity, respect the protection of internationally proclaimed human rights and ensure that they are not complicit in human rights abuses.

*For more information on our social assessments for suppliers, please visit GRI 414 on **page 164**.*

Supplier social assessment

GRI 414 **Management approach**

Supplier due diligence assessment for labor practices and human rights

We respect human rights and support transparency in our supply chain. We are committed to upholding the Pharmaceutical Supply Chain Initiative (PSCI) Principles and we require our suppliers to operate in compliance with all applicable laws. We have a formal program led by our Global Supplier Management Group (GSMG) to evaluate the risks for labor and human rights (LHR) in our supply chain. We have a Conflict Minerals due diligence program and complete the associated annual reporting.

Our policies

Our policies serve as our standards of conduct for engaging with stakeholders. They are founded on our **Code of Conduct (Our Values & Standards)** and are used to navigate and guide our decisions. They help us identify, address and mitigate risks.

*For information on our policies, please visit our **Policies & Positions** and **ESG Resources** pages of our corporate website.*

Human rights and labor risks

We recognize that companies with supply chains that extend into high-risk countries potentially face greater LHR risks. Our Company can be exposed to these risks through our supply chain, as some of our third party suppliers and service providers operate in higher-risk countries.

To help manage and address potential risks associated with third party business relationships, GSMG has an established cross-functional, third party risk management committee and program. LHR risks are considered as part of our third party risk management activities. We also recognize that potential risks may exist beyond Tier 2 suppliers.

During 2021, we worked to detect and address the risks in our supply chain by:

Supplier selection: Selecting suppliers that are socially responsible and who share our commitments to ethics and integrity. We strive to obtain the services, goods, active ingredients, components, finished goods or other products in a way that is lawful and fair.

Expectations: Setting and communicating our expectations of suppliers, including those related to child labor, forced labor and human trafficking. We use our **Business Partner Code of Conduct** to communicate our expectations. It has been translated for all countries in which we operate.

Supply chain mapping: Mapping our supply chain to identify which of our suppliers operate in countries that are known to present a significant risk of LHR issues. We use this information to help us decide upon the level of due diligence that may be necessary.

Due diligence: Conducting appropriate supplier due diligence to help determine the level of risk presented by suppliers, including potential new (prospective) suppliers as well as our existing suppliers. Our supplier due diligence process for LHR targets direct materials suppliers, including external manufacturing suppliers and contract manufacturing organizations, regardless of their geographic location. A self-assessment questionnaire is used to gather information on freely chosen employment, child labor, employment practices, employee disclosures, fair treatment, wages, benefits and working hours. Suppliers' responses are used to judge whether that supplier has programs and/or procedures in place to address potential risks for labor and human rights, including modern slavery and human trafficking. The information gathered as part of due diligence is used to determine the acceptability of suppliers' local practices. Results are then applied by GSMG to inform our supplier selection and risk management processes.

Contracts: Seeking written commitment from suppliers to respect the principles set forth in our Business Partner Code of Conduct through our contracts/agreements. Our contract templates contain a Business Partner Code of Conduct compliance clause that includes provisions related to modern slavery.

Auditing: Performing LHR audits at select supplier facilities to verify their conformance with our expectations (as stated in our Business Partner Code of Conduct), and working with them to address identified nonconformances. We use independent third party audit firms to perform announced LHR audits at suppliers' facilities. When preparing our audit schedule, we consider the industry risk, the category of materials supplied, the country in which the supplier operates and results of past due diligence.

Remedial actions: Tracking and reporting (to senior management) on the closure of remedial actions taken by suppliers to address identified non-conformances (gaps/concerns) revealed by supplier LHR auditing.

Monitoring: Assigning relationship managers from within GSMG to oversee and monitor the performance of key suppliers. We continue to hold suppliers accountable for meeting their contractual obligations.

Governance: Using our Third Party Risk Committee to help govern and oversee the management of risks associated with third party relationships. This committee is chaired by our senior vice president for Global Procurement. The role of our Third Party Risk Committee (and associated Third Party Risk Team) is to assist senior leadership by providing independent and objective oversight, monitoring and reporting in relation to the risks presented by third parties.

Engagement: Engaging and seeking input from relevant stakeholders, including GSMG, Ethics & Compliance, Legal, Global Safety and Environment and Office of Social Business Innovation.

Collaboration: Working with PSCI to develop training, tools and maturity models and share knowledge across our industry and with our suppliers.

Training: Training GSMG professionals with responsibility for supplier selection, oversight and monitoring, including the assignment of online courses:

- Business Partner Code of Conduct
- Mitigating Modern Slavery Risks in Supply Chains
- Third Party Risk Management

In 2021, we continued to work with PSCI to develop and provide suppliers training:

- Forced Labor & Modern Slavery
- Operationalizing the PSCI Human Rights Principles
- Human Rights Risks
- Responsible Sourcing of Ingredients
- 14 Material Specific Human Rights and Environmental Impact Assessment Guides
- Human Right and Labor Global Regulations

Next steps

We will continue working on our efforts to identify, assess and address LHR risks within our operations and supply chains.

These efforts will include:

- Investigating all reported concerns promptly
- Conducting supplier labor and human rights due diligence to identify and address risks
- Auditing select suppliers to verify conformance with standards for LHR
- Holding suppliers accountable for addressing non-conformances revealed by LHR audits
- Participating in the activities/initiatives of PSCI's Human Rights and Labor Sub-Committee

GRI 414-1 New suppliers screened using social criteria

*Please see GRI 102-9 on **page 30** for additional information on our supply chain risks and associated KPIs.*

Public policy

GRI 415 Management approach

The Merck Political Action Committee (PAC) engages in the political process, at both the federal and state levels, to educate policymakers, lawmakers and candidates on policy issues critical to our industry and our Company's core purpose to invent new medicines and vaccines to save lives. The Center for Political Accountability, at the Zicklin Center for Business Ethics Research at the Wharton School of the University of Pennsylvania, has recognized the Merck Political Action Committee as a Trendsetter for the last five years in their annual CPA Index of Corporate Political Disclosure & Accountability report.

