



# FY2018 Sustainability Report



# To our stakeholders

With each new day, we have an opportunity to make a difference for our customers and their patients, and for the communities in which we operate and serve. Every day also provides the opportunity to make a difference by reducing our environmental impact to supporting the potential of all our associates working around the world.

At the end of 2017 we welcomed C. R. Bard to the BD family, bringing new talent and capabilities to enable BD to elevate beyond a trusted innovator and supplier into a true partner of choice for the healthcare industry. BD and Bard are uniquely positioned with unmatched breadth, depth and capabilities to be an indispensable partner to hospitals and health systems to improve both the treatment of disease for patients and the process of care for healthcare providers. New capabilities, new call points, new opportunities.

I am pleased to share the progress we are making toward our 2020 Sustainability Goals. These goals provide the framework for how we manage—and make an impact on—the most relevant social and environmental issues for our company. We remain focused on supporting priority health needs that are aligned with the U.N. Sustainable Development Goals (SDG), and contribute to the SDGs through our collaboration with the public and nonprofit sectors across the four key areas that comprise our 2020 Goals—innovation, access, efficiency and empowerment.

## Innovation

Our new product innovation is continuing to fuel growth. From the new BD Alaris™ infusion system and BD HealthSight™ integrated platform in our Medical segment, to new molecular diagnostic capabilities for the BD MAX™ platform and continued expansion of our BD Horizon Brilliant™ dyes portfolio in Life Sciences, and improving blood flow through LUTONIX™ AV catheters and Covera™ stent grafts in the Interventional segment, we saw 25 major product launches in FY2018.

While we have even more major launches planned for FY2019, we will continue our work to tackle some of the largest challenges in healthcare. This includes cybersecurity, through the BD® Product Security Partnership program, which emphasizes collaboration across the industry to enhance cybersecurity of medical technology and devices.

## Access

We continue to partner and collaborate with public and nonprofit organizations around the world to address priority health needs. We're partnering with Project HOPE in China and with PEPFAR, CDC and the ministry of health in Kenya to tackle infection prevention; and expanding our existing partnership with United States Agency for International Development (USAID) to address drug-resistant TB in Indonesia and India.

The team also celebrated a decade of partnerships with PEPFAR and U.S. CDC through the Labs for Life collaboration that helps address HIV/AIDS and the Global Health Security Agenda by improving diagnostic laboratory capabilities in developing countries.

We are also accelerating our efforts to combat antimicrobial resistance (AMR) through prevention, diagnostics and surveillance, while leading a

global awareness campaign to recognize the efforts of the many AMR fighters across the world.

## Efficiency

We continue to make progress against our efficiency targets, making gains in the reduction of greenhouse gas (GHG) emissions, waste generation and water consumption. We also look to the future, building resilience in our global operations by continuing our commitment to renewable energy, including installation of on-site solar power generation at our facilities in Canaan, Connecticut and Eysins, Switzerland.

Our commitment to transparency on our environmental performance was also demonstrated through our continued participation in the Chemical Footprint Project and the CDP (*formerly known as the Carbon Disclosure Project*).

## Empowerment

As we welcomed new associates from Bard, we have further strengthened our commitment to Inclusion & Diversity. We appointed a worldwide Vice President of Inclusion and Diversity and established a Global Inclusion Council that is composed of leaders from every business, region and function—and of which I'm proud to be the Executive Sponsor.

We were proud to continue our innovative program to support some of the most vulnerable patients in the United States by awarding five community health centers a total of \$1 million in grant funding, as part of the BD® Helping Build Healthy Communities program.

## A new day

While there is much to be proud of in FY2018, we face each day as a new opportunity to build on our past and redefine the future of healthcare. This will include work on redefining our sustainability strategy centered upon our most relevant ESG issues and setting new ambitious goals that will not only ensure resilience over the long term but will also consider the expectations of our stakeholders around the world.

With each new day, BD is rising to accept the challenges of the complex global healthcare landscape. We are proud of and inspired by our role in the healthcare ecosystem and humbled to serve the caregivers, researchers and other healthcare professionals who serve patients all around the world.

I am pleased to share our progress thus far and look forward to working with you—our stakeholders—as we continue *advancing the world of health*.



Sincerely,

A handwritten signature in black ink that reads "Vincent A. Forlenza".

Vincent A. Forlenza  
Chairman and Chief Executive Officer



## About this report

This report provides an update of our global environmental, social and governance (ESG) performance against our 2020 goals, during our fiscal year 2018 (*October 1, 2017, to September 30, 2018*) for Becton, Dickinson and Company (*also known as “BD”*) and our subsidiaries, unless otherwise stated.

We report annually on our sustainability performance and published our last report, which highlighted progress made in fiscal year 2017, in July 2018 and republished in August 2018 to reflect updates to our Scope 2 greenhouse gas emissions.

In December 2017, BD acquired C.R. Bard (“Bard”), a leading multinational developer, manufacturer and marketer of innovative, life-enhancing medical technologies in the fields of vascular, urological, oncological and surgical specialty products. Since the integration of Bard and BD systems is ongoing, we are not yet able to publish Bard data in several of our key performance indicators. Throughout this report, we will clearly identify whether any data we provide includes or excludes this information. We expect to provide Bard data in our next reporting cycle.

This report contains standard disclosures from the Global Reporting Initiative (GRI) Sustainability Reporting Guidelines.

While this report is not intended to meet the requirements of the GRI Sustainability Reporting Guidelines, reference numbers for Standard Disclosures have been included where full or partial information has been provided.

Data in this report has not been externally assured.

Reporting and performance data includes information on our owned and operated facilities. We have processes in place to ensure that reporting on key sustainability performance indicators is as accurate and robust as possible, and we continually work to improve them.

In addition to providing an update on our performance against the 2020 sustainability goals and context around each goal, this report also includes details about key ESG factors relevant to our business.

We seek feedback from stakeholders each year, which informs our selection of content for sustainability reporting. You can contact us via email at [BD\\_Sustainability\\_Office@BD.com](mailto:BD_Sustainability_Office@BD.com).

Our previous sustainability report is available at [bd.com/Sustainability](http://bd.com/Sustainability).

**GRI disclosure:** **102-10, 102-50, 102-51, 102-52, 102-53, 102-54, 102-56**

# About BD

BD is one of the largest global medical technology companies in the world and is *advancing the world of health* by improving medical discovery, diagnostics and the delivery of care. The company supports the heroes on the frontlines of healthcare by developing innovative technology, services and solutions that help advance both clinical therapy for patients and clinical process for healthcare providers. BD and its 65,000 employees have a passion and commitment to help enhance the safety and efficiency of clinicians' care delivery process, enable laboratory scientists to accurately detect disease and advance researchers' capabilities to develop the next generation of diagnostics and therapeutics. BD has a presence in virtually every country and partners with organizations around the world to address some of the most challenging global health issues. By working in close

collaboration with customers, BD can help enhance outcomes, lower costs, increase efficiencies, improve safety and expand access to healthcare. In 2017, BD welcomed C. R. Bard and its products into the BD family.

For more information on BD (*including our products and brands*), please visit [bd.com](http://bd.com)

BD is headquartered in Franklin Lakes, NJ, and serves over 190 countries.

Further details about BD (*including location of operations and direct economic impact generated and distributed*) can be found in our **2018 10-k filing**.

**GRI disclosure:** **102-1, 102-2, 102-3, 102-4, 102-5, 102-6, 102-7, 201-1**



BD corporate headquarters, Franklin Lakes, NJ.

# About our businesses

## The BD Medical segment

focuses on providing innovative solutions to reduce the spread of infection, enhance diabetes treatment, advance drug delivery, improve surgical procedures and provide effective and safe medication management. Customers served include hospitals and clinics; physicians; governmental and public health agencies; healthcare workers; retail pharmacies; pharmaceutical and biotech companies; and consumers.

### Sample products:



BD MaxZero™  
Needle-Free  
Connector

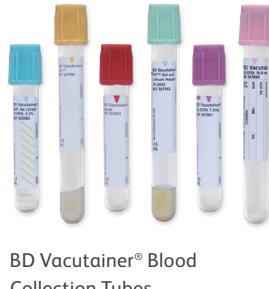


BD Hypak™  
Glass  
Prefillable  
Syringes

## The BD Life Sciences segment

delivers innovative solutions from discovery to diagnosis, continually advancing science and clinical outcomes across infectious disease and cancer. Offerings include preanalytical solutions for sample management; immunology research solutions, including flow cytometry and multiomics tools; microbiology and molecular diagnostics; lab automation and informatics solutions; and differentiated reagents and assays. Customers served include research institutions, industrial and reference laboratories; blood banks; hospitals and clinics; alternate site healthcare; public health agencies; academic and government institutions; and pharmaceutical and biotech companies.

### Sample products:



BD Vacutainer® Blood  
Collection Tubes



BD FACSLyric™ Flow Cytometry System



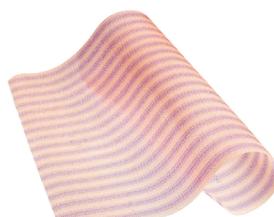
BD MAX™ Open  
System Reagent Suite

BD Kiestra™ Lab  
Automation Solutions

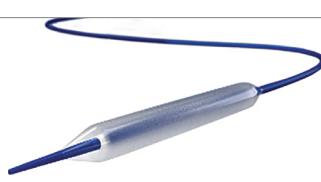
## The BD Interventional segment

focuses on developing innovative surgical, endovascular, urological and critical care interventions that not only meet clinical needs but also deliver value to health systems and improve patients' lives. Customers served include hospitals and clinics; physicians; ambulatory surgery centers; nurses; and consumers.

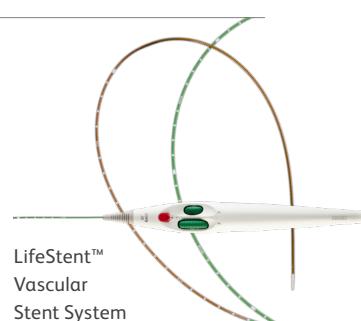
### Sample products:



Phaxis™ ST Mesh



Lutonix™ 035 Drug Coated  
Balloon PTA Catheter



LifeStent™  
Vascular  
Stent System

Arctic Sun™  
Temperature  
Management  
System



# Company structure

BD is structured to serve customers with unique solutions. The data below represents the Company structure for FY2018.

102-6, 102-7

## Revenue by geography

(billions of dollars)



## Revenue by segment

(billions of dollars)



# Value chain profile

BD has more than 500 core suppliers that provide key materials, including plastics, glass, metals, textiles, electronic and mechanical subassemblies, and various paper, agricultural, biological, chemical and petrochemical products.

Our more than 86,000 products are manufactured and sold worldwide. They are marketed in the United States and internationally, through independent distribution channels and directly to end users, by BD and independent sales representatives.

## Customers served

	BD Medical	BD Life Sciences	BD Interventional
Hospitals	●	●	●
Clinics	●	●	●
Laboratories		●	
Physicians' office practices	●	●	●
Consumers and retail pharmacies	●		●
Government agencies	●	●	●
Academic and government institutions		●	●
Public health agencies		●	●
Nonprofit public health agencies	●		●
Blood banks		●	
Pharmaceutical companies	●	●	
Biotechnology companies	●	●	●
Healthcare workers	●	●	●
Ambulatory surgical centers			●

# How we do business

## Ethics and compliance

We are committed to a strong ethics and compliance culture. We do not tolerate actions or behaviors that are inconsistent with our values or violate the BD Code of Conduct or applicable laws and regulations. All BD associates are responsible for reinforcing our ethics and compliance culture and sustaining our reputation as a Company dedicated to quality and integrity. We encourage and expect everyone at BD to speak up by asking questions, raising concerns, seeking guidance and reporting actual or suspected violations of laws, our Code of Conduct, our policies or our high ethical standards. This requirement extends to all associates, vendors and other third parties working on our behalf.

The BD Values further strengthen our culture of ethics and compliance and guide how we hold ourselves accountable to our shareholders and stakeholders.

- We do what is right.
- We are authentic.
- We are all accountable.
- We improve every day.
- We help each other be great.

These values are cascaded through all levels of the organization.

Further information about our commitment to ethics and compliance can be found on our website at [bd.com/Investors/Corporate\\_Governance](http://bd.com/Investors/Corporate_Governance)

**GRI disclosure: 102-16**

## Code of Conduct

The BD Code of Conduct sets the foundation for how we behave at BD. The value “We do what is right” is the cornerstone of our code. To do what is right, we follow the laws, rules and Company policies that apply to us. We also follow the highest ethical standards, even when there’s no specific law or policy. Our code provides guidance and resources to help us follow through on these ethical standards and protect our reputation.

Everyone at BD—from directors to officers and associates—must follow our code. It applies equally to everyone, no matter their position or level. This is a condition of employment at BD. The BD code is available in English and 20 other languages. All associates are required to complete training on our code annually.

Our Code of Conduct is available at [bd.com/en-us/company/about-bd/bd-code-of-conduct](http://bd.com/en-us/company/about-bd/bd-code-of-conduct)

**GRI disclosure: 102-16**

## Antibribery and anticorruption

The antibribery and anticorruption program helps keep associates pointed in the right direction. In support of the program, the Ethics & Compliance function provides resources to regional and local country management to enhance their anticorruption and compliance business practices. This includes incorporating compliance requirements into existing business practices and advising local management on anticorruption compliance-related issues.

