



James Murray lives with depression. He is also the founder of Therify, an organization that aims to make mental well-being inclusive and accessible to everyone.



2022 ESG REPORT

where
sciencemeets**humanity**[™]

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COMMUNITY

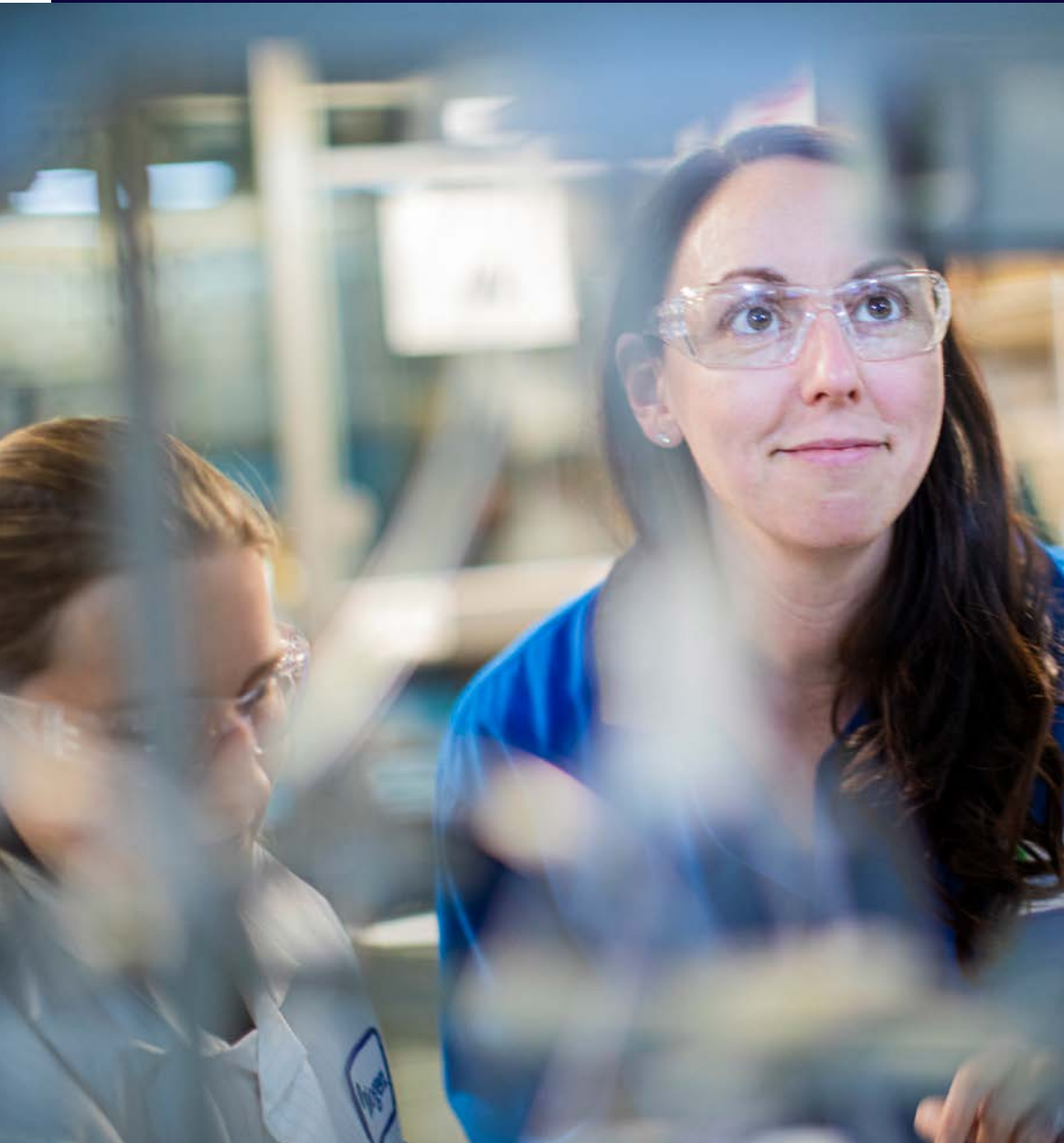
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Erin O'Brien, Head of Small Molecule Development.

OVERVIEW

Serving humanity through science so that people everywhere can live healthier, fuller lives

KEY AWARDS

- ★ #11 on Newsweek's America's Most Responsible Companies
- ★ #41 on the 2023 JUST 100
- ★ 10th year in a row on the **Dow Jones Sustainability World Index**
- ★ 9th year in a row earning 100% on the Human Rights Campaign's **Best Place to Work for LGBTQ+ Equality**
- ★ 5th year in a row earning 100% on Disability:IN's **Best Places to Work for Disability Inclusion**
- ★ Ionis and Biogen awarded the **Prix Galien Golden Jubilee Award's Silver Medal** for Best Orphan/Rare Disease Product

CEO letter

I joined Biogen as President and CEO to lead a purpose-driven company that is focused on patients and willing to tackle the healthcare challenges from which others have shied away. Since joining I have met many people living with the diseases that we are addressing, underscoring why our work matters and how many people are counting on our medicines. I have also met countless truth-seeking, dedicated and compassionate employees who are advancing our pipeline of potential novel therapies – along with those working to tackle the inequities prevalent in broader society and the healthcare ecosystem, addressing the connection between human health and the environment, and continuing to show how our culture of caring deeply extends beyond our walls.

For decades, Biogen has been committed to corporate responsibility and, every day, we are working diligently to build upon our long-held foundation of responding appropriately to emerging stakeholder expectations and industry trends to deliver benefits for patients and communities.

In 2022, we took meaningful action to expand access to our treatments, provide medicines to those in need, and increase our organizational understanding of inequities faced by people on their health journey. We advanced our goal to increase representation of diverse populations in our clinical trials and we have entered new markets with SPRINRAZA® (nusinersen), which is now available in 69 countries, including 19 classified as low- to middle-income. We are also dedicated to engaging medical experts and patent advocacy groups globally to raise cultural competency to meet the varied needs of all patients.

We have continued to champion our sustainability goals and reduce our environmental impact, through plans to mitigate waste, water and energy consumption. In the last year alone, 81% of Biogen labs achieved My Green Lab certification, recognized by the United Nations' Race to Zero campaign for setting the standard for best practices in laboratory sustainability. Labs are some of the most resource-intensive spaces, and by focusing on labs, we are contributing to the decarbonization of healthcare.

For decades, Biogen has been committed to corporate responsibility and, every day, we are working diligently to build upon our foundation and respond appropriately to emerging stakeholder expectations and industry trends to deliver benefits for patients and communities.

Christopher A. Viehbacher,
President and
Chief Executive Officer



Our flagship STEM education program, the Community Lab, has inspired a love of science for students over the last 20 years. It began as an experiment to bring hands-on science to those who lived in Biogen's backyard, but has grown, enriching the lives of more than 62,000 students in over 30 countries. This and other programs supported by the Biogen Foundation have helped hundreds of thousands of people around the world.

Our employees have driven our progress in all areas, from helping patients access our therapies to inspiring the next generation of scientists. We have long prioritized diversity, equity and inclusion not only as a moral imperative, but as a competitive strength. At the end of 2022, 47.4% of Director+ positions were held by women and 30.4% of Manager+ positions in the U.S. were held by ethnic or racial minorities. As we seek to engage the world's brightest minds to tackle complex scientific and social challenges, having diversity of backgrounds, experiences and thoughts will only strengthen us as an organization.

This is a dynamic time in the healthcare sector, with stakeholder expectations for our company and our industry rapidly evolving. Against that backdrop, I want to underscore my commitment – reflected in this report – to continuing to advance Biogen's culture of transparency and disclosure so that our stakeholders, including our employees, patients, investors, partners and communities, have access to reliable data-driven information about all the dimensions of our business.

On behalf of all our employees, I want to thank the many people and institutions who are critical partners in the important work reflected on these pages – our collaborators, suppliers and community leaders, as well as the thousands of clinical trial participants, their families, caregivers and the medical professionals who are essential to the development of the next generation of medicines. There is much more we can continue to accomplish by working together to help our fellow citizens live healthier, fuller lives. I look forward to partnering with our stakeholders to build on and advance the substantial programs and initiatives reflected in this year's report.

I want to thank the many people and institutions who are critical partners in the important work reflected on these pages.

One of the primary takeaways from a recent internal survey is that Biogen employees are driven by our purpose and believe in it. This finding is inspiring to me, and my hope is that as you read more about our corporate responsibility work and progress, you will be inspired too.

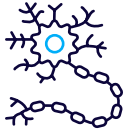
Regards,



Christopher A. Viehbacher

President and Chief Executive Officer

2022 HIGHLIGHTS



ACCESS & HEALTH EQUITY

14,000

people with spinal muscular atrophy (SMA) globally being treated with SPINRAZA®(nusinersen). SPINRAZA is available in 69 countries, including 19 low- and middle-income countries



WORKFORCE

47.4%

Director+ positions held by women globally

30.4%

Manager+ positions in the United States held by ethnic or racial minorities



ENVIRONMENT

3%

Absolute reduction in scope 1 and 2 emissions from a 2019 baseline year



COMMUNITY

\$62.4M+

In grants, sponsorships and in-kind contributions from Biogen and the Biogen Foundation

A purpose-driven organization

Since 1978, Biogen has been a leading global biotechnology company that has pioneered multiple breakthrough innovations including a broad portfolio of medicines to treat multiple sclerosis, the first approved treatment for spinal muscular atrophy and two co-developed treatments to address a defining pathology of Alzheimer's disease. Today, Biogen is advancing a pipeline of novel therapies across neurology, neuropsychiatry, specialized immunology and rare diseases, while serving hundreds of thousands of people through our global footprint.

As we look to the future, we are inspired by the imperative of health access and health equity, the potential to expand our pipeline and portfolio and leveraging breakthroughs in science.

We believe our business is a force for good through the patients we serve, the innovations we advance, the jobs we create and the communities we support. True to our purpose, we are continuing to serve humanity through science while advancing a healthier, more sustainable and equitable world.

Addressing environmental, social and governance issues

ESG governance

Guided by our purpose, Biogen is committed to progress on environmental, social and governance (ESG) issues. Following our Corporate Governance Principles, ESG oversight is formally embedded in our Board of Directors' governance principles and includes a regular review of our ESG strategy and short- and long-term goals. Our Board regularly reviews its composition and aims to ensure it incorporates the experience, skills and diversity necessary for effective, independent oversight. The Board is made up of Directors with diverse skills and qualifications, including a range of professional and personal backgrounds as well as ESG experience.

In 2022, Biogen once again tied a portion of our employees' and executive officers' compensation to advancing our ESG strategy.

ESG strategy

We believe that long-term business success is more likely when corporate strategy and decisions are informed by the operating context and an array of stakeholder needs and perspectives.

Our ESG strategy is grounded in our purpose, mission, values and business strategy. We have prioritized access and health equity; workforce engagement, well-being and diversity, equity and inclusion (DE&I); the environment; and social impact and community engagement. As a purpose-driven company, we work to balance and address these and other ESG priorities with a focus on our business performance.



Access & Health Equity



Environment



**COMMITMENT TO
TRANSPARENCY
& DISCLOSURES**




Community Impact




Workforce



Engaging diverse stakeholders

Diverse perspectives are critical to informing our strategies and advancing our aspiration of a healthier, more sustainable and equitable world. The Board and/or Biogen leaders meet with stakeholders on relevant issues.

Believing that diverse perspectives can better position companies to meet today's challenges and plan for an uncertain future, we regularly engage with a wide variety of external audiences, including:

Patient advocacy groups (PAGs) through our work and event participation with groups such as The ALS Association, Alzheimer's Association, Alzheimer Europe, Balm in Gilead, Black Health Matters, Cure SMA, HEAL Collaborative, Latino Alzheimer's and Memory Disorders Alliance (LAMDA), MS International Federation, Muscular Dystrophy Association, National Alliance for Caregiving, National MS Society, SMA Europe, UsAgainstAlzheimers and many other groups around the world.

Healthcare organizations and professionals such as the BlackDoctor.org, Center for Information and Study of Clinical Research Participation (CISCRP), Couch Health (Health Equity in Clinical Research Academy for sites), CVS Health, Global Alzheimer's Platform (GAP), National Association of Free and Charitable Clinics (NAFC), the National Minority Quality Forum (NMQF), National Alliance for Caregiving, and Proximity Health Solutions, among others.

Government bodies and regulators such as the U.S. government through engagement with the U.S. Food and Drug Administration (FDA), the European Medicines Agency (EMA) or the Japanese Ministry of Health, Labour and Welfare (MHLW) to ensure that new and innovative therapies are commercially available to the patients who need them.

Pharmaceutical industry and biotech associations such as the Biopharma Sustainability Roundtable, the Massachusetts Biotechnology Council (MassBio) and Massachusetts Biotechnology Education Foundation (MassBioEd), the Pharmaceutical Research and Manufacturers of America (PhRMA), Biotechnology Innovation Organization (BIO), the International Federation of Pharmaceutical Manufacturers and Associations (IFPMA), and the European Federation of Pharmaceutical Industries and Associations (EFPIA).

Universities, research institutions and centers of higher learning such as our work with the Harvard T.H. Chan School of Public Health as well as the Department of Environmental Health; and with Massachusetts Institute of Technology Joint Program on the Science and Policy of Global Change, the Technology and Policy Program, Lemelson-MIT and the Climate and Sustainability Consortium. This also encompasses our engagement with experts on issues such as health access and the links between climate, health and equity, detailed throughout this report.

Investors, analysts and ratings agencies through quarterly conference calls; analyst meetings; stockholder annual meetings; Form 10-K and other SEC-required filings; and our transparent responses to inquiries from organizations like S&P Global, JUST Capital and others.

Local, regional and global business and community associations, from our role chairing the Kendall Square (Cambridge, Massachusetts) Association Community Impact Working Group to co-chairing the World Business Council for Sustainable Development (WBCSD) working group on climate and health.

Environmental groups such as Ceres and the Environmental League of Massachusetts.

Nonprofit nongovernmental organizations (NGOs), through our participation in and sponsorship of events, our grant contributions and our volunteer service.

Operating responsibly

Maintaining high standards for corporate responsibility helps us deliver on our purpose and on advancing a healthier, more sustainable and equitable world.

Advancing an ethical culture

Every action we take, from pioneering new therapies to promoting health equity, is guided by our unwavering commitment to integrity through:

- **Biogen's credo** – Caring Deeply. Working Fearlessly. Changing Lives.™
- **Biogen Elements** – the foundation of our culture. Just as the periodic table reflects the elements of our universe, the Biogen Elements include pioneering spirit, strong ethics, personal accountability, inclusivity, agility and unwavering customer focus.
- **Code of Business Conduct** – which includes eight Ethical Principles and applies to all Biogen employees, agents and consultants acting on behalf of Biogen and our Affiliates worldwide.

We see these commitments as key enablers of Biogen's business, and in honoring them, we foster an environment of trust, honesty and transparency while ensuring appropriate confidentiality.



Upholding our commitments

Compliance with our Code of Business Conduct, Ethical Principles and the law is mandatory for all employees and a priority of our leaders, without exception.

At the enterprise level, we monitor and address compliance issues very closely. We have more than 20 full-time compliance officers who are embedded with the businesses globally. They use advanced artificial intelligence and other tools and technology to identify and address potential issues.

We also require every employee to report actual or suspected violations of the law or the Code of Business Conduct either to their manager, to a compliance officer or through an anonymous 24/7 helpline. Regardless of the type of misconduct reported, we do not tolerate retaliation against anyone who cooperates with an investigation or who makes a good faith report of an alleged violation of laws, regulations, the Code of Business Conduct or our policies. All claims of misconduct, and any claims of retaliation against reporters of misconduct, are thoroughly investigated.

Advancing our DE&I strategy relies on Biogen leadership and a cross-functional governing body of employees known as the DE&I Strategic Council. In 2021, we scaled our DE&I team by adding a dedicated U.S. Partner, a Learning Partner and a hybrid People Relations/DE&I Partner. We also expanded our global focus with the formation of a DE&I Council in the Biogen Intercontinental Region. Both councils work to assure that our talent processes disrupt bias, that everyone across the company owns DE&I, and that our strategy also focuses on serving the needs of underserved and underrepresented patients in the disease areas we treat.

Adhering to shared principles, policies and positions

In addition to the ethical expectations described on the previous page, Biogen is guided by principles, policies and positions that clarify expectations for ethical, accountable and sustainable ways of working.

On our website, [Biogen.com](https://www.biogen.com), we publicly share our commitments around the following topics:

2022 Principles, Policies and Positions

Foundational Elements	Access and Health Equity	Workforce	Environment	Additional 2022 Disclosures	Prior Disclosures
Animal Welfare	Access Programs	Anti-Slavery and Human Trafficking Statement	Biodiversity	ESG Data Table	2021 Diversity, Equity and Inclusion Report
Code of Business Conduct	Clinical Research and Bioethics	Elements of Our Culture	Climate Strategy	CDP Climate Change Disclosure	2021 Year in Review
Comprehensive Compliance Program	Clinical Trial Transparency and Data Sharing	Environmental Health and Safety Policy	Global Sustainability Policy	Annual Report	2020 Year in Review
Corporate Governance Principles	Global Privacy Program	Human Rights Position Statement	Product Stewardship	U.S. Securities and Exchange Commission Form 10-K	2019 Year in Review
Global Tax Policy	Patient Safety	Pay Equity		Independent Assurance Statement	2018 Corporate Social Responsibility Report
Political Contributions Policy	Payments to Healthcare Professionals	EEO Statement and Reports			2017 Global Impact Report
Research Collaborations	Pricing Principles				2016 Global Impact Report
Supply Chain Responsibility					2015 Corporate Citizenship Report
Supplier Diversity					2014 Corporate Citizenship Report
Stem Cells					2013 Corporate Citizenship Report
Transparency Reporting					
U.K. Tax Strategy					

Adhering to high standards for human rights

Biogen has a number of processes in place that can help identify and assess potential impacts and risks related to human rights. These include the due diligence we conduct around potential business collaborations, our ethics and compliance programs, our Enterprise Risk Management process and our supplier review efforts. We have not identified significant human rights risks in our own operations. We analyze risks to human rights violations in our supply chain each year.

Promoting diversity, equity and inclusion

While recognizing there is more work to be done, we were pleased that, in our last [ESG materiality assessment](#), both internal and external stakeholders said they see Biogen's commitment to DE&I as one of our core strengths.

DE&I governance

DE&I are top priorities for our company both internally and in the ways we engage with external stakeholders. Reflecting our broader commitment to these priorities, we continued to tie a portion of our employees' and executive officers' compensation to advancing our ESG efforts. We hold ourselves collectively accountable for fostering our aspirational culture by setting DE&I performance goals, by embedding DE&I goals in company strategy and by continuously surveying our employees to understand their experience of our culture and their ideas for improving it.

Our employees also are invited to actively contribute to our DE&I goals through our Employee Resource Networks (ERNs) and regional and functional DE&I councils. Executive sponsors help guide and champion these networks, which are open to everyone. While most of our ERNs originated in the United States, chapters are now present around the world, as our commitment to DE&I grows more global each year.

DE&I strategy

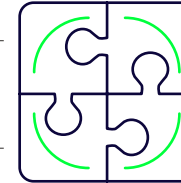
Since our last ESG Report, we have sharpened our focus on DE&I as both a moral and business imperative and have continuously built on our strategy.

1. Build company-wide awareness, capability and urgency to foster and sustain a diverse and inclusive environment.

[↗ LEARN MORE](#)

3. Improve health outcomes for African American, Black, Hispanic, Latino and other underserved communities in the disease areas we treat.

[↗ LEARN MORE](#)



2. Build an intentional, high-performing, engaged, diverse and inclusive talent pipeline.

[↗ LEARN MORE](#)

4. Promote economic empowerment and expand sourcing with minority-owned businesses.

[↗ LEARN MORE](#)

DE&I reporting and disclosure

Committed to transparency in reporting, we publicly disclose EEO-1 data that provide a demographic breakdown of our workforce by gender globally and race and ethnicity in the U.S. We also bolstered our DE&I transparency with reporting via the Workforce Disclosure Index and Bloomberg Gender-Equality Index.

[↗ FOR DETAILS, PLEASE SEE THE \[REPORTING\]\(#\) SECTION OF THIS REPORT](#)

Promoting responsibility throughout the value chain

We aim to ensure responsible sourcing at Biogen, driven by a team with the means to evaluate supplier ESG risk against our maturity model.

We expect Biogen suppliers to operate with high ethical standards, adhering to our Code of Business Conduct, Human Rights Position Statement, and Anti-Slavery and Human Trafficking Statement. More recently, we have been working to formalize our expectations of Biogen suppliers through a Responsible Supplier Program that encompasses a range of ESG issues.

[➔ READ ABOUT OUR RESPONSIBLE AND ETHICAL SUPPLY CHAIN PROGRAM HERE](#)

As part of our DE&I strategy, we recognize how a supplier diversity program delivers benefits for communities and minority-owned vendors by generating economic opportunity. In support of that strategy, we intend to increase spend with minority-owned vendors by 25% annually through 2024 to reach our goal of a 50–100% increase in spend with diverse suppliers over 2020 figures. Many efforts are underway to drive progress, including having an employee focused on supplier diversity to advance our goal.

To increase spending with minority-owned vendors and to advance the strategy, Biogen teams have embedded the goals related to spend and strengthened the vendor onboarding process. We understand that it may be difficult for small, minority-owned vendors to comply with Biogen's procurement requirements. To help address this issue, we provide mentoring opportunities, educate stakeholders and promote current diverse suppliers for expanded collaboration.



Drew Duncan II, Brenna Mason, Norman Carter and Thomas Stokholm in our Research Triangle Park, North Carolina, office.



Jada, who lives with lupus.

ACCESS & HEALTH EQUITY

Working to address health equity from therapy development to access to medicines

14,000

people with spinal muscular atrophy (SMA) globally being treated with SPINRAZA® (nusinersen). SPINRAZA available in 69 countries, including 19 low- and middle-income countries



90%

of U.S. clinical trials delivered race and ethnicity targets for enrollment



305

SOD1-ALS patients being treated in tofersen Early Access Program



KEY AWARDS

- ★ Ionis and Biogen awarded the **Prix Galien Golden Jubilee Award's Silver Medal** for Best Orphan/Rare Disease Product
- ★ **Winner of Reuters Pharma USA's Patient Champion Award:** Partnering with a Community Advisory Board to Build DE&I into Clinical Research
- ★ **Winner of Reuters Pharma EU's Most Valuable Digital Therapy Award:** Care+: A New Patient Service
- ★ **Nominated for Reuters Pharma USA's Delivering Inclusive Trials Award:** Bringing Trials Home for Everyone

ACCESS & HEALTH EQUITY EXECUTIVE SUMMARY

We believe everyone deserves access to a supportive health ecosystem that enables them to live the healthiest, fullest life possible. That's one reason why we work fearlessly to promote access and health equity. Our strategies include increasing representation of diverse patient populations in clinical trials and throughout the development process, providing medicines to those in need, and addressing affordability and pricing.