We continue to make bipartisan contributions that are carefully considered on a case-by-case basis. In establishing our PAC political giving priorities, our Contributions Committee considers various factors to prioritize candidates who support policies that enhance innovation and patient access to health care.

GRI 415-1 Political contributions

Our Company is 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.

We spent a total of $799,080 in U.S. corporate political contributions in 2021. Of these, $401,180 were used to support the campaigns of 368 individual candidates in 23 states plus the District of Columbia. The party breakdown of the contributions for individual candidates was 43.75 percent Democratic, 55.71 percent Republican, and 0.54 percent Independent. Republicans held a majority in 61 chambers, Democrats held the majority in 37 chambers and one chamber holds equal power between parties.

The remaining $397,900 of these funds were provided to 36 state legislative leadership committees, industry-affiliated political action committees, and several national organizations representing state elected officials. Many of these latter groups also meet periodically to discuss policy issues. Examples include the Republican Governors Association and the Democratic Governors Association. The party breakdown of the contributions for these entities was 44.4 percent Democratic and 55.6 percent Republican.

Our representatives involved in state-government-affairs activities made the recommendations for specific contributions based on the budget and priorities approved by the Contributions Committee. Outside legal counsel conducted a thorough review of all proposed contributions to ensure that they were permitted under state law.

The only other country in which we provided corporate contributions to candidates or political parties in 2021 was Australia. These contributions are subject to the same policies and governance procedures discussed above.

▶▶▶ *Information on all of our contributions can be found on the **Transparency Disclosures** page of our corporate website.*

Customer health and safety

GRI 416 Management approach

Our quality strategy is focused on maintaining sustained quality and compliance excellence through the following elements: a digitally enabled Quality Management System (QMS), oversight and periodic review of our quality performance, a Quality Management Maturity (QMM) mindset and a learning culture. Our quality strategy is a key enabler to ensuring patient safety and the overall quality and continuous supply of our products.

We operate in a highly complex and ever-changing regulatory landscape driven by many different factors, including novel scientific discoveries and technological advancements. Specifically, we are leveraging new technological advancements such as integrated IT tools, artificial intelligence (AI) and streamlined digital platforms to further enhance how we manufacture high-quality products. We apply and adhere to a strict set of quality standards, and we have policies and procedures in place to define, measure, control and sustain product quality excellence.

Our Global Quality Compliance organization is responsible for establishing the standards to ensure that our Company's products are manufactured, tested, released and distributed in compliance with regulatory requirements.

We continuously strive to enhance these standards in order to ensure ongoing compliance with current Good Manufacturing Practices (cGMPs).

We provide appropriate, ongoing training on cGMP for our employees so they are prepared to perform their duties effectively. Our quality system not only ensures that all applicable employees are trained, but also monitors the effectiveness of the training provided.

Our 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 prior to seeking regulatory approval. Following approval of our drugs, vaccines or devices our Company continues to monitor their safety profiles.

Our chief medical officer (CMO) holds overall responsibility for the benefit-risk determination of our human health pipeline and marketed products. In addition, the CMO 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 chief safety officer (CSO) holds overall responsibility for determining the human health product risk profile and overseeing the safety of our human health products. Our Global Clinical Safety and Pharmacovigilance (GCS&PV) function led by the CSO 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.

The Animal Health senior vice president of R&D holds responsibility for the benefit-risk determination for our Animal Health pipeline and marketed Veterinary Medicinal Products (VMPs) and oversees all Animal Health clinical programs.

Our Animal Health Global Pharmacovigilance (GPV) Team manages a global system for the collection, review and reporting of AE reports received by our Company worldwide, and for the continuous assessment of product safety. GPV leads all safety monitoring and risk management activities for the Animal Health VMP portfolio from the time of initial product approval through the end of the product life cycle.

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. Levels are reviewed and updated as new data become available.

Animal Health

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.

All of our pharmaceuticals and vaccines must be tested for product quality as well as for their safety and efficacy in treated animals. In addition, our submissions to regulatory agencies also include rigorous human food safety testing for those products used in food producing animals, in addition to user safety and environmental safety assessments.

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 follow all applicable pharmacovigilance rules and findings are assessed and reported to regulatory authorities.

A consistent, science-based 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 medicines through our global trade association, HealthforAnimals, which is recognized as an observer organization. This allows HealthforAnimals to offer input and provide perspectives in meetings with international standards setting bodies, including:

- **International Cooperation on Harmonisation of Technical Requirements for Registration of Veterinary Medicinal Products (VICH)**
- **Codex Alimentarius**

GRI 416-2	**Incidents of non-compliance concerning the health and safety impacts of products and services**
SASB 250a.1	**Products listed in the FDA's MedWatch Safety Alerts for Human Medical Products database**
SASB 250a.2	**Fatalities associated with products as reported in the FDA Adverse Event Reporting System**
SASB 250a.3	**Recalls issued, and total units recalled**
SASB 260a.1	**Methods and technologies used to maintain traceability of products throughout the supply chain and prevent counterfeiting**
SASB 260a.2	**Process for alerting customers and business partners of potential or known risks associated with counterfeit products**

Quality and product safety	2017	2018	2019	2020	**2021**
Number of product recalls in the United States[1,2]	0	2	1	2	**2**
Percentage of sold units recalled during a given year (recall rate globally)[1,2]	0.01%	0.17%	0.01%	0.50%	**0.22%**

[1] **Definition of Recall Classifications.**
[2] Starting with June 2021, information for Organon was removed due to spin-off.

Counterfeit products

We invest in an industry-leading, rigorous and intelligence-led product-integrity strategy that is solely focused on protecting patients from the harm associated with counterfeit and diverted medicines. Our Global Security Group oversees the global Product Integrity strategy and leads its execution. The strategy seeks to protect our patients and our Company's reputation from the negative impacts of counterfeit medicines using a three-pronged strategy focused on:

- Securing the supply chain
- Investigations and enforcement
- Raising public and stakeholder awareness

Our efforts involve raising public awareness about the risks posed by counterfeit medicines and advocating for increased enforcement to address these challenges.

In 2021, 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. 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 multipronged 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.

Appropriate collaboration and information-sharing in order to raise public and stakeholder awareness of the issue and risks are a crucial focus of our Product Integrity 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.