A key focus for BD is driving compliance in our distributor networks across the globe, resulting in stronger business relationships while upholding our reputation.

The antibribery and anticorruption program is advanced by fostering collaboration with business leaders to deliver consistent and clear policies and approval processes—along with enhanced

third-party due diligence procedures—to help provide assurance that BD is “winning business the right way.”

BD is committed to training all associates via both in-person, scenario-based sessions and learning-management-system courses that leverage policy materials, such as the Global Standards for Interactions with Healthcare Professionals, Healthcare Organizations and Government Officials.

Joint training with distributors is a core component of the antibribery and anticorruption program. These sessions combine required anticorruption training with information about our overall strategy, progress updates for each business segment and new products. We also communicate with each of our distributors to better understand their needs and topics for future gatherings.

**GRI disclosure: 102-16**

## Reporting ethics concerns

Our associates are expected to report any actual or suspected violations of laws, the BD Code of Conduct, our policies or our high ethical standards. Associates can report these in a number of ways, including via the BD Ethics Helpline, which is available anywhere in the world 24 hours a day, 7 days a week. Alternatively, associates may use our independently operated web-based reporting tool, where BD associates worldwide can make a report in their native language. The Helpline provides translation services as needed, and reports can be made anonymously. Associates can also report violations to their supervisor, management, Human Resources, the Law Group or directly to Ethics & Compliance. Regardless of the outcome, associates are never penalized for bringing such matters to the Company's attention in good faith. BD does not tolerate any form of retaliation.

## Interactions with healthcare professionals

We comply with all applicable laws, and regulations that govern the interactions between medical technology companies and healthcare professionals, healthcare organizations and government officials in the many countries in which we do business. To help ensure compliance, BD has adopted various industry codes, including the Advanced Medical Technology Association (AdvaMed) Code of Ethics in the United States and MedTech Europe Code of Ethics. BD associates receive information and training about these codes in a number of ways,

Local toll-free numbers for the Helpline are included in our Code of Conduct, and the web-based reporting tool can be accessed from any computer with internet access at [www.bd.ethicspoint.com](http://www.bd.ethicspoint.com).

In FY2018, the Ethics Office received more than 500 contacts from associates worldwide seeking guidance or reporting concerns. BD takes all reports of violations of laws, BD policies and our high ethical standards seriously. We promptly, fairly and thoroughly investigate all reports. Depending on the findings, we may take corrective action, such as discipline up to and including termination of employment or simply providing nondisciplinary-based training in areas where a gap has been identified.

**GRI disclosure: 102-17**

including periodic communications, and online and in-person trainings at conferences and meetings. Associates can access detailed information on our expectations through our intranet and our Ethics & Compliance mobile application. Key provisions of applicable industry codes are also incorporated into various global policies, including the Global Standards for Interactions with Healthcare Professionals, Healthcare Organizations and Government Officials.

**GRI disclosure: 102-16**

## Human rights

At BD, we are committed to operating in a way that respects the human rights of all associates, as well as the people in our supply chains, the communities in which we operate, and those who are impacted by our products.

Rather than simply doing less harm, BD is focused on doing *what is right*. This value, along with the rest of the BD values, guide our efforts to have a positive social impact across our businesses and our operations.

Our commitment to human rights is guided by the principles outlined in the UN Declaration of Human Rights, and extends beyond BD processes and practices to those in our supply chains.

We believe that all people should be treated with dignity and respect and we are committed to conducting our business in a manner consistent with this principle. We comply with applicable employment and human rights laws and regulations wherever we have operations; we expect our suppliers to do the same.

In all of our operations:

- We provide a safe and healthy workplace for our associates.
- We do not use child labor.
- We do not use forced, prison, indentured, bonded or involuntary labor.
- We prohibit discrimination in our hiring and employment practices.
- We prohibit physical abuse and harassment of associates, as well as the threat of either.
- We support the freedom of association and the rights of workers and employers to bargain collectively.

BD has programs in place to monitor and advance human rights efforts throughout the Company. These include:

- Policies
  - **BD Code of Conduct**, which includes a section outlining our policy on human rights
  - **BD Expectations for Suppliers**, our code of conduct designed for our thousands of suppliers
- Due diligence, including initial assessments of suppliers against 12 risk factors, including environmental, social and governance (ESG) risk

- Risk management programs to ensure compliance with related policies throughout our operations
  - For example, our corporate Environmental Health and Safety audit program ensures a safe and healthy work environment for all associates, visitors and contractors.
- Training and capacity building, both internally and for key suppliers

BD strives to continuously improve its programs to ensure compliance with applicable laws and high ethical standards to meet the expectations of our customers, shareholders, associates, communities and other stakeholders.

# Corporate governance

## Corporate governance principles

Our Corporate Governance Principles outline how we hold ourselves accountable to shareholders and stakeholders. These principles address the operation of our board and its committees; strategic and succession planning; director qualifications,

independence, compensation and equity ownership; and the ability of shareholders and others to communicate directly with board members.

**GRI disclosure:** **102-18, 102-22, 102-23, 102-24, 102-25, 102-28 102-35**

## Board composition

BD is governed by a Board of Directors consisting of 12 members, 11 of whom are independent. Our board members have a variety of backgrounds, which reflects our continuing efforts to achieve a diversity of viewpoints, experiences and knowledge, as well as ethnicities and genders. Our board is comprised of four female directors and eight male directors, one of whom is African American.

There are five operating board committees, listed below, and an executive committee that meets only as needed:

- 1 Audit
- 2 Compensation and Management Development
- 3 Corporate Governance and Nominating
- 4 Quality and Regulatory
- 5 Science, Marketing, Innovation and Technology

A charter for each committee outlines its mission, the qualifications required for membership and its members' duties.

Find more about our Board of Directors on the **Corporate Governance website**. More information about board diversity can be found in the Empowerment section of this report.

## Executive compensation

Our goal is to provide an executive compensation program that best serves the long-term interests of our shareholders. We believe that attracting and retaining superior talent and rewarding performance is key to delivering long-term shareholder

returns, and that a competitive compensation program is critical to that end. For further details of executive compensation, see **our proxy statements**.

# Participation in the political process

BD proactively engages with organizations that are responsible for setting policy in a variety of forms, from guidelines set by professional societies to regulations implemented by government agencies and legislation enacted by elected officials. The strong, long-term relationships that we develop with policymakers enhance our mutual understanding of unmet needs around the world and support efforts to appropriately position our portfolio with customers.

## Approach to advocacy

We employ public affairs professionals who work closely with our country and business leaders to make constructive contributions to policy discussions relevant to BD and to the communities in which we operate. All advocacy activities are directed toward furthering the Company's Purpose of *advancing the world of health*, without regard to the personal political affiliations or views of any individual associates at any level

## Engaging in a transparent manner

The **Center for Political Accountability** recognized BD with a first-place rating of 100% on their 2018 corporate political disclosure and accountability index. The ranking benchmarks Fortune 500 companies and is produced by CPA in conjunction with the Zicklin Center for Business Ethics Research at the Wharton School at the University of Pennsylvania. This is the second year in a row that the company has received a perfect score for the transparency with which we conduct our political engagement.

## Role of political contributions

The Company prohibits the use of corporate funds and assets to support U.S. federal or state candidates, political parties, ballot measures or referendum campaigns. Exceptions to this policy require approval by the CEO, the General Counsel and a designated member of the Board of Directors Corporate Nominating and Governance Committee. To date, no exceptions have been sought or approved. Certain conditions must also be met for any political contributions outside of the United States.

As permitted under U.S. law, the Company operates a political action committee. The BD PAC is a mechanism to enable

In addition, the Company's ability to operate competitively is subject to a variety of government policies, which can affect corporate operations generally as well as the availability of medical technology specifically.

We seek to identify opportunities to shape regulatory policies to speed time to market and reduce barriers to market entry as well as promote sensible tax policies that enhance innovation.

across the organization. In areas where BD has deep experience, the Company develops public policy positions that guide our advocacy efforts worldwide. We currently have a range of Global Public Policy Positions available online. Our participation in the political process is governed by the BD board of directors and the executive leadership team.

For calendar year 2018, the company spent approximately \$1.8 million on salaries and expenses associated with lobbying in the United States, which was roughly the same as the Company's 2017 expenditure. We file quarterly reports regarding our federal lobbying activities with the Office of the Clerk of the House of Representatives and the Secretary of the Senate. The BD PAC contributed a total of \$85,000 to candidates in 2018, an increase of approximately \$6,000 over the prior year. All contributions made by the BD PAC are also publicly reported.

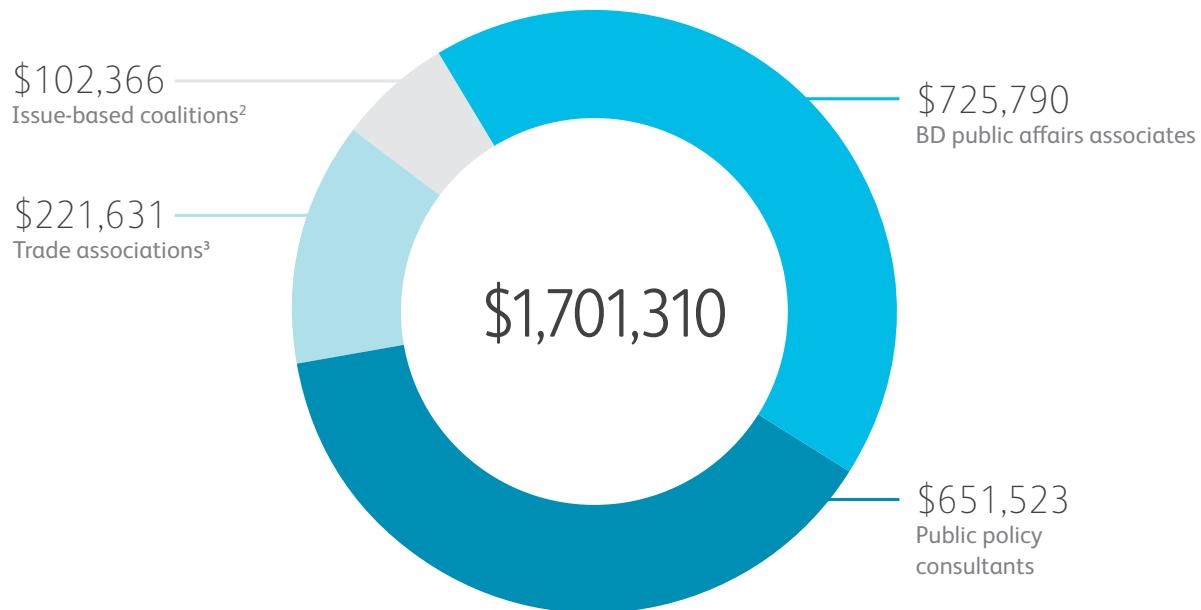
eligible U.S. associates to voluntarily support candidates for elected office who share our perspectives and approaches to public policy issues. Contributions to the BD PAC are entirely voluntary and are governed by the BD PAC by-laws. BD provides administrative support to the PAC, as permitted under federal law.

For annual reporting of itemized PAC contributions and any other corporate contributions, visit [www.bd.com/investors/corporate\\_governance/policy-positions.aspx](http://www.bd.com/investors/corporate_governance/policy-positions.aspx).

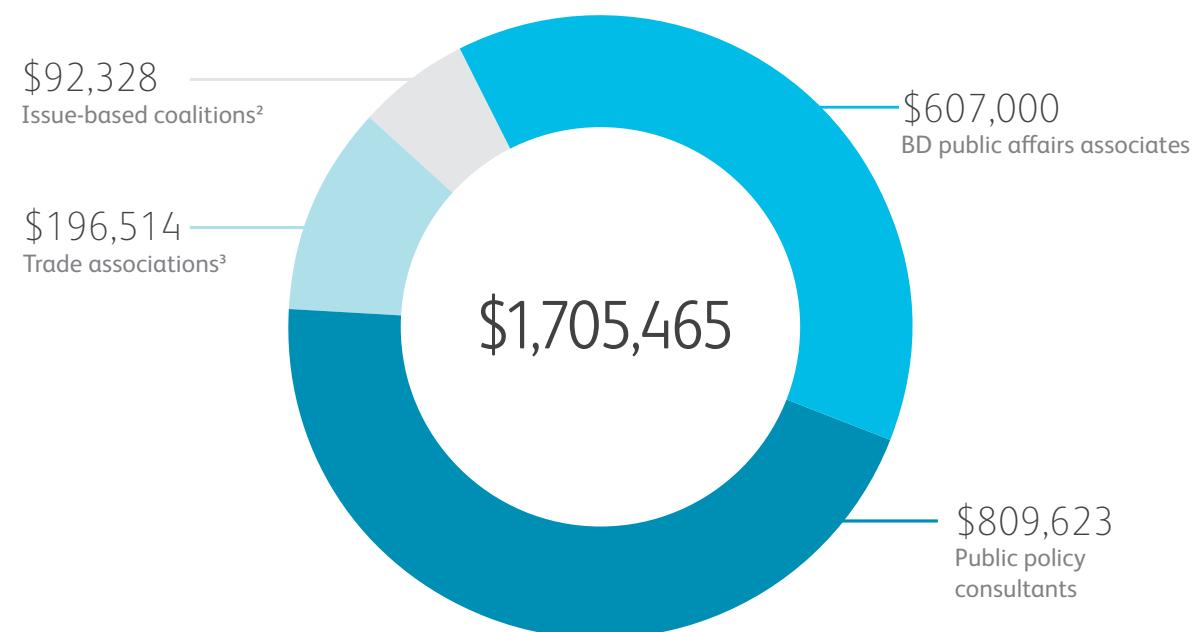
## U.S. lobbying expenditures

Further details about the participation of BD in the political process, including oversight, accountability and transparency of this process, and reporting of violations, can be found in the document "Our Participation in the Political Process" at [bd.com/Investors/Corporate\\_Governance](http://bd.com/Investors/Corporate_Governance).

