



2017 Global Impact Report

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This report contains forward-looking statements made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, including statements relating to Biogen’s business activities; Biogen’s strategy and plans; potential of Biogen’s commercial business and pipeline programs; capital allocation and investment strategy; clinical trials and data readouts and presentations; regulatory filings and the timing thereof; and anticipated benefits and potential of investments, collaborations and business development activities. These forward-looking statements may be accompanied by words such as “aim,” “anticipate,” “believe,” “could,” “estimate,” “except,” “forecast,” “goal,” “intend,” “may,” “plan,” “potential,” “possible,” “will” 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 or the scientific data presented.

These statements involve risks and uncertainties that could cause actual results to differ materially from those reflected in such statements, including risks relating to difficulties in obtaining and maintaining adequate coverage, pricing and reimbursement for Biogen’s products; the occurrence of adverse safety events, restrictions on use with Biogen’s products or product liability claims; uncertainty of success in developing, licensing or acquiring other product candidates or additional indications for existing products; 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 Biogen’s ability to adequately manage clinical activities, unexpected concerns that may arise from additional data or analysis obtained during clinical trials, regulatory authorities may require additional information or further studies or may fail to approve or may delay approval of our drug candidates;; problems with Biogen’s manufacturing processes; Biogen’s dependence on collaborators and other third parties for the development, regulatory approval and commercialization of products and other aspects of Biogen’s business, which are outside of Biogen’s control; failure to successfully execute on Biogen’s growth initiatives; risks relating to investment in and expansion of manufacturing capacity for future clinical and commercial requirements; failure to comply with legal and regulatory requirements; environmental risks; risks relating to the sale and distribution by third parties of counterfeit versions of Biogen’s products; and the other risks identified in Biogen’s most recent annual or quarterly report and in other reports Biogen has filed with the Securities and Exchange Commission.

These statements are based on Biogen’s current beliefs and expectations and speak only as of the date of this report. Biogen does not undertake any obligation to publicly update any forward-looking statements.

Our Purpose, Our Impact

At Biogen, our mission is clear: we are pioneers in neuroscience. Our commitment to transforming the lives of patients and leading in the field of neuroscience is unwavering. Using our understanding and expertise, we have pioneered drug discovery and have improved the understanding surrounding some of the most complex neurological conditions that patients and healthcare providers face each and every day, such as multiple sclerosis (MS) and spinal muscular atrophy (SMA).

Our philosophy is Caring Deeply. Working Fearlessly. Changing Lives.™ Beyond our leadership in the development of new and ground-breaking therapies, we strive to improve overall patient health outcomes, positively impact social and environmental challenges, cultivate a workplace that enables our employees to thrive, support local communities and inspire future generations of scientists. We believe this philosophy is central to our mission as we build on our legacy of science and discovery to pursue increasingly complex challenges in neuroscience.

We strive to improve overall patient health outcomes, positively impact social and environmental challenges, cultivate a workplace that enables our employees to thrive, support local communities and inspire future generations of scientists.

2017 Highlights

\$12.3B 

(US Dollars) in revenue in 2017

7,000+ 

employees worldwide

1st 

and only approved treatment for
spinal muscular atrophy (SMA)

36% 

of MS patients worldwide treated
with Biogen products as of March
31, 2018¹

75% 

reduction in operational
carbon internally since 2006


Carbon Neutral

company since 2014

43% 

of positions at the director level
and above are held by women

4 

consecutive years 'Best Place to
Work' for LGBT equality in the U.S.

2,600 

employees in 26 countries
supported over 60 projects as part
of Care Deeply Day in 2017

\$6.2M 

in community grants including
Biogen Foundation employee
matching gift donations (\$1.7
million) in 2017

5,133 

students along with 524 employee
volunteers participated in our
Community Lab programs to learn
more about science and
technology

36% 

engaged with ten suppliers
representing 36% of our supply
chain total GHG emissions

Footnotes:

1. Biogen data on file.

External Awards & Recognition

- Dow Jones Sustainable World Index in 2017 – #2 Biotech company
- Four Consecutive Years ‘Best Place to Work’ for LGBT Equality in the U.S. by the Human Rights Campaign
- 100 Best Corporate Citizens for 2017 by CR Magazine
- #1 on IDEA Pharma’s 2017 Pharmaceutical Innovation Index
- Top Biotech Company – Calvert Diversity Report (score of 95 out of 100, one of ten companies and only biotech company to achieve this recognition)
- 2017 Prix Galien USA Award for Best Biotechnology Product along with Ionis Pharmaceuticals for SPINRAZA®
- Ranked one of the “Just 100” – America’s Most Just companies list by Forbes and Just Capital
- Human Rights Campaign Corporate Equality
- Index – Received a perfect score of 100 for 2017
- One of 136 leading businesses committed to 100% renewable power via RE100
- 90% score on the Disability Equality Index (DEI)
- The Sustainability Yearbook – RobescoSAM Bronze Class (2017)
- 2017 Beacon Award for Diversity & Inclusion by the Boston Bar Association
- 2017 Commitment to Diversity Xconomy Award for work with Women In Bio and Raising the Bar
- Biogen Foundation awarded the US 2020 STEM Mentoring Award for work with WakeEd Partnership
- #15 in the U.S. on Newsweek’s 2017 Green Rankings
- #18 on Forbes’ America’s Best Midsize Employers
- Environmental Protection Agency’s Green Power Top 100 list – 100% Green Power User
- Named one of top charitable contributors in Massachusetts by Boston Business Journal

A Note From Our CEO



2017 was a pivotal year for Biogen as we executed on our goal of becoming the global leader in neuroscience. As I look back at our successes in 2017, and as we celebrate Biogen's 40th anniversary in 2018, I know that Biogen's rich history has paved the way for us to become pioneers in neuroscience.

Four decades ago, our founders launched a new scientific approach to apply contemporary biology to help people living with devastating diseases. Along the way, two of our founders were awarded Nobel Prizes – Walter Gilbert for his work in DNA sequencing and Phillip Sharp for the discovery of split genes. A third, Charles Weissmann, successfully cloned alpha interferons. These discoveries forever changed the face of neuroscience and positioned Biogen on a historic path.

Thanks, in large part, to the groundbreaking science undertaken by our founders, today we are able to perform complex, world-class research. As one of the only biotechnology companies solely focused on neuroscience, we strive to emulate our founders' pioneering efforts by working to develop transformational therapies to treat devastating neurological diseases. We take on these challenging disease areas without hesitation, aspiring to improve the lives of those who suffer from neurological conditions, some of which currently have few or no available treatment options.

The history of Biogen is one of tackling unmet patient need. We intend to follow that same path in the future. A path that requires persistence, passion and courage.

Persistence: Harnessing Our Past to Pioneer Neuroscience

What drives Biogen forward is our persistent focus on the significant unmet need within neurology. Neurological diseases affect approximately one billion people worldwide and are the leading cause of disability and the second-leading cause of death, second only to cardiovascular diseases.

Today, we are pioneers tackling some of the most difficult challenges in medicine – including potential treatments for the millions of people suffering from Alzheimer's disease, Parkinson's disease, progressive supranuclear palsy, ALS, stroke, neuropathic pain and other debilitating diseases.

Some may view these diseases as difficult or even impossible to

A Note From Our CEO

treat. Yet we are unwavering in our determination to discover, develop and deliver treatments for such diseases. And along the way, we believe we will transform neuroscience.

As the leader in therapies for multiple sclerosis (MS) and spinal muscular atrophy (SMA), our impact on the world begins with our innovative medicines. In 2017, we had the privilege to launch SPINRAZA® (nusinersen), the first and only approved treatment for SMA. SPINRAZA now brings hope to the individuals and their families afflicted with the disease, who previously had no treatment options.

We are not stopping with our current successes in MS and SMA, we are continuing to challenge ourselves as we focus on the future. We have one of the broadest and most advanced pipeline portfolios for Alzheimer’s disease, and we are committed to expanding and customizing treatment options for those with MS and SMA.

More importantly, our motivation is driven by the individuals affected by these diseases. Their courage and fighting spirit – and those of their families, loved ones and caregivers – continuously propel us forward.

Our commitment to improving the lives of patients remains steadfast. Biogen aims to ensure that our medicines are available and accessible for all who may benefit. We also provide support to patient communities with the goal that no person foregoes treatment due to financial limitations or insurance status. And, we have continued to develop and launch new, innovative programs to

further support these communities and have increased access to our therapies as we expand into new global markets.

Passion: Giving Back, Locally and Globally

At our core, we have a passion to enhance the lives not only of patients, but also those of our friends, neighbors and fellow global citizens. We continually analyze the societal impact of our business as we seek to uplift those around us by supporting local and global communities, caring for the environment and cultivating a diverse and inclusive workforce.

We know the importance of giving back to the local communities in which we operate as well as on a larger scale. We are dedicated to making a positive impact in these communities and encouraging our employees to do the same on an individual level, through volunteerism. Through the Biogen Foundation, we support access to science education for diverse populations, and we strive to foster the next generation of leaders, scientists and researchers with additional grants and charitable giving.

As part of our commitment to the global community, we incorporate “green” chemistry work in our operations and aspire to be catalysts for greater, more sustainable change in our industry. We chair the green chemistry working group of the International Consortium of Innovation & Quality in Pharmaceutical Development (IQ), which works to increase use of green chemistry across companies.

A Note From Our CEO

Courage: Looking Ahead, to the Future of Neurology

Whether supporting local communities and the environment or creating breakthrough medicines, our work would not be possible without the 7,000+ Biogen team members whom I am honored to call colleagues. With diverse backgrounds, perspectives and experiences, Biogen's employees demonstrate their dedication to positively impacting patients' lives.

I am grateful to collaborate with and learn from these courageous, caring and world-class teams – not to mention the physicians, caregivers and participants involved in our clinical development programs – every day.

Our mission, as pioneers in neuroscience, only becomes more critical with each passing day and each new diagnosis. Through our high-quality scientific research and talented team, we aspire to shape the future of neurology and the study of neuroscience. This focus extends to our commitment to our communities, to solving social and environmental challenges and to a diverse and inclusive workforce that thrives professionally and personally.

To that end, I am proud to share Biogen's 2017 Corporate Citizenship Report, which highlights our commitment to enhance the lives of patients, our communities and the world. I look forward to the next 40 years dedicated to this noble vision.

Michel Vounatsos
Chief Executive Officer

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Our Business

As one of the world's first global biotechnology companies, Biogen has led innovative scientific research with the goal over the last decade to defeat devastating neurological diseases. We believe that no other disease area holds as much need or as much promise for medical breakthroughs as neuroscience.

Millions of people around the world are affected by multiple sclerosis (MS), Alzheimer's disease, Parkinson's disease and amyotrophic lateral sclerosis (ALS). Many people also suffer from less common diseases such as spinal muscular atrophy (SMA) and progressive supranuclear palsy (PSP).

Our portfolio of therapies provides treatment for diseases that are among humanity's most complex and difficult health challenges. Our strategy is focused on strengthening the Biogen of today, while at the same time preparing for the Biogen of tomorrow. To leverage a strong core business that helps drive future growth, our five strategic priorities focus on existing offerings and developing new value:

- Maximizing the resilience of our core MS business to drive earnings and cash flow
- Accelerating efforts in SMA to shift towards new growth opportunities
- Developing and expanding our neuroscience portfolio to create the future growth engines of Biogen
- Re-prioritizing our capital allocation efforts to continue to maximize shareholder value, with an increased - focus on investment for future growth
- Creating a leaner and simpler operating model

As we work to defeat neurological diseases, we must hold ourselves accountable to deliver value to our shareholders and continue to commit to maintaining professional, ethical and compliant behavior every day. At the same time, we are stewards of our community and environment. We are responsible corporate citizens, working to create positive impacts on society, the environment, our employees' lives and our communities – and working to get our products to those who need them around the globe.

Our strategy is focused on strengthening the Biogen of today, while at the same time preparing for the Biogen of tomorrow.

About Biogen

At Biogen, our mission is clear: we are pioneers in neuroscience. Biogen discovers, develops and delivers innovative therapies for people living with serious neurological and neurodegenerative diseases. One of the world's first global biotechnology companies, Biogen was founded in 1978 by Charles Weissmann, Heinz Schaller, Kenneth Murray and Nobel Prize winners Walter Gilbert and Phillip Sharp. Today Biogen has the leading portfolio of medicines to treat MS, has introduced the first and only approved treatment for SMA and is focused on advancing neuroscience research programs in Alzheimer's disease and dementia, MS and neuroimmunology, movement disorders, neuromuscular disorders, pain, ophthalmology, neuropsychiatry and acute neurology. Biogen also manufactures and commercializes biosimilars of advanced biologics.

Biogen is proud to employ 7,000+ people around the world who share a singular focus: to make a meaningful difference in the lives of people suffering from devastating neurological conditions.

We ground our business, and our commitment to diversity and inclusion, in the steadfast belief that humanity benefits when employees can bring their whole selves to work and contribute to their fullest potential. Our continued pursuit of scientific and therapeutic excellence is powered by the talent and commitment of our people.