Our multi-pronged strategy helps us increase our organizational understanding of the challenges faced by patients on their health journey. Acting on what we learn, we collaborate with a range of stakeholders and work to promote education on the importance of accurate and early diagnosis, support underserved and underrepresented communities with information and resources, identify and eliminate barriers to appropriate care, and reduce stigma and bias around various disease areas, with efforts ranging from road

shows and community events to collaborations with patient advocacy groups. We also engage with key medical experts (KMEs) across our product portfolio.

To increase representation in clinical trials, we have set race and ethnicity recruitment targets that reflect disease epidemiology, launched an internal participant demographic distribution dashboard to improve transparency, and are bringing clinical trial enrollment sites and locations to communities with underrepresented populations. We collaborate with KMEs and patient advocacy groups as we aim to strengthen health systems around the world; strive to help build a culturally competent healthcare ecosystem; and help address the root causes of health inequities, including social determinants of health such as structural racism, poverty and environmental impact.



Nathan, who lives with SMA, playing power soccer.

Advancing scientific research in areas of high unmet need

In pioneering science to defeat hard-to-treat diseases, we prioritize patient safety, continue to advance research and development, establish diversity goals in U.S. clinical trials that are informed by the epidemiology of the disease, and work to include access and health equity considerations as early as possible in the development cycle.

We are proud of the progress we have made in areas of high unmet need and where we believe we can make an impact on health equity.

Alzheimer's disease (AD)

In 2023, the U.S. Food and Drug Administration (FDA) granted accelerated approval of LEQEMBI™ (lecanemab-irmb), the second AD treatment co-developed with Eisai to address a defining pathology of the disease by reducing amyloid beta plaques in the brain. Biogen and Eisai are committed to addressing health equity for underserved and underrepresented populations who are at higher risk for AD. As a result of Eisai's recruitment strategy to focus on ethnically diverse populations and decentralized clinical trials, 4.5% and 22.5% of the randomized U.S. participants identified as Black and Hispanic, respectively, for the confirmatory Phase 3 Clarity AD study. In the United States, Black, African American, Hispanic and Latino people are disproportionately more likely to develop AD as well as more likely to have missed diagnoses compared to non-Hispanic white Americans.

Amyotrophic lateral sclerosis (ALS)

QALSODY™ (tofersen), which we developed in collaboration with Ionis, received accelerated approval in April 2023 for the treatment of superoxide dismutase 1 (SOD1) ALS. SOD1-ALS is an ultra-rare genetic form of the disease, impacting approximately 330 people in the United States and their families. Average life expectancy for people with ALS is three to five years from time of symptom onset. Considering the rapidly progressive and fatal nature of SOD1-ALS, tofersen has been made available in 35 countries through the Biogen Early Access Program.

Major depressive disorder (MDD) and postpartum depression (PPD)

We and our alliance partner Sage Therapeutics, Inc. (Sage) completed the submission of a new drug application in the United States for zuranolone, an investigational therapy being evaluated as a rapid-acting, once-daily, 14-day oral short course treatment for adults with MDD and PDD. Depression is the second-leading cause of disability in the United States, with approximately **21 million** people experiencing at least one major depressive episode in 2021. Approximately 500,000 women with a recent live birth experience symptoms of PPD annually, a condition which is underdiagnosed. We are focused on changing the care of depression, addressing the significant unmet need and reducing barriers to care.

Lupus

In October, the first participant was dosed in the Phase 2/3 AMETHYST study of litifilimab, evaluating the efficacy and safety of litifilimab compared to placebo in people with cutaneous lupus erythematosus (CLE). Although anyone can develop lupus, an estimated 90% of people living with lupus are women and the disease disproportionately impacts certain ethno-racial groups, including Black, African American, Asian American, American Indian, Alaska Native, Hispanic and Latino. We have set enrollment targets that reflect the prevalence of SLE in African American, Black, Hispanic and Latino communities with the aim to achieve appropriate representation.

Prioritizing patient safety

Patient safety and well-being is our highest priority. We are committed to complete and timely evaluations of the benefits and risks of our therapies, including the collection of information on adverse events and other safety information.

Our safety and benefit risk management team reviews safety information received from a variety of sources, including foreign and domestic clinical trials, published literature and post-marketing. When a potential safety issue is identified, we seek to better understand the issue and we report our findings to applicable regulatory agencies. We also communicate newly identified product safety information to healthcare professionals and patients by updating the product labeling

and through other communications, as appropriate, to help healthcare professionals, patients and other stakeholders make informed treatment choices. Additionally, in some instances, we conduct post-marketing studies to evaluate therapies’ long-term effects.

Driving representative diversity in clinical trials

By increasing participation of underrepresented populations in clinical trials, we believe we can better serve a diverse range of patients. To ensure that trial participants adequately reflect the real-world patient population, for studies conducted in the United States, we establish diversity goals that are informed by the epidemiology of the disease. Our multi-pronged strategy helps to deliver equitable access and representative diversity in our clinical trials:



Data-driven, study-level recruitment targets and diversity plans that represent the epidemiology of the disease.



Forming relationships and building trust with under-represented and underserved communities.



Sustained community outreach and education.



Identifying and selecting communities where clinical trials have historically not been offered to broaden recruitment outreach.



Robust communication and providing transparency internally and externally.



Country-specific diversity, equity and inclusion (DE&I) initiatives to address equitable access to clinical trials globally.

One example of how we use this work to drive our enrollment targets is our clinical trial for systemic lupus erythematosus (SLE). An estimated 4 million people worldwide are impacted by SLE.¹ Although anyone can develop lupus, an estimated 90% of people living with lupus are women² and the disease disproportionately impacts certain ethno-racial groups, including Black, African American, Asian American, American Indian, Alaska Native, and Hispanic and

¹ Data on file. Estimated by Biogen epidemiology 2015.
² Pons-Estel GJ, Ugarte-Gil MF, Alarcón GS. Epidemiology of systemic lupus erythematosus. Expert Rev Clin Immunol. 2017 Aug;13(8):799-814.

Latino.^{3,4,5,6} In partnership with The National Minority Quality Forum, Clinical Trial Learning Community (CTLC) is providing focused outreach on community stakeholders including clinicians, research investigators, pharmacists, faith-based leaders and barbers in the Maryland, Virginia and Washington, D.C., area to build clinical trial awareness and promote access.

We work with a variety of **stakeholders**, including valued community partners and trial sites, to listen, learn and establish a sustained and trusted presence. Since 2021, Biogen’s Community Advisory Board (CAB) – a diverse group of patient and community advocates of different races, ethnicities, ages, genders and with different disabilities – has helped inform and shape our educational and awareness assets. Their input led to the creation of the **Participants’ Rights Timeline**, a resource that addresses past medical injustices and the progress that has been made to protect participants’ rights and safety in clinical trials, along with **Biogen Trial Link**, a website to help connect patients, caregivers and healthcare professionals with education and information about Biogen’s clinical trials. This work enhances awareness, provides transparency, addresses concerns people may have about participating in clinical trials and connects them to existing trials.

Measuring progress in clinical trial recruitment targets

We hold ourselves accountable to ensure diverse enrollment in our studies. To ensure we remain on track, we developed and are using diversity dashboards that provide real-time updates, allowing teams to adjust recruitment efforts or partner on approaches, as needed, to broaden equitable access to clinical trials to ensure we are meeting or exceeding recruitment targets.

³ Izmirly PM, Parton H, Wang L, et al. Prevalence of Systemic Lupus Erythematosus in the United States: Estimates From a Meta-Analysis of the Centers for Disease Control and Prevention National Lupus Registries. *Arthritis Rheumatol.* 2021;73(6):991-996.

⁴ Lim SS, Helmick CG, Bao G, et al. Racial Disparities in Mortality Associated with Systemic Lupus Erythematosus - Fulton and DeKalb Counties, Georgia, 2002-2016. *MMWR Morb Mortal Wkly Rep.* 2019;68(18):419-422.

⁵ Rees F, Doherty M, Grainge MJ, Lanyon P, Zhang W. The worldwide incidence and prevalence of systemic lupus erythematosus: a systematic review of epidemiological studies. *Rheumatology (Oxford).* 2017;56(11):1945-1961.

⁶ Drenkard C, Lim SS. Update on lupus epidemiology: advancing health disparities research through the study of minority populations. *Curr Opin Rheumatol.* 2019;31(6):689-696.

Ensuring responsible product development



Responsible product development begins in the earliest stages of research and development (R&D), with clear guidelines around issues such as animal welfare, clinical research, bioethics and stem cells, clinical trial transparency and data sharing, product stewardship and research collaborations. Our approach to these and other issues is grounded in industry standards, best practices and consultations with stakeholder groups. We disclose our **Policies, Principles and Positions** on these and other issues.

In 2022, we achieved or exceeded our goals for equitable access and diversity

Biogen Global Clinical Operations equitable access and diversity goals	Status	2022 Progress
≥90% of studies actively recruiting in the United States will set and deliver the race and ethnicity targets for enrollment that reflect the epidemiology of the disease (+/-20%)	Achieved	<ul style="list-style-type: none"> • 10 studies in scope • 12 studies in scope for 2023
Execute on country-specific DE&I strategies to support underserved and/or underrepresented patient engagement and recruitment in clinical trials	Achieved	<ul style="list-style-type: none"> • Diversity, equity and inclusion initiatives launched in the United States, Australia, Canada and the United Kingdom with plans to expand to South America and additional regions in the EU in 2023
Include at least 10% (+/-2%) underrepresented/underserved sites in the United States (for studies with 10 sites or more)	Exceeded	<ul style="list-style-type: none"> • Dedicated focus on identifying U.S. sites that have special focus on addressing underrepresentation (e.g., diverse site workforce, access to local underserved and/or underrepresented patients, dedicated community outreach programs) and collaborating on approaches to broaden equitable access to clinical trials • 3 studies in scope for 2022 all exceeded these targets • 2023 site diversity targets increased to 20%

Promoting health literacy and access to medicine

Improving access to medicine and to a supportive healthcare ecosystem can help save lives, enhance well-being and enable people to pursue productive livelihoods. We promote access and support people throughout the patient journey and across a spectrum of access-related issues, including a focus on patients with rare diseases.

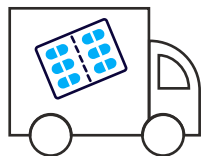
Access to Medicine Technical Area	Stakeholder Priorities	Highlights of Biogen's Commitment
<p>Governance of Access</p> 	<p>Governance, strategy and responsible business practices</p> <hr/> <p>Staff incentivization toward fostering access to medicine</p> <hr/> <p>Ethical marketing and disclosure policies</p> <hr/> <p>Prevention of corrupt or non-compliant activity in operations</p>	<p>Biogen is committed to responsible business practices, as outlined in our Code of Business Conduct and other policies. Biogen's Board of Directors governs Biogen's processes for maintaining the integrity of the company, including Environmental, Social and Governance ("ESG") issues, following the company's Corporate Governance Principles. Biogen's corporate strategy includes building on our priorities for access and health equity. Our Early Access Principles + Program Overview is available here. Visit our Access page for a description of Biogen's approach to off-label use.</p> <hr/> <p>Biogen staff are incentivized to advance the company strategy, which includes access and health equity as priorities.</p> <hr/> <p>Biogen is committed to ethical marketing and to disclosure following the GRI, SASB and Stakeholder Capitalism metrics.</p> <hr/> <p>Biogen's ethics and compliance policies and programs and Code of Business Conduct are designed, in part, to prevent corrupt or non-compliant activity in operations. The company also is implementing a Responsible Supplier Program, including an evaluation process to identify any potential at-risk suppliers that could warrant further evaluation.</p>
<p>Research & Development</p> 	<p>Product Development, Access Planning and R&D Capacity Building</p> <hr/> <p>Underlines any clear benefit to lower- and middle-income countries: accessibility and availability are crucial</p> <hr/> <p>Contributions to local R&D capacity are important re: empowering local researchers to address population needs</p>	<p>In 2020, Biogen launched three Health Equity Advisory Boards – access, clinical trials and policies – to better understand patient needs to improve access to our therapies, ensure clinical trials reflect the target population, and consider policies that support access and equity. We comply with government regulations and engage with regulatory agencies and others to ensure that new and innovative therapies are commercially available to the patients who need them.</p> <hr/> <p>SMA treatment is available in 69 countries, including 19 low- and middle-income countries. In markets with low GDP per capita, we have engaged with innovative agreements to meet each market's individual needs. It is our strong belief that the decision to treat should be between the physician and the family, without budget concerns. Our policy to promote access to SPINRAZA will help inform our approach to our broader portfolio of therapies.</p> <hr/> <p>Biogen has a range of active initiatives to help foster local R&D capacity in diverse local populations. Announced in 2022, the Biogen-supported Xavier University of Louisiana's Biogen Sharp-Verret Award is a scholarship for underrepresented students pursuing neuroscience careers. We collaborate with Morehouse School of Medicine on a fellowship program that engages M.D. and Ph.D. students, aiming to advance health equity and improve patient experiences. The Biogen Foundation also has a collaboration with Massachusetts General Hospital (MGH) through the MGH Youth Neurology Education and Research Program. In 2016, Biogen helped create The Partnership, Inc.'s BioDiversity Fellows Program, which nurtures the potential leadership of mid-career professionals who are underrepresented in the life sciences industry. We also sponsor the Golden Ticket Award, a competitive process seeking to identify rising startup companies in the field of neuroscience. Each Biogen-LabCentral Golden Ticket includes up to one year of bench space for one scientist and the benefits of LabCentral's shared infrastructure and services at no cost to the contest winner.</p>

Access to Medicine Technical Area

Stakeholder Priorities

Highlights of Biogen's Commitment

Product Delivery



Equitable access to products is primary focus

We strive to ensure broad access to our therapies through both public and private healthcare systems, and both before and after a therapy's potential regulatory approval. We run a wide range of Access Programs, as outlined in this report. Biogen also may offer financial assistance or help to secure reimbursement in public and private healthcare programs for patients who are otherwise unable to access our medications.

In 2020, we initiated a pilot program in India to help expand access to SPINRAZA, including providing SPINRAZA free of charge to program participants, who were selected by an independent committee of medical experts. To date, 200 patients in India continue to receive SPINRAZA as part of this effort. We are exploring the potential for future expansion in other countries.

Highlights overcoming any local barriers in accessing hard-to-reach markets and patient populations

Biogen works to overcome barriers to access for underserved patient populations through our [Access Programs](#), [Pricing Principles](#) and access efforts, such as a transportation support program for SPINRAZA patients who live hours from their site of care. For example, we have worked hard to ensure that SPINRAZA is available in 31 provinces, municipalities and autonomous regions across China so patients in remote areas like Gansu, Ningxia, Qinghai, Xinjiang and Inner Mongolia are able to access treatment through local hospitals.

We work with regulators, clinical researchers, ethicists, physicians and patient advocacy groups, among others, to determine how best to address requests for access to our investigational therapies in a manner that is consistent with our patient-focused values and compliant with regulatory standards and protocols.

Includes sharing of intellectual property, strengthening of local or regional health systems, enabling of generic medication manufacturing and supply, product donations, product registration in high-burden countries, manufacturing/supply chain capacity-building, and inclusive business model

Health Systems Strengthening: In 2020, we began new programs to help strengthen healthcare systems. Collaborating with Harvard University's T.H. Chan School of Public Health's C-CHANGE (Harvard Chan C-CHANGE) program and Americares, we launched a [first-of-its-kind program](#) to help under-resourced healthcare clinics become more climate-resilient to help ensure continuity of access and care and improve measurable health outcomes. The Biogen Foundation supported CareMessage, the largest patient engagement platform in the United States, which equips at-risk communities with access to accurate healthcare information using basic text and voice messages – key to reaching people who don't have broadband.

Manufacturing/Supply Chain Capacity Building: Biogen became one of the first contributors to Massachusetts Institute of Technology's (MIT) collaboration, The AltHost Consortium, in 2020. AltHost works to advance the speed and productivity of alternative host cell research and manufacturing, with the aim to meet escalating needs for biologic drugs through improved product quality and increased volumetric productivity with a goal of improved access and lower costs.

Product Donations: Biogen runs relevant programs in a number of countries, as outlined in this report. To promote best practices in product donations, we abide by the latest WHO Guidelines for medicine donations, including selection of medicines, packaging and labeling practices, and information and management with recipient organizations.

Inclusive Business Model: We are committed to advancing DE&I via a multi-part strategy. As of Dec. 31, 2022, 47.4% of Director+ positions were held by women globally and 30.4% of Manager+ positions in the United States were held by ethnic or racial minorities.

Understanding the patient journey to inform our work

When facing a neurological disease, patients and their families often have questions and need support that can go beyond medical therapies alone. Putting patients at the center of everything we do, we held a Patient Voice Series, connecting employees with patients to illuminate their priorities and critical issues such as affordability and access. Employees heard directly from people living with ALS, multiple sclerosis (MS), SMA, depression, as well as advocates and caregivers. By listening to these varied stories and experiences, employees heard what patients and caregivers face day to day and what is most important to them, helping Biogen teams focus on work in the most potentially meaningful ways possible.

We also met regularly with more than 200 patient advocacy groups to listen, learn and provide resources to help people along their healthcare journeys. Those engaged also supported Biogen in taking a patient-focused drug development approach. Other highlights include:

- PatientView insights on patient needs: We engaged with PatientView, a global annual ranking that provides insight into how Biogen's patient advocacy work compares to that of peer companies and what communities would like to see from Biogen. The report helps us assess our program efficacy and identify focused areas for improvement.
- Patient advocacy group surveys: We conducted MS and neuromuscular disease patient advocacy group surveys to provide insight that can help direct future work with these patient groups on issues such as health equity and support for living with relevant diseases.
- Patient support programs: We offered a range of patient programs, such as concierge/navigator services, health coaching, hospital assistance, diagnostics and healthcare support.

We also engaged with a range of other stakeholders, including healthcare professionals, to advance disease education so they can best meet the needs of patients and caregivers. For example, we have produced more than 30 publications focusing on MS and SLE data gaps including real-world evidence.



In Japan, Biogen helped coordinate and host a national boccia tournament for young people with SMA and other disabilities. Boccia is a modified game that allows patients with SMA to feel included in sports, while working on their strength, confidence and mobility.

Providing access to medicine

We discover and develop medicines for complex conditions, including rare diseases. Given the nature of many of our therapies and medical conditions facing the patients we serve, enabling access to medicine can go beyond the therapy itself to include a broader health ecosystem. In some cases, treatment requires ongoing testing, monitoring and delivery mechanisms such as infusions which require administration by a healthcare professional. We consider these factors and many others as we aim to provide multiple solutions that help make our medicines available to as many people as we can. We are committed to flexible access solutions, including efforts to ensure product availability, pricing, financial and insurance services.

Supporting patients impacted by the war in Ukraine

When Ukraine was invaded in 2022, we partnered with organizations to ensure people living with MS and SMA had access to the Biogen medicines they needed. We worked with the Ministry of Health of Ukraine and partnered with Direct Relief, a humanitarian aid

organization, to donate units of TECFIDERA®(dimethyl fumarate) and AVONEX®(interferon beta-1a), which were transported to clinics around Ukraine. Biogen also provided a €25,000 grant to SMA Europe and are in communication with our partners to guarantee continued patient care.

➔ **LEARN MORE ABOUT HOW BIOGEN, THE BIOGEN FOUNDATION AND EMPLOYEES ALSO HELPED THOSE IMPACTED BY THE WAR IN UKRAINE IN THE [COMMUNITY](#) SECTION**

Enabling early access

We continuously evolve our thinking and approaches to enable broad access to our therapies – both before and after potential regulatory approval – to expand access to medicine through both public and private healthcare systems. We work with regulators, clinical researchers, ethicists, physicians, patient advocacy groups and communities, among others, to determine how best to address requests for access to our investigational therapies in a manner that is consistent with our patient-focused values and compliant with regulatory standards and protocols.

People who meet specific criteria may have access to investigational therapies. Our Global Access Mechanisms (GAMs) include Early Access Programs (EAPs) and compassionate use, which we have in 39 countries. In 2022, 231 new patients⁷ were treated in GAM programs, up from 80 patients from the previous year.

One example is our early access of tofersen to eligible SOD1-ALS patients. We have also expanded access to MS and SMA therapies in China and entered into SMA Risk Sharing Agreements in additional markets, with SPINRAZA® now having either a formal reimbursement, individual reimbursement or a Charged Managed Access Program (CMAP) in 69 countries.

⁷ Denotes cumulative patients treated in 2022, does not indicate patients active in a GAM program in 2022.

Supporting affordability for patients

We believe in holistic value frameworks, with benefits to patients, providers and society. We seek value-based agreements and partnerships that maximize the benefit of our therapies. It is the shared responsibility of all healthcare stakeholders to find solutions that ensure patients can afford new innovations. Biogen partners with healthcare systems so patients can access our medicines in a sustainable way, and we remain flexible to enable affordability for patients across economic circumstances.

We are transparent about our Pricing Principles and continue to listen to stakeholders and take their perspectives into account as part of our pricing decisions. We regularly review our pricing strategies and follow Pricing Principles that include value to patients, current and future benefit to society, fulfilling our commitment to innovation, evolution toward value-based care, and affordability and sustainability.

STORY

Brightening a baby's future through SPINRAZA

Enar's nephew, Behram,⁸ was just a newborn when he was diagnosed with SMA Type 1, a rare genetic condition where nerve cells in the spinal cord and brainstem do not work properly, resulting in progressive muscle atrophy and weakness. If left untreated, Behram was unlikely to live past his second birthday, and there was no available treatment for him in Kosovo, where they live.

"Behram's muscles were failing, he was moving less and less. It was heartbreaking. The family felt we were on the edge of disaster," said Enar. She sent a letter to Project HOPE, an international global health and humanitarian aid nongovernmental organization with a focus on children's health. "I can't watch my baby nephew die," she wrote in the letter. "I can't say 'goodbye.'"