2017<sup>1</sup>



2018<sup>1</sup>



<sup>1</sup> Data represents calendar years (Including Bard data)

<sup>2</sup> Trade associations: AdvaMed, Healthcare Institute of New Jersey, California Life Sciences Association, North Carolina Biosciences Organization

<sup>3</sup> Issue-based coalitions: Diagnostic Test Working Group, Medical Device Competitiveness Coalition, Physicians Fee Schedule Pathology Payment Coalition, United for Medical Research



Solar panels installed at the BD European Headquarters in Eysins, Switzerland.

## Sustainability strategy

We center our sustainability strategy upon our Purpose—*advancing the world of health*—and integrally tie it to our business strategy.

We utilize a defined process to evaluate and prioritize the environmental, social and governance ESG factors most relevant to our business and stakeholders. By using this process, we have defined four areas of focus that provide the framework for our 2020 Sustainability goals:

- Innovation—how we contribute to more sustainable healthcare systems by improving outcomes, reducing system costs and protecting patients and healthcare workers
- Access—how we support health system leapfrogging in emerging and developing economies, and reach vulnerable populations globally

- Efficiency—how we work across our value chain to minimize environmental impact and create positive social impact
- Empowerment—how we advance our purpose-driven culture through workforce and community engagements

As a result of the Bard acquisition and a changing healthcare landscape, we have decided to reevaluate and prioritize the ESG factors most relevant to our business and stakeholders. We will continue this work throughout FY2019 and ensure we remain focused on shared value creation—meaning how we address unmet societal needs through business models and initiatives that also contribute to the commercial success of BD.

## Significant ESG issues

Our significant ESG issues are:

### Innovation

- Data security
- Informatics and innovation
- Value-based outcomes

### Access

- Collaborations and partnerships
- Patient-centric care
- Healthcare access and affordability

### Efficiency

- Planetary health
- Sustainable supply chain
- Product design and lifecycle management
- Energy and greenhouse gas (GHG) management
- Waste
- Water

### Empowerment

- Inclusion and diversity
- Associate health and safety
- Attraction and retention of talent

# 2020 Sustainability goals

Our sustainability strategy addresses a wide range of challenges in our industry while helping to make a difference on relevant issues that affect society and the planet. We also actively evaluate how we can mobilize and contribute to the achievement of the UN Sustainable Development Goals (SDGs) through our product and service offerings as well as collaborative efforts across various sectors—most prominently around SDG3—for good health and well-being.

## Innovation

**Innovate** key healthcare processes such as medication management and lab automation.

**Develop** innovations and informatics to enable disease management across the care continuum.

**Enable** the transition from research into clinical practice.

**Provide** solutions that improve healthcare worker and patient safety.

## Access

**Develop** low-cost innovations to address leading causes of mortality and morbidity.

**Collaborate** on health system strengthening with leading agencies and nongovernmental organizations (NGOs).

**Further expand** BD manufacturing, product array and employment in emerging countries.

## Efficiency

**Reduce** GHG emissions and increase climate resilience throughout operations and value chain.

**Minimize** our environmental footprint and conserve natural resources.

**Establish** a supplier responsibility evaluation methodology.

**Eliminate** priority materials of concern in specified product categories.

**Improve** life cycle impacts of current and future products.

## Empowerment

**Increase** the diversity of our workforce, particularly in leadership roles.

**Achieve** best-in-class associate safety performance.

**Partner** with nonprofits to address unmet needs locally and globally.

**Drive** social impact and associate engagement through volunteer programs.

For case studies of how BD is supporting the SDGs, visit [bd.com/Sustainability](http://bd.com/Sustainability).

We launched our 2020 Sustainability goals in July 2015, reflecting a broader and more integrated agenda than in previous years. In line with our significant sustainability issues, we arranged our goals and programs around four strategic areas: innovation, access, efficiency and empowerment.

In our FY2016 Sustainability Report, we outlined alignment to our current strategy, core activities and 2020 Goal framework against the 17 SDGs and associated 169 targets. Our analysis reviewed the type of impact BD has on the SDG target, the location of impacts within the value chain and our degree of control and relevant ESG factors.

## Sustainability governance

The Office of Global Sustainability manages our ESG and sustainability reporting, as well as stakeholder engagement activities relevant to our sustainability strategy. This office is part of the Environmental, Health, Safety and Sustainability group, which reports directly to the Executive Vice President of Integrated Supply Chain and engages directly with the executive leadership team.

Our sustainability strategy is governed by the Executive Leadership Team, which maintains a dialogue with our stakeholders, businesses and associates about issues relevant to each group and monitors performance related to our 2020 sustainability goals.

## Stakeholder engagement

Because of our global reach and the nature of our work, we serve and rely on a wide range of stakeholders. Engaging with them through a variety of channels across many parts of our organization is critical to how we apply the principle of shared value and is therefore essential to our business success. Often, we work collaboratively with stakeholders who share our objectives, and, in the process, we gain a deep understanding of their work. We listen to our stakeholders' views and suggestions, and use that feedback to improve our products, services and business practices. Through FY2019, as we begin development of our future sustainability strategy, we will consult with our stakeholders to understand which ESG factors are most important to them.

Our stakeholders:

- **Customers:** Our customers are at the center of everything that we do. In a fast-changing environment, it is vital for BD to understand what our customers value most, in order to develop solutions that will best meet their needs. We create a deep understanding of the healthcare market and its customers through a fact-based approach across regions and strategically engage with customers to develop and deploy our products and solutions.
- **Shareholders:** Our focus on shareholders is to ensure that the combination of our business and geographic diversity—our balanced capital allocation and our drive for efficiency—provides a long-term pathway toward sustainable profit growth that returns capital to shareholders. We engage with shareholders in a variety of forms, including quarterly calls and in-person meetings, on specific topics that range from our long-term growth and innovation strategy to how we integrate ESG factors into our business.
- **BD associates:** BD has grown to over 65,000 associates. The capabilities and dedication of these associates are critical to achieving our strategy. We engage and develop our associates through a variety of mechanisms including internal social networks, townhall meetings, leadership and mentoring programs and Associate Resource Groups.

Our Board of Directors—as a board or through its committees—also oversees several sustainability-related issues, including:

- Community relations
- Employment practices
- Environment, health and safety
- Ethics and enterprise compliance

In addition, the Corporate Governance and Nominating Committee oversees matters that involve the Company's image, reputation and our standing as a responsible corporate citizen.

- **Business partners:** Our suppliers, distributors and other partners in the supply chain help us effectively serve our customers. We engage with them through a variety of strategic programs, including through relationship managers within our Integrated Supply Chain function.
- **Communities:** At the country level, our general managers engage with a variety of community stakeholders to understand the health system's priorities and align our capabilities to them. In communities where we have manufacturing operations, we often develop relationships with teaching institutions to help develop the skill sets we require in our operations. And, our associates engage in community-organized volunteer efforts to support local programs.
- **Governments and policy makers:** We engage governments and policy makers through various ways, primarily through our public policy teams. We engage at the agency and legislative levels in many countries to enhance our understanding of the priorities of governments. From these engagements, we seek ways to deploy our capabilities, products and solutions to help support and achieve national health objectives. We also share our expertise and global experience in key focus areas.
- **International agencies:** We engage with UN agencies such as the World Health Organization (WHO), the United Nations InterAgency Coordinating Group (UN IACG) on Anti-Microbial Resistance, UNICEF, the joint United Nations Program on HIV & AIDS (UNAIDS) and other international and intergovernmental organizations through collaborations that aim to address pressing global health needs. We routinely pursue these types of collaborations as an integral part of our business model in countries throughout the world.
- **Nongovernmental organizations (NGOs):** In many cases, NGOs and relief organizations are strategic partners in helping us meet unmet health needs. We engage with them through in-person meetings, collaborative initiatives and site visits to strengthen how we serve those in need.

# Antimicrobial resistance (AMR)

AMR is among the most significant threats to the health and well-being of the world's population. If present trends continue, AMR is projected to become one of the leading causes of human mortality and may cause 10 million deaths each year by the year 2050.<sup>4</sup> AMR is a truly global concern that endangers people in every region and country around the globe.

AMR is what occurs when bacterial, fungal and other infections become resistant to treatment with antibiotics, antifungals or other antimicrobial medications. It is an outcome of overuse and inappropriate uses of antimicrobials in human healthcare, livestock production and the environment. Rates of resistant

infections continue to rise around the world, from rifampicin-resistant tuberculosis to multidrug-resistant urinary tract infections, while development of novel medicines slows.

As a result, global mobilization to address AMR has stepped up considerably with an aim to incentivize new innovations while maintaining the viability of existing medications.

Leveraging the collective capabilities of BD functions, regions and businesses, BD is mobilizing to meaningfully engage around each of the five key strategies outlined in the WHO's Global Action Plan on AMR<sup>5</sup> and adopted by the UN IACG on AMR:

**Improving awareness** remains a critical component of efforts to combat AMR. BD launched the **Antimicrobial Resistance Fighter Coalition** (ARFC) in 2017 to raise awareness and emphasize the need for a broad array of stakeholders to take personal responsibility in combating AMR.



**Strengthening surveillance and education** is necessary to better understand the scale of the challenge and develop an appropriate response. BD is contributing data to several of the most high-profile organizations, such as the U.S. Centers for Disease Control and Prevention; the Institute for Health Metrics and Evaluation (IHME); and Center for Disease Dynamics, Economics and Policy to evaluate the burden of AMR. BD is also funding the development of new educational and assessment programs to provide training in infection prevention and diagnostics and enable evaluation of capabilities for combating AMR in healthcare settings.

**Reducing risk of infection and optimizing antimicrobial use** are important aspects of the global effort to combat AMR. BD products and technologies can help by supporting infection prevention and control guidelines to reduce the need for antimicrobials and by providing tools to inform appropriate antimicrobial use decisions when clinically necessary (see more in the *Innovation section of this report*).

Finally, BD remains committed to **investing in innovations** to combat AMR through the development of new diagnostics, devices and information systems that can help in clinical decision-making and reduce risks.

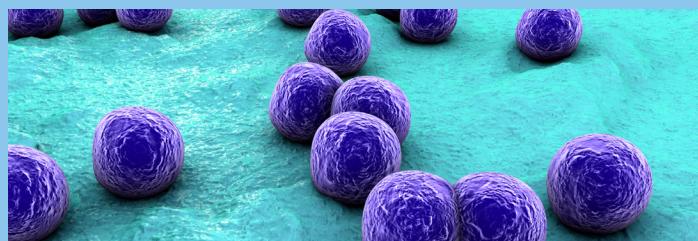
Beyond our products, BD has the know-how and expertise to help our customers develop and strengthen their own infection prevention and antimicrobial stewardship efforts. Our long-standing collaborative partnerships with agencies such as the

U.S. Centers for Disease Control and Prevention (CDC), the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), USAID and country ministries of health help developing countries establish and improve infection control and diagnostic testing capabilities.

The threat of AMR is far too great leave unattended. Through its actions, BD is demonstrating its commitment to work across sectors and provide actionable and sustainable solutions.

<sup>4</sup> O'Neill J, ed. *Antimicrobial Resistance: Tackling a Crisis for the Health and Wealth of Nations*. London, U.K.: Review on Antimicrobial Resistance; 2014.

<sup>5</sup> WHO. Global action plan on antimicrobial resistance. Available at <https://www.who.int/antimicrobial-resistance/global-action-plan/en/>. Accessed April 11, 2019.



# AMR and the environment

In 2017 UN Environment declared AMR as an emerging issue of environmental concern.<sup>6</sup> As antibiotics and other antimicrobial compounds are discharged into the environment, they have the potential to drive the evolution of resistant bacteria.

“The environment is key to antibiotic resistance. Bacteria in soil, rivers and seawater can develop resistance through contact with resistant bacteria, antibiotics, and disinfectant agents released by human activity. People and livestock can then be exposed to more resistant bacteria through food, water, and air.”<sup>7</sup>

Contaminants such as heavy metals and biocides or chemicals with antimicrobial properties (*such as disinfectants and detergents*) in industrial wastewater increases pressure on bacteria to become resistant, possibly multiresistant to such substances. Multiresistant genes can be passed to nonresistant bacteria and to the next generation.<sup>8</sup>



Climate change can also exacerbate AMR. A recent study<sup>9</sup> found that antibiotic resistance can increase with local temperatures; “findings suggest that current forecasts of the burden of antibiotic resistance could be significant underestimates in the face of a growing population and climate change.”<sup>10</sup>

While further research is needed to understand the presence and impact of antimicrobial-resistant microbes in the environment and the direct risk posed to human health, it remains a shared global challenge.<sup>11</sup>

Our approach to sustainability recognizes the interconnected nature of ESG issues, and that the action we take to reduce our impact on the environment can contribute to larger efforts to tackle various threats to human health, such as AMR. We are continuing to implement programs to reduce greenhouse gas and waste water emissions from our operations, and eliminate heavy metals from instruments in our product portfolio. Further information about progress to achieving our 2020 goals in these areas can be found in the Efficiency section of this report.