These collaborative efforts support the production of reports, whitepapers and data-circulation initiatives, as well as promote the intelligence sharing necessary to combat threats from counterfeit medicines.

The Anti-counterfeiting performance table below details the number of new suspected and substantiated counterfeit events in 2021 and for the previous four years. The data above reflects the current status of each event for all years presented as of March 2022.

Throughout 2021, Global Security addressed 2,350 product integrity events in 89 countries, involving counterfeit, diversion, supply chain security, tampering, financial integrity and brand security (non-MSD, unapproved generic product). Approximately 33 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 threats.

We enable meaningful enforcement actions as a key strategic priority, and in 2021 our product integrity activity led to 242 arrests and the seizure of more than 29,349 units of counterfeit or illicit versions of our products. There were 57 prosecutions resulting from product integrity investigations in 2021.

Another crucial aspect of investigations is the forensic analysis of questionable products. This forensic testing is aimed at concluding whether a questionable 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. We also have 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 the detection and characterization of counterfeit medicines 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 497 unique questioned samples received as evidence and prepared for forensic testing in relation to active events in 2021. As part of our proactive awareness program, throughout 2021 Global Security trained approximately 2,870 law-enforcement personnel in more than 50 countries regarding the patient safety risks associated with counterfeit and diverted medication.

Global Security also launched an internal training program on the Counterfeit, Diversion and Tampering (CDT) reporting process in late 2017. To date, more than 67,000 employees and contractors have completed this training globally.

Anti-counterfeiting[1]	2017	2018	2019	2020	**2021**
Investigations of suspected counterfeit products[2]	137	269	563	554	**964**
Substantiated cases of counterfeit products	76	231	212	77	**86**

[1] Prior-year data have been adjusted to reflect the current status of each event as of March 2022.
[2] Evidence from ongoing investigations of suspected counterfeit products can result in recategorization.

Supply chain security and serialization

Our proactive focus on managing supply chain security risk is based on our careful implementation and management of strict policies and procedures designed to protect the legitimate distribution of our products. We require customers to purchase our products directly from our Company or from authorized distributors listed publicly on our **corporate website**.

We maintain our commitment to ensure compliance with established Company policies, standards and procedures throughout the supply chain by identifying vulnerabilities and threats to the supply network. Resources are positioned globally to monitor and manage our security programs and investigate incidents when they occur.

As a certified Importer under the Customs Trade Partnership Against Terrorism (CTPAT) Program, we are validated by U.S. Customs and Border Protection as an elite Tier 3 Member recognized as implementing best practices in supply chain security. This adds an important layer to the security of our products and materials imported to the U.S.

Serialization—adding a 2D barcode with 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 or detect counterfeiting. A serial number on individual packages may enable anyone along the supply chain—from a distributor to a pharmacist to a patient—to scan the code and verify it as a serial number corresponding to a genuine product of our Company. Serialization can add a robust layer to our product security platform. When associated with a regulatory mandate that specifies effective implementation and reporting to a national database, 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, India, Saudi Arabia, the Middle East, the U.S., EU, United Kingdom, Norway, Iceland, Switzerland, Liechtenstein and Russia, and will soon be required in Indonesia, Brazil, South Africa and Pakistan. Each country's regulations are different, making it very challenging for our packaging sites and distribution networks to meet these diverse and intricate requirements, with additional complexity as reporting requirements are phased in.

We launched the Global Product Serialization Initiative in 2012, with the goal of meeting these varying requirements in a robust, standardized and effective way based upon GS-1 standards. Through these efforts, we are currently in compliance with applicable regulatory requirements related to serialization. We are also working with industry associations and regulatory authorities to better understand potential new requirements and to advocate for simple, standardized and common-sense regulations that can be effective at protecting against counterfeit medicines.

In addition to our compliance with regulatory requirements related to serialization, we are also exploring opportunities to deploy voluntary serialization and secondary authentication technologies to further enhance the security and traceability of our products. These multifactor authentication systems would be enabled by blockchain nodes and applications that allow for secure and immutable product tracing that could be accessed by all supply chain partners and end users. We are currently running several proof-of-concept and pilot studies involving these emerging technologies, as well as participating in active industry associations, such as PharmaLedger, to further develop and apply these digital solutions.

Clinical trial site monitoring, design, conduct and oversight

We have 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 promptly disclose medically important information to regulatory authorities and the public, update the status on **www.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.

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. 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. Company-sponsored and -conducted clinical trials involving patients assigned treatment with investigational and marketed products are registered at trial initiation on **www.clinicaltrials.gov**, **www.clinicaltrialsregister.eu** and **www.encepp.eu**.

In accordance with our public policy position statement, all investigational studies in human subjects are conducted in a manner consistent with applicable laws, regulations and guidelines for the protection of human subjects, including those issued by the **International Council for 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.

We have a commitment, where appropriate, to the study of diverse patient populations, including underrepresented groups, 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.

In addition to complying with our Company's global standards, the conduct of our clinical trials adheres to the **International Council for Harmonisation: Good Clinical Practice** standards and to the principles that have their origin in the Declaration of Helsinki. When appropriate, an internal standing Data-Monitoring Committee (DMC) of our research laboratories' 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.

Phase II-V clinical trials patients by region[1]	2017	2018	2019	2020	**2021**
Asia Pacific	15%	22%	28%	42%	**18%**
Central & Eastern Europe, Middle East & Africa	7%	7%	8%	8%	**29%**
European Economic Area	43%	21%	33%	20%	**20%**
The Americas	6%	9%	7%	15%	**14%**
U.S.	29%	41%	24%	15%	**20%**

[1] May not add up to 100 percent due to rounding.

Trial disclosures activities	2017	2018	2019	2020	**2021**
Manuscripts of clinical trial results and related papers submitted to peer-reviewed journals[1]	476	527	576	622	**611**
Number of GCP/PV inspections conducted by regulatory agencies worldwide	128	96	99	52	**79**

[1] Data from previous years have been adjusted to reflect manuscripts submitted from additional Company departments as well as Company collaborators.