Project HOPE issued a request for support. Biogen responded, knowing any further delay in treatment for Behram could mean significant disabilities, and potentially death. We worked across functions and levels to orchestrate the operations needed to provide treatment in a country where Biogen had previously had no presence. Adding to the complexity, SPINRAZA is not the kind of medication anyone can pick up over the counter. Treatment requires an intrathecal injection administered by healthcare professionals. We were tenacious in finding a way to quickly deliver SPINRAZA to a hospital in Kosovo, supplying the medicine that Behram urgently needed.



"The combination of varied healthcare systems and delayed or insufficient access to therapies in some countries can be a challenge for patients and caregivers. It is humbling to see the passion of physicians who fight for their patients to receive the best possible care," said Carmen Walbert, Biogen's Head of Europe, Canada and Partner Markets (ECP) Medical.

Although more than 14,000 people globally have been treated with our medicine,⁹ Behram was the first patient with SMA to receive SPINRAZA in Kosovo. Biogen has been providing access in countries around the world where our medicines can make a real difference. With these efforts, we aim to help tackle disparities in treatment access across age, gender, race, ethnicity and socioeconomic levels. We have made SMA treatment available in 69 countries worldwide, including 19 low- and middle-income countries. Our SMA humanitarian access project in India is reaching 200 infants, and we are delivering solutions to other people worldwide who would not have otherwise had access to treatment.

We are committed to helping to improve outcomes for patients, like Behram, in the disease areas we treat.

"Biogen's approach since the first approvals of SPINRAZA has been consistent, underscoring our commitment to the SMA community. We are passionate about expanding access to our treatment for patients in need," said Adrian Harrington, SMA Value & Access Lead. "In addition, we work with local clinics to ensure that SMA care standards are optimized, so that patients can get the best outcomes from treatment with SPINRAZA."

"There are many underserved and underrepresented groups around the world who are living with debilitating diseases and insufficient access to treatment. As part of our credo of caring deeply, we aim to help address the unmet medical needs of these patients and improve their standard of care," said Maha Radhakrishnan, Biogen's Chief Medical Officer.

We are working with our global partners to access disparate and hard-to-reach patient populations who have felt left behind. Engaging directly with local medical experts and centers of excellence in SMA helps us to evolve our thinking and approach to topics such as treatment objectives, patient profiles and measures to assess treatment effectiveness. Communicating with patient advocacy groups also helps us understand patient needs and to account for potential concerns of patients and their caregivers.

Biogen is committed to helping to improve outcomes for patients, like Behram, in the disease areas we treat. His treatment is lifelong, so his care team is taking things at his pace – and he is getting stronger every day. Enar said, "In the future, I hope to see him going to school, being more independent. He now has a shot at living a more normal, happier life."

⁸ Names have been changed for privacy and protection.

⁹ Based on commercial patients, Early Access Program patients and clinical trial participants through December 31, 2022.

Note: People must meet specific criteria to receive access to Biogen's therapies through compassionate use based on humanitarian grounds or through our humanitarian aid program. Biogen's increasing global operational footprint facilitates reaching more patients and helps us better understand local needs. Learn more about our [Access programs](#).

Collaborating with stakeholders

We are committed to learning from patients, caregivers and their communities. Understanding the ways sociodemographic and other factors contribute to clinical outcomes can create pathways to quality care. We actively collaborate with organizations dedicated to advancing public policies that promote greater health equity and representing minority, aging, caregiving, faith-based, disability and veteran communities.

In 2022, we continued our work with the National Association of Free and Charitable Clinics (NAFC), a network of more than 1,400 member clinics that support millions of underinsured or uninsured patient visits annually. The work led to better understanding of the needs of the providers and the people they serve, the gap in access to neurological care, the strong need for expanded mental health services, the opportunities to build community awareness of available resources and ways to help address the social determinants of health.

We also continued our collaboration with the National Minority Quality Forum (NMQF), supporting data generation and community engagement activities. We rolled out and supported the release of the National Health Council's health equity policy agenda outlined in their 2022 report: [Access, Affordability and Quality: A Patient-Focused Blueprint for Real Health Equity](#).

To help promote health equity, the Biogen Foundation supports CareMessage, the largest patient engagement platform in the United States, which equips at-risk communities with access to accurate healthcare information using basic text and voice messages. In North Carolina, our support helped Robson Healthcare and NeighborHealth Center, with plans to extend assistance to a total of 10 safety-net clinics.



Participating and volunteering in local patient events, like the Seattle Walk & Roll, provides employees with the opportunity to hear about real-life experiences and to better get to know the communities we serve.



Sushma Hallock and Priti Shah are living the elements.

WORKFORCE

Advancing a workplace where everyone can thrive

47.4%

of Director+ positions held by women globally



30.4%

of Manager+ positions in the United States held by ethnic or racial minorities



80%

of participating employees say the work that they do at Biogen is meaningful personally

KEY AWARDS

- ★ 9th year receiving 100% on the Human Rights Campaign's **Best Place to Work for LGBTQ+ Equality**
- ★ 5th year receiving 100% on Disability:IN's **Best Places to Work for Disability Inclusion**
- ★ **Included in Fierce Pharma's Top 10 Big Pharms** for Diversity, Equity and Inclusion Efforts
- ★ **Received three VIBE Awards:** Best Companies for Financial and Retirement Benefits, Best Companies for Parental Benefits and Best Companies for Vacation and Time Off
- ★ Named to the **Bloomberg Gender-Equality Index** and **Workplace Disclosure Initiative's Scorecard**

WORKFORCE EXECUTIVE SUMMARY

Achieving success in developing innovative and groundbreaking neuroscience medicines requires a workforce that feels supported to perform their best and is celebrated for who they are together and as individuals. We empower employees to do their best work and grow their careers, while ensuring they feel valued, respected and encouraged to bring their authentic selves to work every day.

We champion an environment where success and well-being thrive together. We offer extensive training and development opportunities but encourage employees to go at their pace. Our flexible ways of working and dedicated wellness

opportunities empower employees to better find work-life balance. Our comprehensive benefits enable employees to focus on what's important, knowing they're covered.

At Biogen, we've long viewed diversity, equity and inclusion (DE&I) as a competitive strength, and we strive every day to cultivate a diverse and inclusive environment. We build employee awareness and capability to contribute to a more just and equitable world through development programs, listening sessions and conferences. We are working to further diversify our workforce and are committed to pay equity.



Employees Sarah Morrin and Tamara Gisler.

Promoting opportunity and well-being

We take a holistic view of employee success and well-being, fostering an environment where everyone is empowered to engage and realize their full growth potential.

Fostering opportunities to engage and grow

We recognize the importance of flexibility, feedback and career paths that reflect individual skills and interests.

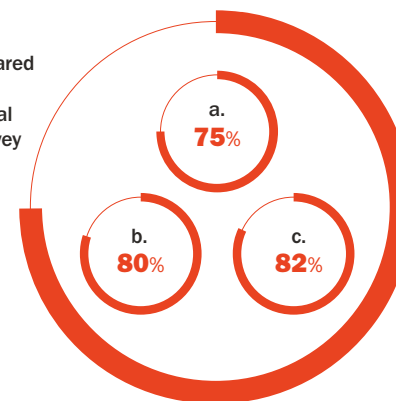
Promoting employee engagement

We cultivate a workplace where employees are empowered to own their careers and equipped with resources and opportunities to engage and grow, from formal training to a range of Employee Resource Networks (ERNs).

Launched in 2022, Thrive@Biogen was designed to foster constructive relationships between every manager and their direct reports. Beginning with an open 1:1 conversation and the creation of individualized plans for engagement and retention, regular meetings help to address barriers and celebrate progress. Based on strong feedback, Thrive conversations are now fully integrated into formal quarterly performance conversations.

75%

employees shared their views in Biogen's annual employee survey



- a. Say Biogen takes genuine interest in employees' well-being
- b. Say the work they do is meaningful to them
- c. Would recommend their manager to others

Employees and managers also supplement their formal appraisals with informal conversations throughout the year to address goals, objectives and barriers to performance. We believe that talent development accelerates Biogen's performance, motivates employees and aligns our work. We encourage ongoing, constructive and candid conversations carried out in a caring way and through a lens of inclusion. Additionally, we take a multi-dimensional view of employee performance where feedback from their peers, direct reports and other employees is considered, along with feedback from direct managers on certain goals and objectives.

Providing flexible Ways of Working

Supporting flexibility as employees manage professional and personal responsibilities, our Ways of Working program offers telecommuting and flextime as well as part-time and job-sharing options. Roles can be:

- **Hybrid** – Split time on- and off-campus
- **Off-Campus** – Job tasks can be performed off-campus and no consistent campus presence is needed
- **Field** – Tasks such as sales responsibilities are completed in the field
- **On-Campus** – All or most job responsibilities are performed on a Biogen campus.

Shared time off to focus on well-being

In response to employees' extraordinary efforts during the past few years and the toll those challenges took, a wellness week was put in place for 2022. Employees globally took a shared week off to focus on their well-being. We also ended the year with the annual weeklong shutdown between Dec. 26 and Jan. 1, 2023.

Employee sabbaticals

Those who have been employed by Biogen for at least six years can benefit from our paid monthlong sabbatical program to travel, volunteer, spend time with loved ones or acquire new skills. In 2022, 737 employees enjoyed a sabbatical.



Amy Birmingham, Employee Engagement Leader and Communicator. She employed her sabbatical to tackle house projects, establish healthy habits and routines, and sail with her family from New Bedford to Nantucket.

It's such a unique benefit that we offer our employees, and I'm so grateful to Biogen for giving me this time that I used to finish house projects and get into really good health habits and routines. It also grounded my family more as we were able to spend quality bonding time doing activities, like sailing, putting together puzzles and reading together.

Amy Birmingham

Encouraging professional growth

Robust opportunities to learn and grow can contribute to employee engagement and success. At Biogen, professional development can come through on-the-job learning and challenging new assignments, mentoring, in-person and online training, and more.

We offer more than 1,200 instructor-based courses through Biogen University. More than 300 of those are available virtually, and in 2022, we added more than 450 new on-demand eLearning courses, giving employees access to more than 20,000 modules in 11 languages: Brazilian Portuguese, Dutch, English, French, German, Italian, Japanese, Mandarin, Polish, Spanish and Turkish.

Orbit rotational program

Employees seeking short-term growth assignments outside of a current role can expand their experience and internal networks, and help meet company deliverables, through the Orbit rotational program. Since the program launched in 2021, 378 employees have participated.

Through my Orbit, I had the opportunity to learn about different parts of the business, collaborate with diverse groups and develop new skillsets.

Namsok Cho, Technical Product Complaints

Employee Resource Network

	Description	2022 Activity
AccessAbility	Supports employees with disabilities and employees who are caregivers of individuals with disabilities.	Worked with Microsoft to provide webinars on Global Digital Accessibility Awareness Day to share features and customizable settings for hearing, sight and neurodiverse needs.
Biogen Veterans Network	Encourages veterans and allies of veterans to connect and support one another.	Volunteered with more than 150 U.S. organizations in a 9/11 National Day of Service activity to pack 3 million meals, benefiting Feeding America-affiliated food banks.
IGNITE	Brings together early-career professionals and their advocates.	Hosted a series of “career talks,” bringing together Biogen leaders to share stories, insights and advice on ways to IGNITE careers.
Mosaic	Fosters awareness and appreciation of different cultural backgrounds, in addition to promoting networking and development opportunities for members.	Hosted panels with Biogen leaders to share their insights, experiences and perspectives on navigating the corporate world and leveraging their cultural backgrounds in leadership during Asian American and Pacific Islander Heritage Month, and Hispanic Heritage Month.
Parenting Network Group (PNG)	Biogen’s newest ERN provides support, networking and development opportunities to working parents and caregivers, as well as helps employees navigate the challenges of work-life balance.	Hosted a listening session with Biogen’s on-site counselors for parents and caregivers, following the massacre in Uvalde, Texas, that took the lives of 19 children and two teachers, to discuss grief and concerns about sending their children to school and to provide guidance on how to navigate these traumatic events with their children.
ourIMPACT	Advances climate, health and equity at work, in employees’ personal lives and in the communities where we live and work.	Led a Caring Deeply volunteer event with the Charles River Conservancy in Massachusetts, where more than 20 volunteers removed litter, raked leaves and debris, painted benches and picked weeds.
ReachOUT	Supports a best-in-class working environment for LGBTQ+ employees and embraces all LGBTQ+ employees and their allies.	Drove the TENT mentorship program where employees provide career guidance for LGBTQ+ refugees, with a commitment to mentor 50 LGBTQ+ refugees until 2024.
Women’s Innovation Network (WIN)	Creates networking, mentoring and learning opportunities for women and allies worldwide.	Hosted a listening session with members of the Biogen Benefits team, following the U.S. Supreme Court decision to overturn Roe v. Wade, to discuss what the decision means for those at Biogen, what benefits exist to cover those impacted by the decision and what Biogen is doing to protect healthcare access for employees.

High-impact learning and development opportunities

To create and sustain a workplace as diverse and inclusive as the patients we serve, we offer programs that invest in our talent pipeline and in our current leaders, including:

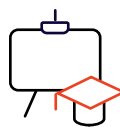
- Activate, Reflect and Co-Create: Preparing top talent for the rigors of executive roles.
- Women's Leadership Program (WLP): Addressing the unique challenges faced by female leaders to increase influence and impact. Approximately 1% of employees have participated in WLP.
- The Partnership, Inc.'s BioDiversity Fellows: Continuing to bolster our talent pipeline with a diverse mix of leaders. Approximately 1% of employees have participated in The Partnership programs.
- Women on the Rise: Cultivating and driving engagement and retention among emerging women leaders. Participants of the program, delivered with Simmons University, uncover and leverage their strengths and core values to intentionally nurture their leadership brand and impact.
- Emerging Leaders: Preparing high-potential individual contributors for first-level leader roles.

Mentoring and coaching programs

- BetterUp: Supporting individuals through coaching, as they work toward enhancing their impact in the organization.
- Torch: Offering internal and external mentoring relationships.

Celebrating employee success

We recognize employee accomplishments in ways large and small. Our CEO Elements Award honors employees and teams that demonstrate the Biogen Elements, values that include a pioneering spirit, strong ethics, personal accountability, inclusivity, agility and unwavering customer focus. In 2022, we celebrated 49 total winning projects, and 677 individuals received an award.



31.5 hours
Average time spent
by full-time employees
in formal professional
development

20,000+
Number of courses
available to employees
in 2022

Promoting employee wellness, health and safety

We want every employee to feel healthy, safe and productive at work and in the world.

Providing comprehensive benefits

We strive to offer comprehensive, industry-leading benefits, which we updated in 2022 to include even more robust mental health support and medical travel coverage.

We provide employees and their families with convenient, free opportunities to improve mental health, sustain emotional well-being and increase resilience. Available globally are confidential access to professional consultants and online resources, and Headspace, a health and happiness app. For U.S. employees, we offer Learn to Live, an online cognitive behavioral therapy program, and Talkspace, a digital telehealth support tool that enables participants to connect to a therapist through text, video or phone.

Introduced in 2022, our U.S. Healthcare Travel Reimbursement is now available for employee travel to access health services not available within a 100-mile radius of their home. This supplements other benefits, including paid pregnancy-loss leave and paid leave for new parents.

Employee and Family Solutions

Employee and Family Solutions, a global employee assistance program, offers legal services, financial consultations, behavioral healthcare, and child and elder care referral services for all employees and their family members globally, 24 hours a day, seven days a week. In 2022, employees tapped into online workshops and information on topics such as managing resilience, money and finances, family care and education.

Parental leave and benefits

Our U.S. maternity leave provides 100% of base pay for up to 16 weeks, including eight weeks of short-term disability benefits and eight weeks of parental bonding leave. Non-birth parents of a newborn or adopted child, including those using a surrogate, receive eight weeks of paid parental bonding leave.

Employees completing an adoption or surrogacy may receive up to \$10,000 (lifetime maximum of \$20,000) in reimbursement for related expenses such as adoption and surrogacy fees, court and attorney fees, travel and lodging expenses, agency and placement fees, medical expenses of the birth mother and child prior to adoption or surrogacy, immigration fees, and immunization and translation fees.

All U.S. benefits-eligible employees also may receive up to \$1,000 in reimbursement for expenses associated with birth doula services, including physical and emotional support to employees and their partners during pregnancy, childbirth and the postpartum period.



An estimated 1 in 8 women experience symptoms of postpartum depression (PPD). Learn how Biogen supported Megan McDonald, Senior Manager for Global Website Channels, when she experienced PPD during her maternity leave.

Outside of the United States, benefits vary by country, but in every market where we operate, our benefits meet or exceed the legal requirements, and are informed by market trends and employee feedback. We are working to determine if uniform or core global standards are feasible and desirable.

Paid caregiver leave

Caregivers play a key role in helping people live fuller, healthier lives, and Biogen cares for caregivers – whether that means for patients, communities or employees. With research showing that about 1 in 6 working U.S. residents serve as primary caregivers, we go beyond U.S. regulations to ensure enhanced leave is available to U.S. employees. Under the U.S. Family and Medical Leave Act, and various state laws, caregivers of seriously ill family members have generally been eligible for up to 12 weeks of unpaid job-protected leave per year. Biogen offers U.S. employees up to eight weeks of paid caregiver leave, with additional unpaid leave available.

Paid leave regulations and standards vary by country, so we actively review leave practices relative to employee needs, market practices and business priorities. For example, in Switzerland, federal law mandates short-term paid leave for caregivers to assume care of a family member and 14 weeks of leave for employees to take care of a child who is seriously ill or has been the victim of an accident.



Employees and their loved ones can access quality care and support across four dimensions of wellness: physical, financial, social and emotional.

Overview of key Biogen employee benefits

Full-time (F): At Biogen, employees are eligible to receive benefits if they are regularly scheduled to work 40 hours per week.

Part-time (P): At Biogen, employees working fewer than 40 hours per week are considered part-time. Part-time employees working 20 or more hours per week are generally eligible for the same benefit as full-time employees with some benefits, such as vacation, pro-rated.

Employee benefit	100% of employees	90% or more employees	More than two-thirds of employees	Under consideration
FINANCIAL SUPPORT				
16 weeks of paid birth-parent leave with 100% base pay		F/P		Global standard that all affiliate offerings are at or above local market relative to peers
8 weeks paid caregiver leave for non-birth parents			F/P	Global standard that all affiliate offerings are at or above local market relative to peers
8 weeks paid caregiver leave for any employee caring for a seriously ill family member			F/P	Global standard that all affiliate offerings are at or above local market relative to peers
Up to 5 days paid bereavement leave for death of family member including pregnancy loss		F/P		Global standard that all affiliate offerings are at or above local market relative to peers
Up to \$10,000 (lifetime maximum of \$20,000) for adoption/surrogacy expenses			F/P	
\$1,000 for expenses associated with a birth doula			F/P	
Remote/hybrid employees eligible for a \$1,500 stipend to purchase home office equipment		F/P		
Medical travel coverage			F/P	
PRACTICAL SUPPORT				
On-site childcare			F/P	
Subsidized backup child and elder care with Bright Horizons			F/P	Evaluating capability to expand globally
Subsidized backup pet care			F/P	
Child and elder care resource and referral service	F/P			
Fitness facilities/virtual exercise classes			F/P	
Gym, fitness class, exercise equipment financial reimbursement			F/P	
Meditation courses	F/P			
No-cost access to mental health support (app, virtual counselor)	F/P			
Employee Resource Network	F/P			
Concierge services			F/P	
TIME AND FLEXIBILITY				
Flexible work arrangements	F/P			
8 hours paid time off to volunteer	F/P			
1 month paid sabbatical every 6 years	F/P			

Additional caregiver support

To meet the needs of new parents, in the United States, we provide a range of additional support, from breastfeeding support and on-site lactation facilities to childcare. For example, we work with Bright Horizons to offer early childhood education for infants through kindergarten prep, as well as summer programs.

Competitive compensation

Biogen’s Total Rewards program is designed to meet the needs of employees in local markets, and typically includes retirement or savings plans, financial advising, Long-Term Incentive (LTI) plans and incentive grants, no-cost life insurance and disability coverage, tuition reimbursement and college-planning services, as well as our annual bonus plan. Employees develop individual goals annually that align with and help execute on Biogen’s overall strategic goals. Their individual performance is analyzed against those goals through the lens of the Biogen Elements.

Biogen’s performance is evaluated through our Corporate Scorecard. The amount of bonus payout under the Annual Bonus Plan is based on individual performance as well as company performance.

[➔ READ MORE ABOUT BIOGEN’S REWARDS AND BENEFITS](#)

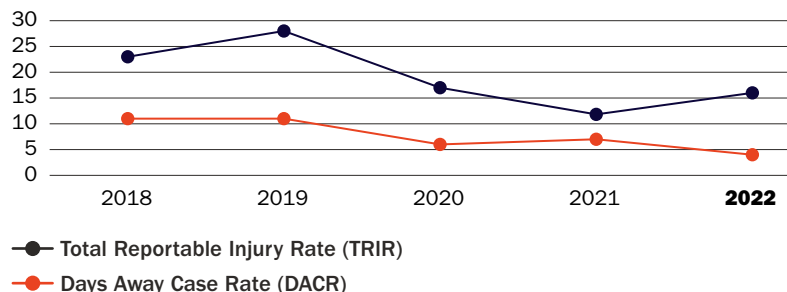
Reducing risk and promoting health and safety

We expect every employee to advance health and safety, whether working in a lab, office or manufacturing plant. Human Performance (Hu) is integrated into Biogen’s Environment, Health and Safety (EHS) programs. Hu encourages proactive and collaborative problem solving through practices such as Open Reporting and Work Observation and Risk Conversations. In addition to Hu, we maintain a robust environmental, health and safety management system, which documents all of our Occupational Health and Safety (OHS) management practices, including: risk and hazards assessments to identify what could cause harm in the workplace; prioritization and

integration of action plans with quantified targets to address those risks; integration of actions to prepare for and respond to emergency situations, evaluation of progress in reducing/preventing health issues/risks against targets; procedures to investigate work-related injuries, ill health, diseases and incidents; training to employees and contractors to raise awareness and reduce operational health and safety incidents; safety criteria introduced in procurement and contractual requirements; and results of both internal inspections and independent external verification through ISO45001 and Carolina STAR.