<sup>6</sup> UNEP. *Frontiers 2017 Emerging Issues of Environmental Concern*. United Nations Environment Programme, Nairobi. Available at <https://www.unenvironment.org/resources/frontiers-2017-emerging-issues-environmental-concern>. Accessed June 14, 2019.

<sup>7</sup> Ibid p15

<sup>8</sup> Ibid p17

<sup>9</sup> MacFadden DR, McGough SF, Fisman D, Santillana M, Brownstein JS. Antibiotic resistance increases with local temperature. *Nat Clim Chang*. 2018;8(6):510-514.

<sup>10</sup> Ibid

<sup>11</sup> Wellcome. *Initiatives for Addressing Antimicrobial Resistance in the Environment: Current Situation and Challenges*. <https://wellcome.ac.uk/sites/default/files/antimicrobial-resistance-environment-report.pdf>. Accessed June 12, 2019.

# Human rights

Spotlight issue

Outside of the fundamental human rights and our work around them, detailed on page 9 of this report, our sustainability strategy provides a framework by which we can assess our impact on human rights. Across our four pillars we seek to address a variety of human rights issues that are built into the core of our business.

## Innovations



Our product security and patient data safety efforts are underpinned by our respect for human rights and the right to privacy and security. BD is committed to providing secure products to our customers given the important benefits they provide to patient health. We value confidentiality,

integrity and availability of all protected health and personally identifiable information, and we continuously strive to improve security and privacy through the product lifecycle. More information on our product security and privacy policy and programs is available at [bd.com/ProductSecurity](http://bd.com/ProductSecurity).

## Access



BD is focused on expanding access to healthcare. We develop and deploy market-appropriate solutions and improve healthcare worker capabilities through partnerships with leading health agencies, government and

NGOs to strengthen health systems and improve clinical practice around the world. We do this because we believe healthcare is a basic human right.

## Efficiency



Our efforts to reduce our impact on the environment are grounded in the belief that the health of the population is linked with the health of the planet. Climate change is linked to several public health issues—from respiratory illness to an increase in vector- and water-borne

diseases such as malaria. It will also affect those in vulnerable populations with greater severity. We believe climate change is a critical issue for all, and that humans have the right to a healthy environment.

## Empowerment



Inclusion & Diversity are drivers of our future success at BD. Not only does an inclusive and diverse workforce help us to better understand patient and customer needs and create innovative solutions that address those needs, it also leads to a more creative and collaborative culture that makes BD a great place to work. Our Associate Resource Groups (ARGs) are one way we are making BD a more inclusive and diverse environment. For instance, our Out and

Proud Employee Network (OPEN) has worked collaboratively with BD leadership to publicly support the United Nations Standards of Conduct for Business, aimed at tackling discrimination against lesbian, gay, bisexual and transgender + (LGBT+) people in the business community. Our public support of these standards demonstrates our strong support for LGBT+ inclusion in every country that we operate in. We are proud to join with other supporting corporations to highlight the importance of this issue.



# Climate change and human health

Spotlight issue

The health of the population is linked to the health of the planet. Our Purpose—*advancing the world of health™*—is the foundation of our approach to managing and reducing our impact on the environment.

**\$2–4B**

U.S. per year

**Estimated direct damage costs of climate change to health, by 2030<sup>12</sup>**

At BD, we view climate change as an issue of public health. The global greenhouse gas (GHG) emission trajectory is expected to increase the frequency and intensity of some extreme weather events, and along with increasing temperatures, these factors will bring about a range of health risks and population impacts.

Heat-related fatalities and illnesses, such as heat stroke and respiratory illnesses, will increase due to rising temperatures and levels of air pollution. Increased flooding will affect waterborne illnesses and the spread of vector-borne diseases, such as malaria, Zika virus and West Nile virus. These factors will place strain on the healthcare infrastructure, so we believe it is imperative that we take steps not only to reduce GHG emissions from our own operations, but also take steps to manage—and where possible mitigate—the potential risks and negative impacts of climate change across our value chain. We will do this by looking at climate risks and opportunities through the lens of the four pillars of our Sustainability Strategy:

## Innovation



We have a portfolio of solutions that can help detect and diagnose illnesses that will be exacerbated by climate change, such as antimicrobial resistance (AMR). We will also have an opportunity to consider emerging unmet health needs that our products, solutions and expertise can support. Finally, improvements to our products and solutions to reduce their carbon footprint across their lifecycle will support our customers in pursuit of their sustainability goals. This could include designing electrical equipment to be more energy

efficient, considering alternative materials and making our supply chain networks more efficient.

Innovation of products and solutions will require collaboration across the value chain. Our work with the **Sustainable Healthcare Coalition** and **Healthcare Plastics Recycling Council** demonstrates what can be achieved when suppliers, medical device manufacturers and customers work together for a common goal.

## Access



According to the World Health Organization, between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year from malnutrition, malaria, diarrhea and heat stress. Areas with weak health infrastructure will be least able to cope without assistance to prepare for this crisis.<sup>12</sup> With BD Global Health's work around

communicable and noncommunicable disease states and AMR, and our experience in health systems strengthening, we are well positioned to address priority health needs that are worsened by climate change. We can do this through deployment of our products, solutions and expertise, combined with public-private partnerships.

## Efficiency



Our 2020 Goals include targets to reduce GHG emissions, but also focus on initiating climate resilience planning for BD facilities. Hurricane Maria demonstrated how important it is to continue our work in this area, in order to manage and reduce risk from future extreme-weather-related events around the world. As reported in the results for our first fiscal quarter in 2018, costs of \$7 million were incurred as a result of hurricane-related damage to our production facilities in Puerto Rico.

Our business continuity planning process includes natural disasters as one of several risk factors. Our work on climate change risks and opportunities during FY2019 will further enhance how we evaluate climate-related risks in our operations. We also continue to take steps to increase our use of renewable energy and implement on-site energy generation. Further details are contained in the Efficiency section of this report.

<sup>12</sup> WHO. Climate change and health. Fact Sheet. Available at [www.who.int/en/news-room/fact-sheets/detail/climate-change-and-health](http://www.who.int/en/news-room/fact-sheets/detail/climate-change-and-health). Published February 1, 2018. Last accessed May 13, 2019.

## Empowerment



Our associates are motivated by our purpose-driven culture and our work to address global challenges, such as climate change. Our Associate Resource Groups (ARGs) provide a platform to engage with associates who want to contribute to our sustainability work. For example, NEXT, the Network for Employee-led Cross-Company Transformation, is an ARG focused on becoming a network for associates who want to transform the workplace. Associates engaged in NEXT are working on programs such as carpooling and improving office practices on resource use and recycling.

### Looking forward

In 2019, we will be using the recommendations of the Taskforce for Climate Related Disclosures (TCFD) to carry out a gap assessment of our current disclosures around climate change.

As part of our energy efficiency programs, we are implementing projects that reduce our consumption and enhance the work environment for our associates. This includes improved building automation and building design that enhance comfort and well-being; and investing in technology such as telepresence at our key locations to help reduce unnecessary travel and related carbon emissions. We are also increasing the number of electric vehicle (EV) charging points available to our associates at locations globally.

We will also identify areas for improvement in our management of climate risk, including setting science-based targets.

## Highlight: hurricane Maria

There is evidence to suggest that climate change is already impacting the severity of tropical storms. The impact of an extreme weather event on healthcare was exemplified by hurricane Maria.

In September 2017, hurricane Maria made landfall on Puerto Rico. The effects this category 5 hurricane had on the island and its residents, communities and local economies were far reaching and long lasting. The island is still recovering.

Puerto Rico is a major manufacturer of medical devices and pharmaceuticals, representing 30% of its economy.<sup>13</sup> Hurricane Maria forced manufacturing to be suspended and in the months that followed the U.S. FDA closely monitored 50 types of medical devices that were critically important to patient care.<sup>14</sup> However, months-long shortage of some medical devices did occur in the United States. For example, one of the largest IV fluid shortages in the United States was compounded by a severe 2017–2018 flu season. In response, BD mobilized business and regional teams to accelerate the launch of our BD IV fluids product portfolio.

Prior to and following the storm, our primary concern was the well-being of our 1,200-plus associates, their families and their communities. In responding to the storm, BD acted first to ensure the health and safety of these individuals.

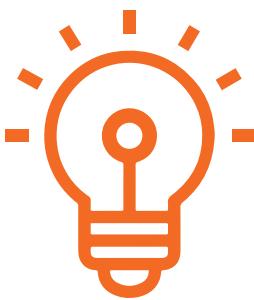
Through the recovery process, we were able to identify opportunities to support the wider community.

On World Water Day (March 22)—almost 6 months to the day after the storm—a significant proportion of the island still didn't have access to clean drinking water. BD sponsored an AquaTower installation with **Planet Water Foundation** as part of Project 24, an effort to install 24 AquaTower filtration systems in the space of 24 hours on World Water Day. BD associates helped install an AquaTower in Cubuy Canovanas at Escuela Georgina Baquero, which now provides nearly 5,000 local residents access to safe, clean drinking water.

Further details about our response to hurricane Maria can be found in the Empowerment section of this report.

<sup>13</sup> FDA. Securing the Future for Puerto Rico: Restoring the Island's robust Medical Product Manufacturing Sector. Available at <https://www.fda.gov/downloads/NewsEvents/Newsroom/FDAInBrief/UCM584030.pdf>. Accessed May 29, 2019.

<sup>14</sup> FDA. Statement by FDA Commissioner Scott Gottlieb, M.D. on medical device manufacturing recovery in Puerto Rico. Available at <https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm581436.htm>. Published October 20, 2017. Accessed May 29, 2019. These items were either life-sustaining or life-supporting and/or because there may be the single manufacturer of that device type.



# Innovation

## Healthcare safety, outcomes and cost

### Introduction

BD is on the forefront of helping healthcare systems balance four key priorities: increasing access, improving outcomes, mitigating healthcare system cost pressures and protecting patients and healthcare workers. A sustainable innovation system needs investment, discipline and leadership to succeed.

Innovation requires diligence and partnering, and our capabilities span ideation through market development. Along this continuum, we can increase our impact through selective partnerships.

We think a broad definition of the term “innovation” is the best way to advance healthcare. Whether it is technology, processes, systems partnerships or any dimension of business, we pioneer new, relevant ways to address healthcare’s most pressing problems. Our technologies and execution capabilities allow BD to make a profound impact on the quality of care.

### R&D investments

BD is a company that develops innovations for better discovery, better diagnostics and better delivery. Innovation and new product development are key to advancing in these areas. In FY2018, BD launched new products and solutions that are helping our customers deliver enhanced outcomes with greater safety and efficiency. BD conducts the majority of its R&D activities in North America. Outside of North America, BD conducts R&D activities in China, France, India, Ireland and Singapore. BD also collaborates with certain universities, medical centers and other entities on R&D programs and retains individual consultants and partners to support its efforts in specialized fields.

Our new product innovation is continuing to fuel growth. From the new BD Alaris™ infusion system and BD HealthSight™ integrated platform in our Medical segment, to new diagnostic capabilities for the BD MAX™ platform and continued expansion of our BD Horizon Brilliant™ dyes portfolio in our Life Sciences segment, and improving blood flow through LUTONIX™ AV catheters and Covera™ stent grafts in the Interventional segment, we saw 25 major product launches in FY2018. Additionally, Bard's strong product portfolio and innovation pipeline are expected to continue to increase the Company's opportunities in fast-growing clinical areas.

R&D expense (USD, millions)	FY12	FY13	FY14	FY15	FY16	FY17	FY18*
	472	494	550	632	828	774	1,006

\*This number includes legacy Bard R&D expenses

## Innovation awards

2018–19

**DERWENT  
TOP 100  
GLOBAL  
INNOVATOR**



BD was once again included in the Clarivate Analytics top innovators list, now called the Derwent Top 100 Global Innovators. This report highlights high-impact innovation and the companies that rank among the world's most successful innovators.

The ranking “identifies and celebrates innovative organizations who successfully develop valuable patented inventions with strong commercialization potential based on originality, market reach, and opportunities for spin-off inventions.”<sup>15</sup> BD has been included on this list for the past 4 years.

## Innovation strategy

Our long-term strategy and execution plan toward *advancing the world of health™* is focused on providing leading medical technologies and innovative solutions for customers and their patients. We work to drive sustainable healthcare by increasing access, driving better outcomes, mitigating system cost pressures and improving healthcare safety. This work is done in four pathways; discovery, diagnostics, medication management and therapy management.

### Discovery

Enabling research insights  
inside and outside the cell



### Diagnostics

Transforming the infectious  
disease lab of the future



## 4 PATHWAYS

### Medication management



Improving medication  
management across the  
care continuum

### Therapy management

Enabling surgical and  
interventional procedures



<sup>15</sup> <https://clarivate.com/top100innovators>. Accessed May 6, 2019.