Biogen discovers, develops and delivers innovative therapies for people living with serious neurological and neurodegenerative diseases.

Our Business Highlights

\$12.3B 

(US Dollars) in revenue in 2017

7,000+ 

employees worldwide

1st 

and only approved treatment for
spinal muscular atrophy (SMA)

36% 

of MS patients worldwide treated
with Biogen products as of March
31, 2018¹

3

anti-TNF biosimilars approved in
the European Union²

>\$2B 

spent on R&D in 2017 alone

~20% 

of annual revenues invested into
R&D over the past decade

>130 

active studies³

5 

pipeline candidates transitioned
from research to development,
nearly doubling our historical
productivity in 2017

7 

new clinical stage programs
across our core and emerging
growth areas were added in 2017

Footnotes:

1. Biogen data on file.
2. Two currently available for treatment; a third has been granted marketing authorization by the European Commission and is expected to launch in Europe in October 2018.
3. Active study includes all studies between pre-Study Management Team (SMT) formation and Clinical Study Report (CSR) as defined by internal systems as of April 23, 2018.

Research & Development and Pipeline

We believe we are at the forefront of a transformative era of neuroscience drug discovery and development. As a pioneer in biotechnology, we have one overarching focus: developing novel medicines that can improve the lives of people living with devastating neurological and neurodegenerative diseases. We measure our success by the impact we have on individuals living with these diseases, families and caregivers. Every day, we ask ourselves one essential question: How can we best make a difference in people's lives?

We believe that our history and commitment to addressing complex neurological conditions gives us a competitive advantage with our

strategic approach to research and development. The successful SPINRAZA launch exemplifies our ability to bring new therapies to patients in need. Our goal is to leverage our leadership and experience in neurology to target our efforts to the areas of greatest need and opportunity and to advance a world-class neuroscience R&D program.

Neuroscience is vast with many intersecting disciplines. To drive results and maintain our strong leadership position in the development of the therapies of tomorrow, our strategy is to focus on four core and four emerging growth areas.

Core Growth Areas

We believe that no other disease area holds as much need or as much promise for medical breakthroughs as neuroscience. Our core growth areas include: MS and neuroimmunology, Alzheimer's disease and dementia, movement disorders and neuromuscular disorders. We engage with physicians and scientific leaders around the world with the aim to further medical research. Our focus on neuroscience, our deep scientific expertise and our courage to take risks make us leaders in the research and development of medicines with the aim of transforming neuroscience to benefit society.

Emerging Growth Areas

Biogen has some of the world's best neurologists and neuroscientists working to create the therapies of tomorrow and expanding our understanding of the basic science behind some of the most complex neurological conditions. At the same time, we engage with physicians and scientific leaders around the world to further medical research in other areas that complement our core growth areas. Biogen's emerging growth areas – which include pain, ophthalmology, neuropsychiatry and acute neurology – follow from our expertise in our core growth areas.

Research & Development and Pipeline

Platforms and Modalities

Through the use of our core platforms and modalities, Biogen is working to bring new scientific understanding to diseases for which there are no adequate treatments. These research platforms are built to support key drug modalities used at Biogen. Our core research platforms are designed to predict drug concentrations in blood and tissues using physiologic based pharmacokinetic modeling approaches and linking these concentrations to drug effects using biomarker, imaging, safety and clinical endpoints. Biogen discovers and develops therapeutics in multiple drug modalities, including small molecules, biologics, antisense oligonucleotides and gene therapy. Learn more about the [diseases we're focused on](#) and the therapies in [our pipeline](#).

We believe that our history and commitment to addressing complex neurological conditions gives us a competitive advantage with our strategic approach to research and development.

2017 Financial Highlights

\$12.3B 

revenues (US Dollars)

\$2.7B 

net income

\$11.92 

diluted earnings per share¹

\$1.1B 

income tax payments, net

\$6.2M 

philanthropic giving

\$12.6B 

shareholders' equity

Footnotes:

1. "Diluted Earnings Per Share" for 2017 reflects the impact of the Tax Cuts and Jobs Act of 2017 and higher costs associated with our external business development activities, including our agreements with Bristol-Myers Squibb Company, Ionis Pharmaceuticals Inc., Neurimmune Subone AG and Alkermes Pharma Ireland Limited, a subsidiary of Alkermes plc.

Our Commitments

Biogen’s commitment to patient communities is in our DNA. We are in the business of helping people fight devastating diseases, which puts patients and patient communities at the center of everything we do. Our employees care deeply about what they are doing because they come to work every day knowing that hundreds of thousands of people worldwide depend on Biogen and our products to make a meaningful difference in their lives.

Our commitment to improving lives goes beyond scientific research and development. We prioritize engagement with patients and caregivers to understand their needs and identify how we can help them achieve better health outcomes.

To achieve this goal, Biogen is proactively engaged with a variety of stakeholders as we work to ensure broad access to our treatments through clinical trial programs and expanded access programs (EAPs). We recognize that prices for, and access to, treatments are chief concerns for patients, providers, payers and policy makers, and we work with all parties with the goal of ensuring that patients are not denied access to life-changing therapies. We also engage patient advocacy organizations and professional associations to solicit their input and insights and educate them on important topics related to our products and development pipeline.

“We prioritize engagement with patients and caregivers to understand their needs and identify how we can help them achieve better health outcomes.”

Access to Treatments

One of the more complex tasks that we navigate as a company, and as part of the broader biopharmaceutical industry, is helping to ensure that the people who need our therapies have access to them. We employ two complementary approaches to help accomplish this:

- Investigational access: increasing participation in clinical trials and offering expanded access programs (EAPs) to patients who are unable to participate in clinical trials
- Affordability access: adhering to a pricing philosophy that secures reimbursement in public and private health care programs and offers financial assistance to patients who are otherwise unable to access our medications

The complexity of the healthcare marketplace requires us to always be vigilant and committed to ensuring patients who need our therapies have access to them. In addition to our support of clinical trial and EAPs, Biogen routinely engages a variety of stakeholders (patients, healthcare providers and payers) when setting our market prices, balancing the competitive nature of our industry with the need to support further research and development that will create the therapies of the future. We also invest significant time and energy on interrelated issues around access, such as obtaining regulatory approvals in many countries around the world, educating physicians and demonstrating product efficacy and value.

Learn more about our [access programs](#).

The complexity of the healthcare marketplace requires us to always be vigilant and committed to ensuring patients who need our therapies have access to them.

Clinical Trials

Clinical trials are an essential part of the drug development process. They are designed to answer specific research questions related to the efficacy and safety of a potential therapy.

We are grateful to the patients, healthy volunteers, healthcare providers, hospitals and clinics that participate in testing our investigational therapies. Deciding to participate in a clinical trial requires careful consideration because in most cases, the therapies being investigated in clinical trials are not yet approved by regulatory agencies.

For some patients, participation in a clinical trial means access to a potentially life-improving medication when there may not be any other options. These experimental treatments are not available elsewhere and sometimes can be a last resort for patients who have tried many other therapies with limited or no success.

Historically, minorities have been underrepresented in clinical trials. Recognizing this reality, in recent years, we have focused on expanding the pool of participants in clinical trials to be more inclusive. This not only makes access more equitable, but also gives us a better understanding of how our therapies work in people of different genders, races and ethnicities.

Learn more about [clinical trials](#).

In recent years, we have focused on expanding the pool of participants in clinical trials to be more inclusive.

Expanded Access Programs (EAPs) and Single Patient Access

Our EAPs bridge an important availability gap for therapies that have not yet become commercially available, providing access to treatment for patients with unmet medical needs while the regulatory approval process and reimbursement negotiations take place. For example, our EAP for spinal muscular atrophy (SMA) offers early access for infantile and childhood SMA patients who would not otherwise be eligible for clinical trials. In addition to our EAP programs, in some situations Biogen may be able to provide access to investigational therapies through what is essentially emergency use, also known as single-patient access. Learn more about our [Expanded Access Programs \(EAPs\)](#). The complexity of the healthcare marketplace requires us to always be vigilant and committed to ensuring patients who need our therapies have access to them.

In addition to our support of clinical trial and EAPs, Biogen routinely engages a variety of stakeholders (patients, healthcare providers and payers) when setting our market prices, balancing the competitive nature of our industry with the need to support further research and development that will create the therapies of the future. We also invest significant time and energy on interrelated issues around access, such as obtaining regulatory approvals in many countries around the world, educating physicians and demonstrating product efficacy and value.

Learn more about our [access programs](#).

Our Expanded Access Program for spinal muscular atrophy (SMA) offers early access for infantile and childhood SMA patients who would not otherwise be eligible for clinical trials.

Patient Health Outcomes

Through ongoing dialogue, dedicated research and interactions with advocacy groups, we support patients and address their key concerns – from the safety and availability of our therapies to the costs of treatment, the overall patient experience and long-term health outcomes. We help patients and their support networks navigate the emotional and logistical considerations that often accompany a chronic disease, and we provide important therapeutic information with the aim of enhancing their quality of life.

We believe it is ideal for patients to be backed by services that support them emotionally, financially and medically. By partnering with patient advocacy organizations, we are able to better understand the needs and challenges patients face as we work to improve access to treatments and services. These organizations provide a critically important voice, representing the interests of patients and families affected by diseases throughout the healthcare system.

Our programs are designed to help patients get started on and adhere to treatments. Our [Above MS™](#) program, for example, offers tips, tools and inspiration for people living with multiple sclerosis (MS). In 2017 we launched [MS PATHS](#), an innovative collaboration with ten leading MS centers that uses technology to capture real-time, standardized data to help us better understand MS. We also launched a new MS campaign, [1MSg™](#), in the United Kingdom to encourage people with MS to work with medical specialists to educate themselves about their condition and how to best manage their treatment.

We have been working closely with those affected by SMA to create a disease education program called [Together in SMA™](#). The program provides information about SMA and its symptoms, insight into care options and perspectives on a range of topics – such as nutrition and adaptive equipment – from experienced caregivers and healthcare professionals.

In 2017 we launched MS PATHS, an innovative collaboration with ten leading MS centers that uses technology to capture real-time, standardized data to help us better understand MS.

Advocating for Early Newborn Screening for SMA in the U.S.



Spinal muscular atrophy (SMA) is a neuromuscular disease that is a leading genetic cause of death for infants under two years old. SMA impacts approximately one out of every 10,000 babies born in the U.S. Due to its debilitating and often fatal nature, early detection of SMA in newborn babies is critically important. Early detection allows for earlier treatment, which can dramatically reduce the symptoms of the disease.

However, in the U.S., newborns are not typically screened for SMA. Newborn screening (NBS) is a public health program that aims to identify newborns who have certain serious and life-threatening genetic diseases that can be treated, and for which earlier treatment may contribute to better outcomes. Currently, newborn babies in the U.S. are screened for approximately 30 different disorders, with the exact number varying by state.

Recently, Biogen launched an initiative advocating for every baby born in the U.S. to be screened for SMA. This U.S. initiative also supports our global efforts to promote newborn screening for SMA in other parts of the world.

Recent studies suggest that SMA therapy is most effective when started in the first few months of life. Early treatment for the disease is now possible with the availability of SPINRAZA®, the first and only approved treatment for SMA.

Working collaboratively with colleagues from patient advocacy and government affairs, we adopted a multi-faceted approach to advocate at both the federal and state levels for universal SMA screening for newborns in the U.S. As the final decision on SMA screening implementation differs by state, we are taking a state-by-state approach to support adoption of screening recommendations. We are committed to engaging policymakers, patient communities, caregivers, regulators and payers to make a difference in how SMA is screened for and identified across the country.

We recognize that our work advocating for universal SMA newborn screening in the U.S. takes patience and persistence. Since launching our effort, four U.S. states have adopted SMA screening and several other states are in the process of doing so, which means more children getting the early diagnosis and treatment they desperately need. We will continue to do everything we can to improve quality of life for children and families affected by the disease – today and in the future.

MS PATHS: Harnessing Real-Time Patient Data to Reshape MS Care and Research



With the launch of our learning health system, MS PATHS (Multiple Sclerosis Partners Advancing Technology and Health Solutions), we are helping to transform the future of MS care and research.

MS PATHS is a one-of-a-kind collaboration with ten leading MS centers in Europe and the United States that uses technology deployed in routine care to generate standardized, high-quality data from a diverse, real-world patient population. Using this data, we hope to gain powerful insights and a better understanding of how MS impacts patients – with the goal of enabling us to further improve their lives and their health outcomes.

The MS PATHS program collects clinical, MRI and biologic data from MS patients in real-time, at the point of care, to better

understand the disease. At the heart of the program is the Multiple Sclerosis Performance Test (MSPT), a suite of iPad-based assessments taken by patients before routine office visits. The MSPT provides quantitative assessments of motor, visual and cognitive performance. Using our MSPT device, patient self-assessments are integrated into the clinic visit and doctors get a real-time view of the results without additional administrative hurdles.

Relevant patient data are then generated and collected in an efficient and standardized way and shared with researchers participating in MS PATHS while protecting the privacy of individual patients.