GCP/PV inspections	2017	2018	2019	2020	**2021**
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	0	**0**

▶▶▶ *Please visit the **U.S. Food & Drug Administration's (FDA) MedWatch** website for more information on product safety alerts.*

▶▶▶ *You may visit the **FDA's Adverse Event Reporting System (FAERS)** website for up-to-date information on fatalities associated with product use.*

▶▶▶ *For more information on our approach to clinical trials, please visit the **Clinical Trials** page on our corporate website.*

Marketing and labeling

GRI 417	Management approach

Our chief medical officer (CMO) holds overall responsibility for the benefit-risk determination of our human health pipeline and marketed products. In addition, the CMO 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 chief safety officer (CSO) holds overall responsibility for determining the human health product risk profile and overseeing the safety of our human health products. Our Global Clinical Safety and Pharmacovigilance (GCS&PV) function, led by the CSO, manages a global system for the collection, review and reporting of adverse experience (AE) reports received worldwide and for the continuous assessment of product safety.

The Animal Health senior vice president of R&D holds responsibility for the benefit-risk determination for our Animal Health pipeline and marketed Veterinary Medicinal Products (VMPs) and oversees all Animal Health clinical programs.

Clinical safety and risk management

Clinical Safety and Risk Management (CSRM) leads the Risk Management Safety Team (RMST) for all products, from the beginning of Phase 2b through the end of the product life cycle. CSRM is responsible for the development of proactive clinical safety risk-management strategies, including the Risk Management Plan (RMP), which is a regulatory requirement in many countries for marketed drugs and vaccines.

Veterinary medicinal product safety and risk management

The Animal Health Global Pharmacovigilance (GPV) Team manages a global system for the collection, review and reporting of AE reports received worldwide, and for the continuous assessment of product safety. GPV leads all safety monitoring and risk management activities for the Animal Health VMP portfolio from the time of initial product approval through the end of the product life cycle.

GRI 417-1	Requirements for product and service information and labeling
SASB 270a.2	Code of ethics governing promotion of off-label use of products

Consistent with applicable FDA regulations, the label in our product packaging contains information about adverse reactions and other potential risks that are either serious or otherwise clinically significant. We include contact details in our product packaging and on our corporate website for patients, human and animal caregivers, farmers and producers, and human and animal health professionals to report adverse experiences in the U.S. Outside the U.S., adverse events are reported in accordance with any additional local country laws and practices.

There are occasions when our Company, in consultation with regulatory authorities, may determine that it is important to communicate new or updated information promptly to health care providers involved in prescribing or dispensing a drug or in caring for patients who receive a drug. In these situations, we work with regulatory authorities to communicate this information to health care professionals in a timely manner so that they can inform patients through appropriate mechanisms.

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 (RMST) to develop or update product labeling. We regularly communicate relevant information to regulatory authorities worldwide.

Health literacy

Health literacy is essential to our overall strategy. We incorporate health literacy into all aspects of a product's development and lifetime, from clinical testing to labeling and packaging to patient education. In 2020, we founded a worldwide community of practice for health literacy, with membership from eight different nations and various corporate divisions.

This community of practice was established to assist in identifying and organizing health literacy advocates with the goal of training and educating colleagues more broadly, both through formalized, concerted efforts and through incidental collaboration in the course of daily work. In the fourth quarter of 2021, the community of practice launched an internal health literacy dictionary with more than 1,000 words, and established an internal health literacy portal for the exchange of materials and best practices.

We are dedicated to increasing people's health literacy in the U.S. and around the world. As part of this commitment, our health literacy team has developed a novel method to enhance the patient labeling process for new compounds. The purpose of this is to validate comprehension across all the different consumer categories, with a particular emphasis on those who have lower levels of health literacy. To date, 10 of our medicines have FDA-authorized patient labels that were produced with input from patients whose health literacy skills ranged from low to high. Employees who create and assess patient labeling for novel compounds are required to undergo training in health literacy methods for patient labels beginning in 2021.

U.S. Medical Forums

We deliver balanced medical and scientific information to health care professionals and health care business professionals within the U.S. through our promotional Medical Forums. We hire qualified external medical, scientific and health care experts ("speakers") to deliver Medical Forums. Speakers are selected based on defined, objective criteria that are directly related to the identified educational purpose of the Medical Forum. The goal of this education is to provide substantive scientific or educational information to our customers, as well as to inform customers about the benefits and risks of our products.

We are committed to the **PhRMA Code on Interactions with Health Care Professionals** and, consistent with U.S. Food and Drug Administration (FDA) regulations, our Medical Forums are appropriately balanced to include the product's potential benefits and risks, and are consistent with approved product labeling.

We believe that our marketing, sales and advertising activities make an important contribution to medicine by informing our customers of treatment options based on the most recent scientific information and findings from rigorous clinical studies.

Our sales and marketing practices are governed by applicable laws and regulations and industry codes of conduct, and by our own global **Code of Conduct**, our corporate policies and procedures, and our ethics and compliance program.

Customer privacy

GRI 418 **Management approach**

Information about our Company, products and people is one of our most valuable assets. We are committed to ethical use, management and protection of information.

Our commitment applies not only to our Company's information but also to the information entrusted to us by others. Our tools, processes and procedures ensure that we appropriately collect, use and safeguard information throughout its life cycle to ensure integrity of information and to prevent unauthorized access and disclosure. We have developed and continue to improve upon a comprehensive, global, state of the art information security and cyber resiliency program to enable us to fulfill our purpose: inventing for life.

There is increased pressure for companies to adopt the EU General Data Protection Regulation (GDPR) as the basis for their own privacy policies and programs. We are well positioned in that we have based our global program on the GDPR. In addition, our privacy program is flexible and adaptable to be compliant to new laws and regulations that take effect in the jurisdictions where we conduct business. Examples include the California Consumer Privacy Act (CCPA) and California Privacy Rights Act (CPRA) in California, the Consumer Data Protection Act (CDPA) in Virginia, the Privacy Act (ColPA) in Colorado, and major revisions to the Data Protection Acts in China, Ecuador, Japan and Saudi Arabia.

In addition, there is increased regulatory scrutiny and interest in companies that seek to collect and monetize personal information without full transparency and permission from data subjects. Regulators will continue to increase requirements in these areas and levy fines. Again, we believe that we are well positioned for these changes due to the deployment of a comprehensive closed-loop privacy program and our active engagement with regulators around the world.