**Innovate key healthcare processes such as medication management and lab automation**

## Medication management

The BD HealthSight™ platform for enterprise medication management is our unique combination of connective technologies, analytics and expert services that close gaps and create seamless visibility across BD medication management solutions, such as BD Pyxis™ dispensing and BD Alaris™ infusion

solutions. The BD HealthSight™ platform connects systems and processes to help hospitals and health systems drive a safer, more efficient medication management process. We continue to develop the capabilities of the BD HealthSight™ platform, including the following new releases:

### Workflow applications

The BD HealthSight™ viewer offers a web-based portal with near real-time all-medication visibility to critical BD Alaris™ and BD Pyxis™ system alerts and patient IV compounding needs, in one view. It provides pharmacy with prioritized visibility to key

system and medication alerts, and provides both pharmacy and nursing with visibility to IV dose request status, including track and deliver, to avoid wasted time and effort.

### Analytics

BD HealthSight™ analytics provide advanced analytics for inventory optimization and comparative benchmarks that enable hospitals to monitor performance and prioritize efforts to help drive process improvements.

BD medication management technologies automates the PAR level changes, removing the need for manual updates.

Our inventory optimization offers dynamic and predictive analytics that recommend PAR level modifications with projected outcomes if the changes are applied. Bidirectional interface with

Our benchmarks offering enables health systems to compare themselves to like facilities and provides recommendations for improvement. Hospitals can compare across facilities in their health system, or with other organizations, filtered by bed size, device footprint or hospital type.

### Opioid control and management

Addiction to prescription narcotics in the United States has reached epidemic proportions, contributing to the opioid crisis and becoming a major driver of drug diversion within healthcare settings. Diversion of drugs, for personal use or illegal distribution, can cause significant financial loss and potentially impact care to patients and staff safety.

assists with opioid drug diversion investigations by creating an investigation workflow to monitor, triage and assign potential diversion cases to specific investigators. Compared to traditional, statistically based analytical tools that only look at opioid amounts dispensed to identify potential diversion, BD utilizes machine-learning algorithms and multiple dispensing behaviors—such as overrides, canceled transactions, delays in dispense, administration or waste—to surface clinicians whose behavior indicates higher risk for diversion.

As part of the BD HealthSight™ platform that is designed to support enterprise-wide medication management, the BD HealthSight™ diversion management analytics application



## Lab automation and efficiency

Increasing efficiency of the laboratory helps reduce healthcare system costs by improving productivity and helping deliver faster and more accurate diagnostic results. The improved accuracy and reliability of the result may lead to improved laboratory performance for patients.

### Innovations to help combat AMR: BD MAX™ MDR-TB Panel

Every year, about 10 million people develop tuberculosis (TB) and close to 2 million die from the disease, making it the leading cause of death from a single infectious agent.<sup>16</sup> With proper detection and treatment, TB is curable. Drug resistance in TB, however, makes a cure more difficult. Of the 10 million new cases of TB, the WHO estimates almost 500,000 were multidrug-resistant (MDR-TB) and only about a quarter of these (123,000 cases) were detected and reported.<sup>17</sup> MDR-TB, resistant to the two important first-line drugs, isoniazid (INH) and rifampicin (RIF), requires treatment courses that are much longer and less effective than those for nonresistant TB.<sup>16</sup>

In 2018, BD introduced the BD MAX™ MDR-TB panel, an in vitro diagnostic with CE-mark available in Europe and other regions. The single PCR-based molecular diagnostic test is an integrated diagnostic test that can simultaneously detect bacteria that cause tuberculosis (TB) and determine if the bacteria contain mutations associated with resistance to the two important first-line drugs, INH and RIF, enhancing the information for clinicians to direct the optimal treatment for their patients.

Rapid screening helps clinicians put patients on the right clinical pathway, avoiding unnecessary expensive, prolonged and inappropriate therapy that can contribute to antimicrobial resistance.

The assay utilizes the existing BD MAX™ system. The BD MAX™ system is a fully integrated, automated platform that performs nucleic acid extraction and real-time PCR, providing results for up to 24 samples across multiple syndromes.

BD has a long history in TB diagnostics, having launched the first automated liquid culture system, the BD BACTEC™ MGIT™ system for comprehensive testing for drug susceptibility and resistance. The new BD MAX™ MDR-TB assay complements this technology, enabling clinicians to rapidly test for TB and multidrug resistance as a first-line test, and then use the BD BACTEC™ MGIT™ system for broader drug susceptibility testing and patient monitoring.

For further information about AMR and our activities in this area, please visit [amr.bd.com](http://amr.bd.com).

### PAXgene® Blood ccfDNA tube (CE-IVD)

The PAXgene® Blood ccfDNA tube is a plastic blood collection tube that includes a proprietary sample stabilization additive and BD Vacutainer® Hemogard™ technology to help protect healthcare worker safety. The tube was designed to ensure accurate and reproducible results in molecular diagnostic

testing applications using circulating cell-free DNA (ccfDNA), such as cancer and noninvasive prenatal tests. The product was developed by PreAnalytiX GmbH, a joint venture between BD and QIAGEN.

The PAXgene® Blood ccfDNA tube provides a solution for clinical laboratories to stabilize samples when the sample cannot be processed on the same day it was collected. Whereas standard EDTA tubes require processing within hours before cells die and release genomic DNA into blood plasma (*thus changing the native ccfDNA profile*), the PAXgene® tube has a unique stabilization chemistry that enables collection and processing to occur days apart, addressing a critical logistical hurdle for reference labs offering molecular testing outside of the hospital setting.

<sup>16</sup> World Health Organization. *Global Tuberculosis Report 2018*. Geneva: WHO, 2018.

<sup>17</sup> WHO Fact Sheet on AMR. <https://www.who.int/news-room/fact-sheets/detail/antimicrobial-resistance>. Accessed May 6, 2019.



## **BD MAX™ Enteric Viral Panel**

Viral pathogens cause most cases of acute infectious gastroenteritis globally. Norovirus is the most common cause of epidemic diarrheal cases, accounting for over 90% of viral gastroenteritis outbreaks worldwide and approximately 50% of all viral gastroenteritis cases.<sup>18</sup> In the United States, norovirus accounts for 19 to 21 million cases of viral gastroenteritis annually. Other causes of viral gastroenteritis include rotavirus, adenovirus and astrovirus. Sapovirus infections can also cause acute gastroenteritis in outbreak situations.

Diagnosing the underlying cause of diarrhea can play a critical role in patient management by directing appropriate therapy and providing guidance for special circumstances where there

could be an increased risk of infection spread transmission, such as children in daycare or an outbreak among food workers. Molecular assays for testing gastrointestinal pathogens are considered more sensitive than conventional methods and frequently identify pathogens unsuspected by clinicians.

The BD MAX™ enteric viral panel is designed for detection of viral causes of infectious diarrhea symptoms targeting norovirus, rotavirus, adenovirus, human astrovirus and sapovirus. Results are provided in approximately 3 hours, allowing clinicians to more quickly detect potential causes of the patient's illness.

Visit BD **Molecular Diagnostics** for detailed information on the BD MAX™ enteric viral panel.

## **BD Onclarity™ HPV Assay**

The BD Onclarity™ HPV assay detects 14 types of high-risk human papillomavirus (HPV) from specimens collected for cervical cancer screening ("Pap test") in the BD SurePath™ liquid-based cytology vial (*FDA approved in the United States, CE Mark*) and the PreservCyt liquid-based cytology vial (*CE Mark only*). The BD Onclarity™ HPV assay is FDA approved to report three high-risk HPV genotypes individually (*16, 18 and 45*) and the remaining 11 other high-risk genotypes as a group. These three genotypes (*16, 18 and 45*) are associated with the majority of cervical cancers worldwide and are disproportionately responsible for up to 94% of cervical adenocarcinomas.<sup>19,20</sup> The BD Onclarity™ HPV assay, which is CE-Marked, identifies six high-risk genotypes individually (*16, 18, 31, 45, 51, 52*), and the other eight high-risk genotypes are reported in groups.

The BD Onclarity™ HPV assay may be used in accordance with clinical guidelines<sup>21,22</sup> for cervical cancer screening and patient management. The test is clinically validated for use as a primary screening test, for triaging patients with abnormal Pap test results, and for use in combination with a Pap test. The BD Onclarity™ HPV assay provides information that, together with the physician's assessment and professional guidelines, may be used to inform patient management.

The BD Onclarity™ HPV assay received premarket approval from the U.S. Food and Drug Administration in 2018. The BD Onclarity™ HPV assay achieved the European CE-IVD mark in 2014, received regulatory approval in Canada and Japan in 2017, and is currently for sale in these and other markets.

More information can be found at [bd.com](http://bd.com).

<sup>18</sup> Fang F, Patel R. 2017 Infectious Diseases Society of America Infectious Diarrhea Guidelines: a view from the clinical laboratory. *Clin Infect Dis*. 2017;65(12):1974-1976.

<sup>19</sup> de Sanjose S, Quint WG, Alemany L, Geraets DT, Klaustermeier JE, et al. Human papillomavirus genotype attribution in invasive cervical cancer: a retrospective cross-sectional worldwide study. *Lancet Oncol*. 2010;11(11):1048-1056.

<sup>20</sup> Li N, Franceschi S, Howell-Jones R, Snijders PJ, Clifford GM. Human papillomavirus type distribution in 30,848 invasive cervical cancers worldwide: variation by geographical region, histological type and year of publication. *Int J Cancer*. 2011;128(4):927-935.

<sup>21</sup> Saslow D, Solomon D, Lawson HW, et al. American Cancer Society, American Society for Colposcopy and Cervical Pathology, and American Society for Clinical Pathology screening guidelines for the prevention and early detection of cervical cancer. *J Low Genit Tract Dis*. 2012;16(3):175-204.

<sup>22</sup> Huh WK, Ault KA, Chelmow D, et al. Use of primary high-risk human papillomavirus testing for cervical cancer screening: Interim clinical guidance. *Gynecol Oncol*. 2015;136(2):178-182.

## Develop innovations and informatics to enable disease management across the care continuum

Technology is advancing capabilities for how clinicians and patients manage disease across the care continuum. We work closely with healthcare systems to improve safety, costs and outcomes. We continue to invest in new technologies and leverage informatics to enhance our product and solution offerings. As we pursue new digital technologies, we are committed to providing secure products to our customers.

## Product security

Our approach to product security is a three-part strategy that considers security measures in our products by design, in use and through partnership.

Our framework provides

- Control: the ability to incorporate product security into existing design and architecture of our products while routinely testing for security issues.
- Transparency: providing proactive and timely communications around cybersecurity as it relates to our products , enabling customers to understand and properly manage risk through awareness and guidance.

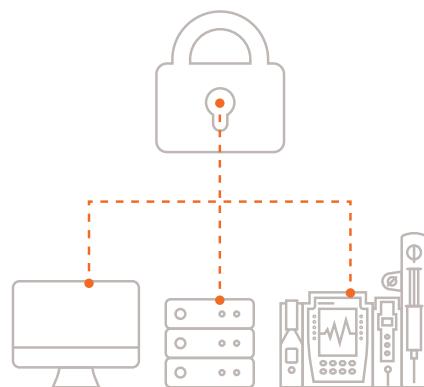
We continue to pursue various activities that will improve security throughout the product lifecycle, including:

- Adopting secure coding standards
- Performing vulnerability scanning, product security requirement risk assessments and robustness as well as penetration testing
- Generating customer communications, including product security white papers and coordinated vulnerability disclosures, in partnership with government organizations



### Secure by design

Products developed with security in mind with industry best practice



### Secure in use

Products secured and maintained across their lifetimes, multiple technologies and multiple sites, including end-of-life decisions



### Secure through partnership

A culture of transparency and collaboration with customers and industry stakeholders that offers better management security

## **Product security highlight: Medical Device and Health IT Joint Security Plan**

BD is a member of the U.S. Department of Homeland Security-sponsored Healthcare Sector Coordination Council (HSCC), a public-private partnership with aims to provide guidance to the national healthcare infrastructure, including enhancing government policies, plans and actions. The HSCC includes a working group co-chaired by BD that has established a Joint Security Plan (JSP) for the healthcare and public health sector. The JSP is a total product lifecycle reference guide to developing, deploying and supporting cyber-secure technology in the

healthcare environment. This plan is a voluntary framework for proactive guidance throughout the product lifecycle. It promotes collaboration and shared responsibility through actionable transparency, and establishes consistent benchmarking for security of medical devices and health IT. This plan was developed through FY2018 and was rolled out in January 2019. BD will continue our involvement in this working group to continue to develop the JSP as requirements change.

## **UL Cybersecurity Assurance Program (CAP)**

In FY2018, BD was proud to announce the completion of an enterprise-level cybersecurity assessment from UL. This independent assessment evaluates corporate cybersecurity programs and policies to ensure that all medical devices developed by a company are built with robust cybersecurity standards, in line with the UL Cybersecurity Assurance Program (UL CAP), and are only released to the market after appropriate protocols and testing are completed. As an addition to the

corporate-level cybersecurity assessment, product certification provides an additional level of scrutiny and attests to the application of corporate cybersecurity standards to this specific product.

The UL CAP incorporates the UL 2900 set of standards, including UL 2900-1, a software cybersecurity standard for network-connected medical devices that has received official recognition from the U.S. Food and Drug Administration.