According to Alfred Sandrock, M.D., Ph.D., Executive Vice President and Chief Medical Officer at Biogen, “By leveraging technology we are able to collect a robust set of real-world data that is unprecedented in scale and will contribute to a more precise approach to managing patients by supporting providers in real-time to meet the diverse needs of people living with MS.”

With more standardized data, researchers are able to meaningfully compare information from across the MS population, and to identify underlying trends. This provides both doctors and researchers with a more holistic view of the disease and how it affects patients’ lives. The program is a global effort with more than 12,000 patients participating in MS PATHS at our network of partner healthcare institutions.

2017 Goals & Performance

36% 

of MS patients worldwide treated with Biogen products as of March 31, 2018¹

MS PATHS 

launched MS PATHS, an innovative collaboration with ten leading MS centers, using technology with the aim of transforming the future of MS care and research

#1 

ranked first on IDEA Pharma's 2017 Pharmaceutical Innovation Index



Together in SMA™

created Together in SMA, a disease education program to provide information about SMA and its symptoms

1MSg™ 

launched 1MSg, a new MS-focused campaign, to encourage patients to work with their healthcare providers to become more informed

1st 

and only approved treatment for spinal muscular atrophy (SMA)

Footnotes:

1. Biogen data on file.

Our Guiding Principles

Our commitment is grounded in our [Values in Action – Code of Business Conduct](#), our [Sustainability Policy](#) and our other related policies and position statements. These principles and policies outline our focus on ethical business conduct, compliance, accountability and transparency and other topics, including:

Values in Action - Code of Business Conduct

Our [Code of Business Conduct](#) provides guidance on making ethical decisions while conducting business on behalf of Biogen. Our clinical research and other ethical standards for our employees and business partners are included in the Code.

Product Stewardship

We comply with applicable regulations and work to minimize adverse health, safety, environmental and social [impacts of our products](#), and we do this while working to maximize their benefits and value through their full life cycle. One example of our efforts in this area is that we are investing in serialization technology to make our product more difficult to counterfeit, improving patient safety and health outcomes.

Patient Safety

[Patient safety](#) is our highest priority and we are committed to complete and timely evaluation of the benefits and risks of our therapies and to communicating this information to help patients and health care professionals make informed treatment decisions. We take seriously our ethical and regulatory responsibility to continually assess and communicate the benefits and risks of our products to patients, health care professionals and regulators.

Our Guiding Principles

Global Privacy Program

We respect the [privacy and safeguard the security](#) of the personal information we collect. Doing so is fundamental to our commitment to patients, health care professionals, business partners, employees and the communities we serve.

Pricing and Access Philosophy

We have the opportunity and responsibility to bring transformative treatments to patients. We recognize that prices for, and access to, treatments are chief concerns for patients, providers, payers and policy makers. We work collaboratively with all parties to help ensure that patients are not denied access to life-changing therapies.

Supply Chain Responsibility

Our [Code of Business Conduct](#), [Human Rights Position Statement](#) and [U.K. Modern Slavery Statement](#) establish the principles and practices of ethical business, which we expect all of our suppliers, business partners and employees to follow. In addition, our commitment to inclusive sourcing and procurement practices is represented in our supplier diversity program.

Human Rights Position

Biogen respects fundamental [human rights](#) and believes that every individual deserves to be treated fairly and with dignity. Biogen is committed to supporting internationally recognized fundamental human rights activities and initiatives.

Our Guiding Principles

U.K. Modern Slavery Act

At Biogen, we are committed to upholding human rights and ensuring that [modern slavery](#) (in all its forms) is not tolerated within our global business or our supply chain.

Research Collaborations

We are committed to bringing novel therapies to market and focusing on hard-to-treat disease areas with significant unmet medical needs. As this challenge is often bigger than any individual company, we [collaborate with partners](#) in both the public and private sectors to harness the latest advances in science and technology.

Transparency Reporting

We believe [transparency](#) is an important part of our ongoing collaboration with the health care community, helping to build a community of trust and respect with healthcare professionals, patients, industry peers, shareholders and the public.

Clinical Trial Transparency and Data Sharing

We are committed to [sharing information about our clinical research](#) with patients and researchers to enhance public health.

Our Guiding Principles

Supplier Diversity - Working With Us

We believe that partnering with [small and diverse suppliers](#) supports economic growth, fosters innovation and enables us to achieve a competitive advantage globally. Our supplier diversity program ensures that small and diverse business enterprises have an equitable opportunity to compete for Biogen's business. As such, supplier diversity is integrated into our procurement procedures. Our supplier diversity program includes businesses owned by minorities; women; veterans and service-disabled veterans; lesbian, gay, bisexual and transgender individuals and persons with disabilities.

Animal Welfare

At times, we are required by standards of scientific best practice, or by government agencies charged with the protection of public health, to conduct or sponsor research that uses animals. When we do so, we adhere to applicable national and international laws, policies and guidelines on the humane treatment of animals used in research. These include, but are not limited to, the Animal Welfare Act, the U.S. Public Health Service Policy, the National Institutes of Health and the Association for Assessment and Accreditation of Laboratory Animal Care.

Sustainability Policy

[Sustainability at Biogen](#) stems from our commitment to both innovation and ethical conduct. By continually expanding our approach to sustainability and encompassing economic, social and environmental factors, we believe we will build a stronger, more vital company capable of making new discoveries that could improve the lives of many more people in the future.

Our Guiding Principles

Climate Strategy

We carefully [manage the way we use resources](#), striving to reduce, mitigate and, in the case of carbon emissions, neutralize our footprint wherever possible.

Climate Change Position

We believe that meeting the global challenge of climate change will require businesses to take actions that [go beyond the regulatory requirements](#). We have committed to establishing a science-based greenhouse gas (GHG) reduction target to align with global efforts aimed at ensuring the earth's average temperature does not rise more than 2 degrees Celsius.

Comprehensive Compliance Program

To conduct our business with the highest level of integrity, we have established and maintain a [compliance program](#) in accordance with the laws of our industry and the “Program Guidance for Pharmaceutical Manufacturers” published by the U.S. Department of Health and Human Services.

Corporate Governance Principles

The Company's Certificate of Incorporation and Bylaws, together with our [corporate governance principles](#), provide the framework for the corporate governance of Biogen.

Our Guiding Principles

Environmental Health and Safety Policy

Our [Environmental, Health and Safety Policy Statement](#) sets forth our commitment to provide and maintain a healthful and safe work environment and to minimize the impact of our business operations and products on the environment.

Political Contributions Policy

Our [policy](#) outlines Biogen's participation in the political and legislative processes.

Our Community

Biogen attracts some of the world's leading scientific minds – individuals who are passionate about improving health outcomes for people around the world, supporting local communities, encouraging the next generation of scientists and making a global impact.

As members of the Biogen team, we empower these passionate individuals to build rewarding careers and we foster a culture of learning that pushes them to take initiative and seek growth opportunities. We are especially proud of our efforts to promote a diverse and inclusive workplace and to advance women in leadership roles.

These are a few of the reasons why the employee engagement category results from our 2018 People Survey – covering 2017 – surpass industry benchmarks by an average of 18 percentage points.

We are also dedicated to inspiring the next generation of scientists and to being agents of positive change in the community. These are the aspirations behind our employee volunteerism, the grants made through the Biogen Foundation and our Community Lab, which, since its inception, has given more than 45,000 students a hands-on introduction to the wonders of science.

Caring deeply. Working fearlessly. Changing lives.™ This isn't just a corporate philosophy, it's something our employees live every day.

Workplace Community

Our employees are inspired by people who live with what can often be debilitating diseases. It's a powerful motivator knowing that everyone at Biogen – from scientific research to procurement, from manufacturing to distribution – is part of making a difference in patients' lives.

This shows in the results of our 2018 People Survey – covering 2017 – which found that 89 percent of employees are proud to work for Biogen, exceeding the industry benchmark by 24 percentage points, and that 93 percent of employees said our customers should feel confident about the quality of our products and services, beating that industry benchmark by 15 percentage points.

Our employees are not only passionate about how their work improves lives, they are engaged across a broad range of topics to improve our company's work and role in their communities.

In 2017 we launched a pilot aimed at employee engagement around key issues, including health and wellness, environment and product and process improvements. These “ourIMPACT” teams tackle issues ranging from reducing energy use in laboratories to advancing green chemistry to bringing healthier and more climate-friendly meals into Biogen's cafeterias.

It's a powerful motivator knowing that everyone at Biogen is part of making a difference in patients' lives.

Talent Acquisition & Retention

Our success depends on our ability to attract, develop and retain exceptional talent – people who embrace our mission of positively impacting the lives of patients. To produce cutting-edge therapies, we must encourage innovative thinking, promote diversity and inclusion and foster a culture that protects the health and safety of our people. And we do.

Two examples of programs that show how we support and internally recognize behaviors that are linked to our commitments are the Biogen BIG Champions of Inclusion and our annual Environmental, Health, Safety, Sustainability + Human Performance (EHS+S/Hu) Awards. In 2017 we received 75 nominations for the EHS+S/Hu Awards submitted by employees around the world. Award winners were both individuals and teams across our global operations, and they were recognized in four categories: BeWell, BeSafe, BeSustainable and BeResilient.

In addition to creating an environment that enables our people to thrive at work, we strive to support their ability to find the balance between work activity and the other parts of their lives.

Learn more about our talent philosophy: https://www.biogen.com/en_us/working-at-biogen.html

To produce cutting-edge therapies, we must encourage innovative thinking, promote diversity and inclusion and foster a culture that protects the health and safety of our people

Diversity & Inclusion: From Our Employees to Patient Communities

Diversity in all forms is a key to our success. Different perspectives make us stronger as a business, build a healthier society and have allowed us to bring groundbreaking solutions to patients.

Our diversity and inclusion (D&I) strategy touches every facet of our business, focusing on three key components: expanding workforce diversity; improving health outcomes for underserved global patient populations; and developing a sustainable, diverse supplier base.

Diversity is essential in our business and is one of the keys to understanding the complex and varied needs of the patient communities who use our medicines. For example, nearly two-thirds of patients in two of our disease focus areas – MS and Alzheimer’s disease – are women. And the majority of caregivers are also women.

As a company, we must understand how to meet the needs of a patient community that is largely women, which is one reason why we focus on women in leadership roles throughout Biogen. We also believe that working towards gender parity at all levels of our company is critical to innovation. One way we focus on this is through our Women’s Leadership Program, a partnership with Babson College that cultivates high potential entrepreneurial women leaders. Women comprise half of our global employee population and hold 43 percent of Biogen’s director-level and above positions.

In addition, nearly 22 percent of Biogen’s U.S. management

(director-level and above) are ethnic or racial minorities. High potential mid-career underrepresented minorities participate in The Partnership, Inc.’s BioDiversity Fellows Program, supporting our efforts to build our talent pipeline with a rich and diverse mix of leaders.

Finally, Biogen remains committed to taking actions to ensure all employees feel supported in the workplace. In 2017 Biogen was recognized by the Human Rights Campaign Foundation (HRC) as a “Best Place to Work for the LGBT community,” earning a score of 100% on the Corporate Equality Index. Biogen also obtained 90% on the Disability Equality Index (DEI), which benchmarked the organization on disability inclusion processes and practices.

Employee Resource Networks

Our Employee Resource Networks (ERNs) are internal groups for employees of shared characteristics, life experiences and interests. These networks provide opportunities to share knowledge, find mentors and receive support, all of which can be invaluable for career development. Allies, supporters and all those interested in helping to advance inclusion are welcome to join any ERN. Close to 30 percent of our global workforce is a member of one or more ERN.

Diversity & Inclusion: From Our Employees to Patient Communities

Our current networks include:

- **AccessAbility**, which highlights our commitments to employees with disabilities and employees who are caretakers of individuals with disabilities.
- **Biogen Veterans Network**, which provides opportunities for veterans and supporters of U.S. veterans to connect.
- **Women's Innovation Network**, which creates networking, mentoring and learning opportunities for more than 1,200 members worldwide.
- **ReachOUT**, which embraces LGBTQ employees and their straight allies. This program supports a best-in-class working environment for LGBTQ employees.
- **Mosaic**, which focuses on multiculturalism and fostering awareness of and appreciation for different cultural backgrounds while promoting networking and development opportunities for members.

Learn more about our [diversity & inclusion principles](#).

Nearly two-thirds of patients in two of our disease focus areas – MS and Alzheimer's disease – are women. And the majority of caregivers are also women.

Workplace Health & Safety

Everybody at Biogen has a role to play in creating and maintaining a safe and healthy workplace. We work hard to reduce risk and prevent injuries and other types of incidents. Our employees are accountable for working safely, whether they spend most of their days in a lab, in a manufacturing plant, at a desk or in a car. We expect them to consider not just their own well-being but that of their colleagues while working and to adhere to policies and procedures aimed at also protecting surrounding communities.

This ties into our Human Performance approach, formally launched in 2015, which promotes proactive risk management. One part of that approach is to ensure employees are engaged in the design of their work and their workplaces so that their jobs can be performed in ways that are safer and more effective.