The Global Privacy Office reports into our chief ethics and compliance officer who reports directly to our chief executive officer. Oversight of the privacy program is conducted within the Privacy and Data Protection Board (PDPB). This is a cross-functional board that connects to the Corporate Compliance Committee. The PDPB meets quarterly.

We are increasingly reliant on third party partners and service providers to assist us in our global operations. Just as we need to pay close attention to privacy and data protection, so do the third parties that comprise our supply chain. Our Company employs a robust third-party due diligence process to ensure that we only do business with reputable third parties who share our values and standards.

Our approach is one of accountability and transparency. The heart of this program is a leveraged, world-class Global Privacy Program that manifests itself throughout the world as a network of over 250 Privacy Stewards deployed around the globe. Program maturity is measured through a combination of annual privacy self-assessments at the entity and organization level and by comprehensive privacy audits conducted by internal audit.

We also provide annual mandatory cybersecurity training to communicate and reinforce the guidelines in the Information Security Standards Handbook and our commitment to a strong cybersecurity culture. We have established a systematic approach for ensuring employees can understand and comply with Company policies. We developed a robust cybersecurity training and awareness program that frequently and consistently delivers both compulsory and voluntary learning opportunities designed to encourage employees to make security-aware decisions regarding our Company's information security risks. Topics include, but are not limited to, information protection, identity, email, browsing and mobile security. Employees are also expected to maintain an up to date record of their qualifications that detail relevant cybersecurity work experience, skills, certifications and internal, industry or vendor-provided training they receive.

Global privacy program

Over the past 20 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 in the world to obtain regulatory approval in the 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.

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.

GRI 418-1 Substantiated complaints regarding breaches of privacy or losses of personal data

We have a well-established process by which privacy incidents can be reported to the Global Privacy Office and be investigated. The first step of this process is to verify the facts reported and to substantiate the concern. In 2021, we received 426 substantiated privacy concerns, which marks a 70 percent increase compared to the previous year. This increase was mainly due to enhanced capabilities for monitoring and detection of sensitive data in motion (network traffic). Three out of 426 incidents were deemed to be reportable to data protection authorities and/or data subjects.

Global privacy program	2017	2018	2019	2020	**2021**
Number of concerns regarding privacy practices, breaches of privacy and losses of personal data that were substantiated[1]	123	315	29[2]	250[3]	**426[3]**
Number of privacy breaches requiring notification by our Company to individuals or government authorities	0	2	2	0	**3**

[1] Privacy concerns reported here include all concerns about our privacy practices reported to our Company's Privacy Office and substantiated or verified. Verified concerns are investigated as part of our Incident Management Process, which includes a determination of whether regulatory or data subject notification is required.
[2] Change in reporting criteria to exclude non-privacy, quality related issues from the data.
[3] Increased sensitivity of network traffic monitors contributed to increased number in 2020 and 2021.

Global Reporting Initiative (GRI)

The **GRI Standards** represent global best practices for reporting publicly on a range of economic, environmental and social impacts. The table below summarizes where responses to the GRI disclosures can be found throughout this report.

General Disclosures

GRI 102 Organizational Profile		
102-1	Organization name (Core)	Pages 27-29
102-2	Primary brands, products, and services (Core)	Pages 27-29
102-3	Headquarters location (Core)	Pages 27-29
102-4	Location of operations (Core)	Pages 27-29
102-5	Ownership and legal form (Core)	Pages 27-29
102-6	Markets served (Core)	Pages 27-29
102-7	Scale of the organization (Core)	Pages 27-29
102-8	Information on employees and other workers (Core)	Pages 27-29
102-9	Supply chain (Core)	Pages 30-34
102-10	Organizational changes during the reporting period (Core)	Page 34
102-11	Precautionary principle (Core)	Page 35
102-12	External initiatives (Core)	Pages 35-36
102-13	Membership associations (Core)	Pages 36-38
GRI 102 Strategy		
102-14	CEO Letter (Core)	Page 39
102-15	Key impacts, risks, and opportunities	Not reported

GRI 102 Ethics & Integrity		
102-16	Values, principles, standards, and norms of behavior (Core)	Pages 39-40
102-17	Mechanisms for advice and concerns about ethics	Pages 39-40
GRI 102 Governance		
102-18	Governance structure of the organization (Core)	Pages 41-43
102-19	Delegation of responsibility	Pages 41-43
102-20	High-level accountability for sustainability topics	Pages 41-43
102-21	Access to the Board	Pages 41-43
102-22	Composition of the Board and its committees	Pages 41-43
102-23	Chair of the highest governance body	Pages 41-43
102-24	Board nomination and selection processes	Page 43
102-25	Board conflicts of interest	Page 43
102-26	Board and executive roles	Page 43
102-27	Board ESG knowledge	Pages 43-44
102-28	Board performance	Not reported
102-29	Board identification of ESG impacts, risks, and opportunities	Pages 43-44
102-30	Board ESG review of risk management processes	Pages 43-44
102-31	Frequency of Board review	Pages 43-44
102-32	Report review	Pages 43-44
102-33	Board communication	Page 44
102-34	Concerns communicated to the Board	Not reported
102-35	Remuneration policies for the Board and senior executives	Page 44
102-36	Process for determining remuneration	Page 44
102-37	Remuneration shareholder resolutions	Page 44

102-38	CEO/employee pay ratio	Page 44
102-39	CEO/employee pay increase ratio	Not reported
GRI 102 Stakeholder Engagement		
102-40	Stakeholder engagement (Core)	Pages 45-47
102-41	Union representation (Core)	Pages 45-47
102-42	Stakeholder identification (Core)	Pages 45-47
102-43	Approach to stakeholder engagement (Core)	Pages 45-47
102-44	Key topics and concerns raised (Core)	Pages 45-47 2022 Proxy statement (page 25)
GRI 102 Reporting Practice		
102-45	Entities included in financial statements (Core)	Page 48
102-46	Defining report content and topic boundaries (Core)	Pages 48-50
102-47	Material aspects included (Core)	Pages 48-50
102-48	Restatements (Core)	Page 50
102-49	Reporting changes (Core)	Page 50
102-50	Reporting period (Core)	Page 50
102-51	Date of most recent report (Core)	Page 50
102-52	Reporting cycle (Core)	Page 50
102-53	Report contact (Core)	Page 50
102-54	Claims of reporting in accordance with the GRI Standards (Core)	Page 51
102-55	GRI content index (Core)	Page 51
102-56	External assurance (Core)	Page 51