## **Product highlight: UL certification of BD FACS Lyric™ and BD FACSuite™ Clinical Software**

BD has also received certification under the UL Cybersecurity Assurance Program for BD FACS Lyric™ and BD FACSuite™ clinical software, only the second medical device to receive this certification under the UL CAP program.

Quality-control performance, tracking and reporting are streamlined and automated. Routine tasks, such as daily cleaning and shutdown, can be programmed to occur automatically. The UL CAP incorporates the UL 2900 set of standards, including UL 2900-1, a software cybersecurity standard for network-connected medical devices that has received official recognition from the U.S. Food and Drug Administration.

## **Biohacking**

As part of the BD product security program and its proactive initiatives to test its products and enhance the cybersecurity of its medical technologies, we provided two BD Alaris™ infusion systems operating on the latest software and firmware versions released for use in the DEF CON Biohacking Village Device Lab in 2018. The Biohacking Village Device Lab invited security researchers of varying levels of skill and experience with medical devices to find and report vulnerabilities in good faith.

During the event, BD created an environment that mimicked a hospital setting, with the BD Alaris™ 8015 PCU wirelessly

communicating to a virtual server, which was connected to a wireless access point. During the conference, more than 24 security researchers spent hours attempting to gain access to our devices and monitoring data traffic; however, no vulnerabilities were identified. Participation in this event speaks to BD efforts to establish closer working relationships with the cybersecurity community. It also demonstrates the transparent manner in which BD seeks to manage security in our devices. The Company is dedicated to advancing the security of our products, and participation in these types of events is one opportunity to do so.

BD continuously strives to improve security by design, in use and through partnerships through the product lifecycle. We recognize that product security doesn't stop with protecting patient data and privacy, but extends to patient safety; innovation in this area can ultimately protect the health of those impacted by our products. Our approach allows us to be confident in our

products' abilities to deliver disease management across the care continuum.

For more information about our product security efforts, visit [bd.com/ProductSecurity](http://bd.com/ProductSecurity). Future collaborators for product-related privacy or security initiatives are encouraged to contact BD at [productsecurity@bd.com](mailto:productsecurity@bd.com).

**Enable the transition from research into clinical practice**

We are on the front lines of helping medical researchers develop a new generation of diagnostics and therapies through our expertise in bioscience and genomics. As immunotherapy research continues to expand, the ability to isolate and characterize individual cells becomes exponentially more important, and BD is a recognized leader in single-cell analysis applications. This is an area where we will continue to lead.

**BD AbSeq™ Antibody-Oligonucleotide Conjugates**

The BD AbSeq™ conjugate enables researchers to gain an unprecedented insight at a single-cell level. Developed to work on the BD Rhapsody™ single-cell analysis system, BD AbSeq™ conjugates work seamlessly alongside other RNA assays. This allows researchers to analyze protein and RNA expression simultaneously at the level of a single cell. Such unique capabilities have now

endowed researchers to conduct multiomic analyses of single-cell behavior. BD AbSeq™ conjugates and the BD Rhapsody™ platform work together to enable researchers in the field of immunooncology to conduct research that holds the promise to deliver cutting-edge therapies for cure of deadly diseases. The BD AbSeq™ antibody-oligonucleotide conjugates were included in the Top 10 innovations of 2018 by *The Scientist* magazine.

**BD OptiBuild™ Reagents**

BD OptiBuild™ custom reagents offer the fluorochrome of choice for a researcher to be tagged to their antibody of interest. Designed to support fast, cutting-edge research by adding new markers to complex experiments and minimize compensation, BD OptiBuild™ reagents provide flexibility to evaluate new colors and simplify panel design. Unlike traditional large-scale, expensive custom conjugates, new antibody-dye combinations enabled by BD OptiBuild™ reagents are made on

demand, and usually ship in less than 72 hours. These reagents come in 50-µg vials and can be ordered the same way as any catalog reagent. BD has introduced close to 7,500 BD OptiBuild™ reagents featuring the BD Horizon Brilliant™ dye family, enabling scientists to construct optimal panels that support their research goals.

**Provide solutions that improve healthcare worker and patient safety**

Hospitals and clinics pose an inherently risky environment because of the high percentage of patients with communicable diseases. With the increase in antimicrobial resistance, the need for infection prevention and control in the healthcare environment is paramount, in addition to protecting healthcare workers from needlestick injuries and exposure to hazardous drugs. We remain committed to protecting healthcare workers and patients.

The acquisition of Bard has expanded our portfolio of products that ensure the safety of healthcare workers and patients. We remain dedicated to improving healthcare worker and patient safety through product improvements and new product development. Some examples of products that furthered our progress toward this goal in 2018 include:

**BD® HD Check System**

The BD® HD Check System is the first and only product that enables healthcare professionals, such as pharmacists and nurses, to identify hazardous drug surface contamination of their workspaces in less than 10 minutes. The BD® HD Check System cuts testing time down so clinicians can have an answer in minutes, not weeks, and is available on-site (*i.e., within the*

*hospital pharmacy*). The goal is that this rapid test will allow for more routine monitoring of hazardous drug contamination, thus ensuring a safe and healthy work environment for healthcare professionals. The product was released in FY2018 to test for two drugs, with plans to expand the drug menu in the short term. This system was built on the BD Life Sciences—Diagnostic Systems BD Veritor™ system, leveraging the reader and lateral flow technology.

**BD PhaSeal™ Optima System**

The BD PhaSeal™ Optima closed-system drug transfer device (CSTD) helps improve healthcare worker safety by reducing the risk of surface contamination to hazardous drugs. Airtight and leakproof, and built on the legacy of the BD PhaSeal™ CSTD,

the BD PhaSeal™ Optima system mechanically prohibits the transfer of environmental contaminants into the system and the escape of drug vapor concentrations outside the system, thereby minimizing individual and environmental exposure to drug vapor, aerosols and spills. The system prevents microbial ingress for up to 168 hours and 10 penetrations within an ISO Class V environment following aseptic technique. Offering an intuitive, one-step straight-push connection with no need for alignment or orientation, components of the system are designed to optimize clinical comfort and aid workflow integration. The system is also engineered to common International Organization for Standardization (ISO) standards, simplifying connections with luer fittings, standard-size drug vials and IV administration sets.

**AccuCath Ace™ Intravascular Catheter**

The AccuCath Ace™ intravascular catheter is inserted into a patient's vascular system to sample blood, monitor blood pressure or administer fluids intravenously. The AccuCath Ace™ catheter integrates a coiled-tip nitinol guidewire, blood control valve and needlestick safety features with a power-injectable catheter. Engineered to minimize the need for unnecessary needle advancement that may lead to vessel damage and

complications, the AccuCath Ace™ catheter's patented guidewire technology was created to help navigate vessel anatomy foratraumatic delivery. When compared to conventional IV catheters, the AccuCath Ace™ intravascular catheter system is designed to increase first-attempt success, reduce complication rates, extend dwell times, increase patient satisfaction and lower overall costs to the provider.

## BD Nano™ PRO 4mm Pen Needles

The BD Nano™ PRO 4mm pen needle (*to be released as BD Nano™ 2nd Gen in the United States*) is a redesigned pen needle offering greater patient safety when injecting insulin. The BD Medical–Diabetes Care pen needle design team recognized

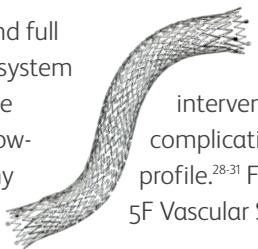


significant variability in patients' injection techniques, leading to variable injection depth with risk of intramuscular insulin administration, which can possibly result in hypoglycemia.<sup>23</sup> Hypoglycemia is the most frequent complication of the diabetes therapies, associated with adverse health consequences.<sup>24</sup> This led the team to redesign key features of the pen needle, which

now offers greater reliability of subcutaneous injection depth across a range of forces. Consistent injection performance is expected to reduce glycemic variability,<sup>24</sup> allowing the patient to achieve and maintain target glycemic control with lower risk of complications. The BD Nano™ PRO design also offers ergonomic enhancements to allow for greater ease of use and injection comfort, and is produced using 39% less plastic resin than its predecessor. This new generation of BD Nano™ pen needle was initially released in FY2018 across Canada, and is currently also being sold in France, Germany, Switzerland, South Korea and Australia.

## LifeStent™ 5F Vascular Stent System

The LifeStent™ 5F Vascular Stent System is the only SFA and full popliteal artery FDA-approved stent.\* The triaxial delivery system is designed for ease of use, deployment control and precise placement accuracy.<sup>25</sup> It is part of the ProSeries™ suite of low-profile product solutions, designed to minimize arteriotomy size and enable a complete 5F femoropoliteal procedure.



Access site complications have been reported to occur in up to 11% of peripheral vascular interventions.<sup>26-28</sup> Literature suggests that access site complications may be minimized by reducing the sheath profile.<sup>28-31</sup> For more information regarding the LifeStent™ 5F Vascular Stent System, [click here](#).

## AllPoints™ Port Access System

The AllPoints™ port access systems are designed with components that are presented in a step-by-step sequential layout designed to aid clinicians in their efforts toward promoting consistency of care. They are designed to assist clinicians in maintaining sterile technique,



and include a sterile field designed to accommodate a variety of workspace environments. These systems are the only all-inclusive port access kit that include the infusion needle. More information about the AllPoints™ port access systems can be found at <https://bardaccess.com/products/procedural/allpoints-port-access-systems>.

\*As of May 2019 in the U.S. market

<sup>23</sup> Frid AH, Kreugel G, Grassi G, et al. New insulin delivery recommendations. *Mayo Clin Proc.* 2016;91(9):1231-1255.

<sup>24</sup> American Diabetes Association. Hypoglycemia (low blood glucose). <http://www.diabetes.org/living-with-diabetes/treatment-and-care/blood-glucose-control/hypoglycemia-low-blood.html>. Last edited February 11, 2019. Accessed May 7, 2019.

<sup>25</sup> Based on physician ratings during animal testing. May not be indicative of clinical performance. Data on file at Bard Peripheral Vascular, Inc., Tempe, AZ.

<sup>26</sup> Hackl G, et al. *Vasc Endovascular Surg.* 2015;49(7):160-165.

<sup>27</sup> Das R, et al. *Cardiovasc Interv Radiol.* 2011;34(4):723-738.

<sup>28</sup> Bhatty S, et al. *Interv Cardiol.* 2011;3(4): 503-514.

<sup>29</sup> Doyle BJ, et al. *JACC Cardiovasc Interv.* 2008;1(2):202-209.

<sup>30</sup> Metz D, et al. *Am Heart J.* 1997;134(1):131-137.

<sup>31</sup> Büchler JR, et al. *J Interv Cardiol.* 2008;21(1):50-55.

# Product quality and safety

As BD continues to introduce innovative technologies, our robust quality and regulatory management ensure we deliver to the highest standards to the millions of people who use our products each day. Our Quality Policy guides us to consistently provide superior products and services worldwide, achieved through

customer focus, continuous improvement and maintaining an effective quality system. From our suppliers, we expect superior levels of service, quality, cost effectiveness and innovation. Finally, compliance with existing and emerging regulations is the foundation of what we do.

## Quality management and training

Quality management plays a key role in our success by “making quality certain.” We are driven by our vision of an organization where transactions are correct the first time, where efficient and effective processes drive our competitiveness and where all associates can successfully demonstrate the intent and spirit of the Quality Policy.

Our quality systems help ensure compliance with applicable global regulations and establish standards for product design, manufacturing and distribution. Prior to marketing or selling most of our products, we must secure approval from the U.S. Food and Drug Administration (FDA) and counterpart regulatory agencies outside of the United States. Once BD introduces a product into the market, the FDA and counterpart regulatory

agencies outside of the United States periodically review our quality systems, product performance and promotional materials. We regularly analyze our quality processes and specifications to ensure efficiency and effectiveness.

When an associate joins BD they complete training on the quality and regulatory requirements for the medical device industry as part of their orientation. All associates receive the required training to perform their roles and responsibilities effectively. In addition to procedural and on-the-job training, BD provides supplemental training through its Quality Academy on topics that include, but are not limited to, education on creating and maintaining quality management systems that comply with global standards and regulations.

## ISO 13485 certification

The ISO 13485 Medical Devices—Quality Management Systems (QMS) standard is a set of quality management system requirements for designing and manufacturing medical devices (*exceptions would include sites that only carry out research*). This standard was revised in 2016 and, as a result, all medical device manufacturers with an ISO 13485 certified QMS were

required to be recertified within 3 years of the release of the revision, with this period ending March 2019. BD had over seventy-five (75) sites with ISO 13485 certificates that underwent QMS recertification audits during 2017–2019. All BD sites with ISO 13485 certificates have been upgraded to 13485:2016.

## Supplier management and audits

In addition to designing quality into our products, it is essential to implement best-in-class supplier quality programs. The Global Procurement function partners with the Quality function to ensure that we clearly define the impact suppliers of materials and services can have on BD products and put the appropriate controls in place when selecting, approving and maintaining our suppliers.

Our supplier management program oversees the quality and safety practices of our 500 core suppliers that provide key materials and services. Our program focuses on four areas:

- **Performance management** comprises the procedures that govern how BD identifies, classifies and assesses the qualifications of our suppliers, and manages our relationship with each of them.