By engaging and empowering our employees through our innovative Hu program, we see real-time results in how our culture embraces safety and manages safety related risks. In 2022, our Days Away Case Rate (DACR), which monitors the frequency of work-related illnesses and injuries that lead to a work absence, and our Total Recordable Injury Rate (TRIR) were both below the industry average. Compared to a peer group of 15 pharmaceutical/biotechnology leaders using a three-year rolling average of DACR, we achieved second place.

Workplace-related Injuries



Advancing diversity, equity and inclusion

As we seek to engage the world's brightest minds to tackle complex scientific and social challenges, we have long prioritized DE&I not only as a moral imperative, but as a competitive strength. We believe that any form of prejudice, racism or intolerance is unacceptable. They have no place in our company.

DE&I strategy #1

Build company-wide awareness, capability and urgency to foster and sustain a diverse and inclusive environment

Together with leadership commitment and business purpose, our employees bring our DE&I strategy to life. We seek new ways to engage and empower employees annually to forge a more inclusive workplace. In 2022, we launched GlobeSmart®, an online development platform that offers self-awareness, team development, and deep resources of cultural information to help employees more effectively collaborate and innovate across the wide array of differences in cultures and work styles in our global company. Approximately 83% of people managers have accessed GlobeSmart, ensuring enterprise-wide awareness of this powerful inclusion resource. The majority of Biogen users created a profile to help them understand their preferred workstyles or to extend their cultural agility.

We offer our employees numerous ways to develop their inclusive acumen. In 2022, aligned to the CEO Action for Diversity and Inclusion's Day of Understanding, we held a weeklong global event, our second Week of Understanding. We held numerous offerings; shared new resources to build inclusive capabilities, such as GlobeSmart; and promoted development programs focused on identity and increasing influence and impact, such as The Partnership and the Women on the Rise. The impactful week was led by our global ERNs, DE&I Councils and DE&I ambassadors, who educated, inspired and challenged us to think differently and to become more empathetic and inclusive.

DE&I conference

The Biogen Intercontinental Region (BIR) held the "Power of Inclusion: Fueled by Diversity" conference to discuss why DE&I is important, emphasize the importance of inclusion and conduct topical workshops. The conference, which hosted 510 participants, was given in English and Spanish with all communication materials and presentations translated into and offered in Chinese, English, Japanese, Korean, Portuguese and Spanish.

DE&I strategy #2

Build an intentional, high-performing, engaged, diverse and inclusive talent pipeline

As an Equal Opportunity Employer, we are committed to a workplace where all employees feel they are treated with respect and dignity. This commitment helps build successful teams and enables us to attract, retain and grow outstanding, diverse talent.

Gender equity

By 2025, Biogen aims to achieve gender parity in roles at the Director level and above. As part of our commitment, we have prioritized a focus on equal pay for equal work, as outlined in our Philosophy on Pay Equity. In 2022, we shared the results of our global gender pay gap across multiple levels. Going forward, we aim to conduct a pay equity study and pay gap analysis, focusing on gender globally and race and ethnicity in the United States, where the law permits the collection of racial and ethnic data.

Gender pay gap is the difference between the average pay of all males and average pay of all females in an organization, whereas pay equity is the difference in pay between a male and a female performing an equivalent role within an organization. In the countries where we are required legally to conduct a pay gap analysis, we do so.

Promoting multiple forms of diversity

Biogen aims to promote all forms of diversity, including representation of people across race and ethnicity as well as those who identify as LGBTQ+, veterans and people with disabilities. Our target is to increase racial and ethnic diversity to 34% by 2025 among U.S.-based roles at the Manager level and above.

Self-identification in the United States

Self-identification is an effective way for organizations to measure progress on DE&I initiatives. We currently ask U.S. employees to voluntarily self-identify demographic information such as race, ethnicity, disability, veteran status, sexual orientation and gender identity. While each individual's information is maintained confidentially, this demographic data help employers to identify barriers to employment, advancement, retention, engagement.

Through the information collected, we are able to prioritize resources, form and develop relevant ERNs, adjust benefits, look for areas of bias and advance inclusion initiatives.

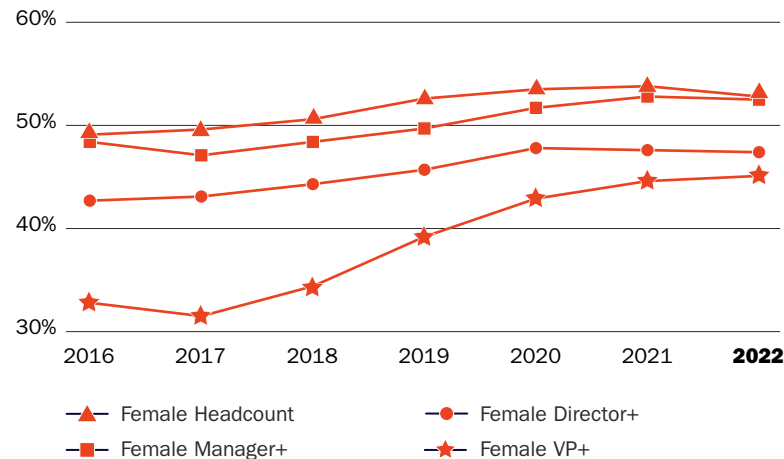
Building a robust and diverse talent pipeline

We support a variety of programs – internally and externally – for people underrepresented in the life sciences industry. For example, in 2016, Biogen helped create The Partnership, Inc.'s BioDiversity Fellows Program, which nurtures the potential leadership of mid-career professionals who are underrepresented in the life sciences industry. The curriculum builds leadership competence in areas such as relationship and organizational skills. Participants attend monthly classes, are assigned executive coaches, and meet in small groups for peer feedback and support. This is just one program that helps strengthen the leadership capacity of our Black, African American, Hispanic, Latino and Asian American employees. The majority of graduates have been promoted during or after program completion.

In 2021, building on the success of the Massachusetts-based BioDiversity Fellows Program, we helped launch the North Carolina Mid-Career Leadership Accelerator Program. The Accelerator Program helps professionals strengthen their leadership capacity, and is designed to advance Black, African American, Hispanic, Latino and Asian American leaders in the industries driving the economy of the Research Triangle and Charlotte region in North Carolina. In February 2022, we launched a second cohort of participants. The Partnership, Inc.'s BioDiversity Fellows Program and North Carolina Leadership Mid-Career Accelerator Program, as well as the Associates and Next Generation Executive programs, support Biogen's diverse talent pools and focus on career growth, building leadership capabilities and providing participants with tools to advance their career paths.

➔ LEARN HOW WE ARE INSPIRING THE NEXT GENERATION OF SCIENTISTS AND ENGINEERS IN THE COMMUNITY SECTION OF THIS REPORT

Percentage of women at Biogen since the implementation of the Women's Leadership Program in 2016



THE POWER OF DEVELOPMENT PROGRAMS

There is strong evidence that development programs, like the Women's Leadership Program, produce results, including higher promotion rates, higher retention, increased sponsorship, broader networks, increased knowledge and confidence, and better understanding of organizational structure and processes. Our progress toward gender parity helps to underscore the power of that work.

➔ [READ HANI HOUSHYAR'S STORY](#)

STORY

Advancing women's leadership at Biogen

By 2025, Biogen aims to achieve gender parity in roles at the Director level and above. Senior leaders like Hani Houshyar are an example of the progress already made – with women currently holding 47.4% of those roles.

Hani's journey to becoming a senior leader at Biogen started early in life. Her family immigrated to the United States from Iran when she was 13. "I couldn't speak English, but I could do math," Hani recalls. "Math was just numbers. That was a pivotal point in my life – that's when I fell in love with math and science. It helped me to integrate into school and find a community."

True inspiration came after Hani's first internship at Upjohn (now part of Pfizer), where she realized her passion of discovering and developing medicines to improve people's lives, which drove her to obtain a doctorate in pharmacology. When Hani joined Biogen in 2015, she was firmly established in the pharmaceutical field and seeking opportunities to further her career. She joined the Research & Development (R&D) group as the early-stage program leader for the amyotrophic lateral sclerosis (ALS) portfolio. Meanwhile, an internal program called the Women's Leadership Program (WLP) was being developed at Biogen to help address the unique challenges faced by female leaders with the goal of increasing their influence and impact. Hani was selected to join one of the first cohorts.



Hani Houshyar, Head of Global Product Development and Commercialization for zuranolone, attributes her professional growth at Biogen to the company's WLP. She excelled in math and science as a child and used this talent to help her integrate after her family moved to the United States from Iran.

"WLP was an outstanding opportunity for me and really important to my growth," she says. "It opened my eyes further to the work that happens outside of R&D, encouraging me to lean into those opportunities that would stretch me and helping me to appreciate and build on my strengths as a leader." The program, as well as exposure to her peers from other departments throughout the company, taught her the importance of creating a network of strong female leaders – a network that she still leans on to this day to remain resilient in the face of challenges.

She is now the Head of Global Product Development and Commercialization for zuranolone, a potential treatment for major depressive disorder (MDD) and postpartum depression (PPD) that is being developed in collaboration with Sage

—
It's about our organization reflecting the communities that we live in and the communities that we serve, making it a place where we can all thrive.

Hani Houshyar



Therapeutics. "My job is to lead a cross-functional team to bring the program forward to launch across the globe for PPD, MDD and other potential neuropsychiatric indications," she says.

After WLP ended, Hani convened a monthly lunch group to continue the networking and support begun in WLP. Nearly five years later, this cohort of women continues to assist each other professionally and personally to overcome adversity and reach new opportunities.

With her breadth of experience, Hani has thoughtful advice for women at all stages of their careers. For women just starting out, she recommends mastering their work, asking for feedback, advocating for themselves and seeking out a mentor to help advise and guide their professional development. And for women who are more established in the workplace, Hani suggests that they lean into opportunities that will stretch them to grow, learn and continue to have greater impact. Additionally, she encourages more experienced women to serve as mentors to other women, which she feels leads to mutual growth and learning.

Ultimately, Hani says gender parity is best achieved through diversity across the spectrum. "It's about our organization reflecting the communities that we live in and the communities that we serve, making it a place where we can all thrive."



Tooba Gilani, Senior Associate I, EHS, My Green Lab Program Manager.

ENVIRONMENT

Taking meaningful action to protect the environment and impact health and equity

3%

Absolute reduction in scope 1 and 2 emissions from a 2019 baseline year



100%

of facilities maintain fair share water withdrawal



97%

diversion of waste from landfill



KEY AWARDS

- ★ **Named to the Dow Jones Sustainability World Index** for the 10th year in a row
- ★ **#41** on the 2023 JUST 100
- ★ **Included in the S&P Global Sustainability Yearbook** for the sixth year
- ★ Named to the **Corporate Knights Global 100**, recognizing the world's most sustainable corporations

ENVIRONMENT EXECUTIVE SUMMARY

As a company that cares deeply about health and equity, we continue to make strides in reducing the environmental impact of our products and operations, addressing the link between planetary and human health.

In 2022, we introduced Principles of Sustainable Drug Development and completed multiple product life cycle assessments (LCAs). In our operations, we maintained 100% renewable electricity, expanded our electric vehicle (EV) program to 15 countries and 81% of our labs achieved My Green Lab certification.

We continued to engage our employees, suppliers and strategic collaborators. In 2022, 20% of our employees were engaged in Biogen environmental programs, and we began using EcoVadis, a tool that provides us with a better view of ESG issues

across our supply chain and equips vendors with resources to take meaningful action.

Through collaboration with key strategic partners, we have advanced important programs at the intersection of climate and health. For example, with Harvard T.H. Chan School of Public Health (Harvard Chan C-CHANGE), we launched new resources to help more than 3,000 frontline clinics mitigate the impact of the climate crisis on patient health and supported Massachusetts Institute of Technology (MIT) programs in piloting a state-of-the-art model of how various climate actions impact public health and economic outcomes. In 2022, our ongoing engagement with the World Business Council for Sustainable Development (WBCSD), Ceres, The Climate Group and others continued to help catalyze positive change.

In 2022, 41 Biogen Labs participated in My Green Lab, up from 14 in 2021.



Enhancing product sustainability

Our approach to sustainable drug development

Biogen's Principles of Sustainable Drug Development are designed to promote efficiency, sustainability, and health and safety in our processes to discover, develop and manufacture potentially life-changing therapies. It includes guidelines to:

- Design processes protecting workers, patients and the environment.
- Curtail potentially toxic, hazardous, biological and environmentally harmful substances.
- Minimize the use of natural resources and avoid waste.
- Seek continuous improvement.

Integrating sustainability across the product lifecycle

From research...

In 2022, 41 Biogen labs participated in My Green Lab, a certification recognized by the United Nations' Race to Zero campaign for setting the standard for best practices in laboratory sustainability. Ninety-eight percent of our participating labs became My Green Lab certified and, of those certified labs, 93% obtained a gold certification or higher.

As of Q1 2023, 81% of our labs achieved My Green Lab certification.

...to packaging

Our long-term goal is to eliminate, minimize or closed loop recycle all plastics from fossil fuels, with a focus on secondary and tertiary packaging.

As part of our life cycle management process, in 2022, we continued to explore more sustainable packaging designs in our multiple sclerosis portfolio and in our other programs. These new designs and materials such as grass fibers offer better end-of-life options than plastic material and bleached cardboard.



Anto Maria Edward Edison, Packaging Engineer, evaluates packaging alternatives and innovative designs in the lab.

We focused on secondary packaging materials, notably trays and boxes, and also started a deep investigation into alternative material in our primary packaging solutions for oral solid doses.

We entered into collaborations with start-ups to develop new packaging solutions based on alternative materials and innovative designs which we hope may become the new standard in the pharmaceutical industry.

Measuring the environmental impact of our products

Assessing and addressing the environmental impact of our products can promote sustainability and can set us apart in our response to the interests of Biogen customers, consumers and other stakeholders.

In 2022, we completed an LCA of three biosimilars products: BENPALI™, FLIXABI™ and IMRALDI™. Conducted across multiple configurations in France, Germany, Sweden and the United Kingdom, the analysis provided new insights into the environmental impacts of those products, from material selection to manufacturing to distribution to end-of-life.

We found that a small number of processes contribute most significantly to the environmental impact of our products, including the energy and materials from our packaging, such as the fossil fuels used to make glass vials and other plastic parts. We are now developing an action plan with the aim to lessen these impacts and exploring the potential for additional LCAs.

2022 PROGRAM RESULTS – CERTIFICATION LEVELS

In December 2022, 40 of 41 participating labs (98%) received My Green Lab certification. Of those certified, 37 labs (93%) received gold certification or higher. Results include:

Green Certification
HIGHEST LEVEL POSSIBLE

25 Labs

Platinum Certification

7 Labs

Gold Certification

5 Labs

Silver Certification

2 Labs

Bronze Certification

1 Lab

Completed lifecycle analysis for 3 biosimilars.

Promoting sustainable operations

We regularly review our environmental commitments within the landscape of our business performance, rising costs and supply chain challenges. We remain committed to engaging employees and suppliers and to collaborating with renowned institutions to advance relevant science and action to improve health outcomes.

We also recognize that the healthcare industry faces a paradox: Our therapies can improve patient lives, yet the ways we produce them can have unintended consequences on environmental and human health. We’re working to address that challenge through our approach to energy, water, waste and other environmental issues.

Greenhouse gas emissions

In 2020, we announced targets for reducing our greenhouse gas emissions and our long-term vision by addressing fossil fuel emissions in our operations. Since then, we have prioritized areas where we can make efficiency gains, reducing environmental impacts – like transitioning away from fossil fuel infrastructure such as boilers and steam generators – with the potential to realize long-term cost savings. While we are making progress, we are now evolving our approach and re-evaluating our targets and timelines in light of current market conditions and other factors.

We continue to invest in 100% renewable electricity and in 2022 announced a renewable electricity purchase equivalent for one-third of the electricity use of our U.S. operations. This complements efforts that include onsite generation, direct purchase of green power, virtual power purchasing agreements (VPPAs) and purchasing unbundled renewable energy credits (RECs).

We are part of the EV100, which promotes widespread adoption of EVs, reducing street-level emissions and promoting human health. Today, our EV program spans 15 countries, and we have installed EV charging stations in several Biogen locations. Many employees are embracing the transition, with more than 290 Biogen EVs on the road today. We see potential for additional progress as current leases expire and with the reduction of meaningful external barriers such as a lack of sufficient charging infrastructure and constraints with vehicle cost and availability in major markets.

In 2022, we became one of the inaugural customers for JetBlue’s Sustainable Travel Partners program, reducing business travel emissions and providing Biogen with a customized analysis for more accurate emissions reporting. As of Dec. 31, 2022, we had achieved a 3% absolute reduction in scope 1 and 2 emissions from a 2019 baseline year.



Biogen’s 2022 air pollution footprint (in million of tons)



Disclosing our air pollution footprint

The Lancet Commission has found that fossil fuel emissions are a leading cause of death globally, claiming the lives of almost 9 million people each year, with the greatest impact on marginalized populations.

To address this challenge, in 2021, we became an inaugural member of the World Economic Forum (WEF) Alliance for Clean Air. Now, in line with WEF goals, we are disclosing details of our “air pollution footprint.” We hope that other companies will take a similar approach as part of aligned efforts to reduce pollution and enhance public health.

A University of Southern California study found that an increase of just 20 electric vehicles per 1,000 people results in a 3.2% decline in emergency department visits for asthma.

Water

We are working to reduce our usage of water, recycle more of it, and make sure it adheres to the highest quality and safety standards before being returned to the environment. All of Biogen’s major facilities have maintained a commitment to 100% fair share water withdrawal. We included water impacts in our product lifecycle analyses and use the World Wildlife Fund’s Water Risk Filter tool to complete site water risk assessments, understand water risks among critical suppliers and learn how both may change under various climate scenarios.

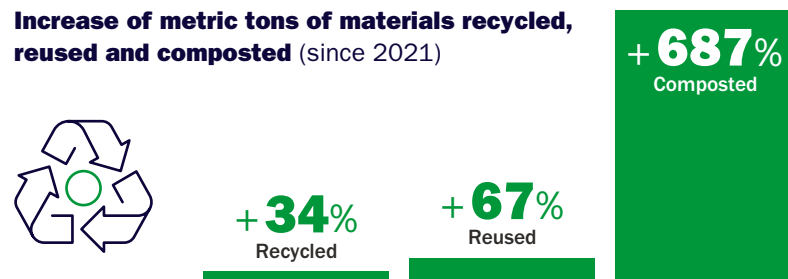
Based on the water risk assessment, water scarcity is identified as a low risk at all our major facilities. We continue to use gray water from Cary, North Carolina, for irrigation and conducted water risk assessments in 2022 to improve our use of this valuable resource. We transparently report our water policies, programs and progress to the CDP.

Waste

Waste reduction enhances sustainability and can drive greater operating efficiency. Across all of our manufacturing, we track how much waste our processes generate and seek opportunities to improve. From 2019 to 2021, we cut in half the total waste generated from our operations.

In 2022, we diverted 97% of waste from landfill globally, a slight decrease from the 100% diversion we achieved in 2021. The dip reflects changes in practices by the Massachusetts Department of Environmental Protection, which ultimately reduced the waste-to-energy opportunities for our Cambridge and Weston, Massachusetts, sites. We are exploring

Increase of metric tons of materials recycled, reused and composted (since 2021)



alternatives, and have meaningfully increased reuse, recycling and composting of materials including vials, boxes, pens, auto-injectables and leaflets, much of which is associated with product packaging. In the United States, we also collect all unused products and used sharps.

While product and manufacturing efficiencies may have the greatest positive impact, we also work to reduce waste in other arenas. For example, we donated office furniture to The Furniture Trust, diverting nearly 76 tons of usable items otherwise bound for landfill.

Broader environmental issues

While we prioritize environmental issues that are most material to our business, we continue to listen and learn from stakeholders on a variety of broader concerns.

Environment, Health and Safety (EHS)

Our EHS management system is implemented in line with recognized international standards. Every three years, we engage in an external audit to ensure our management system remains in line with evolving expectations. Our North Carolina sites continue to be recognized by the Carolina STAR Program and our Solothurn, Switzerland, facility is now ISO 14001 (Environmental Management Systems) and 45001 (Occupational Health and Safety Management Systems) certified.

Pharmaceuticals in the environment

We follow the EU’s Strategic Approach to Pharmaceuticals in the Environment via our green chemistry program, incentives for green design, waste reduction and wastewater treatment, among other efforts. Since the pharmaceutical supply chain can play a role, Biogen is incorporating considerations around this issue into our Responsible Supplier Program.

Biodiversity

In 2022, we developed and publicly shared a [biodiversity position statement](#). We are also taking steps to use our assets to promote biodiversity. For example, we have installed beehives at five global office sites, producing 150 pounds of honey. To advance awareness and engagement, in North Carolina, we partnered with nonprofit Bee Downtown to host multiple hive tours, giving employees a chance to handle the hives directly.



Engaging key stakeholders

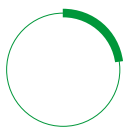
Tapping the interests of our employees

Employees play a critical role in furthering our environmental goals. We are assisting employees’ transition from fossil fuels at home by underwriting their use of 100% renewable electricity at home – an employee benefit that also sets Biogen apart. More than 900 employees have participated in Biogen’s “green benefits.”

In addition, approximately 10% of our employees participate in ourIMPACT, Biogen’s environmentally focused Employee Resource Network (ERN). OurIMPACT has run events such as Biogen beehive tours, native plant expositions, group clean-ups of a vital water source and support for a closed-loop recycling program. We held multiple events across Biogen sites to exchange information on and foster collaboration to reduce the environmental impact of energy, transport, food and other issues. We also offer tools to support more sustainable travel decisions among our staff.



Biogen’s Caring Deeply activity with the Charles River Conservancy.



22.6%

of Biogen's top 80% of suppliers, by spend, have SBTi-approved climate targets

Working across our value chain

To deepen our supplier relationships while addressing our largest source of emissions, in 2022, we launched EcoVadis, a tool to track supplier ESG risks and assess progress throughout the value chain.

Our supply chain is the biggest source of our greenhouse gas emissions. Engaging suppliers to increase efficiency and reduce environmental impact is therefore critical to our target of achieving a net zero supply chain by 2045. As of the end of Q1 2023, 37% of Biogen's top 50% of suppliers, by spend, have committed to 100% renewable electricity by 2040, an increase from the 26% with commitments at the same time last year. In addition, 22.6% of Biogen's top 80% of suppliers, by spend, have set Science Based Targets initiative (SBTi)-approved climate targets, an increase from the 18% with SBTi-approved targets in Q1 2022.