Because health and safety are important, we consistently track our performance to monitor our progress. In 2017 our Days Away Case Rate (DACR), a measure of the frequency of work-related illnesses and injuries leading to an absence from work, decreased 73 percent to 0.05, down from 0.19 in 2016. Our target is to achieve a best-in-industry DACR by 2019. Our Total Injury and Illness Rate also fell from 0.39 in 2016 to 0.22 in 2017. Both are our best performance ever.

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The Biogen Foundation

The Biogen Foundation focuses on two core areas: science education and strengthening our communities. As a result, the Biogen Foundation is committed to supporting nonprofit organizations that focus on four areas: providing access to hands-on science education, teacher development in science, college readiness and support and basic social needs (child hunger, poverty and social mobility). All of these support our desire for young people to know that, through science, they have the ability to change the world.

For example, the Biogen Foundation recently launched the STAR Initiative – a coordinated funding strategy, investing \$10 million over four years – designed to help catalyze the development of local STEM ecosystems in Cambridge, Massachusetts and Somerville, Massachusetts. STAR – which stands for Science, Teacher support, Access and Readiness – 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.

In addition to the grants the Biogen Foundation makes on its own behalf, it also matches Biogen employee gifts to nonprofit organizations, up to \$25,000 per U.S. employee, per year. In 2017 the matching grant program contributed \$1.7 million to worthy organizations ranging from groups that fight disease to camps for children with serious illnesses to disaster relief efforts around the world.

Biogen Foundation recently launched the STAR Initiative – a coordinated funding strategy, investing \$10 million over four years – designed to help catalyze the development of local STEM ecosystems in Cambridge, Massachusetts and Somerville, Massachusetts.

Community Lab

Community Lab is a state-of-the-art facility where middle and high school students engage in hands-on biotechnology experiments and interact with scientists and other research professionals. Our mission is to get more young people excited about science and increase their knowledge of the wide array of career opportunities in the biotech industry.

Students get exposure to real-world experiments in DNA, gene mutation, drug testing and more while interacting with Biogen employees. We work with local schools to focus on concepts that they are already teaching in their classrooms, allowing students to make connections between their studies and the work we do every day at Biogen.

In addition to the one-day programs for students during the academic year, Biogen also hosts week-long, intensive lab programs over the summer months. Since 2002 more than 45,000 students have participated in Biogen's Community Lab programs at our Cambridge and Research Triangle Park locations, including 5,133 in 2017.

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Community Engagement

Our commitment to making a positive impact in the world includes locations that are close to home: the communities in which we operate. Every year, we ask our employees to join us for Care Deeply Day, when employees participate in community service projects serving meals to the homeless, participating in park clean-ups, fixing up youth centers, tending community gardens and providing support at animal shelters and senior centers. At our 2017 Care Deeply Day, over 2,600 employees in 26 countries supported over 60 volunteer projects.

Community Lab: Introducing Middle School Students to the World of Science



What's one of the best ways to get kids excited about science? Have kids actually do science. That's what we discovered over 15 years ago at the Community Lab, our dedicated laboratory classrooms that host middle and high school students for day-long and week-long sessions during the school year and summer. The Community Lab also hosts teacher professional development programs to support science learning.

Between our two labs in Cambridge, MA and Research Triangle Park, NC, more than 45,000 students have conducted experiments using the same equipment that is used to discover new and innovative medicines in Biogen laboratories.

In 2017 Biogen's Community Lab in Research Triangle Park piloted a middle school-focused program with rising 8th grade students,

particularly those from groups underrepresented in science. The invited students, from a local middle school, spent a full week engaging in hands-on projects on bacteria and the application of biotechnology in the real world.

Reactions to the program were very positive – one student praised the hands-on nature of the experience, while another was so inspired that she said, “It made me feel as if I was a true scientist.” We plan to continue and expand the program, and to measure its impact by looking at end of grade test growth for program participants.

Our Community Labs also held several “On the Road” events in 2017 to get children and adults excited about science through hands-on experiments and demonstrations, including one for students with disabilities at the North Carolina Museum of Natural Sciences and another as part of the Science on Saturdays program at the Massachusetts Institute of Technology (MIT).

Our employees love sharing their passion for science, and that is the key to the success of these efforts. As one Biogen employee said, “Volunteering in the Community Lab is such a wonderful opportunity for me to contribute to our future by helping to inspire the next generation of STEM leaders. The students love being able to visit a real biopharmaceutical facility, and the experience allows them to get exposure to possible career interests. It's fun to see them having so much fun with science!”

BIG Champions of Inclusion Awards



Our employees are passionate about diversity. They are at the forefront of embracing and leveraging differences to build a more inclusive and innovative company culture. Biogen recognizes their leadership with our annual awards program – BIG Champions of Inclusion.

BIG Champions of Inclusion acknowledges and celebrates Biogen employees around the globe who embrace inclusion and foster a work environment where employees feel empowered to do their best work.

In 2017 we recognized three employees and two teams as BIG Champions of Inclusion. They each help cultivate environments that support the power of difference and role-model inclusiveness on behalf of patients, providers, suppliers and our workforce.

Our 2017 BIG Champions brought more inclusion to the hiring process (Anne Dilley), role modeled what it takes to understand different perspectives (Kim Wolfram) and helped create space for others to share by listening before speaking (Peyton Martin).

Two teams were also recognized as BIG Champions this year. One was the newly launched Swiss Diversity and Inclusion Chapter that is leading D&I efforts at Biogen’s international headquarters and Swiss affiliates. The Chapter held a highly successful speed-mentoring event in 2017 to raise D&I awareness through mentoring, dialogue and engagement. The Veteran’s Network Leadership (VNL) group at Research Triangle Park was also recognized for proactively assisting Biogen in recruiting veterans for open job positions.

Stressing the importance of D&I at the annual awards ceremony, Biogen CEO Michel Vounatsos called for Biogen to be a champion, keeping diversity and inclusion at the core of who we are and who we want to be.

Awardee Anne Dilley agreed, “We all share a common humanity. We may approach our lives differently but we gain strength by the differences in experiences and the wisdom of others.”

2017 Goals & Performance

89%



of employees indicated in our annual People Survey that they were proud to work for Biogen, exceeding the industry benchmark by 24 percentage points

43%



of positions at the director level and above are held by women

\$1.7M



employee matching gifts in the U.S. totaled \$1.7 million in 2017

2,600



employees in 26 countries supported over 60 projects as part of Care Deeply Day in 2017

\$6.2M



in community grants including Biogen Foundation employee matching gift donations (\$1.7 million) in 2017

5,133



students along with 524 employee volunteers participated in our Community Lab programs to learn more about science and technology in 2017

Our Environment

The dedication and passion we bring to our mission of improving patient lives is also reflected in our efforts to improve our operational impact on the environment and our strong sustainability policies.

We strive to be a catalyst for positive change by addressing environmental impacts resulting from our business, including carbon and water, and by increasing the environmental and social performance of our supply chain.

We embrace green chemistry as an opportunity to improve sustainability in our operations, and we continue to find new and better ways to minimize waste and maintain zero waste to landfill in our manufacturing facilities.

We strive to be a catalyst for positive change by addressing environmental impacts resulting from our business.

Climate & Carbon Strategy

We are a science-based company and employ science in our approach to resource use as well as in our day-to-day business operations. We strive to mitigate our negative impacts – for example, by ensuring our own operations are carbon neutral – and to extend our impact by encouraging other companies we do business with to adopt responsible environmental and energy policies.

Biogen has committed to utilizing a science-based approach when it comes to managing environmental resources, which includes adopting a greenhouse gas (GHG) reduction goal approved by the [Science Based Targets Initiative](#). Our practice of using science to inform our targets when possible is part of our broader commitment to [Context-Based Sustainability](#), a rapidly evolving, cutting-edge approach to managing sustainability performance that takes resource needs and limits in the world explicitly into account.

Businesses must take action to address the GHG emissions from their own operations, and they must also help reduce emissions from their suppliers. For Biogen, this means implementing voluntary reductions in GHG emissions by improving the energy efficiency of our operations and products, by transitioning to low-carbon energy and by advocating for reductions across our supply chain.

We have been a carbon neutral company since 2014, investing in environmental projects that reduce and offset the carbon emissions associated with our own operations. (To align with our strategic plan, the scope of our carbon neutrality shifted in 2017 from our total value chain to our own operations.)

Our approach to carbon reductions in our owned operations includes promoting manufacturing innovation and process changes, generating our own energy and investing in more efficient and healthier buildings. This approach has led to a 75 percent reduction in our Scope 1 and 2 carbon intensity, compared to 2006.

As we move forward, our plan will be to continue searching for innovative ways to further reduce our own emissions and those of our suppliers, while decreasing our need for carbon offsets.

Read more about our position on [climate change](#).

We have been a carbon neutral company since 2014.

Water

Water is used throughout our operations: as part of our production process, it is used to sterilize and clean equipment, for irrigation and elsewhere throughout our offices and manufacturing operations. We consistently focus on ways to reduce water use, increase water recycling and make sure our wastewater treatment practices adhere to the highest quality and safety standards.

To assess water use at all of our major operational facilities, we have committed to utilizing a context-based water standard, which makes it possible to assess water withdrawal relative to locally available renewable supplies.

Using this approach, our water goals are to re-assess water use at all our major facilities using a context-based water metric by 2019 and to ensure that by 2030 our water withdrawals at each of our major facilities are within our “fair, just and proportionate” share of locally available renewable supply. Simultaneously, our previous water intensity metric will continue to be used internally to drive and communicate operational efficiency.

In 2017 absolute potable water use shrank by 11 percent, with potable water intensity down 17 percent, primarily due to shrinking operations at the Cambridge campus.

We consistently focus on ways to reduce water use, increase water recycling and make sure our wastewater treatment practices adhere to the highest quality and safety standards.

Green Chemistry

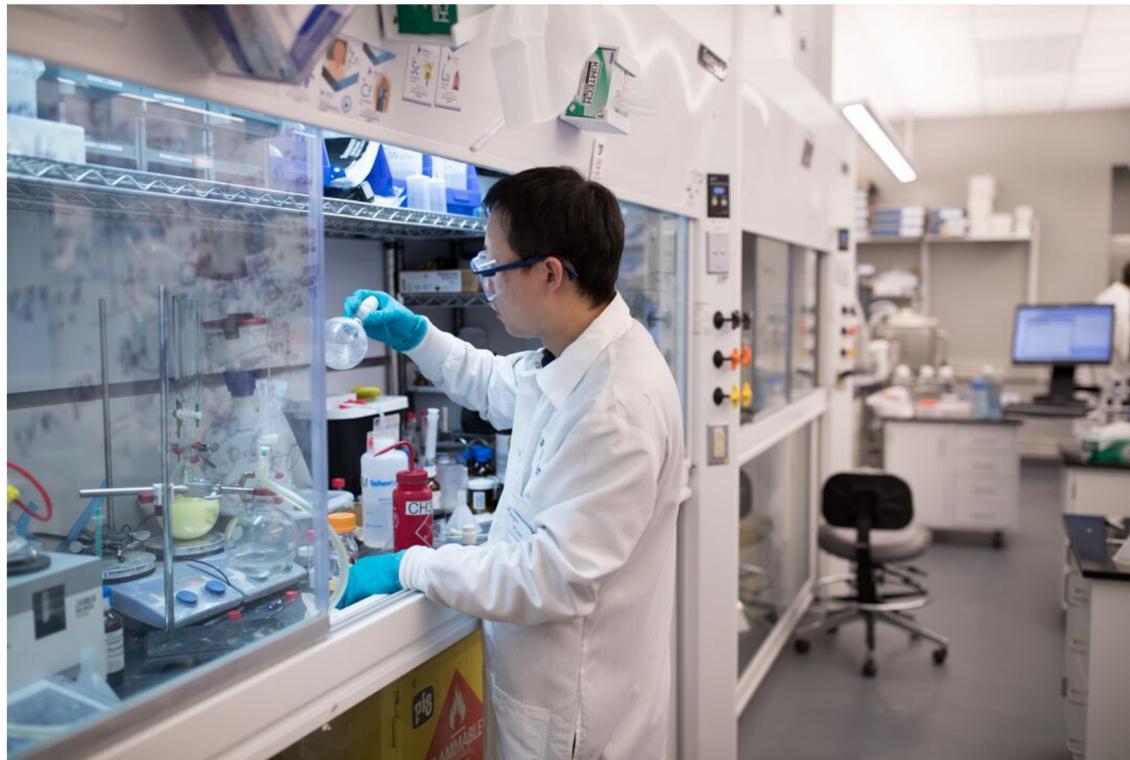
Our approach to green chemistry focuses on ways to make our drug discovery and development processes safer, more efficient and more sustainable. We find that when we do this, we usually lower our costs at the same time – a true win-win.

Internally, our green chemistry program helps drive process innovations that improve product performance and deliver environmental benefits, such as lower water usage and reduced climate impact. In addition, we make use of green chemistry concepts focused on increasing chemical process efficiency, reducing waste and optimizing materials used.