- **Supplier continuous improvement programs** employ our operational excellence methodologies (*Lean and Six Sigma*), with specific vendors to define, plan and execute projects that bring significant improvements in performance, savings and overall value to BD.
- **Supplier engagement** is central to our ability to identify and partner with suppliers capable of bringing innovation and new technology to the market.
- **Supply base risk management** quantifies and mitigates risks posed to our supply chains, such as business discontinuity, financial liquidity, price fluctuations and pandemics.

In addition, we conduct quality systems assessments (QSAs) for key suppliers, determined by both a fixed frequency and the quality history of the supplier's site. QSAs ensure that the facilities manufacturing materials or components we procure

have quality systems in place to ensure the final product will consistently comply with our specifications and adhere to all regulatory requirements. BD participates in the Medical Device Single Audit Program (MDSAP), an international coalition to jointly leverage regulatory resources to manage an efficient, effective and sustainable single audit program focused on the oversight of medical device manufacturers. Participation in this program will allow for the conduct of a single regulatory audit of a medical device manufacturer's quality management

## Regulatory compliance

The Regulatory Affairs and Quality Compliance program at BD encompasses all product-related regulatory processes, from product concept through to obsolescence.

The Global Regulatory Affairs Monitoring Initiative (GRAMI), a system that links all of our worldwide regulatory associates, is set up to allow the global regulatory team members to monitor changes in regulations, requirements and regulatory agency policies that could affect BD operations and products.

The GRAMI team is comprised of BD regulatory professionals with expertise in worldwide regulatory policy areas, including compliance, product registrations, labeling standards and other areas of pre- and post-approval regulatory requirements.

### Product marketing

BD has procedures in place to ensure correct labelling, advertising and promotion of our products.

### Enforcement action

While we have implemented, and continue to improve upon, programs and management systems around product quality and safety, we are on occasion subject to enforcement action. Below is an update of the more significant incidents, and our responses, that occurred in FY2018. Further information can be found in our 10-k.

- In May 2017, the FDA conducted inspections at the BD Life Sciences–Preanalytical Systems (“PAS”) facility in Franklin Lakes, NJ. In July 2017, the FDA issued a Form 483 to BD PAS in connection with these inspections that contained observations of nonconformance relating to quality system regulations and medical device reporting relating to certain of our BD Vacutainer® EDTA blood collection tubes. On January 11, 2018, BD received a Warning Letter from the FDA, citing certain alleged violations of quality system regulations and of law. The Warning Letter states that, until BD resolves the outstanding issues covered by the Warning Letter, the FDA will not clear or approve any premarket submissions for Class III devices to which the nonconformances are reasonably related or grant requests for certificates to foreign governments. We submitted our response to the Warning Letter on

January 31, 2018. BD continues to work with the FDA to resolve the issues noted in the Warning Letter.

Learn more about our [Procurement Strategy](#)

When changes are identified, they are communicated to individuals in relevant business units, functions and manufacturing sites who are part of the GRAMI notifications system. In addition, BD regulatory leaders in various regions engage in meaningful dialogue with their regulators and trade associations to seek better understanding, alignment and improvements in regulatory requirements and processes that affect BD as well as the regulated medical technology industry.

For information about legal proceedings regarding the marketing and advertising of our products, please see our 2017 10-K.

Expectations are outlined in our [Code of Conduct](#).

January 31, 2018. BD continues to work with the FDA to resolve the issues noted in the Warning Letter.

- The FDA conducted an inspection of our facility located in Franklin, WI (“BD Franklin site”), from May 16, 2018 through August 1, 2018. On August 1, 2018, the FDA issued a Form 483 to the BD Franklin site in connection with these inspections that contained observations of nonconformance relating to quality system regulations relating to certain prefilled heparin lock flush syringes and prefilled 0.9% sodium chloride lock flush syringes. On September 14, 2018, BD received a Warning Letter from the FDA, citing certain alleged violations of quality system regulations and of law. We submitted our response to the Warning Letter on October 1, 2018. We worked closely with the FDA and implemented corrective actions to address the concerns identified in the Warning Letter. The FDA closed the Warning Letter in a letter dated February 11, 2019.

BD continuously assesses its manufacturing footprint to ensure the Company is best positioned to provide the highest-quality products to customers in the most reliable manner possible. After a comprehensive analysis of flush manufacturing operations, BD decided to consolidate flush

manufacturing and move production volumes from the plant in Franklin, WI, to other existing BD facilities. This decision resulted in BD ceasing production at the Franklin plant and the Company permanently closed the facility in mid-March 2019. In mid-January, BD informed customers of this decision. BD is working closely with customers who have been supplied by the Franklin plant to arrange for them to transition to alternative products from other BD flush manufacturing facilities in order to minimize any impact on patient care.

- Our infusion pump organizational unit is operating under an amended consent decree entered into by CareFusion with the FDA in 2007. CareFusion's consent decree with the FDA related to its Alaris™ SE infusion pumps. In February 2009, CareFusion and the FDA amended the consent decree to include all infusion pumps manufactured by or for CareFusion 303, Inc., the organizational unit that manufactures and sells infusion pumps in the United States. The amended consent decree does not apply to intravenous administration sets and accessories. While this BD organizational unit remains subject to the amended consent decree, which includes the requirements of the original consent decree, it has made

substantial progress in its compliance efforts. However, we cannot predict the outcome of this matter, and the amended consent decree authorizes the FDA, in the event of any violations in the future, to order us to cease manufacturing and distributing infusion pumps, recall products and take other actions. We may be required to pay damages of \$15,000 per day per violation if we fail to comply with any provision of the amended consent decree, up to \$15 million per year. We also cannot currently predict whether additional monetary investment will be incurred to resolve this matter or the matter's ultimate impact on our business. We may be obligated to pay more costs in the future because, among other things, the FDA may determine that we are not fully compliant with the amended consent decree and therefore impose penalties under the amended consent decree, and/or we may be subject to future proceedings and litigation relating to the matters addressed in the amended consent decree. As of September 30, 2018, we do not believe that a loss is probable in connection with the amended consent decree, and accordingly, we have no accruals associated with compliance with the amended consent decree.





# Access

## Healthcare in resource-limited populations

### Introduction

BD believes in the vision of a world free of disease and needless suffering. We think healthcare is so fundamental it can create more productive, educated and equitable societies.

BD Global Health works to expand access and drive capacity building through partnerships with leading organizations and governments. We engage in advocacy with governments, donors, and health agencies to advance innovations around the world to address the world's leading public health needs, which are highly aligned with the UN SDGs.

The business model for emerging markets encourages our country leaders to understand the health system priorities in their country and engage with key opinion leaders responsible for health policies and practices. This enables BD to engage at earlier stages in the healthcare decision-making process and adapt our strategic plans for product array, manufacturing and talent accordingly.

#### 2020 goal

##### Develop low-cost innovations to address leading causes of mortality and morbidity

###### Maternal and Newborn Health; Investigative BD Odon Device™

In FY2018, BD Global Health entered into partnership with the PROMPT Maternity Foundation and the Bill & Melinda Gates Foundation to assist in the conduct of clinical trials on the investigative BD Odon Device™, which has received ethics approval in the U.K. This investigative device is intended to provide a safe and effective alternative for assisted vaginal birth (AVB) when labor is prolonged or complicated, a condition that occurs in approximately 10% of pregnancies. Untreated, prolonged/complicated labor can lead to serious complications for mothers and babies, including postpartum hemorrhage, perinatal asphyxia, maternal infection, fistulas or even death.<sup>32</sup>

This unique collaboration aims to bring much-needed innovation to those who need it the most. Maternal and newborn health is a key component of UN Sustainable Development Goal 3 for Good Health and Wellbeing. Although WHO guidelines call for

access to AVB at all facilities that provide basic management of obstetric emergencies, a recent study in sub-Saharan Africa showed that only 54% of hospitals and 6% of health centers were able to conduct AVB in the past year.<sup>33,34</sup> By driving forward the investigative BD Odon Device™, this partnership is moving this technology closer to in-field use.



**10% of pregnancies  
result in prolonged or complicated labor**



**Only 54% of hospitals  
and 6% of health centers  
were able to conduct AVB in the past year<sup>33,34</sup>**

<sup>32</sup> O'Mahony F, Hofmeyer GJ, Menon V. Choice of instruments for assisted vaginal delivery. O'Mahony F, editor. *Cochrane Database Syst Rev*. Chichester, UK: John Wiley & Sons, Ltd; 2010;(11):CD005455.

<sup>33</sup> Pearson L, Larsson M, Fauveau V, Standley J. Childbirth care. In Lawn J, Kerber K, eds. *Opportunities for Africa's newborns: Practical data policy and programmatic support for newborn care in Africa*. World Health Organization (WHO); 2006.

<sup>34</sup> Bailey PE, van Roosmalen J, Mola G, Evans C, de Bernis L, Dao B. Assisted vaginal delivery in low and middle income countries: an overview. *Br J Obstet Gynaecol*. 2017;124(9):1335-1344.

## Antimicrobial resistance—educate and advocate

### The role of diagnostics in the AMR response: an on-line course

An online certificate course sponsored by BD is under development by the London School of Hygiene & Tropical Medicine (LSHTM) with advisory from a global group of experts. The Massive Open On-Line Course (MOOC) is designed to increase awareness and understanding of the role of diagnostics in the AMR response. The online course will include six modules to address various aspects of AMR, including high-priority pathogens as listed by the CDC and WHO, offered over 6 weeks. A variety of teaching and learning methods are employed, including news stories, reports, film/video, presentations, case studies and reference material for further reading. Discussion forums will be available for participants to interact with each other and will be moderated by faculty members of LSHTM. Upon completion, a certificate may be offered through LSHTM. The course is intended for health professionals, faculty, students and those interested in the public health aspects and control of antimicrobial resistance.



# BD Global Health, PEPFAR and CDC public-private partnerships

BD Global Health has established a series of partnerships with PEPFAR (*The U.S. President's Emergency Plan for AIDS Relief*) and the U.S. CDC that include strengthening laboratory systems and upgrading clinical practices in phlebotomy, infusion and injection.

## BD Global Health, PEPFAR and CDC Kenya partnership

In FY2018 BD signed an memorandum of understanding (MOU) with CDC and PEPFAR for an infection prevention partnership in Kenya, with a goal of training 1,000 healthcare workers and impacting 1 million procedures in the areas of safe infusions, injections and phlebotomy.



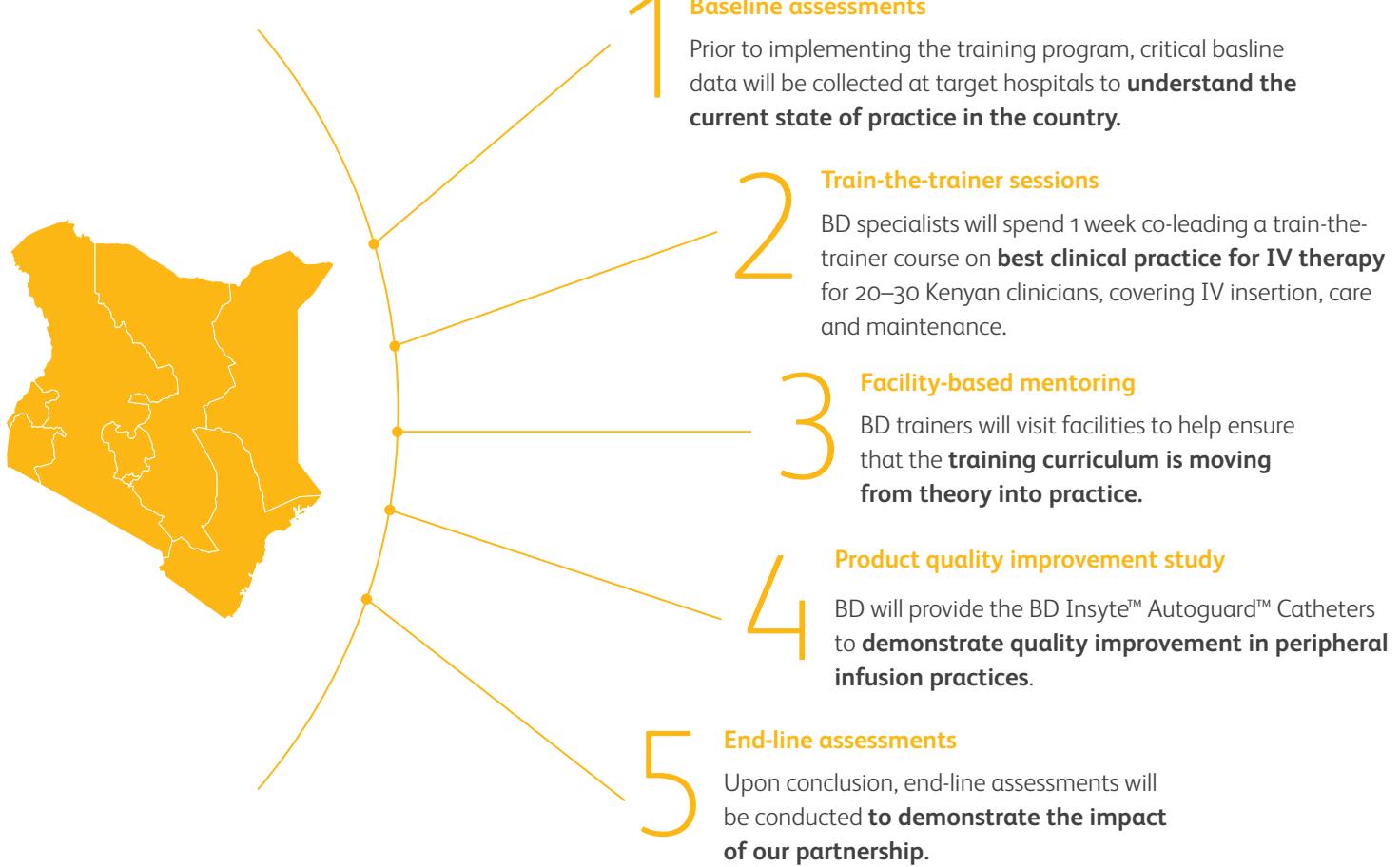
More than 20% of needlestick injuries in Kenya occur from starting IVs or connecting a syringe into an IV line. BD Global Health is working to expand a longstanding public-private partnership with PEPFAR, CDC and the Kenya Ministry of Health to improve the safety of both patients and healthcare workers in injections, infusions and blood collection for the purposes of diagnosis and treatment.