Industry collaborations also serve to further the sustainability of our suppliers. With nearly a dozen other pharmaceutical and biotech companies, Biogen continues to support Energize, a program to increase access to renewable energy for the sector's supply chain. Through Energize, pharmaceutical suppliers can learn more about the renewable energy market, with the long-term goal of decarbonizing the sector.

Guiding strategy via our Scientific Advisory Council

In 2022, we launched a Scientific Advisory Council to guide research, collaborations and advocacy related to our environmental commitments. The Council currently includes seven diverse leading global experts on climate and health. With the Council, we are actively exploring future research into the relationship between air pollution and brain health, with a focus on biomarkers.

Collaborating to address the environment as a social determinant of health

Research on air pollution and dementia with Harvard T.H. Chan School of Public Health

Biogen worked with the Harvard T.H. Chan School of Public Health National Institute of Environmental Health Sciences (NIEHS) Center for Environmental Health to conduct the most comprehensive meta-analysis to date on air pollution and dementia. The study includes longitudinal analyses from 11 countries on three continents and highly suggests that small air pollution particles (PM2.5) are a risk factor for dementia. The results were presented at the 2022 American Academy of Neurology conference and the 2022 International Society for Environmental Epidemiology conference. Through the [Harvard Chan-NIEHS Center for Environmental Health Pilot Project Program](#), designed to encourage creativity in environmental health science research, Biogen is supporting a grant to fund innovative new research into the role of green space in neurodegenerative disease and its potential to mitigate adverse climate effects from stressors such as air pollution and extreme temperature.

Understanding the environment's impact on human health with MIT

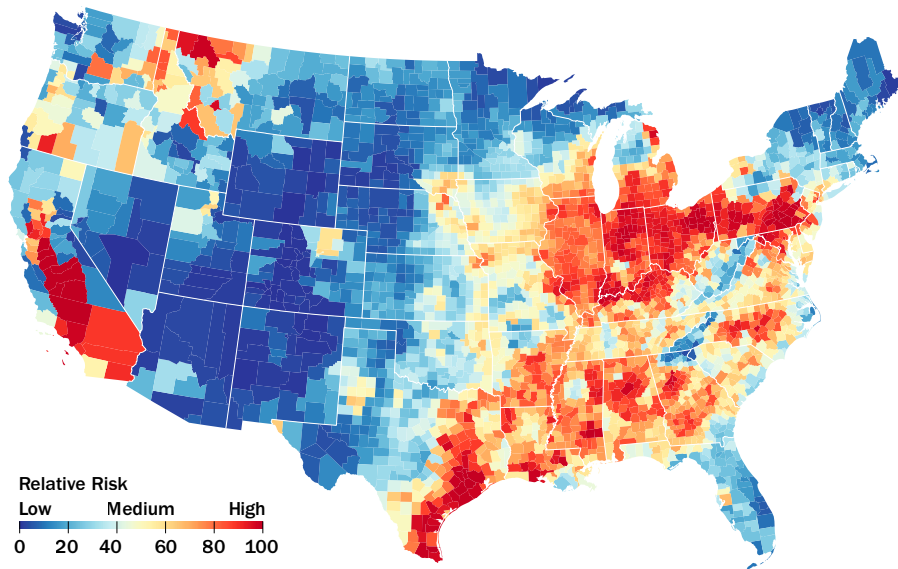
Our collaboration with the MIT Joint Program on the Science and Policy of Global Change and the MIT Technology and Policy Program has resulted in several key advances in our understanding of the relationship between climate change and global health. This goal is to equip policymakers and other stakeholders with game-changing tools to support science-based data-driven decisions on which climate actions can deliver the greatest public health benefits, particularly for vulnerable communities.

First, the Tool for Air Pollution Scenarios (TAPS) is now publicly available, following its publication in the peer-reviewed journal *Geoscientific Model Development* in October 2022. TAPS allows stakeholders to explore how climate-oriented policies can help to reduce emissions of harmful pollutants – and when additional measures might be needed. Second, a new approach to modeling the interactions between climate change and air quality has been

developed, with a paper demonstrating its benefits published in the American Chemical Society (ACS) peer-reviewed, gold open-access journal “ACS Environmental Au” in February 2023. The new approach allows people to explore how their specific region’s air quality might be affected by the combination of climate change and air pollution emissions reductions.

These tools, all open-source and available to the wider community, are key components of the broader modeling system which MIT is building in collaboration with Biogen. These advances are now being integrated into the MIT Socio-Environmental Systems Risk Triage tool, designed to allow policymakers and key stakeholders to understand and explore the relationships between climate change, public health and equity. We hope this work can enable decision-makers to take actions that can deliver both climate and health benefits with a single initiative.

Exposure to airborne particulate matter



Tool for Air Pollution Scenarios (TAPS), MIT Joint Program on the Science and Policy of Global Change and Technology and Policy Program.

Promoting Healthy People, Healthy Business with the World Business Council for Sustainable Development

WBCSD’s Healthy People, Healthy Business project is a cross-sectoral coalition of 23 leading companies, co-chaired by Biogen. The coalition has explored ways that business can: embed a culture of health and well-being in the workplace; support healthy consumer lifestyles; build resilient and accessible health systems; and accelerate action on climate, nature and equity informed by planetary health science. In 2022, this effort resulted in the release of a major global report at the United Nations Climate Change Conference or Conference of the Parties (COP27) to guide businesses in advocacy and accelerated, ambitious action on the environment, health and equity.

Engaging with peers and communities

To benchmark our efforts, share best practices and learn from others, we regularly engage with organizations such as Pharmaceutical Product Stewardship Work Group (PPSWG), the Pharmaceutical Supply Chain Initiative (PSCI) and Biopharma Sustainability Roundtable.

We also participated in cross-sector activities through initiatives such as the Ceres Business for Innovative Climate and Energy Policy (BICEP) Network to advocate for strong climate and natural resource policies at the U.S. state and federal levels; the Climate Group’s RE100 and EV100 campaigns, supporting the use of 100% renewable electricity and 100% EVs, the U.N. Global Compact and the World Economic Forum, among others.

STORY

Building the climate resilience of clinics and patients

Dr. Alexis Hodges is a nurse practitioner at the Community Care Clinic of Dare County, North Carolina, an area increasingly impacted by rising temperatures and poor air quality. When one of her patients ended up in the hospital from extreme dehydration after working his outdoor job during a dangerously hot summer day, Dr. Hodges realized that the clinic and its patients were ill-prepared to address the health effects of climate change.

“Living on the Outer Banks, we experience coastal flooding, hurricanes and heat. The majority of patients here are not only vulnerable because they’re low-income and underserved, many of them are vulnerable to extreme weather events,” Dr. Hodges said.

Clinics like the Community Care Clinic urgently need effective tools to address current climate-related risks to their operations and patient health. To promote more equitable health outcomes, Biogen provided founding support for a groundbreaking collaboration between [Americares](#) and the Center for Climate, Health and the Global Environment at [Harvard Chan C-CHANGE](#).

After surveying clinics to identify gaps and needs, [Americares](#) and [Harvard Chan C-CHANGE](#) released a new [Climate Resilience for Frontline Clinics toolkit](#) with support from Biogen. This new resource was released in full in December 2022 and includes



clinical guidance and information on how to create action plans; tip sheets for patients; and checklists for clinic staff in situations of extreme heat, wildfires, hurricanes and floods. The toolkit is also located on the U.S. National Integrated Heat Health Information System’s website: [Heat.gov](#).

“What we hear time and again is that frontline clinics are the glue that hold their communities together through day-to-day climate stressors and when disasters strike. But with limited resources and an ongoing pandemic, many don’t have the funding, training or tools they need after a climate shock,” said Dr. Aaron Bernstein, former Interim Director of [Harvard Chan C-CHANGE](#). “We’re meeting clinics where they’re at with the resources they need so we can help prevent disease in the

Dr. Alexis Hodges provides patients with checklists, tip sheets and other resources from the [Climate Resilience for Frontline Clinics toolkit](#). Photo courtesy of [Americares](#).

first place and make people more resilient to climate change.”

With the addition of the [Harvard Global Health Institute](#), the group plans to adapt the toolkit for use in low- and middle-income countries during the next five years. The global expansion was announced as a [Commitment to Action](#) at the [Clinton Global Initiative 2022 Meeting](#).

For her part, Dr. Hodges is appreciative of the valuable resource. “We have been able to give patients the toolkit and are disseminating it in our clinic and with our administrators,” she said. “It is wonderful to know that we are all better prepared for the health effects of climate change thanks to this important work.”

Living on the Outer Banks, we experience coastal flooding, hurricanes and heat. The majority of patients here are not only vulnerable because they’re low-income and underserved, many of them are vulnerable to extreme weather events.



Alex Cameron heads Biogen's Community Lab.

COMMUNITY

Engaging communities to provide societal benefit and lasting impact

\$62.4M+

In grants, sponsorships and in-kind contributions from Biogen and the Biogen Foundation



\$2M+

In support for the people of Ukraine



62,000+

Students engaged in the Community Lab over 20 years in 30 countries



KEY AWARDS

- ★ Named to **JUST Capital's 2022 Top U.S.** companies supporting health, families and communities
- ★ Named to **3BL's 100 Best Corporate Citizens List**
- ★ Received the **Boston Business Journal Award for Corporate Citizenship**
- ★ Included in the **STEMM Opportunity Alliance** with the White House Office of Science and Technology Policy

COMMUNITY EXECUTIVE SUMMARY

Reflecting our purpose and values, we serve humanity through our medicines and by offering our time, funding and other forms of support to communities. We care deeply about creating a healthier, more equitable world by strengthening healthcare systems, addressing food insecurity and other social determinants of health, and engaging the next generation in science, a commitment that spans the globe.

In 2022, we celebrated 20 years of impact through the Biogen Foundation and the Biogen Community Lab, the longest-running hands-on corporate science lab in the United States. We marked the occasion by setting a new goal to engage a total of 90,000 students in science, technology, engineering and math (STEM) education by 2025, focusing on populations

historically underrepresented in science. We advanced the goal by reopening our in-person Community Labs in Massachusetts and North Carolina for the first time since early 2020 and launching Community Lab 2.0, which includes an enhanced neuroscience curriculum, an alumni network and expanded global reach.

Together, Biogen, the Biogen Foundation and Biogen employees contributed more than \$2 million in financial assistance, in-kind donations and volunteer support to the people of Ukraine impacted by the war. More broadly, the Biogen Foundation and employees supported more than 30 countries around the world with more than 15,000 hours of volunteer service and more than \$4 million in matching gift contributions.



Staff from Chernihiv Regional Clinical Hospital, located in Ukraine, receiving donations of Biogen medicines. Photo courtesy of Direct Relief.

Serving humanity through corporate giving

True to our credo of Caring Deeply, Biogen serves humanity with significant financial support for community groups through a variety of corporate giving initiatives. In 2022, Biogen and the Biogen Foundation contributed more than \$62 million through our grants, sponsorships, fellowships and in-kind contributions worldwide.



\$62.4M+

In grants, sponsorships and in-kind contributions from Biogen and the Biogen Foundation

Grants and sponsorships

Our global grants and giving strategy aims to make an impact beyond our medicines and medical research, catalyzing scientific innovation, addressing unmet patient needs and advancing medical and disease education. In 2022, we contributed \$5.58 million in grants to support funding for medical and patient education, fellowships and the necessary upgrades for healthcare institutions. We also provided \$47 million in sponsorships to eligible organizations in connection with events and initiatives.

Inspiring tomorrow's diverse scientists

According to the [American Academy of Neurology](#), about 42% of fellowship program directors identify as female and 5.1% as Hispanic, with none identifying as Black or African American. Since diversity is essential to improving health equity and patient outcomes, both Biogen and the Biogen Foundation are committed to building an inclusive pipeline of scientists, neurologists and healthcare professionals.

Announced in 2022, the Biogen-supported [Xavier University of Louisiana's Biogen Sharp-Verret Award](#) is a scholarship for underrepresented students pursuing neuroscience careers. The Biogen Foundation also marked the third year of its collaboration with Massachusetts General Hospital (MGH) through the [MGH Youth Neurology Education and Research Program](#), a first-of-its-kind initiative, with alumni, to date, identifying as: 73% female; 83% Black, Latinx or Native American; and 74% first in their families to pursue any higher education, from communities across Massachusetts.



Community Lab in Cambridge, Massachusetts.

Community Lab

After two years of virtual instruction, the [Community Lab welcomed students back in person](#) at locations in Cambridge, Massachusetts, and Research Triangle Park, North Carolina. The Community Lab also introduced its enhanced neuroscience curriculum with new coursework on multiple sclerosis, an [alumni network](#) and expanded global reach through Community Lab 2.0.

“The experience of coming to the Community Lab not only provides an opportunity for students to think like scientists, but to be immersed in the work scientists engage in every day,” shared Joshua Hunter, Wake County Public School System senior administrator. “The experience is a powerful vehicle for connecting content to real-world problems and career pathways.”



Community Lab in Research Triangle Park, North Carolina.

By providing minority students with educational opportunities, we are building a diverse talent pool to help tackle the most challenging neurological diseases of our time.

Maha Radhakrishnan,
Biogen's Chief Medical Officer

STORY

Turning adversity into purpose

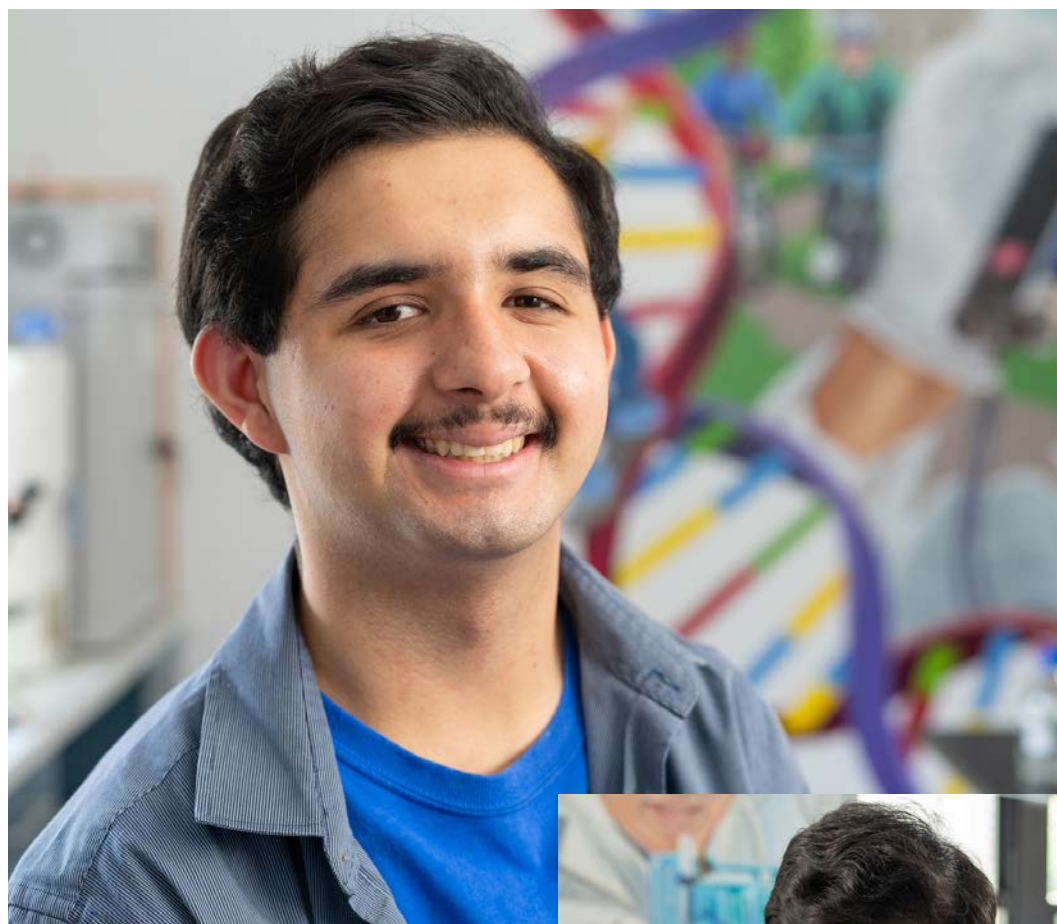
When Juan Rafael Lenger-Caballero was a young child, his father was diagnosed with Parkinson's disease. His mother, Maria Cristina Caballero, wanted to make sure that her son had a creative outlet that channeled his emotions toward something positive, so she researched different STEM programs for him to participate in.

"I wanted him to learn about the possibilities, not only about the limitations that we all have and the realities of having a complex illness such as Parkinson's. I wanted him to see that there are many other things to learn and that through learning he can help other people in the future," she said.

That led to him learning about and participating in the Community Lab summer program in 2020. The virtual Biotech in Action program, jointly administered between the Community Lab and Lemelson-MIT, fostered Juan Rafael's desire to help others through engineering.

I wanted him to learn about the possibilities, not only about the limitations that we all have and the realities of having a complex illness such as Parkinson's.

Maria Cristina Caballero, mother of Juan Rafael



Juan Rafael
Lenger-Caballero.

For Juan Rafael, the Community Lab and Biogen's deep commitment to neuroscience meant that he learned more about Parkinson's – connecting the science and biology to his own experiences with his father. During the program, he began sketching his prototype for a motorized silicone glove to help his father increase mobility in his hand. Now, he is exploring other ways to help those living with mobility challenges.

[➔ LEARN MORE ABOUT JUAN RAFAEL HERE](#)



Engaging our passionate people

Biogen encourages employees worldwide to participate in the organizations that matter most to them:

- The Biogen Foundation matches employee donations at least 1:1.
- The Biogen Foundation offers \$10 in **Community Currency** for every volunteer hour spent with eligible nonprofit organizations.
- Biogen provides eight hours of PTO for employees to volunteer.

Sharing their time, their skills and their passion for science, Biogen employees make an enormous impact in their communities, contributing to social good while building bonds with colleagues and gaining a deeper understanding of patient and community needs. In September 2022, employees around the world participated in **20 Days of Caring Deeply**, a global period of volunteer action in celebration of the Biogen Foundation’s 20th anniversary. We hosted more than 112 volunteer events across 23 countries, benefitting approximately 94 nonprofit organizations with more than 1,750 acts of service.



Employees assemble 500 mooncake boxes for the Down Syndrome Foundation in Taiwan. The boxes were filled with mooncakes made by people with Down syndrome, who gain work skills through the Foundation.

Making a difference in science education, health systems and access to food

Through the **Biogen Foundation** we strive to help our neighbors in need, strengthen health systems, ensure access to food and build inclusive science education and career pathways. Working together with community partners, we catalyzed great impact in 2022, including:



3M+

People reached through the **North Carolina Science Festival** since the start of our collaboration.



653,693

Meals provided to neighbors experiencing food insecurity through collaborations.



60,000

High-need patients in North Carolina gained better access to healthcare through collaboration with **CareMessage**, the leading patient activation and communication platform for safety-net healthcare organizations.

Supporting those impacted by the war in Ukraine

The inspiration to volunteer can blossom at any time. For Biogen Poland employee Adrian Laorden, it occurred when he was alone one weekend while his family was out of town. The war in Ukraine had just begun, refugees had started to cross the Polish border from Ukraine and Adrian – who had never volunteered before – felt compelled to help.

“I started to look on Facebook for some groups to see who I could help, like driving them from the border or hosting them at home,” Adrian said.

Together, Biogen, the Biogen Foundation and Biogen employees, like Adrian, contributed more than \$2 million in financial assistance, in-kind donations and volunteer support to the people of Ukraine impacted by the war. Also learn how we supported people who needed Biogen medicines in the [Access & Health Equity](#) section.

Expanding food security and nutrition

As many as **828 million** people around the world don't know when their next meal will be – and most of these people go to bed hungry every night. Food insecurity and poor nutrition significantly harm mental and physical health and can contribute to anxiety, heart disease, diabetes and obesity, a condition that impacts **20%** of young people (ages 2–19) and **42%** of U.S. adults. Children who lack access to proper nutrition are at higher risk of poor academic performance, impacting their ability to achieve in school and in life.

The Biogen Foundation is committed to meeting these challenges by providing access to a stable source of food and nutritious meals throughout the year for children, families and older members of communities. In 2022, we helped our nonprofit grantees provide 653,693 meals to neighbors experiencing food insecurity. Our progress includes:

- Distributing more than 210,000 pounds of fresh produce and pantry staples through [Food For Free's Just Eats program](#).



Employees, including Biogen Foundation Board Chair Teresa Cachero, after making frozen, single-serving meals in Food For Free's kitchen space at Biogen's headquarters.

- Making 16,200 frozen, single-serving meals in our headquarters' designated Food For Free kitchen space through [Food For Free's Heat-n-Eats program](#).
- Offering School Pantries, Mobile Markets, Grocery Bags for Seniors, Gardens for Everyone, weekend meals for kids through Backpack Buddies and more through [Inter-Faith Food Shuttle](#).
- Distributing around 109,500 healthy meals to approximately 870 children and teens through the [Food Bank of Central and Eastern North Carolina](#).
- Supporting [The Link Foundation](#) year-round. In 2022, the Biogen team in Maidenhead, United Kingdom, helped the organization provide 1,984 food vouchers.

STORY

Advancing STEM equity: Fostering science STARs

When Jadah Depina first joined the Biogen Foundation's STAR (Science, Teacher support, Access & Readiness) Initiative five years ago, she didn't think her future college career would center on STEM. Now a senior at Cambridge Rindge and Latin High School, she is applying to leading East Coast universities with plans to major in a STEM-based field like biotechnology.

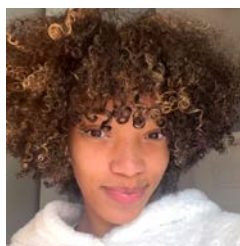
According to the U.S. Department of Labor, between 2019 and 2029, the number of STEM jobs will grow by 8%, compared with 3.7% for all other occupations. While employment in STEM fields is growing, students from underserved communities are disproportionately unexposed to and unprepared for STEM careers. Enrichment opportunities that prepare young people for success in STEM education are limited, and primarily directed toward students already equipped with strong academic skills and access to professional networks.

The STAR Initiative helps address this disparity by supporting a coordinated ecosystem of organizations that help low-income students develop and sustain their interest in STEM, gain necessary STEM exposure and enrichment opportunities and successfully transition into post-secondary education in pursuit of STEM careers. Focused on Cambridge and Somerville, Massachusetts, the STAR Initiative unites high-performing nonprofits and two school districts.