Externally, we are working to effect change throughout our industry. Biogen staff now chair the green chemistry working group of the International Consortium of Innovation & Quality in Pharmaceutical Development (the IQ Consortium). We are also members of the American Chemical Society (ACS) Green Chemistry Roundtable, a collaborative initiative encouraging innovation while catalyzing the integration of green chemistry and green engineering in the pharmaceutical industry.

Biogen staff now chair the green chemistry working group of the International Consortium of Innovation & Quality in Pharmaceutical Development (the IQ Consortium).

Sustainability in the Antisense Oligonucleotide (ASO) Purification Process



downstream processing, removing over 1,500 liters of hazardous waste per kilogram of product produced. In addition, cycle times are decreased by 50 percent, and the amounts of material, water and energy used – and associated GHG emissions – are also reduced. Finally, the new approach significantly improves the product’s purity levels, making it industry-leading and ensuring we are able to deliver the best quality product for patients.

The first clinical batch of ASO was successfully manufactured with this new process in November 2017.

In 2017 Biogen opened a new facility in Research Triangle Park for the synthesis of antisense oligonucleotides (ASOs), which are modified RNA molecules used in the treatment of neurological disorders. This new ASO facility and manufacturing platform will produce materials for both our clinical pipeline and commercial products.

Our prior ASO purification process used flammable solvents, such as ethanol and methanol, which created hazardous waste. Utilizing green chemistry best practices, a cross-functional team developed a new, more responsible process, replacing the use of ethanol and methanol with a method using salts and water. In addition, we also simplified our filtration process and replaced lyophilization with an ultrafiltration technology that enables a ready-to-fill drug substance.

This improved purification process eliminates all solvents in

Ultra-Low Temperature Freezer Energy Savings Project



The team also explored other ways to reduce energy consumption in the labs. They partnered with researchers to identify current -80C freezers that could be modified to use a set point of -70C. This change yielded an additional energy savings of 20 percent annually for each freezer that had its set point changed.

The team members are continuing their efforts and are energized by the potential to expand this model beyond freezers and outside the lab. They continue to promote expansion of this approach throughout our manufacturing facilities.

In recognition of their work on this initiative, the project team earned Biogen's 2018 Global BeSustainable Award.

Our employees are continually looking for ways to not only bring savings to the company but also reduce our environmental impact.

While looking at the company's energy use in our laboratories, two employees at our Cambridge R&D facility identified the opportunity to significantly decrease the cost and energy consumption of ultra-low temperature (ULT) freezers. Encouraged by their findings, our employees formed a cross functional team of lab service personnel, scientists and engineers to develop a plan to replace old freezers with new ones that use 70 percent less energy.

Replacing old freezers with new energy efficient models meant the company was able to secure rebates for the new purchases, which was pooled and reinvested to encourage replacement of additional freezers. In addition, the team worked with procurement to flag and limit the purchase of any non-energy efficient freezer purchases in the future.

Goals and Commitments

As Biogen grows, we remain committed to reducing our environmental footprint by maintaining our carbon neutral status and minimizing and eventually restoring resources needed to manufacture our therapies. Our goals and commitments include:

- Maintain Carbon Neutrality across our own operations (since 2014)
- Continue to match 100% of our electricity use with electricity produced from renewable sources, our public commitment to the RE100 initiative since 2014
- Reduce our absolute carbon footprint by 35% by 2030 compared to 2013
- Assess our water use and keep use within our determined ‘fair, just and proportional share’
- Maintain Zero Waste to Landfill for our manufacturing facilities
- Continue to leverage our 2020 intensity-based metrics for internal operational excellence and benchmarking
- Engage with key suppliers to expand ESG risk screening for Tier I and Tier II suppliers (in 2017, we engaged with ten suppliers representing 36% of our supply chain total GHG emissions)

2017 Goals and Performance



75%

reduction in operational carbon intensity since 2006¹

Carbon Neutral

company since 2014

100%

renewable power commitment

ZWL

maintained zero waste-to-landfill (ZWL) status

36%

engaged with ten suppliers representing 36% of our supply chain total GHG emissions

94%

of the way to reaching our goal of reducing carbon intensity by 2020

42%

absolute increase in value chain carbon emissions² See [GRI Data Table](#) footnotes 3 and 4 for more details

70.9%

reduction in potable water intensity³

89%

of the way to reaching our goal of reducing potable water intensity by 2020

60.2%

recovery and recycling rate (reuse, recycle, compost, non-combustion energy recovery)

Footnotes:

1. Based on 2006 baseline, MTCO₂e / million \$ revenue. Please note Biogen is using science and context-based goals but will continue to leverage intensity-based metrics for internal operational excellence and benchmarking.
2. Based on 2013 baseline
3. Based on 2006 baseline, cubic meters / million \$ revenue

GRI Report

Since 2009 Biogen has conducted biennial materiality assessments informed by the Global Reporting Initiative (GRI) Principles for Defining Report Content to identify and prioritize the corporate responsibility topics and issues most important to the company and its stakeholders.

[GRI Data Table](#)

[GRI Index](#)

[Independent Assurance Statement to Biogen Inc.](#)

About the Report

The 2017 Corporate Citizenship Report contains data from calendar year 2017. In some instances, we include information on initiatives or activities that may have begun in 2017, but have continued into 2018.

This report was prepared in accordance with the GRI G4 Guidelines “core” option. Please refer to the [GRI Index](#) to see which material aspects and relevant indicators are reported. Also, see below for how we track our efforts in alignment with the United Nations’ Sustainable Development Goals (SDGs).

Data in this report covers our worldwide operations, including consolidated subsidiaries but excluding joint ventures. Our operations in 2017 encompassed our four major facilities in North Carolina, Denmark and Cambridge, Massachusetts. The boundaries also include our global offices and our commercial fleet operations. With regard to environmental data presented in this report, the scope includes operations in which we have operational control.

ERM Certification and Verification Services, Inc. (ERM CVS) assured the 2017 data for a number of indicators including Scope 1, Scope 2 and Scope 3 GHG emissions; Biogen’s carbon neutrality methodology; and select environmental and social indicators. See the [ERM CVS Assurance Statement](#) for full details of the assurance scope, assurance standards used, work undertaken and conclusions.

GRI Materiality Assessment

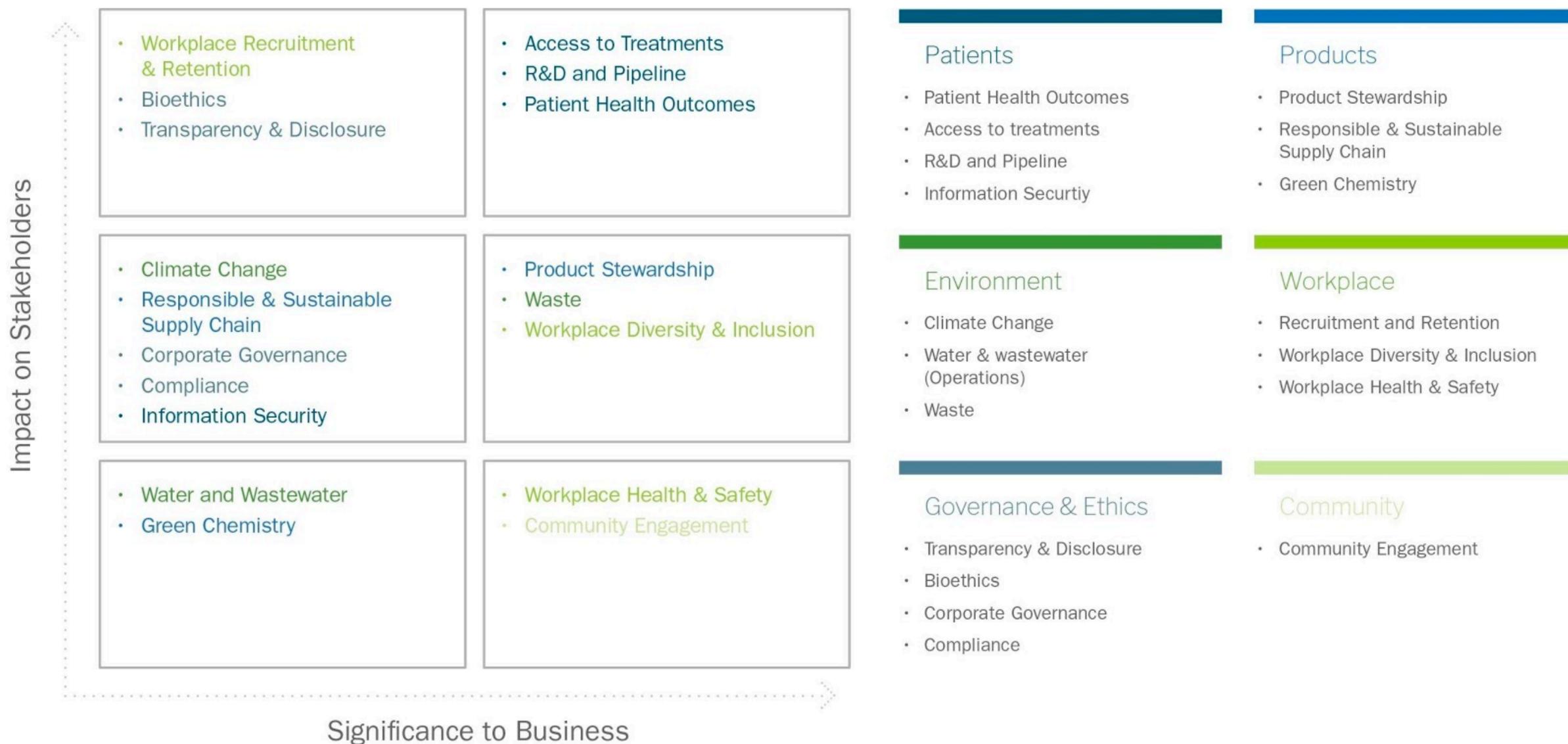
We are using the 2016 GRI materiality assessment for the 2017 report, the most recent GRI materiality assessment available. In this assessment, we identified 18 issues for further attention.

After reviewing the entire list, a set of tier one priorities was agreed upon for immediate attention, including: access to treatments, investments in R&D to ensure a robust pipeline and improving patient outcomes. Throughout this 2017 Corporate Citizenship Report, we explain how Biogen is addressing these issues and

measuring performance.

The process to develop the 2016 GRI materiality assessment involved external stakeholder interviews, desk research to establish the broader sustainability context, an internal visioning workshop to prioritize and validate the issues and external stakeholder meetings to review the findings and gather feedback. We intend to conduct a new GRI materiality assessment for the 2018 Corporate Citizenship Report.

GRI Materiality Assessment Process



Supporting the SDGs

Biogen is committed to the United Nations' SDGs. The SDGs comprise 17 goals and 169 associated targets that incorporate the economic, social and environmental dimensions of sustainable development. At Biogen, we support all 17 goals and encourage all businesses to consider how they may also contribute. We continue to refine our strategy to align with the SDGs that are most relevant to our business:

3 GOOD HEALTH
AND WELL-BEING



4 QUALITY
EDUCATION



7 AFFORDABLE AND
CLEAN ENERGY



6 CLEAN WATER
AND SANITATION



13 CLIMATE
ACTION



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



Our Commitments & Policies

Our commitments are grounded in our [Values in Action – Code of Business Conduct](#), the [Biogen Sustainability Policy](#) and other related policies and position statements. These policies outline our focus on ethical business conduct, compliance, accountability and transparency, among other topics. To review the full list of our commitments and guiding principles, visit [Our Guiding Principles](#).

GRI Data Table

GRI Data Table

The 2017 data indicated in **bold** form part of ERM CVS' assurance engagement. Their [Assurance Statement](#) can be found on the [GRI section](#) of Biogen 2017 Corporate Citizenship Report website.