Economic

GRI 201 Economic Performance (2016)		
201-1	Direct economic value generated and distributed	Pages 52-53
201-2	Financial implications and other risks and opportunities due to climate change	Pages 53-54
201-3	Benefit plan coverage	Page 54
GRI 203 Indirect Economic Impacts (2016)		
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.	Pages 55-66
203-1	Infrastructure investments and services supported	Pages 67-74
203-2	Indirect economic impacts	Pages 67-74
GRI 204 Procurement Practices (2016)		
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.	Pages 75-78
GRI 205 Anti-corruption (2016)		
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.	Pages 78-79
205-2	Communications and training on anti-corruption	Page 79
GRI 206 Anti-Competitive Behavior (2016)		
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.	Page 80
206-1	Anti-competitive behavior	Page 81
GRI 207 Tax (2019)		
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.	Page 82
207-1	Approach to tax	Page 82

Environmental

GRI 301 Materials (2016)		
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.	Pages 83–87
GRI 302 Energy (2016)		
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.	Pages 88-90
302-1	Energy consumption within the organization (Scopes 1 + 2)	Pages 91-92
302-4	Energy reductions	Pages 91-92
GRI 303 Water and Effluents (2018)		
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.	Pages 93-94
303-1	Water as a shared resource	Page 95
303-2	Water discharge-related impacts	Pages 95-96
303-3	Water withdrawal	Pages 96-99
303-4	Water discharge	Pages 100-101
GRI 304 Biodiversity (2016)		
304-2	Significant impacts of activities, products, and services on biodiversity	Page 102
304-3	Habitats protected or restored	Page 103
GRI 305 Emissions (2016)		
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.	Pages 104-105
305-1	Direct GHG emissions (Scope 1)	Pages 106-108
305-2	Indirect GHG emissions (Scope 2)	Pages 106-108
305-3	Other indirect GHG emissions (Scope 3)	Pages 106-108

305-4	GHG emissions intensity	Pages 106-108
305-5	Reduction of GHG emissions	Pages 106-108
305-6	Ozone-depleting substances (ODS)	Pages 108-109
305-7	NOx, SOx and other emissions	Pages 108-109
GRI 306 Waste (2020)		
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.	Page 110
306-1	Waste generation and significant waste-related impacts	Pages 111-112
306-2	Management of significant waste-related impacts	Pages 111-112
306-3	Waste generated	Pages 113-116
306-4	Waste diverted from disposal	Pages 113-116
306-5	Waste directed to disposal	Pages 113-116
GRI 307 Environmental Compliance (2016)		
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.	Pages 116-120
307-1	Non-compliance with environmental laws and regulations	Page 121
GRI 308 Supplier Environmental Assessment (2016)		
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.	Pages 122-123

Social

GRI 401 Employment (2016)		
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.	Page 124

401-1	New employee hires and turnover	Pages 125-127
401-2	Benefits provided to full-time employees	Pages 127-131
401-3	Parental leave	Page 131
GRI 403 Occupational Health & Safety (2018)		
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.	Pages 131-132
403-1	Occupational health and safety management system	Page 132
403-2	Hazard identification, risk assessment, and incident investigation	Pages 132-136
403-3	Occupational health services	Pages 136-137
403-5	Worker training on occupational health and safety	Page 137
403-6	Promotion of worker health	Page 138
403-9	Work-related injuries	Pages 138-141
403-10	Work-related ill health	Pages 138-141
GRI 404 Training & Education (2016)		
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.	Page 142
404-1	Average hours of employee training	Page 142
404-2	Programs for upgrading employee skills and transition assistance programs	Pages 143-146
404-3	Percentage of employees receiving regular performance reviews	Page 147
GRI 405 Diversity & Equal Opportunity (2016)		
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.	Pages 148-158
405-1	Diversity of governance bodies and employees	Pages 159-161

GRI 412 Human Rights Assessment (2016)		
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.	Pages 161-163
412-1	Operations that have been subject to human rights reviews	Page 163
412-2	Employee training on human rights policies and procedures	Page 163
412-3	Investment agreements and contracts that include human rights clauses or underwent screening	Page 163
GRI 414 Supplier Social Assessment (2016)		
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.	Pages 164-166
414-1	New suppliers screened using social criteria	Page 166
GRI 415 Public Policy (2016)		
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.	Page 166
415-1	Political contributions	Pages 166-167
GRI 416 Customer Health & Safety (2016)		
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.	Pages 167-168
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	Pages 169-173
GRI 417 Marketing & Labeling (2016)		
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.	Page 174
417-1	Requirements for product and service information and labeling	Pages 174-175
GRI 418 Customer Privacy (2016)		
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.	Pages 175-177
418-1	Substantiated complaints regarding breaches of customer privacy and losses of customer data	Page 177

Sustainability Accounting Standards Board (SASB)

SASB is an independent standards-setting organization dedicated to improving the effectiveness and comparability of corporate disclosure on ESG factors. The table below summarizes how our existing reporting aligns with the recommended metrics for the Biotechnology & Pharmaceuticals Standard within the Health Care sector, and where this information can be found in this report.