The \$12 million, multi-year investment reaches students – grades 6–12, plus those in their first



Jadah works with fellow classmates to solve math problems. Photo courtesy of Young People's Project.



Thanks to her participation in STAR, Jadah Depina is looking to pursue a career in STEM. Photo courtesy of Jadah Depina.

two years of college – who have been historically underrepresented in STEM college and career pathways, including economically disadvantaged students and multilingual learners.

Jadah is now one of more than 4,000 students who has participated in STAR since it began in 2018. Since the program's inception, STAR has served students in 15 schools and supported more than 500 teachers in enhancing their STEM capabilities and curricula, resulting in the establishment of 21 new STEM programs in area schools. The program has had an incredible impact on student performance. In Somerville, for example, participation in STAR has increased the likelihood of passing ninth-grade math by 24% for Black students and 15% for Hispanic and/or Latino students. The

Biogen Foundation's commitment to STAR has enabled the teachers and organizations involved to share resources and insights, serve more students and design innovative new programming.

Angeline UyHam, one of Jadah's STAR instructors, said, "STAR has helped me do my job better by providing me with the time, space and opportunity to work with such amazing leaders from organizations throughout Cambridge and Somerville. The power of the collective far outweighs the impact that just one organization could achieve."

I love everything about the program. ... I've progressed from learning math through STAR to teaching math to middle-schoolers from all different backgrounds.

The Biogen Foundation is now in the process of bringing new collaborators into STAR to scale the benefits and further broaden the initiative to drive even greater positive change.

Jadah is now taking classes like Advanced Placement Environmental Science and Biotechnology 3. "I love everything about the program," she said. "The instructors are great to work with, and through the years, I've progressed from learning math through STAR to teaching math to middle-schoolers from all different backgrounds. It's pretty cool!"

In its fourth year (school year 2021–2022), STAR served 1,077 students and 110 educators, helping students pass ninth-grade math at higher rates and increasing the number of STAR students taking advanced math classes.

[➤ LEARN MORE ABOUT OUR 2022 IMPACT HERE](#)

Celebrating 20 years of caring deeply with the Red Sox Foundation

The Biogen Foundation and Biogen Community Lab officially kicked off our 20th anniversary celebration together with the **Red Sox Foundation**, which the Biogen Foundation has supported since 2016. The celebratory game began with Community Lab graduate and Red Sox Scholar Armany Peguero throwing out the first pitch. Armany, a junior at Northeastern University majoring in electrical and computer engineering, developed a passion for science during his time as a Biogen Community Lab student and as a Red Sox Foundation Scholar.



Armany Peguero throwing out the first pitch at the anniversary game.

Supporting the new MIT Museum

The Biogen Foundation supported the reopening of the **MIT Museum**, which has been re-imagined with new exhibitions, programming and opportunities for visitors to access the best STEM innovations and research. The museum helps to inspire and engage individuals of all ages and backgrounds in STEM and to foster curiosity, creativity and critical thinking skills that are essential for addressing real-world challenges and advancing innovation.

As part of this collaboration, the Biogen Foundation funded the Essential MIT exhibition, providing an interactive exploration of how science-related innovations – from addressing climate change to ventures into space – are improving our lives. The contribution additionally included the naming of the Phillip A. Sharp Room, in honor of one of Biogen's co-founders, an MIT professor and MIT Museum Advisory Board Chair, along with the MIT Museum's Life Sciences Maker Engagement Program, which involves hands-on activities in biology and life sciences.



REPORTING

Advancing transparency on ESG issues

HIGHLIGHTS

- ★ Became an early adopter of the new **UN Global Compact reporting framework**
- ★ Disclosed Biogen's **air pollution footprint**
- ★ Aligned disclosures with **TCFD** and **SASB**
- ★ Secured **limited third-party assurance** on ~60 data points
- ★ Advanced transparency via the **Bloomberg Gender-Equality Index, CDP, MSCI, ISS, Workforce Disclosure Initiative**, among others

REPORTING EXECUTIVE SUMMARY

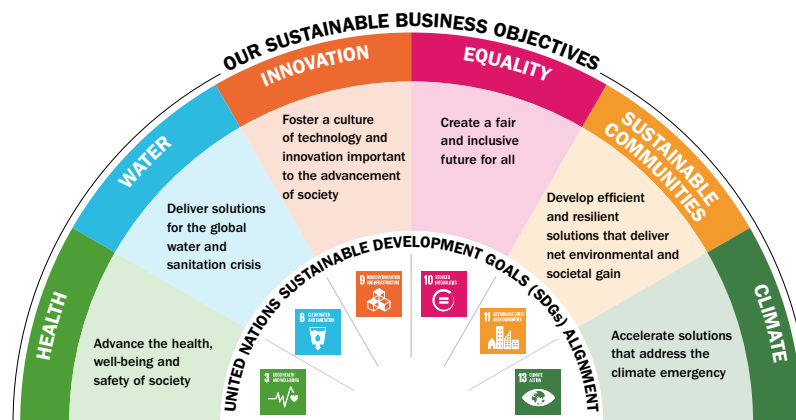
Evolving stakeholder expectations around transparency help inform Biogen's approach to disclosures through a variety of channels, including this report, which was prepared in accordance with Global Reporting Initiative (GRI) standards. In 2022, we were proud to join the United Nations Global Compact Communication on Progress as an early adopter, a commitment we have sustained this year.

About this report

Biogen grants and sponsorships

This report reflects key issues illuminated by our most recent ESG materiality assessment (see illustration), which we plan to update every two years. It is guided by the GRI (formerly, Global Reporting Initiative) Principles for Defining Report Content. Please refer to the ESG Data Table, including the GRI Content Index, for a view of the material questions and relevant indicators that are addressed.

This report also includes disclosures aligned to the International Sustainability Standards Board's SASB framework and the Task Force on Climate-related Financial Disclosures (TCFD). It is informed by the Stakeholder Capitalism Metrics, published by the International Business Council of the World Economic Forum in 2020, as well as a view of the ways our efforts may help advance the 17 United Nations Sustainable Development Goals (SDGs), with an emphasis on those most relevant to our business, including:



Scope of this report

Unless otherwise indicated, Biogen's 2022 ESG Report reflects data from the period Jan. 1, 2022 – Dec. 31, 2022. In some instances, we include information on initiatives or activities that began in 2022 and continued into 2023.

Data in this report cover our global operations and consolidated subsidiaries. Our operations in 2022 encompassed our major facilities in Massachusetts and North Carolina in the United States and in Switzerland. Our global offices and commercial fleet operations are also covered in this report. The environmental data presented in this report include only those operations over which Biogen has direct control.

Third-party assurance

ERM Certification and Verification Services, Inc. (ERM CVS) assured 2022 data for several indicators, including greenhouse gas (GHG) emissions and select environmental and social indicators. **The Independent Assurance Statement** provides details of the assurance scope, assurance standards used, work undertaken and conclusions.

➔ PLEASE REFERENCE THE [ESG DATA TABLE](#) FOR ASSURED DATA



Access & Health Equity



**COMMITMENT TO
TRANSPARENCY
& DISCLOSURES**



Environment



Community Impact





Workforce

Our top ESG issues

Access & Pricing

Expanding the availability of affordable medicines for patients, including to the world's poor, by improving the obtainability of medicines and developing appropriate pricing models. This encompasses working with patient advocacy groups (PAGs).

Bioethics

Addressing ethical issues emerging from advances in biology, medicine and technology, linked to public health, public policy, law, environment and well-being.

Health Equity

Allowing people to attain their full health potential so that no one is marginalized based on their social position or other circumstances.

Information Security & Patient Privacy

Adopting and implementing policies and practices that safeguard the privacy of patient information and protect data from unintended intruders.

Patient Health & Outcomes

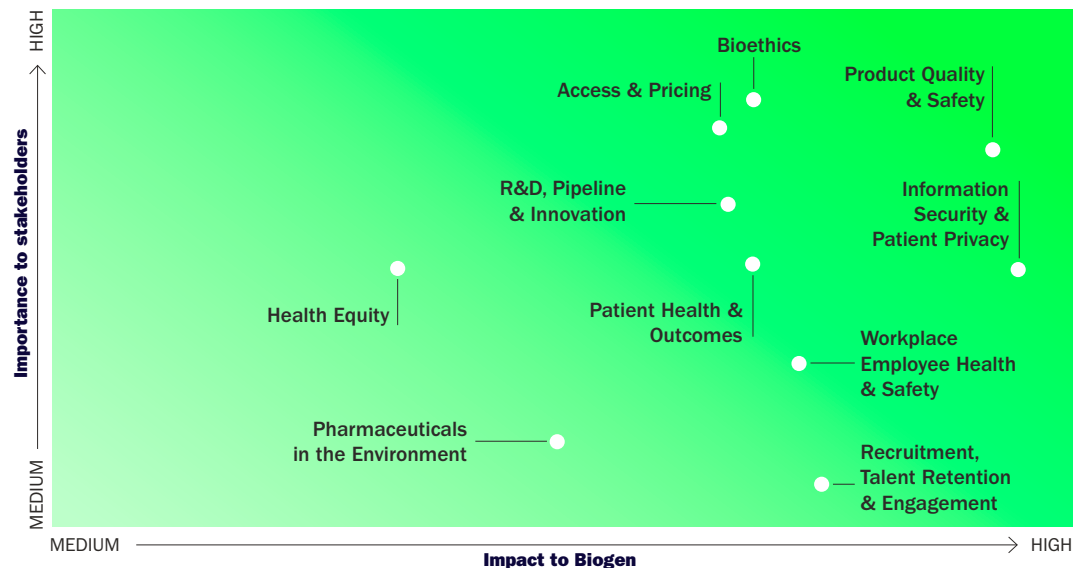
Ensuring that patients are properly and effectively informed regarding medicine usage and the continuous improvement in health outcomes occurring as a result of usage. Outcomes may be measured clinically (e.g., physical examination, laboratory testing and imaging), self-reported or observed.

Pharmaceuticals in the Environment

Addressing types of environmental pollution from discarded pharmaceuticals, including in rivers, lakes and other bodies of water, and assessing and mitigating possible impacts and health risks.

Product Quality & Safety

Pursuing high standards in product quality and safety, including management systems and auditing, that meet or exceed regulatory requirements.



Conducted in 2021, Biogen's ESG materiality assessment involved outreach to more than 5,000 stakeholders, spanning employees, healthcare professionals, patient advocates, government officials and community groups.

R&D, Pipeline & Innovation

Developing innovative products that treat systemic, challenging and complex medical issues and address the unmet medical needs of patients around the globe.

Recruitment, Talent Retention & Employee Engagement

Attracting and retaining top talent while also finding ways to keep employees motivated and committed to the company.

Workplace Employee Health & Safety

Undertaking efforts to assess and mitigate potential risks that could impact the health, safety or welfare of workers and implementing activities or programs to provide employees with a safe and healthy workplace.

ESG data table

ERM Certification and Verification Services, Inc. (ERM CVS) provided limited third-party assurance on data related to climate and energy, water, waste, social and safety (bolded data points). Environmental indicators include impacts from 100% of Biogen operations including owned and leased facilities. The financial indicators include the company's consolidated financial statements. Social indicators include Full-Time Employees unless otherwise noted.

	GRI code	Units	2019	2020	2021	2022
GOVERNANCE						
About Biogen						
Revenue	201-1	Million USD	14,378	13,445	10,982	10,173
R&D Spend		Million USD	2,281	3,991	2,501	2,231
No. of Employees	2-7	#	7,400	9,340	9,832	8,725
No. of FTE	2-7	#	N/A	9,192	9,586	8,610
No. of R&D Employees		#	N/A	2,284	2,366	1,613
No. of Part-time Employees	2-7	#	N/A	N/A	137	150
Workforce Located in U.S.	2-7	%	N/A	N/A	57%	57%
ESG Ratings, Rankings, and Assessments¹						
S&P Global CSA (DJSI)		Score	83 (Industry Leader)	85 (Industry Leader)	84 (Industry Leader)	71
MSCI		Rating	A	A	A	AA
ISS ESG		Rating	C+ (Prime)	C+ (Prime)	C+ (Prime)	C+ (Prime)
Sustainalytics		Risk Score	22	23.5	21.3	22.3
Human Rights Campaign's Corporate Equality Index		%	100	100	100	100
Disability:IN's Disability Equality Index		%	100	100	100	100
CDP Climate Change		Rating	A-	B+	B	B
CDP Water		Rating	B	B	B	B
Corporate Knights Global 100		Rank	-	-	97	-
100 Best Corporate Citizens		Rank	46	62	17	30
America's Most JUST Companies		Rank	30	150	36	41
Bloomberg Gender-Equality Index (GEI)		Signatory or Participant			✓	✓
United Nations Global Compact		Signatory or Participant		✓	✓	✓
Workforce Disclosure Initiative (WDI)		Signatory or Participant			✓	✓
Pharmaceutical Supply Chain Initiative Member		Signatory or Participant		✓	✓	✓

ESG data table

	GRI code	Units	2019	2020	2021	2022
ENVIRONMENTAL						
Climate						
Scope 1 (fossil fuels and refrigerants)	305-1	MT CO ₂ e	67,031	57,553	63,182	64,867
Scope 2 – Market based (electricity and steam)	305-2	MT CO ₂ e	131	280	268	335
Total Scope 1 & 2 (Market based)	305-1, 305-2	MT CO ₂ e	67,162	57,833	63,450	65,202
Scope 1 & 2 Intensity	305-4	MTCO ₂ e/MM USD revenue	4.7	4.3	5.8	6.4
Total Purchased Carbon Offsets ²	305-5	MT CO ₂ e	76,667	29,637	0	0
Carbon Neutrality (Scope 1 & 2 – Offsets)	305-5	MT CO ₂ e	67,031	29,637	0	0
Scope 2 – Location based (electricity and steam)	305-2	MT CO ₂ e	37,712	36,953	34,262	31,765
Scope 3 ³	305-3	MT CO ₂ e	424,592	348,911	406,442	434,635
› Category 1 – Purchased goods and service		MT CO ₂ e	334,954	254,670	321,610	334,900
› Category 2 – Capital goods		MT CO ₂ e	32,759	41,356	34,506	40,859
› Category 3 – Fuel- and energy-related activities		MT CO ₂ e	10,570	8,755	11,793	12,219
› Category 4 – Upstream transportation and distribution		MT CO ₂ e	N/A	17,701	17,148	13,622
› Category 5 – Waste generated in operations		MT CO ₂ e	645	487	354 ⁴	457
› Category 6 – Business travel		MT CO ₂ e	24,083	4,038	2,232	10,240
› Category 7 – Employee commuting ⁵		MT CO ₂ e	9,516	2,661	2,227	11,458
› Category 7 – Employee work from home ⁶		MT CO ₂ e	N/A	9,531	9,652	1,702
› Category 8 – Upstream leased assets		MT CO ₂ e	0	0	0	0
› Category 12 – End-of-life treatment of sold products		MT CO ₂ e	12,065	9,141	7,003	9,177
Scope 3 Intensity	305-4	MT CO ₂ e/MM USD revenue	30	26	37	43
Scope 3 (percent of Scope 1, 2 & 3)	305-3	%	86	86	86	87
Total Value Chain (Scope 1, 2 & 3)	305-1, 305-2, 305-3	MT CO ₂ e	491,545	406,139	469,909	499,837
Targets and Performance						
Scope 1 & 2 Absolute Reduction Since 2019 (Target: 55% by 2032)	305-5	%	N/A	-14	-6	-3
Suppliers that set or pledged to set a climate goal via the Science Based Targets initiative (Target: 80% of Suppliers by Spend by 2025)		%	N/A	N/A	18	23
Suppliers that have committed to 100% renewable energy by 2040 (Target: 50% of Suppliers by Spend by 2030; 90% of Suppliers by 2040)		%	N/A	N/A	26	37
Air Quality						
CO emissions	305-1, 305-2, 305-3	MT	8.2	6.9	4.5	9.33
NO _x emissions	305-1, 305-2, 305-3	MT	17	19.8	13.3	18.97
SO _x emissions	305-1, 305-2, 305-3	MT	1	2.9	1.9	3.18
VOCs emissions	305-1, 305-2, 305-3	MT	0.5	0.9	1.0	5.23

ESG data table

	GRI code	Units	2019	2020	2021	2022
EV100 – Battery Electric Vehicle Program						
Total Leased Vehicles		#	1,469	1,929	1,978	1,365
› Plug-in hybrid electric vehicles (PHEV)		#	12	41	26	132
› Battery electric vehicles (BEV)		#	9	12	81	163
Fleet Carbon Efficiency		g CO ₂ e/mile	292	228	282	248
Energy						
Total Energy Use		MWh	499,827	444,147	471,895	474,160
Renewable Electricity		MWh	144,972	139,958	143,470	136,356
› PPA/Direct Contract	302–1	MWh	3,240	4,498	44,627	38,422
› Renewable Energy Certificates ⁷	302–1	MWh	141,732	135,460	98,843	97,934
› On-site Generation	302–1	MWh	0	0	0	0
Non-Renewable Energy		MWh	354,855	304,189	328,452	337,804
› Fossil Fuels (gas, oil, diesel, gasoline)	302–1	MWh	354,454	303,576	327,337	337,323
› Municipal Steam	302–1	MWh	316	490	980	393
› Electricity	302–1	MWh	85	124	108	89
Data Coverage		%	100%	100%	100%	100%
› Energy Intensity	302–3	MWh/MM USD revenue	35	33	43	47
› RE100 Target – Global Renewable Electricity ⁸		%	100	100	100	100
› Fossil Fuel Free – Renewable Energy Allocation		% Total energy	29	32	30	29
Water						
Major Facilities with Fair Share of Water Withdrawal ⁹ (Target: Maintain 100%)	303–1	%	100	100	100	100
Water Use (ex. non-contact cooling water)	303–3, 303–5	Million Cubic Meters (m ³)	1.272	1.035	1.090	1.064
Water Use Intensity		m ³ /MM USD revenue	88	77	99	104
Water Reused/Recycled ¹⁰		%	5	7	4	6
Water Withdrawal		Million m ³	1.511	1.265	1.216	1.237
› Municipal Supply (potable & grey water)	303–3	Million m ³	0.758	0.590	0.581	1.018
› Fresh Surface Water (non-contact cooling)	303–3	Million m ³	0.303	0.303	0.166	0.218
› Groundwater ¹¹	303–3	Million m ³	0.447	0.370	0.453	0
› Rainwater	303–3	Million m ³	0.001	0.001	0.001	0.001

ESG data table

	GRI code	Units	2019	2020	2021	2022
Water Discharges		Million m ³	0.99	0.806	0.893	0.941
› Fresh Surface Water	303-4	Million m ³	0.303	0.303	0.166	0.218
› Wastewater	303-4	Million m ³	0.687	0.503	0.727	0.723
Waste ¹²						
Non-hazardous Waste ¹³	306-3	MT	7,561	2,841	3,510	4,224
› Reused	306-3	MT	6	39	76	127
› Recycled	306-3	MT	1,732	527	497.8	639.1
› Composted	306-3	MT	2,997	909	200	1,574
› Energy Recovery via Anaerobic Digestion	306-3	MT	43	0	0	0
› Waste to Energy ¹⁴	306-3	MT	1,206	879	1,361	1,336
› Incineration ¹⁵	306-3	MT	1,544	455	1,367	429
› Landfill	306-3	MT	32	32	6	119
› Non-hazardous Waste Intensity	306-3	MT/MM USD Revenue	0.53	0.21	0.32	0.41
› Waste to Landfill Diversion (Target: Maintain 100%) ¹⁶	306-4, 306-5	%	100	99	100	97
› Recovery & Recycling Rate (Non-hazardous Waste)	306-4, 306-5	%	63	52	22	55
Hazardous and Biohazardous Waste		MT	219	208	269	237
› Recycled	306-4, 306-5	MT	16	14	<1	29
› Waste to Energy	306-4, 306-5	MT	138	117	211	108
› Incineration	306-4, 306-5	MT	65	77	56	84
› Landfill	306-4, 306-5	MT	0	0	2	15
SOCIAL						
Community Engagement and Giving						
Total Foundation Grants ^{17, 18}		Million USD	4.7	16.4	6.1	5.8
Employee Matching Gifts Program ¹⁹		Million USD	1.7	2.5	2.1	2.1
Corporate Grants and Sponsorships ²⁰		Million USD	N/A	72.4	71.0	52.5
Volunteer Hours		Hours	16,560	4,369	14,493	15,485
Biogen Foundation STAR Initiative Investment ²¹ (Target: Cumulative \$12M by 2023)		Million USD	2.7	2.8	2.7	1.9
Responsible Supply Chain						
Supplier Diversity Spend		Million USD	161	173	230	196
Supplier Diversity Spend of Total U.S. Spend ²²		%	7.8	8.1	11.8	11

ESG data table

	GRI code	Units	2019	2020	2021	2022
Workforce Diversity, Equity and Inclusion						
Women in:						
› Workforce	2-7, 405-1	%	52.5	53.5	53.9	52.8
› Management ²³	2-7, 405-1	%	49.8	51.7	53.1	52.2
› Director Level and Above	2-7, 405-1	%	46	49	47.6	47.4
› Management in Revenue-Generating Functions ²⁴	2-7, 405-1	%	50.5	52.3	53.4	52.6
› STEM-related Positions	2-7, 405-1	%	N/A	44.6	48.8	49.8
› Top Management (VP+)	2-7, 405-1	%	39.2	42.9	44.6	45.1
› Executive Team	2-7, 405-1	%	25	29	25	46
› Board of Directors	2-7, 405-1	%	23	17	23	18
Demographics in Workforce (U.S. Only):						
› Asian American	405-1	%	N/A	16.9	17.4	17.6
› Black or African American	405-1	%	N/A	12.2	11.6	10.7
› Hispanic or Latino	405-1	%	N/A	5.1	4.8	3.8
› White	405-1	%	N/A	63.4	63.6	59.2
› Indigenous or Native American	405-1	%	N/A	0.3	0.4	0.2
› Native Hawaiian or Other Pacific Islander	405-1	%	N/A	0.1	0.1	0.1
› Two or More Races	405-1	%	N/A	1.1	1.5	1.8
› No Response	405-1	%	N/A	0.5	0.6	6.6
Demographics in Management (U.S. Only):²⁵						
› Asian American		%	N/A	18.5	19.5	19.7
› Black or African American		%	N/A	5.3	6.6	5.5
› Hispanic or Latino		%	N/A	4.9	4.7	3.6
› White		%	N/A	69.4	67.1	63.4
› Indigenous or Native American		%	N/A	0.1	0.2	0.2
Other Underrepresented Groups						
› Workforce Age 29 or Younger	405-1	%	N/A	9.8	8.5	8.1
› Workforce Age 30 to 50	405-1	%	N/A	67.8	67.8	61.4
› Workforce Age 51 or Older	405-1	%	N/A	22.5	23.7	30.5