	UNITS	2014	2015	2016	2017
ABOUT BIOGEN					
Revenue	Million USD	9,703	10,764	11,449	12,274
R&D Spend	Million USD	1,893	2,013	1,973	2,254
No. of Employees	#	7,550	7,350	7,400	7,300
Corporate Equality Index ¹	%	100	100	100	100
CDP Climate Change ¹	Score	81 C	96 C	B	A
CDP Water ¹	Score	N/A	B	B	A
Dow Jones Sustainability Index ¹	Score	80	79	80	83
ENVIRONMENTAL IMPACT					
Climate					
Scope 1 (fossil fuels and refrigerants)	Metric tons (MT) CO ₂ e	55,965	60,179	61,970	61,616
Scope 2 Location-based method (electricity and steam)	MTCO ₂ e	37,768	38,172	45,239	41,653
Scope 2 Market-based method (electricity and steam)	MTCO ₂ e	390	187	156	61
Scope 3 ²	MTCO ₂ e	235,589	262,358	254,791	482,237
Purchased goods and services (category 1) ^{3,4}	MTCO ₂ e	156,100	152,900	191,599	396,055
Capital goods (category 2) ^{3,4}	MTCO ₂ e	19,700	47,700	16,664	35,424
Upstream/downstream energy and water-related activities (category 3)	MTCO ₂ e	8,699	9,120	9,321	10,530
Waste generated in operations (category 5) ⁵	MTCO ₂ e	371	437	637	573
Business travel (category 6)	MTCO ₂ e	20,990	21,506	17,542	21,111
Employee commuting (category 7) ³	MTCO ₂ e	17,188	15,947	8,549	8,106
Upstream leased assets (category 8)	MTCO ₂ e	5,641	3,612	0	0
End of life treatment, sold products (category 12)	MTCO ₂ e	6,900	11,136	10,479	10,438
Total Value Chain (Scopes 1, 2 Market and 3) ³	MTCO ₂ e	291,944	322,724	316,917	543,914
Absolute Value Chain Reduction from 2013 (Target: 35% by 2030) ³	%	24	15	17	-42

GRI Data Table

	UNITS	2014	2015	2016	2017
Carbon Neutrality					
Renewable Electricity Certificates Retired ⁶ (for Biogen operations)	MWh	102,171	114,919	142,989	130,128
Renewable Electricity Certificates Retired ^{4,6} (for Suppliers operations)	MWh	190,455	217,282	227,015	10,054
Carbon Offsets ⁷	MTCO2e	291,944	322,724	316,917	69,783
Net Operational Emissions (Scopes 1 & 2)	MTCO2e	0	0	0	0
Energy					
Total Energy	MWh	392,638	427,717	465,007	450,850
Total Energy (non-renewable)	MWh	290,468	312,798	322,018	320,726
Fossil Fuels (gas, oil, diesel, gasoline)	MWh	289,687	312,328	321,374	320,480
District Steam	MWh	285	292	644	239
Electricity (non-renewable)	MWh	496	178	0	7
Electricity (renewable) ⁶	MWh	102,171	114,919	142,988	130,124
Renewable Energy (% of Total Electricity)	%	100	100	100	100
Renewable Energy (% of Total Energy)	%	26	27	31	29
Fleet Efficiency (US Only)	g CO2e / mile	368	365	375	397
Water					
Total Net Water Use	Million Cubic meters (m3)	0.82	0.94	1.11	0.98
Reused/Recycled Water ⁸	%	13	10	8	8
Water Withdrawal	Million Cubic meters (m3)	0.73	0.86	1.03	1.31
Municipal Supply (potable & grey water)	Million Cubic meters (m3)	0.73	0.86	1.02	0.90
Fresh Surface Water	Million Cubic meters (m3)	0.00	0.00	0.01	0.40
Rainwater	Million Cubic meters (m3)	0.001	0.001	0.001	0.001
Water Discharges	Million Cubic meters (m3)	0.40	0.48	0.60	0.94
Fresh Surface Water	Million Cubic meters (m3)	0.00	0.00	0.00	0.39

GRI Data Table

	UNITS	2014	2015	2016	2017
Wastewater	Million Cubic meters (m3)	0.40	0.48	0.60	0.54
Biological Oxygen Demand in Wastewater Discharge	mg/L	383	508	472	342
Assessment of Water Withdrawal ⁹ (Target: 100% by 2019)	% of Major Facilities	33	25	50	50
Major Facilities with Fair Share of Water Withdrawal (Target: 100% by 2030)	% of Major Facilities	33	25	50	50
Waste ⁵					
Non-hazardous Waste ¹⁰	Metric Tons	3,750	4,975	7,961	7,606
Waste Reused	Metric Tons	N/A	N/A	48	31
Waste Recycled	Metric Tons	884	949	1,123	1,012
Waste Composted	Metric Tons	1,372	1,802	3,543	3,461
Energy Recovery via Anaerobic Digestion	Metric Tons	33	43	57	76
Waste to Energy	Metric Tons	989	1,138	1,195	1,014
Incineration	Metric Tons	464	988	1,929	1,990
Waste to Landfill	Metric Tons	8	55	66	21
Waste to Landfill Diversion (Target: 100 percent each year)	%	100	99	99	100
Recovery & Recycling Rate (Reuse, Compost, Recycle)	%	61	56	60	60
Hazardous and Biohazardous Waste	Metric Tons	172	222	227	211
SOCIAL IMPACT					
Community Engagement					
Total Grants ¹¹	Million USD	6.2	5.2	4.9	4.5
Matching Gifts Program	Million USD	0.8	1.5	1.3	1.7
Care Deeply Day Volunteer Hours	Hours	10,500	14,000	12,000	11,000
STAR Initiative Investment ¹² (Target: \$10M by 2022)	Million USD	N/A	N/A	N/A	N/A
Diversity & Inclusion					
Total Diversity Spend ¹³	Million USD	143	196	202	153
Total Diversity Spend of US Spend ¹³	%	8	9	10	8
Women in Workforce	%	51.5	50.1	49.2	49.6

GRI Data Table

	UNITS	2014	2015	2016	2017
Women in Management ¹⁴	%	47.2	47.3	47.7	47.1
Minorities in Management (US Only) ¹⁴	%	24.9	26.4	26.5	26.4
Women on Executive Team	%	17	18	22	25
Women on Board of Directors	%	27	27	27	27
Employee Development					
Employee Satisfaction ¹⁵	%	N/A	89	89	89
Management Effectiveness Training ¹⁶ (Target: 100% of managers by 2018)	%	N/A	N/A	31	52
Health & Safety					
Total Injury and Illness Rate (TIIR) ¹⁷	Cases / 200,000 working hours	0.69	0.43	0.39	0.22
Days Away Case Rate (DACR) ¹⁷	Cases / 200,000 working hours	0.28	0.16	0.19	0.05
3-Year Average DACR Industry Rank ¹⁸ (Target: Industry Best by 2019)	Rank	4	5	5	5
Contractor DACR ¹⁹	Cases / 200,000 working hours	0.49	0.41	0.42	0.30
Number of Fatalities	#	0	0	0	0
Collisions per Million Miles (US Fleet)	Collisions / million miles	6.2	5.5	4.6	5.6

GRI Data Table

Footnotes for 2017 Data Table

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

All prior environmental data was adjusted with the most recent emission factors available, as applicable.

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. Scope 3 categories 4, 9, 10, 11, 13, 14 and 15 were determined to not be relevant to our value chain or are aggregated into other categories.
3. Biogen adjusted its approach to carbon neutrality in 2017 to align with industry best practice of operational carbon neutrality. Scope 3 emissions will be noticeably higher as they are no longer 100% matched with renewable energy certificates (see Note 4) or carbon offsets with the exception of employee commuting, which was offset entirely. Consequently, Biogen is evaluating its strategy towards achieving its 35% Absolute Reduction by 2030 target.
4. Carbon emissions generated for the goods and services and capital goods we purchase are based on a proprietary Environmentally Extended Input-Output model and actual supplier data, which can estimate the portion derived from electricity usage. Since 2014, Biogen has matched up to 100% of our share of supplier's electricity usage with renewable electricity certificates.
5. Waste generation at affiliate offices, excluding Weston, Massachusetts, is considered de minimis and excluded. However, waste generation is estimated for the purposes of calculating Scope 3 carbon emissions from Waste Generated in Operations – Category 5.
6. Renewable electricity certificates retired include unbundled Green-e certified Renewable Energy Certifications, Guarantees of Origin, Green Power Certificates, Australian RECs, Brazilian I-RECs to match Biogen's electricity usage in the US/Canada, Europe, Japan, Australia and South America, respectively.
7. Carbon offsets purchased and retired in 2017 originate from the following projects: New Bedford Landfill Gas in Massachusetts.
8. Data reflects percentage of reclaimed water on-site, harvested rainwater and municipal grey water compared to total water use.
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 score of less than 1.0 using the Center for Sustainable Organization's Corporate Water Gauge tool, a context-based water metric.
10. Data includes non-hazardous solid waste and trucked off wastewater from our routine operations only. Waste derived from construction and demolition debris, incinerator ash and other contractor activities is not included.
11. Includes all grants awarded by the Biogen Foundation exclusive of the [Employee?] Matching Gifts Program.
12. The STAR Initiative is a coordinated funding strategy designed to help catalyze the development of local STEM ecosystems in Cambridge, Massachusetts and Somerville, Massachusetts. STAR stands for Science, Teacher support, Access and Readiness and 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.
13. The 2017 diverse supplier spend and related percentage is limited to Tier I direct spend, while 2015 and 2016 includes both Tier I and Tier II direct spend. Excluding Tier II spend, 2017 was similar to 2016.
14. Inclusive of all management levels, consisting of manager+ level employees.
15. In 2014 we were in the middle of revamping our People Survey and did not perform a company-wide survey that year.
16. Defined as People Managers completing at least one course in the manager training curriculum.
17. Includes permanent and contracted employees, excludes contractors (e.g. construction, janitorial, food services). TIIR values prior to 2016 exclude affiliate office employees.
18. Industry composed of 15 leading pharmaceutical company peers.
19. Contractor DACR: Includes construction-related contractors only.

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GRI Index for Biogen's 2017 Corporate Citizenship Report

General Standard Disclosures

Strategy and Analysis

G4-1	CEO Statement	CEO Note
G4-2	Description of key impacts, risks and opportunities.	A description of our key risks can be found in Item 1A., Risk Factors, in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 (" 2017 Form 10-K "), pages 33-46.

Organizational Profile

G4-3	Name of reporting organization	Biogen Inc.
G4-4	Products	Biogen's marketed products include TECFIDERA®, AVONEX®, PLEGRIDY®, TYSABRI® and FAMPYRA™ for the treatment of multiple sclerosis (MS); SPINRAZA® for the treatment of spinal muscular atrophy (SMA); and FUMADERM™ for the treatment of severe plaque psoriasis. We also have certain business and financial rights with respect to RITUXAN® for the treatment of non-Hodgkin's lymphoma, chronic lymphocytic leukemia (CLL) and other conditions, GAZYVA® for the treatment of CLL and follicular lymphoma, OCREVUS® for the treatment of primary progressive MS and relapsing MS and other potential anti-CD20 therapies under a collaboration agreement with Genentech, Inc., a wholly-owned member of the Roche Group. In March 2018 we and AbbVie Inc. announced the voluntary worldwide withdrawal of ZINBRYTA® for relapsing MS.
G4-5	HQ location	Biogen's world headquarters: Cambridge, Mass., United States. International headquarters: Zug, Switzerland
G4-6	Countries of operation	Biogen operates in The Americas, Europe, Asia and Australia. A more detailed breakdown is available on our website.
G4-7	Nature of ownership and legal form	Biogen (BIIB) is publicly traded on the Nasdaq Stock Exchange.
G4-8	Markets served	A breakdown of our products and markets served is detailed in Item 1., Business, in our 2017 Form 10-K , pages 9-12.
G4-9	Report the scale of the organization, including:	
	<ul style="list-style-type: none"> Total number of employees 	As of December 31, 2017, Biogen had approximately 7,300 employees worldwide.
	<ul style="list-style-type: none"> Total number of operations 	A summary of Biogen's owned and leased properties as of December 31, 2017, is included in Item 2., Properties, in our 2017 Form 10-K , pages 46-47.
	<ul style="list-style-type: none"> Net sales (for private sector organizations) or net revenues (for public sector organizations) 	Selected financial information can be found in Item 6., Selected Financial Data, in our 2017 Form 10-K , pages 50-52.
	<ul style="list-style-type: none"> Total capitalization broken down in terms of debt and equity (for private sector organization) 	

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	<ul style="list-style-type: none"> Quantity of products or services provided 	Quantities of products provided, by revenues, can be found in Item 1., Business, in our 2017 Form 10-K , page 9.
G4-10	<ul style="list-style-type: none"> Report the total number of employees by employment contract and gender. Report the total number of permanent employees by employment type and gender. Report the total workforce by region and gender. Report any significant variations in employment numbers. 	<p>As of December 31, 2017, Biogen employed approximately 7,300 full-time permanent employees, most of whom are highly skilled. The vast majority of work is performed by company employees, not contract workers.</p> <p>There were not significant variations in employment numbers compared to 2016. Nearly half of Biogen’s employees are women.</p>
G4-11	Report the percentage of employees covered by collective bargaining agreements.	Approximately 5.8 percent of our employees are under a collective bargaining agreement. All of these employees work in our Hillerød, Denmark, manufacturing facility.
G4-12	Describe the organization’s supply chain.	A description of our supply chain can be found in Item 1., Business, in our 2017 Form 10-K , page 28.
G4-13	Report any significant changes during the reporting period regarding the organization’s size, structure, ownership or its supply chain.	During 2017 we had a number of key developments affecting our business including an updated strategic framework to optimize the value of our MS business while investing for the future across our core growth areas of MS and neuroimmunology, Alzheimer’s disease and dementia, movement disorders and neuromuscular diseases, including SMA and amyotrophic lateral sclerosis (ALS). In 2017 we also approved a corporate restructuring program intended to streamline our operations and reallocate resources. Other significant changes took place in 2017, such as the spin-off of our hemophilia business. More details are available in Item 1., Business, in our 2017 Form 10-K , pages 2-4.
G4-14	Report whether and how the precautionary approach or principle is addressed by the organization.	Biogen applies the precautionary approach by achieving carbon neutrality, ensuring the safety of patients, and performing detailed risk analyses related to our operations.
G4-15	List externally developed economic, environmental and social charters, principles or other initiatives to which the organization subscribes or which it endorses.	Biogen has aligned its strategy with six of the Sustainable Development Goals. More details are available in the GRI Report section.