Safety of clinical trial participants		
210a.1	Discussion, by world region, of management process for ensuring quality and patient safety during clinical trials	Not reported
210a.2	Number of FDA Sponsor Inspections related to clinical trial management and pharmacovigilance that resulted in: Voluntary Action Indicated (VAI) and Official Action Indicated (OAI)	Not reported
210a.3	Total amount of monetary losses as a result of legal proceedings associated with clinical trials in developing countries	Not reported
Access to medicines		
240a.1	Description of actions and initiatives to promote access to health care products for priority diseases and in priority countries as defined by the Access to Medicine Index	**Pages 55-66**
240a.2	List of products on the WHO List of Prequalified Medicinal Products as part of its Prequalification of Medicines Programme (PQP)	**Pages 55-66**
Affordability and pricing		
240b.1	Number of settlements of Abbreviated New Drug Application (ANDA) litigation that involved payments and/or provisions to delay bringing an authorized generic product to market for a defined time period	Not reported
240b.2	Percentage change in: average list price and average net price across U.S. product portfolio compared to previous year	**Pages 55-66**
240b.3	Percentage change in: list price and net price of product with largest increase compared to previous year	**Pages 55-66**

Drug safety		
250a.1	List of products listed in the Food and Drug Administration's (FDA) MedWatch Safety Alerts for Human Medical Products database	Pages 169-173 FAERS MedWatch
250a.2	Number of fatalities associated with products as reported in the FDA Adverse Event Reporting System	Pages 169-173 FAERS MedWatch
250a.3	Number of recalls issued, and total units recalled	Pages 169-173 FAERS MedWatch
250a.4	Total amount of product accepted for takeback, reuse, or disposal	Pages 113-116
250a.5	Number of FDA enforcement actions taken in response to violations of current Good Manufacturing Practices (cGMP), by type	Not reported
Counterfeit drugs		
260a.1	Description of methods and technologies used to maintain traceability of products throughout the supply chain and prevent counterfeiting	Pages 169-173
260a.2	Discussion of process for alerting customers and business partners of potential or known risks associated with counterfeit products	Pages 169-173
260a.3	Number of actions that led to raids, seizure, arrests, and/or filing of criminal charges related to counterfeit products	Not reported
Ethical marketing		
270a.1	Total amount of monetary losses as a result of legal proceedings associated with false marketing claims	Not reported
270a.2	Description of code of ethics governing promotion of off-label use of products	Pages 174-175
Employee recruitment, development and retention		
330a.1	Discussion of talent recruitment and retention efforts for scientists and research and development personnel	Pages 125-131
330a.2	Voluntary and involuntary turnover rate for: executives/senior managers, mid-level managers, professionals, and all others	Pages 125-131

Supply chain management		
430a.1	Percentage of entity's facilities and Tier I suppliers' facilities 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	Not reported
Business ethics		
510a.1	Total amount of monetary losses as a result of legal proceedings associated with corruption and bribery	Not reported
510a.2	Description of code of ethics governing interactions with health care professionals	**Pages 39-40** **Code of Conduct & Compliance**
Activity metrics		
000.A	Number of patients treated	Not reported
000.B	Number of drugs in portfolio, and in research and development (Phases 1-3)	**Pages 27-29** **Pipeline**

UN Global Compact (UNGC)

The UNGC is a strategic initiative that helps companies align their business activities and strategies with ten universally recognized principles in the areas of human rights, labor standards, environmental protection and the fight against corruption. The table below summarizes how our existing reporting aligns with these disclosures and where the information can be found in this report, which serves as our Communication on Progress to UNGC.

Human rights		
1	Businesses should support and respect the protection of internationally proclaimed human rights	Pages 161-163
2	Businesses should make sure that they are not complicit in human rights abuses	Pages 122-123, 161-166
Labor		
3	Businesses should uphold the freedom of association and the effective recognition of the rights to collective bargaining	Pages 161-163
4	Businesses should support the elimination of all forms of forced and compulsory labor	Pages 161-163
5	Businesses should support the effective abolition of child labor	Pages 161-163
6	Businesses should support the elimination of discrimination in respect of employment and occupation	Pages 148-161, 161-163
Environment		
7	Businesses should support a precautionary approach to environmental challenges	Pages 83-87, 93-101, 110-116
8	Businesses should undertake initiatives to promote greater environmental responsibility	Pages 83-123
9	Businesses should encourage the development and diffusion of environmentally friendly technologies	Pages 83-87, 93-101
Anti-corruption		
10	Businesses should work against corruption in all its forms, including extortion and bribery	Pages 39-40, 78-81, 164-166

UN Sustainable Development Goals (SDGs)

The SDGs are a set of 17 global goals whose aim is to end poverty, fight inequality and injustice, and tackle climate change by 2030. The table below summarizes how our reporting aligns with the SDGs and where this information can be found in this report. More information on our priorities can also be found on **page 11**.

Goal	Description	Response
SDG 1: No Poverty	End poverty in all its forms everywhere	**Pages 55-74, 82**
SDG 2: Zero Hunger	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	**Merck Animal Health**
SDG 3: Good Health & Well-being	Ensure healthy lives and promote well-being for all at all ages	**Pages 55-74, 131-141**
SDG 4: Quality Education	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	**Pages 142-147**
SDG 5: Gender Equality	Achieve gender equality and empower all women and girls	**Pages 124-131, 142-161, 164-166**
SDG 6: Clean Water & Sanitation	Ensure availability and sustainable management of water and sanitation for all	**Pages 93-101, 113-116**
SDG 7: Affordable & Clean Energy	Ensure access to affordable, reliable, sustainable and modern energy for all	**Pages 88-92**
SDG 8: Decent Work & Economic Growth	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	**Pages 27-30, 45-47, 52-54, 88-92, 124-141, 142-161, 164-166**
SDG 9: Industry, Innovation & Infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	**Pages 52-74**
SDG 10: Reduced Inequalities	Reduce inequality within and among countries	**Pages 27-30, 124-131, 142-161**
SDG 11: Cities & Communities	Make cities and human settlements inclusive, safe, resilient and sustainable	Not applicable
SDG 12: Responsible Consumption & Production	Ensure sustainable consumption and production patterns	**Pages 83-116, 174-175**
SDG 13: Climate Action	Take urgent action to combat climate change and its impacts	**Pages 53-54, 88-92, 104-109**
SDG 14: Life Below Water	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	**Pages 35, 93-103**

SDG 15: Life on Land	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	**Pages 93-116**
SDG 16: Peace, Justice & Strong Institutions	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	**Pages 39-40, 41-44, 80-81, 116-121, 132-141, 164-166, 167-177**
SDG 17: Partnerships for the Goals	Strengthen the means of implementation and revitalize the global partnership for sustainable development	**Pages 35-36, 45-47, 82**

Culture of Health for Business (COH4B)

The Culture of Health for Business (COH4B) is a framework for companies to disclose their impact on health of employees, families and communities, as well as brand and financial performance, that lead to both positive and negative business outcomes. The table below summarizes how our reporting aligns with the recommended metrics for the Biotechnology & Pharmaceuticals Standard within the Health Care sector and where this information can be found in this report.