ESG data table

	GRI code	Units	2019	2020	2021	2022
Demographics in Board of Directors ²⁶						
› Black or African American	2-9, 405-1	#	N/A	N/A	1	1
› Hispanic or Latino	2-9, 405-1	#	N/A	N/A	2	2
› White	2-9, 405-1	#	N/A	N/A	9	7
› Did Not Disclose Demographic Background	2-9, 405-1	#	N/A	N/A	1	1
Director-level and Above Positions Held by Racial Minorities (U.S. Only)	2-9, 405-1	%	26	28	26	27
Represented by Union/Collective Bargaining Agreement	2-30	%	N/A	13.1	13.1	8.9
Talent Attraction, Retention & Turnover						
Employee Satisfaction		%	76	86	73	75
Engagement Survey Response Rate		%	74	74	71	75
Number of New Hires		#	1,696	2,679	1,990	1,351
Open Positions filled by Internal Candidates	401-1	%	26.4	19.5	23.4	31
Training and Development	404-1	Avg Hours/Employee	N/A	38	32	32
Training Invested per Employee		\$	N/A	1,399	999	748
Turnover Rate						
› Voluntary Turnover	401-1	%	10.3	7.2	11	14.8
› Involuntary Turnover	401-1	%	N/A	1.8	3	9.6
Gender Pay Assessment ²⁷						
› Executives	405-2	%	N/A	N/A	1.02	1.02
› Management	405-2	%	N/A	N/A	0.95	1.00
› All Other Professionals	405-2	%	N/A	N/A	0.99	0.99
Occupational Health and Safety						
Total Recordable Injury Rate (TRIR) ²⁸	403-9	Cases/200,000 working hours	0.28	0.17	0.12	0.16
Days Away Case Rate (DACR)	403-9	Cases/200,000 working hours	0.11	0.06	0.07	0.04
3-Year Average DACR Industry Rank (Target: Top 3) ²⁹	403-9	Rank	2	2	2	2
Contractor DACR ³⁰	403-9	Cases/200,000 working hours	0.87	0	0	0
Number of Fatalities for Employees	403-9	#	0	0	0	0
Number of Fatalities for Contractors	403-9	#	0	0	0	0
Collisions per Million Miles (U.S. Fleet)	403-9	Collisions/million miles	3.7	6.9	4.5	3.5

ESG data table

Footnotes for 2022 ESG data table

- ¹ Year of the result is based on the ranking publication year, which may use data from other time periods per the publication's methodology.
- ² 2020 was the last year Biogen purchased carbon offsets as part of our abatement strategy.
- ³ Scope 3 categories 9, 10, 11, 13, 14 and 15 were determined to be not applicable or negligible.
- ⁴ Scope 3 category has been updated to account for non-material water methodology change.
- ⁵ Increase in Scope 3 Category 7 Employee Commuting is due to post-pandemic return to office.
- ⁶ Decrease in Scope 3 Category 7 Employee work from home is due to post-pandemic return to office.
- ⁷ Renewable energy certificates retired include bundled and unbundled Green-e certified Renewable Energy Certifications, Guarantees of Origin, J-Credits, Australian RECs, I-RECs to match Biogen's electricity usage in the U.S./Canada, Europe, Japan, Australia and South America/China/Mexico/United Arab Emirates, respectively.
- ⁸ RE100 member Biogen achieved 100% renewable electricity (as defined by RE100) across 30 of the markets in which it operates.
- ⁹ Percent of major sites assessed for water withdrawal using a context-based methodology. Fair, just and proportionate share of locally available renewable supplies is defined as a ratio of less than 1.0 using the Center for Sustainable Organization's Corporate Water Gauge tool, a context-based water metric.
- ¹⁰ Data reflect percentage of reclaimed water on-site, harvested rainwater, and municipal grey water compared to total water use.
- ¹¹ Groundwater value reduced in 2022 due to historical clerical error in location of water attribution.
- ¹² All waste disposal methods are covered in the table; no waste is disposed of by other or unknown methods.
- ¹³ Data include non-hazardous waste generated by Biogen operations (e.g., non-hazardous solid waste and trucked off wastewater). Waste derived from construction and demolition debris, incinerator ash and other contractor activities is not included.
- ¹⁴ All non-hazardous waste with energy recovery is generated by incineration.
- ¹⁵ For 2022, 1,336 metric tons of waste were incinerated for energy recovery, and 429 metric tons were incinerated without energy recovery.
- ¹⁶ For 2022, due to a state-mandated landfill closure and subsequent increased statewide waste-to-energy facility demands, non-hazardous waste of two sites included a portion sent to an out-of-state landfill, impacting 100% diversion rate.
- ¹⁷ Includes all grants awarded by the Biogen Foundation exclusive of the Biogen Foundation's Employee Matching Gifts Program.
- ¹⁸ Total in foundation grants is inclusive of STAR Initiative investment.
- ¹⁹ Through our matching gifts program, employees donated more than \$2 million to organizations around the world, giving particularly generously to address crisis situations, including the conflict in Ukraine and the 20th anniversary of the Biogen Foundation.
- ²⁰ Corporate Grants and Sponsorships includes Global Medical Grants and Patient Education Grants, General Grants, Infrastructure Grants, Fellowships and Sponsorships.
- ²¹ The STAR Initiative is a coordinated funding strategy designed to help catalyze the development of local science, technology, engineering and mathematics (STEM) ecosystems in Cambridge, Massachusetts, and Somerville, Massachusetts. STAR stands for Science, Teacher support, Access and Readiness, and it is intended to strengthen and support the educational landscapes in these cities by helping increase access to STEM resources and opportunities for students most underrepresented in STEM college or career pathways.
- ²² In 2021, minority-owned suppliers accounted for 19% of the diversity spend (2% of all Biogen supplier spending).
- ²³ Women in management percentage is inclusive of all management levels, consisting of employees at Manager level and above.
- ²⁴ Revenue generating functions include Pharmaceutical Operations & Technology, Commercial and Research & Development.
- ²⁵ Demographics are inclusive of all management levels, consisting of employees at Manager level and above.
- ²⁶ Racial and ethnic demographics that do not apply are excluded.
- ²⁷ The gender pay assessment includes data covering all permanent global employees adjusted for the number of females and males at each level within the organization for base compensation only. The ratio is calculated by averaging the mean base pay for women in the stated role in comparison to the mean base pay of men in a similar role.
- ²⁸ Includes permanent and contracted employees; excludes contractors (e.g., construction, janitorial, food services).
- ²⁹ Industry composed of 15 leading pharmaceutical company peers.
- ³⁰ Contractor DACR: Includes construction-related contractors only.

N/A = Data were not collected in reporting year.

SASB index

Code	Accounting Metric	2022 Response
HC-BP-210a.1	Discussion, by world region, of management process for ensuring quality and patient safety during clinical trials.	<p>Biogen has a Global Pharmacovigilance (PV) team that includes medical and scientific professionals with extensive safety clinical, and/or healthcare experience. They are trained in PV and health authority regulations relevant to medicinal product safety in the markets where Biogen operates.</p> <p>Biogen's safety signal management processes, combined with our robust safety governance framework, allow Biogen to determine if new safety information on our products (a 'signal') poses a risk to patients and how best to manage, mitigate and communicate the risk. All safety and benefit/risk decisions for marketed and investigational products are made at the Safety Monitoring Committee (SMC). The Safety team collaborates with Regulatory Affairs and others within Biogen to communicate product information in a timely, transparent and accurate manner to regulatory agencies and other stakeholders across the globe.</p> <p>In addition to complying with our company's global standards, the conduct of our clinical trials adheres to the International Council for Harmonization Good Clinical Practice (ICH GCP) standards and to the principles that have their origin in the Declaration of Helsinki.</p> <p>Each country has its own regulatory authority with its own regulations or laws for conducting clinical trials. Relevant regulatory authorities review and approve Biogen's proposed protocol and ensure that clinical trials follow national regulations.</p> <p>An Institutional Review Board (IRB) or Ethics Committee (EC) is an independent committee that includes medical, scientific and non-scientific members, whose responsibility is to protect the rights, welfare, safety and well-being of clinical trial participants. Each clinical trial location is monitored by a specific IRB/EC. It is responsible for reviewing all clinical trials as well as conducting ongoing reviews of active clinical trials.</p> <p>For more information, please visit our clinical trials webpage.</p>
HC-BP-210a.2	Number of FDA Sponsor Inspections related to clinical trial management and pharmacovigilance that resulted in: (1) Voluntary Action Indicated (VAI) and (2) Official Action Indicated (OAI).	<p>Biogen is committed to collaborating with regulatory agencies on a wide range of issues, including clinical trial management and pharmacovigilance and taking any actions that are needed.</p> <p>In 2022, five FDA inspections took place at two Biogen facilities in Solothurn, Switzerland, and Research Triangle Park, North Carolina. Four inspections resulted with Voluntary Action Indicated (VAI) and one inspection resulted in No Action Indicated (NAI). No inspections resulted in Official Action Indicated (OAI) in 2022.</p>
HC-BP-210a.3	Total amount of monetary losses as a result of legal proceedings associated with clinical trials in developing countries.	Biogen did not sustain any monetary losses in 2022 as a result of legal proceedings associated with clinical trials in developing countries.
HC-BP-240a.1	Description of actions and initiatives to promote access to healthcare products for priority diseases and in priority countries as defined by the Access to Medicine Index.	<p>While not listed as a company in scope for the 2022 Access to Medicine Index ("Index"), Biogen is deeply committed to access and health equity across all parts of our business. We are expanding our portfolio and pipeline, which includes a focus on diseases and conditions prioritized by the Index, including Alzheimer's disease, depression and stroke. Additionally, Biogen therapies support patients in a number of countries included in the Index, such as Brazil, China, India and Mexico, and we actively work with a variety of stakeholders to understand opportunities to meet patient needs and promote health access. For example, in India, our SPINRAZA Individual Patient Humanitarian Aid Access Program (SIPHAP) reached a total of 203 active patients across 14 public hospitals as of January 2023.</p> <p>For additional detail on this and other relevant programs, please see the Access and Health Equity section of Biogen's ESG Report.</p>
HC-BP-240a.2	List of products on the WHO List of Prequalified Medicinal Products as part of its Prequalification of Medicines Programme (PQP).	Biogen has no products on the WHO List of Prequalified Medicinal Products .

SASB index

Code	Accounting Metric	2022 Response
HC-BP-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.	Biogen does not comment on confidential legal matters.
HC-BP-240b.2	Percentage change in: (1) average list price and (2) average net price across U.S. product portfolio compared to previous year.	<p>In 2022, we saw a list price increase of 3.504% and a net price increase of 1.946% across our U.S. product portfolio as compared to the previous year.</p> <p>We regularly review our pricing strategy and prioritize patient access to our therapies. We have a value-based contracting program designed to align the price of our therapies to the value our therapies deliver to patients. We also work with regulators, clinical researchers, ethicists, physicians and patient advocacy groups and communities, among others, to determine how best to address requests for access to our investigational therapies in a manner that is consistent with our patient-focused values and compliant with regulatory standards and protocols.</p> <p>Additional information is available here: Biogen Pricing Principles</p>
HC-BP-240b.3	Percentage change in: (1) list price and (2) net price of product with largest increase compared to previous year.	<p>We regularly review our pricing strategy and prioritize patient access to our therapies. We have a value-based contracting program designed to align the price of our therapies to the value our therapies deliver to patients. We also work with regulators, clinical researchers, ethicists, physicians and patient advocacy organizations and communities, among others, to determine how best to address requests for access to our investigational therapies in a manner that is consistent with our patient-focused values and compliant with regulatory standards and protocols.</p> <p>Additional information is available here: Biogen Pricing Principles</p>
HC-BP-250a.1	List of products listed in the Food and Drug Administration's (FDA) MedWatch Safety Alerts for Human Medical Products database.	There were no listings relevant to Biogen's products on the FDA's MedWatch Safety Alerts for Human Medical Products database in 2022.
HC-BP-250a.2	Number of fatalities associated with products as reported in the FDA Adverse Event Reporting System.	All information related to fatalities associated with Biogen products are available via the FDA Adverse Event Reporting System .
HC-BP-250a.3	Number of recalls issued, total units recalled.	There were no recalls or units recalled in 2022.
HC-BP-250a.4	Total amount of product accepted for take-back, reuse, or disposal.	Biogen does not track the amount of product accepted for takeback, reuse or disposal; the volume of Biogen products is too low to warrant managing our own product takeback, reuse or disposal program. Biogen does, however, participate in several takeback programs across various U.S. states and counties, and several other countries. In addition, Biogen provides guidance on appropriate disposal methods for our products.
HC-BP-250a.5	Number of FDA enforcement actions taken in response to violations of current Good Manufacturing Practices (cGMP), by type.	Biogen did not receive any FDA enforcement actions associated with Form 483 observations, warning letters, seizures, recalls or consent decrees in 2022.

SASB index

Code	Accounting Metric	2022 Response
HC-BP-260a.1	Description of methods and technologies used to maintain traceability of products throughout the supply chain and prevent counterfeiting.	<p>Counterfeiting is now one of the largest criminal enterprises in the world, and no industry is exempt from this growing threat. Patient safety is our No. 1 priority, and we take the issue of counterfeit, falsified drugs very seriously. The main goal of our Product Security function is to implement a holistic strategy in order to proactively identify, mitigate and manage illicit trade risks that could potentially jeopardize the health and safety of patients who take our drugs or, secondarily, impact trust and reputation. We aim to disrupt diversion, counterfeiting, theft and other nefarious activities through the following five pillars:</p> <ul style="list-style-type: none"> • Threat Assessments: Identify, assess and mitigate risks and vulnerabilities across the supply chain. • Auditing: Audit supply chain partners to ensure industry best practice requirements are met regarding product security. • Monitoring: Monitor markets, channels, supply chain, customer complaints and other network elements to detect illicit trade signals and potential threats to supply chain resiliency and robustness. • Investigations: Respond to incidents with robust investigation and enforcement capability, including legal action to stop and deter illicit trade. • Product Security: Ensure we have the appropriate level of security measures for products and supply chain nodes in order to minimize the threat of counterfeits, diversions and thefts for the purpose of ensuring patient safety. <p>In addition to the above, a majority of our global production is serialized, meeting all global compliance requirements on serialization including the U.S. and the European Union (EU). Whenever we serialize, we also aggregate the serialization information to enable Track&Trace. We have implemented Track&Trace capabilities at our main distribution sites, beyond compliance requirements, to provide additional elements of traceability. For example, in the EU each medication is verified against the list of serial numbers in circulation prior to dispensing. If a medicine's serial number cannot be verified, a notification, called an alert, is electronically generated by the relevant National Medicines Verification Organization (NMVO) and shared with TraceLink, Biogen's Serialization System. Biogen reviews these alerts and resolves them in correspondence with the relevant NMVO. Serialization alerts that indicate suspect or illegitimate product will trigger the internal process described above.</p>
HC-BP-260a.2	Discussion of process for alerting customers and business partners of potential or known risks associated with counterfeit products.	<p>Biogen employs quality governed processes to manage the handling of suspect or illegitimate medicinal products: Upon detecting a potential or known product security risk, the event is captured as a complaint into the TrackWise system for formal tracking. Furthermore, there are requirements on segregation of product and the investigation process. Once the product is physically acquired, the technical product complaints group performs an investigation to verify if the product is genuine or falsified. If determined that the suspected product is falsified, potentially falsified or at high risk of being falsified, a global distributed material review board (DMRB) must be completed, defining further specific market actions and communications. As necessary, all impacted competent authorities and impacted distribution partners are then notified. Once a case is closed, Biogen notifies the applicable authorities and impacted trading partners.</p> <p>In addition to the above internal processes, Biogen also participates in industry-wide systems and processes utilizing serialization data. For example, in the EU each medication is verified against the list of serial numbers in circulation, prior to dispensing. Medicines shall not be dispensed if the number cannot be verified. If a medicine's serial number cannot be verified, a notification, called an alert, is electronically generated by the NMVO and shared with TraceLink, Biogen's Serialization System. Biogen reviews these alerts and resolves them in correspondence with the relevant NMVO. Serialization alerts that indicate suspect or illegitimate product will trigger the internal process described above.</p>
HC-BP-260a.3	Number of actions that led to raids, seizure, arrests, and/or filing of criminal charges related to counterfeit products.	Biogen did not take any actions in 2022 that led to raids, seizures, arrests and/or filing of criminal charges related to counterfeit products.
HC-BP-270a.1	Total amount of monetary losses as a result of legal proceedings associated with false marketing claims.	Biogen discloses all material legal and regulatory proceedings in our Annual Report on Form 10-K and Quarterly Reports on Form 10-Q .
HC-BP-270a.2	Description of code of ethics governing promotion of off-label use of products.	Please visit our website with a focus on the Early Access page .

SASB index

Code	Accounting Metric	2022 Response
HC-BP-330a.1	Discussion of talent recruitment and retention efforts for scientists and research and development personnel.	<p>Biogen has a range of active initiatives to help build a diverse talent pipeline. For example, the Biogen Community Lab is the longest-running hands-on corporate science education program in the U.S., and has reached students in 30 countries to date. Announced in 2022, the Biogen-supported Xavier University of Louisiana's Biogen Sharp-Verret Award is a scholarship for underrepresented students pursuing neuroscience careers. A collaboration with Massachusetts General Hospital is giving the next generation in-depth exposure to the field of neurology. Through a collaboration with Morehouse School of Medicine, we welcomed our first intern cohort from Historically Black Colleges and Universities (HBCUs) to our Summer Health Equity Fellowship Program in 2020. The fellowship program, which engages M.D. and Ph.D. students, aims to advance health equity and improve patient experiences. In 2016, Biogen helped create The Partnership, Inc.'s BioDiversity Fellows Program, which nurtures the potential leadership of mid-career professionals who are underrepresented in the life sciences industry. In Latin America, the Biogen Intercontinental Region (BIR) developed FemSTEM, a campaign to empower girls and women to pursue a path in STEM. The campaign includes a podcast series and opportunities for participants to engage via Women in Bio, UN Women and NS Innovation in South America. Biogen employees volunteer in Women in Bio.</p> <p>We remain actively involved in a wide variety of industry programs that allow us to increase the visibility of Biogen as a purpose-driven company with a wide variety of career opportunities and a culture focused on helping employees thrive. We have a particular focus on increasing visibility and engagement with communities historically underrepresented and underserved in neuroscience, including through our engagement with groups such as Women of Color in Pharma (WOCIP) and American Women in Science (AWIS), among many others.</p> <p>We also have continued to expand our focus on talent retention, growth and engagement through programs such as Thrive@Biogen. A broader discussion of those efforts can be found in the Workforce section of the ESG Report.</p>
HC-BP-330a.2	(1) Voluntary and (2) involuntary turnover rate for: (a) executives/senior managers, (b) mid-level managers, (c) professionals, and (d) all others.	<p>Total Turnover Rate: 24.4%</p> <p>Voluntary Turnover Rate: 14.8%</p> <p>Involuntary Turnover Rate: 9.6%</p> <p>Please see disclosures in the ESG Data Table in Biogen's ESG Report.</p>
HC-BP-430a.1	Percentage of (1) entity's facilities and (2) 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.	Biogen outsources anywhere from 10% to 15% of our external supplier audits. We perform the vast majority of our audits through our own audit program using outsourced support or the use of third-party auditors depending on the type of service provided, risk and availability.
HC-BP-510a.1	Total amount of monetary losses as a result of legal proceedings associated with corruption and bribery.	Biogen discloses all material legal and regulatory proceedings in our Annual Report on Form 10-K and Quarterly Reports on Form 10-Q .
HC-BP-510a.2	Description of code of ethics governing interactions with health care professionals.	<p>We comply with the Pharmaceutical Research and Manufacturers of America's (PhRMA) Code on Interactions with Healthcare Professionals.</p> <p>See our Code of Business Conduct section on Interactions with Healthcare Professionals.</p>
HC-BP-000.A	Number of patients treated.	Biogen has treated more than 2.1 million patients worldwide from 1996 through the end of 2022.
HC-BP-000.B	Number of drugs (1) in portfolio and (2) in research and development (Phases 1–3).	Biogen discloses the number of marketed therapies on the Product Portfolio page and research and development in our earnings reports (Q4 and Full Year 2022 update here).

GRI content index

Biogen has reported the information cited in this GRI content index for the period from 1 January 2022 to 31 December 2022 with reference to the GRI Standards.