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G4-16	<p>List memberships of associations (such as industry associations) and national or international advocacy organizations in which the organization:</p> <ul style="list-style-type: none"> • Holds a position on the governance body • Participates in projects or committees • Provides substantive funding beyond routine membership due • Views membership as strategic <p>This refers primarily to memberships maintained at the organizational level.</p>	<ul style="list-style-type: none"> • Biogen chairs the green chemistry working group of the International Consortium of Innovation & Quality in Pharmaceutical Development (the IQ Consortium) and is a member of the American Chemical Society (ACS) Green Chemistry Roundtable. More details are available in the Green Chemistry section. • Biogen is also a member of RE100, a collaborative, global initiative uniting more than 100 influential businesses committed to 100% renewable electricity. • Biogen actively participates in the Pharmaceutical Product Stewardship Work Group (PPSWG), a U.S. membership association of major manufacturers of prescription and over-the-counter medicines, and the Sharps Working Group, which focuses on establishing sound sharps safety and collection and disposal policy, educating patients about their options and coordinating pharmaceutical industry compliance in the U.S. • Biogen is an active member of the Pharmaceutical Supply Chain Initiative (PSCI), an organization made up of 24 leading global pharmaceutical companies that focuses on increasing the capabilities and responsibility of our supply chains.
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Identified Material Aspects and Boundaries		
G4-17	<p>List all entities included in the organization’s consolidated financial statements or equivalent documents.</p> <p>Report whether any entity included in the organization’s consolidated financial statements or equivalent documents is not covered by the report.</p>	All major entities are included in the boundaries of this report. See the 2017 Form 10-K .
G4-18	<p>Explain the process for defining the report content and the Aspect Boundaries.</p> <p>Explain how the organization has implemented the Reporting Principles for Defining Report Content.</p>	GRI Materiality Assessment
G4-19	List all the material Aspects identified in the process for defining report content.	GRI Index, see Specific Standard Disclosures
G4-20	For each material Aspect, report the Aspect Boundary within the organization.	GRI Index, see Specific Standard Disclosures
G4-21	For each material Aspect, report the Aspect Boundary outside the organization.	GRI Index, see Specific Standard Disclosures
G4-22	Report the effect of any restatements of information provided in previous reports, and the reasons for such restatements.	No restatements were made.

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G4-23	Report significant changes from previous reporting periods in the Scope and Aspect Boundaries.	No significant changes from the previous reporting period.
Stakeholder Engagement		
G4-24	Provide a list of stakeholder groups engaged by the organization.	GRI Materiality Assessment
G4-25	Report the basis for identification and selection of stakeholders with whom to engage.	GRI Materiality Assessment
G4-26	Report the organization's approach to stakeholder engagement.	GRI Materiality Assessment
G4-27	Report key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting.	GRI Materiality Assessment
Report Profile		
G4-28	Reporting period (such as fiscal or calendar year) for information provided.	Data covers fiscal year 2017; ending December 31, 2017. Some activities from 2018 are also included.
G4-29	Date of most recent previous report (if any).	Fiscal year 2016
G4-30	Reporting cycle (such as annual, biennial).	Annual
G4-31	Provide the contact point for questions regarding the report or its contents.	impact@biogen.com
G4-32	Report the "in accordance" option the organization has chosen. Report the GRI Content Index for the chosen option. Report the reference to the External Assurance Report, if the report has been externally assured.	GRI G4 in accordance at the Core level External assurance statement can be found on the 2017 Corporate Citizenship Report website.
G4-33	Report the organization's policy and current practice with regard to seeking external assurance for the report.	Biogen seeks external assurance for some of its environmental data, as well as its workplace safety and diversity data.
Governance		
G4-34	Report the governance structure of the organization, including committees of the highest governance body. Identify any committees responsible for decision-making on economic, environmental and social impacts.	Details on Biogen's Board of Directors and Corporate Governance and Executive Leadership <ul style="list-style-type: none"> The Risk Committee of the Board of Directors oversees the management of material risks facing the Company, including topics such as information technology, cybersecurity, environmental, health and sustainability and other material risks not allocated to our Board of Directors or another committee.

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- At the executive leadership level, our corporate citizenship strategy is overseen by the Global Impact Executive Council, which includes members of Biogen’s senior leadership team.
- In 2017, Biogen also added its first Stakeholder Advisory Council, made up of external stakeholders who help to review trends, benchmark our peers and recommend improvements to goals and initiatives.

Ethics and Integrity

G4-56 Describe the organization’s values, principles, standards and norms of behavior such as codes of conduct and codes of ethics.

The [Values in Action: Code of Business Conduct](#)

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Specific Standard Disclosures

Material Aspects	G4 Categories and Material Aspects	Specific Standard Disclosures	Stakeholders Impacted or Involved	Relevance and Approach	Report Link
Patient Health Outcomes <ul style="list-style-type: none"> • Patient engagement 	Economic Indirect Economic Impact	G4-EC8 Significant indirect economic impacts, including the extent of impacts.	<ul style="list-style-type: none"> • Patients • Caregivers • Healthcare providers & systems • Patient advocacy groups • Governments • Insurers & payers 	Our therapies are intended to treat specific neurological and neurodegenerative diseases that can be debilitating to patients, especially if their conditions go untreated. A lack of treatment can also have a significant economic impact on the healthcare system. Engaging and educating patients and caregivers about treatment options, as well as opening doors to patient support resources, are critically important measures in improving health outcomes.	Our Commitments to Patient Communities Patient Health Outcomes
Access to Treatments <ul style="list-style-type: none"> • Clinical trials • Patient assistance • Biosimilars • Pricing 	Economic Indirect Economic Impact	G4-EC8 Significant indirect economic impacts, including the extent of impacts.	<ul style="list-style-type: none"> • Patients • Caregivers • Healthcare providers & systems • Patient advocacy groups • Governments • Insurers & payers 	An enormous investment of time and money is required to discover and develop new therapies intended to treat complex neurological and neurodegenerative conditions. The high costs of these medications are reflective of the investment made and the value these therapies provide to patients and the healthcare system. But drug pricing should not be a barrier to access. We have established pricing principles and assistance programs to help patients who may benefit from access our treatments, including outreach to underserved patients. Clinical trials provide another avenue for patients to access potential options for treatment. And investing in the development of biosimilar therapies is yet another opportunity to deliver viable therapies at more affordable costs.	Our Commitments to Patient Communities Access to Treatments
R&D and Pipeline <ul style="list-style-type: none"> • Collaborations 	Economic Indirect Economic Impact	G4-EC8 Significant indirect economic impacts, including the extent of impacts.	<ul style="list-style-type: none"> • Patients • Healthcare providers & systems • Patient advocacy groups • Governments • Insurers & payers • Investors • Business partners 	While tremendous advances have been made in the treatment of neurological and neurodegenerative diseases, unmet medical needs remain. Continual investment is needed to research, develop and maintain a robust pipeline of promising new therapies that have the potential to improve patient outcomes. Our R&D efforts are often done in collaboration with other biopharmaceutical entities, enabling us to combine strengths and competencies to achieve mutual goals.	Our Business R&D and Pipeline Our Guiding Principles Research Collaborations

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<p>Information Security</p> <ul style="list-style-type: none"> • Patient privacy • Data protection 	<p>Product Responsibility</p> <p>Customer Privacy</p>	<p>G4-PR8 Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.</p>	<ul style="list-style-type: none"> • Patients • Healthcare providers & systems • Employees 	<p>We collect information on patients who participate in our clinical trials and those whom we engage through various patient programs. We uphold the law to protect their privacy and safeguard their personal health information by preventing unauthorized access to – or sharing of their data. The same is true of our employees. Having a privacy policy and adhering to it is essential. And given today’s risks of information breaches, it’s critically important to have sound cybersecurity measures in place.</p>	<p>Our Guiding Principles</p> <p>Global Privacy Program</p> <p>Clinical Trial Transparency and Data Sharing</p>
<p>Product Stewardship</p> <ul style="list-style-type: none"> • Product quality & safety • Counterfeit protection • Pharmaceuticals in the Environment (PIE) 	<p>Product Responsibility</p> <p>Customer Health & Safety</p> <p>Product and Service Labeling</p> <p>Environmental</p> <p>Products and Services</p>	<p>G4-PR1 Percentage of significant product and service categories for which health and safety impacts are assessed for improvement.</p> <p>G4-PR3 Type of product and service information required by the organization’s procedures for products and service information and labeling, and percentage of significant product and service categories subject to such information requirements.</p> <p>G4-EN28 Percentage of products sold and their packaging materials that are reclaimed by category.</p>	<ul style="list-style-type: none"> • Patients • Healthcare providers & systems • Governments • NGOs • Industry groups 	<p>We consider product stewardship to be fundamental to everything we do. It encompasses the quality and safety of our products, and extends to the prevention of counterfeits, and the impact of chemistry on the environment and in the manufacturing of our products. We comply with all applicable regulations in the disposal of our products and supplies, and use state-of-the-art technology to safeguard the authenticity and security of our products.</p>	<p>Our Guiding Principles</p> <p>Product Stewardship</p>

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<p>Green Chemistry</p>	<p>Environmental</p> <p>Products and Services</p>	<p>G4-EN27 Extent of impact mitigation of environmental impacts of products and services. Extent of impact mitigation of environmental impacts of products and services.</p>	<ul style="list-style-type: none"> • Patients • Healthcare providers & systems • Governments • NGOs • Industry groups 	<p>There are continual innovations being made in the design, development and production of biologics. This includes the growing emergence of green chemistry, an approach aimed at reducing or eliminating the use of toxic chemicals and generation of hazardous materials. There are other environmental benefits that can result from green chemistry - such as more efficient processes, and/or reduced energy and/or water use.</p>	<p>Our Environment</p> <p>Green Chemistry</p>
<p>Responsible & Sustainable Supply Chain</p> <ul style="list-style-type: none"> • Environmental, Social & Governance (ESG) risk assessments 	<p>Environmental</p> <p>Supplier Environmental Assessment</p> <p>Human Rights</p> <p>Supplier Human Rights Assessment</p>	<p>G4-EN32 Percentage of new suppliers that were screened using environmental criteria.</p> <p>G4-EN33 Significant actual and potential negative environmental impacts in the supply chain and actions taken.</p> <p>G4-HR10 Percentage of new suppliers that were screened using human rights criteria.</p> <p>G4-HR11 Significant actual and potential negative impacts on human rights in the supply chain and actions taken.</p>	<ul style="list-style-type: none"> • Suppliers • Customers • Governments • NGOs • Local communities 	<p>Our stakeholders expect that we understand the environmental, social and governance (ESG)-related risks and impacts across our supply chain, and that we take steps to manage these risks and impacts. Biogen has developed evaluation processes to fulfill this expectation with the objective of identifying any potential at-risk suppliers that could warrant further evaluation. Overall, Biogen has a low ESG-related risk profile due to the current geographical spread of suppliers and the nature of the goods and services purchased.</p> <p>Our evaluation processes include:</p> <ul style="list-style-type: none"> • ESG risk screens for critical supplier sites • Water risk basin-level screen for a subset of critical supplier sites • Human rights country-level risk screen against our entire procurement spend • Monitoring compliance with new requirements around the world (e.g. human trafficking legislation) <p>Critical suppliers are defined as approved Good Manufacturing Practice (GMP) supplier sites that supply products and services directly related to the safety and integrity of our products. High-volume and any non-substitutable suppliers are often GMP suppliers.</p> <p>ESG Risk Screen: In 2017, we evaluated 942 critical suppliers sites (684 Tier I supplier sites representing 57 percent of total procurement spend and 260 Tier II supplier sites). This evaluation assesses each supplier against five factors – criticality of the service or good being supplied (30 percent); the level of financial</p>	<p>Our Guiding Principles</p> <p>Supply Chain Responsibility</p>