Strategic		
Health culture	Promoting an organizational culture of health	Pages 127-141, COVID-19
Responsible corporate political activity	Activity that shapes public policy or public opinion	Pages 36-38, 166-167, Transparency Disclosures
Responsible marketing practices	Commitments to responsible marketing	Pages 174-175
Policies & Benefits		
Health promotion and wellness	Providing health promotion and wellness programs	Pages 124-141
Paid family and medical leave	Allowing employees to earn pay while away attending to illness, a family member or newborn	Pages 124-141
Health insurance	Providing employer-based health insurance	Pages 124-141
Equality, diversity and impartiality	Managing inequality, discrimination and diversity, including disability	Pages 124-131, 148-163
Financial literacy	Providing financial literacy resources	Pages 124-131
Workforce & Operations		
Work time	Managing working hours, schedules and schedule control	Pages 124-131
Job security	Managing job insecurity	Pages 124-131
Pay practices	Managing wage policies, minimum wages, wage satisfaction	Pages 124-131, Compensation and benefits
Occupational health and safety	Mandatory and voluntary occupational health and safety	Pages 131-141
Physical environment	Managing air quality, lighting, green buildings, health promotion attempts through the built environment	Pages 83-123

Community		
Community environmental impacts	Managing the environmental impacts of company operations on communities	Pages 83-123 CDP Water Security CDP Climate Change
Social capital and cohesion	Encouraging links, shared values and understanding	Pages 18-20, 124-131
Community involvement	Investments in programs to benefit communities, including disaster response and recovery	Pages 55-74, 124-131, Philanthropy, Impact Investing, Medical Outreach Program

Stakeholder Capitalism Metrics

At the 2020 Annual Meeting in Davos, 120 of the world's largest companies supported efforts to develope a core set of common metrics and disclosures for their investors and other stakeholders. Below is our alignment against the Core metrics from this framework developed by the World Economic Forum, as well as select disclosures from the Expanded metrics. Merck currently is not a signatory to the Stakeholder Capitalism Metrics.

Principles of Governance	
Governing Purpose	
Setting purpose (Core)	Not reported
Purpose-led management (Expanded)	Overview **(Pages 6-9)**
Quality of Governing Body	
Governance body composition (Core)	**Pages 41-43**
Progress against strategic milestones (Expanded)	Access to medicine **(Pages 55-74)**, Product quality and safety **(Pages 30-34, 55-74, 78-79, 167-175, Clinical trials page)**, Public health risks **(Pages 55-74)**, Ethics in R&D **(Pages 39-40, 55-74, 167-173, Clincal trials page)**, Employee health and safety **(Pages 131-141)**, Employee engagement and diversity **(Pages 29, 45-47, 148-161)**, Climate change **(Pages 53-54, 88-92, 104-109)**, Business ethics **(Pages 39-40, 78-79, 174-175, Code of Conduct & Compliance)**, Data privacy and security **(Pages 175-177)**, Governance structures and mechanisms **(Pages 39, 41-47, 132-136, 159-161, 177)**
Remuneration (Expanded)	**Page 44**

Stakeholder Engagement	
Material issues impacting stakeholders (Core)	Pages 45-47, 48-50
Ethical Behavior	
Anti-corruption (Core)	Pages 78-79
Protected ethics advice and reporting mechanisms (Core)	Pages 39-40
Alignment of strategy and policies to lobbying (Expanded)	Pages 166-167
Risk and Opportunity Oversight	
Integrating risk and opportunity into business process (Core)	Pages 41-43, 48-50
Planet	
Climate Change	
Greenhouse gas (GHG) emissions (Core)	Pages 106-108
Paris-aligned GHG emissions targets (Expanded)	Pages 104-109
TCFD implementation (Core)	Pages 53-54
Nature Loss	
Land use and ecological sensitivity (Core)	Pages 102-103
Freshwater Availability	
Water consumption and withdrawal in water-stressed areas (Core)	Pages 93-101
Impact of freshwater consumption and withdrawal (Expanded)	CDP Water Security
Air Pollution	
Air pollution (Expanded)	Pages 108-109
People	
Dignity and Equality	
Diversity and inclusion (Core)	Pages 159-161
Pay equality (Core)	Pages 149-150
Wage level (Core)	Not reported

Risk for incidents of child, forced or compulsory labor (Core)	Pages 161-163
Human rights review, grievance impact and modern slavery (Expanded)	Pages 161-163
Freedom of association and collective bargaining at risk (Expanded)	Pages 45-47, 164-166
Health and Wellbeing	
Health and safety (Core)	Pages 138-141
Employee wellbeing (Expanded)	Pages 131-141
Skills for the Future	
Training provided (Core)	Pages 142-147
Prosperity	
Employment and Wealth Generation	
Absolute number and rate of employment (Core)	Pages 124-131
Infrastructure investments and services supported (Expanded)	Pages 55-74
Economic contribution (Core)	Pages 52-54 2021 Form 10-K
Financial investment contribution (Core)	2021 Form 10-K
Significant indirect economic impacts (Expanded)	Pages 55-74
Innovation for Better Products and Services	
Total R&D expenses (Core)	2021 Form 10-K (page 61)
Community and Social Vitality	
Total tax paid (Core)	Page 82
Additional tax remitted (Expanded)	Page 82

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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 the global outbreak of novel coronavirus disease (COVID-19); 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 Annual Report on Form 10-K for the year ended December 31, 2021 and the company's other filings with the Securities and Exchange Commission (SEC) available at the SEC's Internet site (**www.sec.gov**).

No duty to update

The information contained in this publication was current as of the date presented. The company assumes no duty to update the information to reflect subsequent developments. Consequently, the company will not update the information contained in this publication and investors should not rely upon the information as current or accurate after the presentation date.

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