GRI Standard	Disclosure	Location
GRI 2: General Disclosures 2022	2-1 Organizational details	Item 1., Business, 2022 Annual Report
	2-2 Entities included in the organization's sustainability reporting	Item 1., Business, 2022 Annual Report
	2-3 Reporting period, frequency and contact point	Data cover fiscal year ending Dec. 31, 2022. (Some activities from 2023 are also included.) We report on an annual basis. Biogen contact: public.affairs@biogen.com or responsibility@biogen.com
	2-4 Restatements of information	Restatements for previous disclosed metrics are identified in the ESG Data Table
	2-5 External assurance	Independent Assurance Statement
	2-6 Activities, value chain and other business relationships	Item 1., Business, 2022 Annual Report
	2-7 Employees	Item 1., Business, 2022 Annual Report ESG Report, ESG Data Table
	2-8 Workers who are not employees	Item 1., Business, 2022 Annual Report ESG Report, ESG Data Table
	2-9 Governance structure and composition	Executive Leadership Board of Directors Corporate Governance Documents
	2-10 Nomination and selection of the highest governance body	Executive Leadership Board of Directors Corporate Governance Documents
	2-11 Chair of the highest governance body	Executive Leadership Board of Directors Corporate Governance Documents
	2-12 Role of the highest governance body in overseeing the management of impacts	Executive Leadership Board of Directors Corporate Governance Documents
	2-13 Delegation of responsibility for managing impacts	Executive Leadership Board of Directors Corporate Governance Documents

GRI content index

GRI Standard	Disclosure	Location
	2-14 Role of the highest governance body in sustainability reporting	Executive Leadership Board of Directors Corporate Governance Documents
	2-16 Communication of critical concerns	Code of Business Conduct
	2-17 Collective knowledge of the highest governance body	Executive Leadership Board of Directors Corporate Governance Documents
	2-18 Evaluation of the performance of the highest governance body	Consolidated Financial Statements Item 1., Business, 2022 Annual Report Independent Assurance Statement ESG Report, Reporting section, ESG materiality assessment
	2-19 Remuneration policies	Proxy, Executive Compensation Matters
	2-21 Annual total compensation ratio	Biogen does not disclose externally any salary-and wages-related data except the Executive Compensation of the Executive Committee and Board of Directors
	2-22 Statement on sustainable development strategy	ESG Report, Overview section
	2-23 Policy commitments	Principles, Policies & Positions
	2-24 Embedding policy commitments	Principles, Policies & Positions
	2-25 Processes to remediate negative impacts	ESG Report, Workforce section
	2-26 Mechanisms for seeking advice and raising concerns	Code of Business Conduct
	2-27 Compliance with laws and regulations	Principles, Policies & Positions Item 1A., Risk Factors, 2022 Annual Report
	2-28 Membership associations	ESG Report, Overview and Community sections
	2-29 Approach to stakeholder engagement	Executive Leadership Board of Directors Corporate Governance Documents ESG Report, Overview; Access and Health Equity; Community; Reporting sections
	2-30 Collective bargaining agreements	Website – ESG data table
GRI 3: Material Topics 2022	3-1 Process to determine material topics	ESG Report, Reporting section
	3-2 List of material topics	ESG Report, Reporting section
	3-3 Management of material topics	ESG Report, Reporting section

GRI content index

GRI Standard	Disclosure	Location
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed	Item 6., Selected Financial Data, 2022 Annual Report Political Contributions Disclosures ESG Report, ESG Data Table
	201-2 Financial implications and other risks and opportunities due to climate change	ESG Report, TCFD disclosure 2022 CDP Climate Change disclosure
	201-3 Defined benefit plan obligations and other retirement plans	ESG Report, Workforce section
	201-4 Financial assistance received from government	Consolidated Financial Statements Item 1., Business, 2022 Annual Report
GRI 203: Indirect Economic Impacts 2016	203-2 Significant indirect economic impacts	2022 Annual Report ESG Report, Community section and ESG Data Table
GRI 205: Anti-corruption 2016	205-1 Operations assessed for risks related to corruption	Item 1A., Risk Factors, 2022 Annual Report
	205-2 Communication and training about anti-corruption policies and procedures	ESG Report, Workforce section Code of Business Conduct
	205-3 Confirmed incidents of corruption and actions taken	ESG Report, ESG Data Table
GRI 206: Anti-competitive Behavior 2016	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	2022 Annual Report Quarterly Reports on Form 10-Q
GRI 207: Tax 2019	207-1 Approach to tax	Global Tax Policy U.K. Tax Strategy
	207-2 Tax governance, control, and risk management	Global Tax Policy U.K. Tax Strategy
	207-3 Stakeholder engagement and management of concerns related to tax	Global Tax Policy U.K. Tax Strategy
GRI 302: Energy 2016	302-1 Energy consumption within the organization	ESG Report, Environment section and ESG Data Table 2022 CDP Climate Change disclosure
	302-2 Energy consumption outside of the organization	ESG Report, Environment section and ESG Data Table 2022 CDP Climate Change disclosure
	302-3 Energy intensity	ESG Report, Environment section and ESG Data Table 2022 CDP Climate Change disclosure
	302-4 Reduction of energy consumption	ESG Report, Environment section and ESG Data Table 2022 CDP Climate Change disclosure

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GRI Standard	Disclosure	Location
GRI 303: Water and Effluents 2018	303-1 Interactions with water as a shared resource	ESG Report, Environment section and ESG Data Table 2022 CDP Climate Change disclosure
	303-2 Management of water discharge-related impacts	ESG Report, Environment section and ESG Data Table 2022 CDP Climate Change disclosure
	303-3 Water withdrawal	ESG Report, ESG Data Table 2022 CDP Water disclosure
	303-4 Water discharge	ESG Report, ESG Data Table 2022 CDP Water disclosure
	303-5 Water consumption	ESG Report, ESG Data Table 2022 CDP Water disclosure
GRI 305: Emissions 2016	305-1 Direct (Scope 1) GHG emissions	ESG Report, ESG Data Table 2022 CDP Water disclosure
	305-2 Energy indirect (Scope 2) GHG emissions	ESG Report, ESG Data Table 2022 CDP Water disclosure
	305-3 Other indirect (Scope 3) GHG emissions	ESG Report, ESG Data Table 2022 CDP Water disclosure
	305-4 GHG emissions intensity	ESG Report, ESG Data Table 2022 CDP Water disclosure
	305-5 Reduction of GHG emissions	ESG Report, ESG Data Table 2022 CDP Water disclosure
	305-6 Emissions of ozone-depleting substances (ODS)	ESG Report, ESG Data Table 2022 CDP Water disclosure
	305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	ESG Report, ESG Data Table 2022 CDP Water disclosure
GRI 306: Waste 2020	306-1 Waste generation and significant waste-related impacts	ESG Report, ESG Data Table
	306-2 Management of significant waste-related impacts	ESG Report, Environment section
	306-3 Waste generated	ESG Report, ESG Data Table
	306-4 Waste diverted from disposal	ESG Report, ESG Data Table
	306-5 Waste directed to disposal	ESG Report, ESG Data Table

GRI content index

GRI Standard	Disclosure	Location	
GRI 308: Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	ESG Report, 2023 Responsible and Ethical Supply Chain Statement	
	308-2 Negative environmental impacts in the supply chain and actions taken	ESG Report, 2023 Responsible and Ethical Supply Chain Statement Item 1A., Risk Factors, 2022 Annual Report	
GRI 401: Employment 2016	401-1 New employee hires and employee turnover	ESG Report, ESG Data Table	
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	ESG Report, Workforce section	
	401-3 Parental leave	ESG Report, Workforce section	
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	Environmental, Health and Safety Policy Statement	
	403-3 Occupational health services	Environmental, Health and Safety Policy Statement	
	403-4 Worker participation, consultation, and communication on occupational health and safety	Environmental, Health and Safety Policy Statement	
	403-5 Worker training on occupational health and safety	Environmental, Health and Safety Policy Statement ESG Report, ESG Data Table	
	403-6 Promotion of worker health	ESG Report, Workforce section	
	403-8 Workers covered by an occupational health and safety management system	Environmental, Health and Safety Policy Statement ESG Report, Workforce section	
	403-9 Work-related injuries	Environmental, Health and Safety Policy Statement ESG Report, ESG Data Table	
	GRI 404: Training and Education 2016	404-1 Average hours of training per year per employee	ESG Report, Workforce section and ESG Data Table
		404-2 Programs for upgrading employee skills and transition assistance programs	ESG Report, Workforce section
404-3 Percentage of employees receiving regular performance and career development reviews		ESG Report, ESG Data Table	
GRI 405: Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	Item 1., Business, 2022 Annual Report Board of Directors ESG Report, Overview and Workforce sections, ESG Data Table	
	405-2 Ratio of basic salary and remuneration of women to men	ESG Report, Workforce section and ESG Data Table	
GRI 413: Local Communities 2016	413-1 Operations with local community engagement, impact assessments, and development programs	ESG Report, Community section	
	413-2 Operations with significant actual and potential negative impacts on local communities	ESG Report, Community section	
GRI 414: Supplier Social Assessment 2016	414-2 Negative social impacts in the supply chain and actions taken	ESG Report, 2023 Responsible and Ethical Supply Chain Statement Code of Business Conduct	

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GRI Standard	Disclosure	Location
GRI 415: Public Policy 2016	415-1 Political contributions	Political Contributions Disclosures
GRI 416: Customer Health and Safety 2016	416-1 Assessment of the health and safety impacts of product and service categories	ESG Report, Overview and Environment sections Principles, Policies & Positions
	416-2 Incidents of non-compliance concerning the health and safety impacts of products and services	FDA website
GRI 417: Marketing and Labeling 2016	417-1 Requirements for product and service information and labeling	Principles, Policies & Positions
	417-2 Incidents of non-compliance concerning product and service information and labeling	Principles, Policies & Positions
	417-3 Incidents of non-compliance concerning marketing communications	Principles, Policies & Positions
GRI 418: Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	ESG Report, ESG Data Table

Task Force on Climate-related Financial Disclosures (TCFD) statement

In 2020, Biogen decided to support the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD) to enhance transparency on climate-related matters. This statement represents our third disclosure aligned with the TCFD recommendations. It covers all facilities and operations globally which are owned by Biogen or for which the company has operational control. Our 2022 CDP Climate Change disclosure provides further background on our approach to climate change and should be read alongside these disclosures. Our CDP responses are available at www.cdp.net.

Governance

TCFD recommendations for disclosures on Governance:

- Describe the board's oversight of climate-related risks and opportunities.
- Describe management's role in assessing and managing climate-related risks and opportunities.

Biogen's Board of Directors has oversight of environment, social and governance (ESG) issues. Biogen's CEO is ultimately responsible for assessing and managing Biogen's climate-related risks, strategies and initiatives, including Biogen's performance on our climate-related commitments. Biogen's environmental efforts are managed and tracked by a formal Governance Committee comprised of executive-level members from across the business. The Committee meets quarterly to guide and deliver on Biogen's environmental efforts and provides regular updates to the full Executive Leadership Team and to Biogen's Board of Directors. Nicole Murphy, Head of Pharmaceutical Operations & Technology, a direct report of the CEO, is executive sponsor and Chair of the Committee.

Biogen's Enterprise Risk Management (ERM) process helps ensure climate-related risks and opportunities are integrated into our overall business strategy. Our ERM team monitors strategic climate-related risks across all aspects of our business and utilizes climate scenarios as part of its assessments. The ERM team evaluates identified risks, including any climate-related physical and transitional risks, by engaging the leaders who oversee and run the day-to-day environmental programs. The ERM team provides annual updates on their findings and activities to the Biogen Executive Team, including those with environmental oversight, as well as the Board of Directors.

Starting in 2021, to support Biogen's strategic management of climate-related issues and ESG generally, a portion of the compensation of every executive officer and all other employees has been tied to advancing our ESG strategy, which includes climate-related targets.

Strategy

TCFD recommendations for disclosures on Strategy:

- Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.
- Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.
- Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

As a standard business practice, Biogen regularly evaluates our climate-related commitments and initiatives, which includes taking a strategic approach to identifying and responding to climate-related risks and opportunities and their impacts on our business. This encompasses considerations of any potential impacts on our financial planning, products and services, supply chain management, investment in R&D and operations. Our responses are guided by our commitment to human health, our understanding of the complex interplay of health and environmental issues, our focus on delivering operational efficiencies, climate science and other factors.

➔ **ADDITIONAL DETAILS AND OUR PROGRESS IN ADVANCING OUR ENVIRONMENTAL GOALS ARE AVAILABLE ON WWW.BIOGEN.COM**

TCFD statement

Based on our most recent assessments, including climate scenario analyses conducted in 2021, we have identified the following short-, medium- and long-term risks and opportunities:

Risks and Opportunities Identified	Time Horizon (short, medium, long term)	Potential Impacts	Management Approach
Increased frequency of extreme weather and climate-related natural disasters	Short, medium and long term	<p>The vast majority of Biogen sites are not expected to be exposed to an increased material risk of extreme weather through 2040.</p> <p>Four third-party manufacturing sites are “at-risk” due to their location in southern Europe and California.</p>	<p>We began developing a Responsible Supplier Program in 2022, which includes an analysis of multiple ESG factors. All suppliers “at risk” for potential climate impacts will be prioritized for assessment to understand mitigation steps being taken and needed in the future.</p>
Expectation for sustainable and/or low carbon products and services from healthcare providers in some countries	Medium and long term	<p>As national health systems specify lifecycle impacts for products they purchase, competitive products having lower environmental impacts might succeed in various markets, which could impact Biogen’s market access and revenue in some countries. The potential risks and opportunities to Biogen relate to our ability to demonstrate and/or improve the sustainability of our products and packaging with sufficient speed, while maintaining or improving health outcomes and meeting other customer requirements.</p>	<p>Biogen introduced principles of Sustainable Drug Development to incorporate green chemistry into all stages of therapy development by 2023 and set 2025 goals for sustainable packaging. As part of these efforts, Biogen labs piloted a My Green Lab program in 2021, achieving certification of “gold” or better. In 2022, 41 Biogen labs participated in My Green Lab, a certification recognized by the United Nations’ Race to Zero campaign for setting the standard for best practices in laboratory sustainability. Ninety-eight percent of our participating labs became My Green Lab certified and, of those certified labs, 93% of them obtained a gold certification or higher. As of Q1 2023, 81% of our labs achieved My Green Lab certification.</p> <p>In 2022, Biogen conducted life cycle assessments (LCAs) on three biosimilar products in four markets. We are also working to evaluate alternative materials and approaches for primary medicine delivery with a reduced environmental footprint. Biogen has published updates on these efforts in our 2022 ESG Report.</p>
Ban and/or restrictions on the sale or use of petrol and diesel vehicles in some markets	Short and medium term	<p>Approximately 1,900 leased vehicles in Biogen’s commercial fleet rely primarily on petrol and diesel fuel. Some local, state and national governments are banning or restricting sales of internal combustion engine (ICE) vehicles, which could translate into an increase in duties on fossil fuels and other limitations associated with our commercial fleet. For example, an increase in the number and/or scope of clean air zones being established at the local and/or regional level might restrict Biogen’s fossil fuel vehicles from entering those regions or require us to pay a surcharge for access. Either development might limit our access to specific markets or increase our costs of access for legacy vehicles with ICEs. However, we monitor developments closely and do not anticipate a material impact from either of these potential changes.</p>	<p>In 2020, we completed a market readiness study across all markets where we operate with the ambition to transition to 100% battery electric vehicles (BEVs) by 2025 for new leases. We are implementing a phased rollout strategy, starting with 15 markets that are comparatively EV ready today, with the help of existing and new e-mobility partners.</p> <p>Many Biogen employees are embracing the transition, with more than 290 Biogen EVs on the road today. We see potential for additional progress as current leases expire and with the reduction of meaningful external barriers, including lack of sufficient charging infrastructure and constraints pertaining to vehicle cost and availability in major markets.</p> <p>BEVs also provide an opportunity for Biogen to decrease the total cost of ownership of our vehicles and maintain future access to restricted clean air zones. As we are signatories to the Climate Group’s EV100 commitment, our management approach aims to address identified risks and capitalize on potential business benefits from the EV transition in relevant markets, including those that have banned or are expected to limit fossil fuel vehicles and/or establish clean air zones.</p>

TCFD statement

Risks and Opportunities Identified	Time Horizon (short, medium, long term)	Potential Impacts	Management Approach
Carbon pricing and future environmental taxation	Medium and long term	We expect that carbon pricing and/or environmental taxation will increase in many large markets where we operate.	We see increasing efficiencies as one part of well-run business operations, with emissions reductions an important consideration as we make decisions about equipment, energy, materials and other matters. Our long-term ambition has been to eliminate emissions within our operations by 2040, and we also are working toward a net-zero supply chain by 2045. Our climate strategy can mitigate our exposure to future carbon pricing and/or environmental taxation and might also create an advantage relative to peer companies that have yet to establish a pathway toward decarbonization.
Access to capital on favorable terms	Medium and long term	Some financial institutions are signaling a long-term shift in their approach to capital allocation away from projects or organizations with higher climate risk. Growth in sustainable finance mechanisms, such as green bonds, might result in greater access to capital and more favorable terms for more sustainable businesses.	Biogen seeks to favorably position itself to access sustainable finance mechanisms as and when we seek new sources of funding.

Risk Management

TCFD recommendations for disclosures on Risk Management:

- a) Describe the organization’s processes for identifying and assessing climate-related risks.
- b) Describe the organization’s processes for managing climate-related risks.
- c) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization’s overall risk management.

We identify and assess climate-related risks – both physical risks and transitional risks – by utilizing the Global Enabling Sustainability Initiative (GeSI)-CDP Scenario Analysis Toolkit (the Toolkit). Our most recent assessment of physical risks included screening studies of two future climatic scenarios to explore our physical climate-related risks, notably water scarcity, inland/coastal floods, extreme heat, tornados, hurricanes and wildfires.

Representative Concentration Pathways (RCP) 4.5 (+2°C) and RCP 8.5 (+4°C) were the selected scenarios for this study with projected impacts out from 2020 to 2030 and 2040 or 2050 depending on the criteria data set available. These scenarios were applied to Biogen’s three manufacturing and R&D locations and 10 of the contract manufacturing organization sites we rely on to manufacture our products. Commercial sites, which consist of leased office space,

were not included in the screening studies, because we determined that they posed a low material risk. The outcome of these studies across the 13 sites was combined with a revenue-based assessment to identify short-, medium- and/or long-term risks. Subsequently, we expanded our assessment of physical risks to include our broader value chain, specific to our most critical suppliers.

We also utilize the Toolkit to identify and assess the risks and opportunities associated with the transition to a low-carbon economy. For this purpose, in 2020, we adopted two climate scenarios: the IEA INDC Scenario (~3°C) as a base case and the IEA WEO 450 Scenario (~2°C) as a higher ambition case toward meeting the Paris Agreement to understand policy and technology impacts through 2040. Risks and opportunities were assessed at an enterprise level as well as specific to our biosimilar product segment.

Identified material risks and opportunities are reported to the Enterprise Risk Management team and Environmental Governance Committee overseeing our environmental goals, which reports to the Executive Leadership Team and Board of Directors. Through this layered accountability, we consider and address material risks and opportunities that may impact our business model, as well as mitigation measures that are in place or need to be refreshed and/or adopted.

TCFD statement

Metrics and Targets

TCFD recommendations for disclosures on Metrics and Targets:

- a) Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.
- b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.
- c) Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.

There is increased attention to decarbonization among a variety of stakeholders, including some investors, regulators and customers. Therefore, our overall strategy to manage and mitigate climate-related risks includes a focus on the following metrics and targets, which are consistent with the aims of the Paris Agreement and keeping temperature rise to 1.5°C.

- In 2020, we committed to reduce absolute Scope 1 and 2 emissions by 55% by 2032 compared to 2019 and 100% by 2040 through the Science Based Targets initiative.
- We are also committed to working with our suppliers to reduce our indirect climate impacts from purchased goods, services and capital equipment, where 80% of suppliers by spend will have a science-based target by 2025. We also are committed to strengthening our resilience through the mitigation of environmental risks throughout our global supply chain and are currently expanding our Responsible Sourcing Program, which includes the establishment of sustainable procurement principles.
- In September 2022, we issued a progress report which details our efforts to advance our goals, including engagement with our employees and suppliers, and ongoing collaborations with renowned institutions to improve health – especially for vulnerable populations most impacted by climate-related events.

We track our performance and disclose our progress around related climate-related risks and opportunities through our ESG Data Table in our annual ESG Report. The GRI-aligned content provides robust disclosure of our annual environmental metrics, including those we use to assess climate-related risks and opportunities and in efforts to reduce our emissions. Additional annual updates to metrics associated with greenhouse gas emissions, energy and water are disclosed through the CDP Climate Change Questionnaire and the CDP Water Security Questionnaire.

Safe harbor

This letter contains forward-looking statements relating to: our strategy and plans; potential of, and expectations for, our commercial business and pipeline programs; capital allocation and investment strategy; clinical development programs, clinical trials, and data readouts and presentations; regulatory discussions, submissions, filings and approvals; the potential benefits, safety, and efficacy of our and our collaboration partners' products and investigational therapies; the anticipated benefits and potential of investments, cost-saving initiatives, actions to improve risk profile and productivity of R&D pipeline, collaborations and business development activities; and our future financial and operating results. These forward-looking statements may be accompanied by such words as "aim," "anticipate," "believe," "could," "estimate," "expect," "forecast," "goal," "intend," "may," "plan," "potential," "possible," "prospect," "will," "would," and other words and terms of similar meaning. Drug development and commercialization involve a high degree of risk, and only a small number of research and development programs result in commercialization of a product. Results in early-stage clinical trials may not be indicative of full results or results from later-stage or larger-scale clinical trials and do not ensure regulatory approval. You should not place undue reliance on these statements.

These statements involve risks and uncertainties that could cause actual results to differ materially from those reflected in such statements, including: our dependence on sales from our products; uncertainty of long-term success in developing, licensing, or acquiring other product candidates or additional indications for existing products; failure to compete effectively due to significant product competition in the markets for our products; failure to successfully execute or realize the anticipated benefits of our strategic and growth initiatives; difficulties in obtaining and maintaining adequate coverage, pricing and reimbursement for our products; our dependence on collaborators, joint venture partners and other third parties for the development, regulatory approval, and commercialization of products and other aspects of our business, which are outside of our full control; the potential impact of the conflict in Ukraine; risks associated with current and potential future healthcare reforms; risks related to commercialization of biosimilars; failure to obtain, protect

and enforce our data, intellectual property, and other proprietary rights and the risks and uncertainties relating to intellectual property claims and challenges; the risk that positive results in a clinical trial may not be replicated in subsequent or confirmatory trials or success in early-stage clinical trials may not be predictive of results in later-stage or large-scale clinical trials or trials in other potential indications; risks associated with clinical trials, including our ability to adequately manage clinical activities, unexpected concerns that may arise from additional data or analysis obtained during clinical trials, the risk that regulatory authorities may require additional information or further studies, or may fail to approve or may delay approval of our drug candidates; the occurrence of adverse safety events, restrictions on use of our products, or product liability claims; risks relating to technology failures or breaches; problems with our manufacturing processes; risks relating to management and personnel changes, including attracting and retaining personnel; failure to comply with legal and regulatory requirements; the risks of doing business internationally, including currency exchange rate fluctuations; risks relating to investment in our manufacturing capacity; the direct and indirect impacts of the ongoing COVID-19 pandemic on our business; risks relating to the distribution and sale by third parties of counterfeit or unfit versions of our products; risks relating to the use of social media for our business; results of operations and financial condition; fluctuations in our operating results; risks related to investment in properties; the market, interest, and credit risks associated with our investment portfolio; risks relating to share repurchase programs; risks relating to access to capital and credit markets; risks related to indebtedness; change in control provisions in certain of our collaboration agreements; fluctuations in our effective tax rate; environmental risks; and any other risks and uncertainties that are described in other reports we have filed with the U.S. Securities and Exchange Commission. These statements speak only as of the date of this letter. We do not undertake any obligation to publicly update any forward-looking statements.



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