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				<p>spend (35 percent); the social risk profile (11 percent); the environmental risk profile (12 percent); and the governance risk profile, including potential for corruption (12 percent). Six Tier I supplier sites and zero Tier II supplier sites were screened as potentially higher risk requiring further internal evaluation of the supplier's practices and service/goods provided. The conclusion of the internal evaluation deemed zero of the six supplier sites to present a high risk to Biogen operations.</p> <p>Water Risk Screen: In 2017, we evaluated 169 of the most critical GMP supplier sites using the Water Risk Filter Tool developed by WWF and DEG. Two supplier sites were screened as potentially higher risk requiring further internal evaluation. The conclusion of the internal evaluation deemed zero of the two supplier sites to present a high risk to Biogen operations.</p> <p>Human Rights Risk Screen: In 2017, we evaluated nearly 100 percent of procurement spend against the country-level risk profiles developed by the U.S. State Department's 2017 Trafficking in Persons Report. Our procurement system registered a total of 12,670 unique supplier country-level locations (i.e., Biogen may purchase goods or services from a single supplier in multiple countries, where each is included in the screen) with aggregate purchases equal to or greater than \$1,000:</p> <ul style="list-style-type: none"> • 11,925 unique supplier locations (96 percent of spend) were in Tier 1 countries. • 601 unique supplier locations (4 percent of spend) were in Tier 2 countries. • 124 unique supplier locations (<0.1 percent of spend) were in Tier 2 Watch List countries. • 20 unique supplier locations (<0.1 percent of spend) were in Tier 3 countries. <p>The supplier locations in Tier 2 Watch and Tier 3 countries were further evaluated in a similar manner as described in the ESG risk screen. The evaluation determined zero of these supplier locations to be high risk.</p>
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				<p>To support the continual improvement of Biogen's ability to assess risk within its supply chain, two targets have been set:</p> <ul style="list-style-type: none"> Expand ESG risk screening of Tier I suppliers to 75 percent of spend by 2020. Expand ESG risk screening of Tier II supplier sites to 500 sites by 2020. 	
<p>Responsible & Sustainable Supply Chain</p> <ul style="list-style-type: none"> Supplier diversity 	<p>Economic</p> <p>Procurement Practices</p>	<p>G4-EC9 Proportion of spending on local suppliers at significant locations of operation.</p>	<ul style="list-style-type: none"> Suppliers Customers Governments NGOs Local communities 	<p>Our supplier diversity initiatives are intended to create a diverse and inclusive supplier base so that suppliers, regardless of size and scale of their enterprises, have opportunities to compete for our business. We consider our supplier diversity program a fundamental component of fostering a responsible and sustainable supply chain.</p>	<p>Our Guiding Principles</p> <p>Supply Chain Responsibility</p>
<p>Climate Change</p> <ul style="list-style-type: none"> Energy use and renewables GHG emissions Supplier engagement 	<p>Environmental</p> <p>Energy Emissions Supplier Environmental Assessment</p>	<p>G4-EN3 Energy consumption within the organization.</p> <p>G4-EN4 Energy consumption outside of the organization.</p> <p>G4-EN3 Energy intensity.</p> <p>G4-EN15 Direct GHG emissions (Scope 1).</p> <p>G4-EN16 Energy indirect GHG emissions (Scope 2).</p> <p>G4-EN17 Other indirect GHG emissions (Scope 3).</p> <p>G4-EN19 Reduction of greenhouse gas (GHG) emissions.</p>	<ul style="list-style-type: none"> Governments NGOs Suppliers Communities Patients 	<p>Climate change is a global concern that has potential implications on human health and the long-term sustainability of our environment. Recognizing that every entity has a carbon footprint, we have been working to reduce our impact through energy efficiency measures and investments in renewables aimed at maintaining our carbon neutrality. We have also engaged our key suppliers and encouraged them to measure and report their carbon emissions.</p>	<p>Our Environment</p> <p>Climate and Carbon Strategy</p> <p>Our Guiding Principles</p> <p>Climate Change Position</p>

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		<p>G4-EN32 Percentage of new suppliers that were screened using environmental criteria.</p>			
<p>Water & Wastewater (Operations)</p> <ul style="list-style-type: none"> Water use Wastewater 	<p>Environmental Water Effluents and Waste</p>	<p>G4-EN8 Total water withdrawal by source.</p> <p>G4-EN8 Percentage and total volume of water recycled and reused.</p> <p>G4-EN22 Total water discharge by quality and destination.</p>	<ul style="list-style-type: none"> Governments NGOs Suppliers Communities 	<p>In certain parts of the world, water resources are constrained and/or lacking. Water pollution is also of great concern. Yet water is a critical resource – used in our products and for our manufacturing processes. We are taking great measures to reduce our water use, reuse/recycle the water we use within our manufacturing processes and ensure the water that is returned to the environment is clean and as free of pharmaceutical ingredients as possible.</p>	<p>Our Environment</p> <p>Water</p>
<p>Waste</p>	<p>Environmental Effluents and Waste</p>	<p>G4-EN23 Total weight of waste by type and disposal method.</p> <p>G4-EN23 Weight of transported, imported, exported, or treated waste deemed hazardous, and percentage of transported waste shipped internationally.</p>	<ul style="list-style-type: none"> Governments NGOs Suppliers Communities 	<p>Waste is a byproduct resulting from the manufacturing process. But much can be – and should be – done to reduce waste streams and minimize the amount of waste to landfill. Biogen has a zero-to-landfill goal, which we have met and maintained.</p> <p>Hazardous waste, another byproduct of our manufacturing operations, needs to be properly handled and managed. This is one of our priorities.</p>	<p>Our Environment</p> <p>Goals and Performance</p>

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<p>Recruitment & Retention</p> <ul style="list-style-type: none"> Employee engagement and retention 	<p>Labor Practices</p> <p>Employment</p>	<p>G4-LA1</p> <p>Total number of employees.</p>	<ul style="list-style-type: none"> Employees Prospective employees Communities Investors 	<p>The biotech industry relies on a talent pool of highly trained and specialized individuals. To attract and retain the best employees, it is essential to have a rewarding and engaging workplace environment that enables employees to grow their careers and thrive while making a meaningful difference in improving patient lives. This is our focus at Biogen – for all of the approximately 7,300 people we employed as of December 31, 2017.</p>	<p>Our Community</p> <p>Workplace Community</p> <p>Talent Acquisition & Retention</p>
<p>Workplace Health & Safety</p>	<p>Labor Practices</p> <p>Occupation-al Health & Safety</p>	<p>G4-LA6</p> <p>Type of injury and rates of injury, occupational diseases, lost days and absenteeism and total number of work-related fatalities, by region and by gender.</p>	<ul style="list-style-type: none"> Employees Governments 	<p>In any manufacturing environment, worker safety issues are not uncommon. But injuries to workers can happen in any type of workplace– from an office environment to distribution operations. Safety practices must be continually taught and reinforced, and emerging risks must be identified early on and proactively managed. The priority at Biogen is to keep our people safe and dramatically reduce or eliminate the risk of injury.</p>	<p>Our Community</p> <p>Workplace Health & Safety</p>
<p>Workplace Diversity & Inclusion</p>	<p>Labor Practices</p> <p>Diversity & Equal Opportunity</p>	<p>G4-LA12</p> <p>Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership and other indicators of diversity.</p>	<ul style="list-style-type: none"> Employees Patients Local communities Governments 	<p>Patients come from all walks of life. To truly understand our patients’ perspectives and unique differences, we must have a workforce that is representative of the patients we serve. The same is true for the communities in which we operate – we must mirror our neighbors, suppliers and partners. In years past, the biotech industry has tended to be male-dominated, but in more recent years, a growing number of women have pursued careers in science. Biogen has made a point to be a place where women have opportunities to advance and assume leadership roles. As a result, we have succeeded at having nearly equal representation of women at Biogen.</p>	<p>Our Community</p> <p>Diversity & Inclusion</p>
<p>Transparency & Disclosure</p> <ul style="list-style-type: none"> Clinical trails Political activities & public policy 	<p>Society</p> <p>Public Policy</p>	<p>G4-SO6</p> <p>Total value of political contributions by country and recipient/beneficiary.</p>	<ul style="list-style-type: none"> Governments Investors Patients Healthcare providers & systems 	<p>There are several critical areas where the pharma & biotech industries have been pushed to be more transparent: on the outcomes of their clinical trials; pricing policies; and their political activities and contributions. We believe transparency is the mark of a responsible company, and have taken steps to increase our transparency in these areas in particular.</p>	<p>Our Guiding Principles</p> <p>Transparency Reporting</p> <p>Clinical Trial Transparency and Data Sharing</p>

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<p>Bioethics</p> <ul style="list-style-type: none"> Animal welfare Responsible marketing and labeling 	<p>Product Responsibility</p> <p>Marketing Communications</p>	<p>G4-PR7</p> <p>Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion and sponsorship, by type of outcomes.</p>	<ul style="list-style-type: none"> Patients Healthcare providers & systems Insurers & payers Governments NGOs 	<p>As the field of biotechnology advances, there are social and ethical implications that must be considered and reconciled. This includes issues such as stem cell research, animal welfare and the marketing and communications about biotech therapies and medicines. Biogen has strong practices in place regarding these various issues and is continually monitoring for new and emerging issues that could potentially be in the spotlight in the future.</p>	<p>Our Guiding Principles</p> <p>Animal Welfare</p>
<p>Compliance</p>	<p>Society</p> <p>Compliance</p>	<p>G4-S08</p> <p>Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations.</p>	<ul style="list-style-type: none"> Governments Patients Healthcare providers & systems 	<p>Regulatory compliance is a significant focus within the biotech industry, and one of the more complex aspects to operating our business. Biogen must be innovative to remain competitive, and at the same time, compliant with the laws, rules and guidance enforced by multiple agencies that may have differing regulatory goals. There were no significant instances of noncompliance in 2017.</p>	<p>Our Guiding Principles</p> <p>Comprehensive Compliance Program</p>
<p>Community Engagement</p>	<p>Economic</p> <p>Economic Performance</p>	<p>G4-EC1</p> <p>Direct economic value generated and distributed.</p>	<ul style="list-style-type: none"> Local communities Employees Patients 	<p>Positive engagement with and support of local communities is critically important for any major business to maintain its license to operate and build good will with residents and municipalities. Employees are also eager to see their companies play a positive role in the communities in which they work and live. And just as important to employees, they want to take part in “giving back” to local organizations that serve to improve their communities. Biogen believes in being a good neighbor, serving its communities and providing opportunities for employees to participate as well. The Biogen Foundation is the giving arm of Biogen, making grants on behalf of the company to support science education in many forms. Our employees are often involved in raising awareness and funds for the nonprofit organizations serving the patient populations affected by the neurological and</p>	<p>Our Community</p> <p>The Biogen Foundation</p> <p>Community Lab</p> <p>Community Engagement</p>

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				neurodegenerative diseases that Biogen treats through its therapies.	
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Independent Assurance Statement to Biogen Inc.

Independent Assurance Statement to Biogen Inc.

ERM Certification and Verification Services, Inc. (ERM CVS) was engaged by Biogen Inc. (Biogen) to provide assurance in relation to selected 2017 data in Biogen's 2017 Corporate Citizen Report: *Our Purpose, Our Impact* (the Report).

Engagement Summary	
Scope:	Whether the 2017 data for the assured indicators, as identified in the "GRI Data Table" on https://biogencsr.com/gri-report are fairly presented, in all material respects, in accordance with the reporting criteria.
Reporting criteria used:	Biogen's reporting criteria as described on https://biogencsr.com/gri-report , including the WBCSD/WRI GHG Protocol plus the 2015 Scope 2 Guidance and Biogen's Sustainability Data Collection and Reporting Procedure for Scope 3 categories.
Assurance standards used:	ISAE 3000 International Standard for Assurance engagements and, for the GHG data ISO 14064-3:2006: Specification with guidance for the validation and verification of greenhouse gas assertions.
Assurance level:	Limited assurance.
Respective responsibilities:	Biogen is responsible for preparing the 2017 data for the selected indicators and for presentation of the information in the Report in accordance with their reporting criteria and definitions. ERM CVS's responsibility is to provide conclusions on the agreed scope based on the assurance activities performed and exercising our professional judgement.

Our conclusions

Based on our activities, nothing has come to our attention to indicate that the 2017 data for the selected indicators as identified in **bold** in the "GRI Data Table" on <https://biogencsr.com/gri-report> are not fairly presented, in all material respects, in accordance with the reporting criteria.

Our assurance activities

We planned and performed our work to obtain all the information and explanations that we believe were necessary to provide a basis for our assurance conclusions.

A team of sustainability, GHG and assurance specialists performed the following key activities:

- Interviews with relevant staff to understand Biogen's reporting criteria and internal reporting processes for the selected indicators, including the use of its GHG and Carbon Neutrality methodologies and the various data management and reporting systems used for collecting, consolidating and reporting the data.
- A review of the calculations including conversion factors and emission factors used.
- Validating a risk-based selection of primary source data from corporate safety and employee databases as well as site level underlying data for the environmental indicators
- A visit to the Biogen headquarters in Cambridge, Massachusetts to interview Biogen personnel and review program documentation.
- Cross checking that the purchased Carbon Offsets, Renewable Energy Certificates (REC), Guarantees of Origin, International-RECs and Green Power Certificates were retired/managed according to Biogen's Sustainability Data Collection and Reporting Procedure, which includes the Carbon Neutral Methodology.
- An analytical review of the consolidated year end data.

The limitations of our engagement

The reliability of the assured data is subject to inherent uncertainties, given the available methods for determining, calculating or estimating the underlying information. We have not tested in detail the Trucost Environmentally Extended Input/Output model used to perform the calculations for GHG Scope 3 Categories 1, 2 and 12.

Commentary

We have provided Biogen with a separate, confidential report detailing our findings and making recommendations regarding its overall reporting processes and systems for its sustainability reporting.



27 June 2018
Jennifer Iansen-Rogers, Partner
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