This infection prevention partnership, called KINGA (*the Kenya Infection Prevention Global Collaboration for Advancement*), will leverage the expertise of BD associates from around the world to serve as global health fellows/infusion safety specialists and conduct key activities. The program will include baseline and endline assessments, training and mentorship. The BD Insyte™ Autoguard™ catheter will be used to demonstrate quality improvement in peripheral infusion practices.

The program will also fund the development of a mobile version of EPINet™ for needlestick injury surveillance. This will allow easier reporting of occupational injuries at the touch of a button via a mobile phone application.

## Working to upgrade clinical practice

BD knows that the key to reducing complications is to combine the right products with correct clinical practice. BD has developed a curriculum on best practices for peripheral and central line infusion in partnership with the CDC, which will be rolled out in a train-the-trainer model. BD subject matter experts will travel to Kenya to support the following activities:



## **BD Global Health, U.S. CDC, PEPFAR, and Ministry of Health of Kyrgyzstan—phlebotomy initiative**

On June 1, 2018, BD, CDC, PEPFAR and the Ministry of Health of Kyrgyzstan inaugurated a new center of excellence for phlebotomy in Bishkek, Kyrgyzstan as a culmination of a public-private partnership to build capacity for safe blood drawing in Kyrgyzstan.

Drawing blood from patients is one of the most commonly performed medical procedures in hospitals and clinics, and can be associated with healthcare worker exposure to blood-borne pathogens, including HIV and hepatitis. In 2010, a national assessment of injection practices in 80 Kyrgyz health facilities found higher-than-expected rates of needlestick accidents and risky occupational practices. Given the increasing frequency of blood-drawing procedures associated with Kyrgyzstan's growing HIV/AIDS response, it was vital that healthcare workers receive

effective, evidence-based training to protect themselves and their patients from occupational exposures, and to improve the quality of specimens collected through blood draws.

In response, BD initiated the Safer Practices and Techniques for Blood Drawing (SAPAT) program for safe phlebotomy training in 2014 in Kyrgyzstan in partnership with CDC and PEPFAR. The training program includes classroom and practical training on blood-drawing practices, as well as specimen handling and safety measures to prevent needlestick injuries. The curriculum focuses on international best practices and quality assurance strategies that can be adopted by facilities and individual healthcare workers.

The Center of Excellence for Phlebotomy is the capstone of this partnership.

## **Labs for Life**

Our flagship partnership to strengthen laboratory systems in high HIV/TB-burdened markets now spans more than a decade. This partnership focuses on building strong laboratories with quality systems compliant with ISO 15189. Quality lab systems are relevant in the HIV care continuum but are also relevant to the Global Health Security Agenda, a growing partnership established by leading governments to help build countries' capacity to help create a world safe and secure from infectious disease threats and elevate global health security as a national and global priority. In FY2018 we continued this partnership. In this new phase, the countries included are Kenya, Ethiopia, Uganda, India, Rwanda and Haiti. This is the first year that Rwanda and Haiti have been included in this work.



*"I made some great ongoing friendships while volunteering as a BD Global Health Fellow as part of the BD-PEPPAR Labs for Life partnership at Our Lady of Consolata Kisubi Hospital Laboratory—a faith-based hospital laboratory between Entebbe and Kampala—and I know that we have helped Kisubi Hospital on their path to providing the best quality healthcare for their community. Our knowledge and skills can make a huge difference. When we first arrived we identified that the phlebotomy technique was a major cause of patient discomfort and poor sample quality for the laboratory. Therefore, we trained on best practice blood collection to improve patient experience and the lab's ability to produce accurate results."*

—Brendan Meyer, European Clinical Manager,  
Preanalytical Systems, BD and 2019 Labs For Life  
BD Global Health Fellow in Uganda

# Infection prevention partnerships

Infusion-related infection is a threat to both healthcare providers and patients. Many factors are responsible, but comprehensive training is needed to improve intravenous care. BD has launched infection prevention partnerships in order to train nurses on safe infusion practices, most recently with Project HOPE in China.

## **BD Global Health and Project HOPE partnership**

China has one of the highest rates of infusion per person in the world, and treatment via intravenous therapy is extremely commonplace. While China is a leader in infusion practice, in Western China, many procedures are still conducted using a steel needle rather than the best-practice, IV catheter. Improper use of steel needles for IV therapy can lead to increased pain and higher rates of complications.

### **Improving care and reducing infection**

In FY2018, BD signed an agreement to address these challenges with long-term partner Project HOPE for a multiyear initiative to reduce infusion-related infections among healthcare providers and patients in four provinces in Western China: Yunnan, Sichuan, Qinghai and Hubei.

### **Combining clinical expertise with core training competencies**

This partnership educates nurses on safe infusion practices and aims at improving clinical capabilities in real-life practice with a direct effect on patient and healthcare worker safety.

In this collaboration, experts from BD and a team of nurse leaders from Western China will conduct baseline assessments and roll out a train-the-trainer model to institutionalize best practices at all levels, from tertiary hospitals to community health centers.

**Globally, over 90%**

of hospital patients get peripheral IV catheter for diagnosis or treatment.<sup>35</sup>

**35–50%**

of patients experience an IV catheter failure,<sup>35</sup> which is costly to patients, caregivers and healthcare workers

**1 in 3**

peripheral IV catheters experience a complication,<sup>35</sup> including inflammation, bruising, and infection.<sup>36</sup>

<sup>35</sup> Helm RE, Klausner JD, Klemperer JD, Flint LM, Huang E. Accepted but unacceptable: peripheral IV catheter failure. *J Infus Nurs.* 2015;38(3):189-203.

<sup>36</sup> Wallis MC, McGrail M, Webster J, et al. Risk factors for peripheral intravenous catheter failure: a multivariate analysis of data from a randomized controlled trial. *Infect Control Hosp Epidemiol.* 2014;35(1):63-68.

# BD Global Health and U.S. Agency for International Development Partnership

In 2017, BD entered into an agreement with the U.S. Agency for International Development (USAID) to address drug-resistant TB patients in select high-burden countries. The agreement includes increasing access to existing and new diagnostic technologies and launching an awareness campaign to promote adherence to high-quality testing. This partnership, called STRIDES (*Strengthening TB Resistance Testing and Diagnostic Systems to End MDR-TB*) builds on our previous partnership with USAID, which began in 2014, to strengthen labs in order to improve national capacity for TB testing in Indonesia.



We officially launched this partnership in India in 2018. India has the highest TB burden globally, at 27%. BD Global Health Fellows trained 31 microbiologists from 13 states on best practices, troubleshooting and recent developments in liquid culture drug susceptibility testing.

## STRIDES: Strengthening TB Resistance Testing and Diagnostic Systems to End MDR-TB



**50%** of lab-confirmed RR/MDR TB samples are not tested for SL resistance

Source: USAID

Partnership in **10** high-priority TB countries through gap assessment, training and mentorships:

Indonesia, Kazakhstan, Philippines, Burma, India, China, Pakistan, Ukraine, Nigeria, South Africa

## Further expand BD manufacturing, product array and employment in emerging countries

Emerging market revenues were \$2.53 billion, \$1.95 billion and \$1.9 billion in 2018, 2017 and 2016, respectively. Foreign currency translation favorably impacted emerging market revenues in 2018 by an estimated \$19 million and unfavorably impacted emerging market revenues in 2017 by an estimated \$29 million. Emerging market revenue growth in 2018 benefited from the inclusion of revenues associated with Bard products in our financial results. Underlying growth was particularly driven by sales in China and EMA.

We continue to pursue growth opportunities in emerging markets, which include the following geographic regions: Eastern Europe, the Middle East, Africa, Latin America and certain countries within Asia Pacific. We are primarily focused on certain countries whose healthcare systems are expanding.

Emerging markets continue to be a key growth driver for BD. Our continued momentum in China and broader emerging markets is reflected in our strong FY2018 performance in both segments.

### **Project highlight: Advanced Molding Center opened in Greater Asia**

BD recently opened our first Advanced Molding Center in Asia, built within our facility in Tuas, Singapore. The Center is a flagship plastic molding manufacturing facility for BD in Asia, and is one of the largest and most sophisticated plastic molding plants in the world for BD. This Center will centralize and insource a majority of Greater Asia plastic molding production and will help elevate our competency in manufacturing in Greater Asia with the use of data analytics to track the manufacturing process, allowing for more accurate and consistent output

of high-quality plastic components that are essential for the manufacturing of medical products.

The opening of the Advanced Molding Center is part of our manufacturing strategy in Singapore that will see BD advance in process, technology and organization, with a key focus on attracting new talent to the organization. BD is focusing on three areas—automation, digitization and intelligence—which will result in the increased use of smart technologies, including artificial intelligence (AI) and robotics, within our manufacturing operations.

### **Project highlight: Project Tang**

Studies show that needlestick injury is one of the most life-threatening occupational risks to hospital nurses in China, with over 139.5 needlestick injuries per 1,000 nurses.<sup>37</sup> In an effort to prevent these injuries and improve the convenience of pen needle use for hospital nurses, BD initiated “Project Tang” in FY2018. This project seeks to provide one device that allows for both loading a pen needle onto the insulin injection pen in preparation for use and removing of the pen needle in a

specialized container once it has been used—at no cost to the hospital. Over the course of FY2018, BD developed this market-specific solution that allows for single-handed assembly of pen needles before use and single-handed recapping of used needles, based on customer input, and received regulatory approval. Starting in FY2019, the Tang device will be progressively introduced into the market with a pilot phase before scaling up across China.

<sup>37</sup> Zhao F, Zhang M, Xuan J, et al. A large-scale cross-sectional survey on needle stick injuries related to injections of antidiabetics in China: incidence and infection rates. *Value in Health*. 2018;21(suppl. 1):S72.





# Efficiency

Environmentally sound products  
and resilient operations

## Introduction

We understand that the health of the planet is linked to the health of people, and reducing our impact on the environment supports our Purpose of *advancing the world of health™*. With continuing pressure on natural resources and the predicted impacts of climate change, it is imperative that we continue to increase the resilience of our operations and explore opportunities for environmental improvements across our value chain. By partnering more closely with suppliers, customers and peers we can address some of the world's most pressing environmental issues more broadly than we could on our own.

## Status of performance against 2020 goals

In FY2018, BD continued to make progress toward our 2020 efficiency goals.

### Emissions



**2020 goal**  
Reduce Scope 1 & 2 GHG emissions **by 50%**  
**Current status FY18**  
Reduced **by 75%**

**2020 goal**  
Reduce volatile organic compound (VOC) and hazardous air pollution (HAP) emissions **by 65%**  
**Current status FY18**  
Reduced **by 31%**

**2020 goal**  
Reduce ozone-depleting substance emissions **by 95%**  
**Current status FY18**  
Reduced **by 64%**

### Energy



**2020 goal**  
Increase use of renewable energy **to 50% of total energy**  
**Current status FY18**  
**45% of total energy**



**2020 goal**  
Reduce energy consumption **by 40%**  
**Current status FY18**  
Reduced **by 32%**

### Waste



**2020 goal**  
Reduce total waste **by 50%**  
**Current status FY18**  
Reduced **by 33%**

**2020 goal**  
Increase diversion rate **to over 85%**  
**Current status FY18**  
Increased **to 83%**

**2020 goal**  
Reduce hazardous waste **by more than 60%**  
**Current status FY18**  
Reduced **by 46%**

### Recycling



**2020 goal**  
Increase recycling rate **to over 70%**  
**Current status FY18**  
Increased **to 66%**

### Water consumption



**2020 goal**  
Reduce water consumption **by 40%**  
**Current status FY18**  
Reduced **by 47%**

Due to ongoing integration activities, data from Bard facilities has been excluded from data in this section (*unless noted*). We are in the process of completing data collection from Bard locations and will report their data in FY2019.

## 2020 goal

**Reduce GHG emissions and increase climate resilience throughout operations and value chain.**

### GHG emissions

Our absolute Scope 1 emissions rose in FY2018. This due in part to increase in production, but also due to the use of propane and diesel generators at our facilities in Puerto Rico following hurricane Maria. Scope 2 emissions continue to fall due to our continued commitment to increasing resilience through on-site generation and use of renewable energy though on-site solar power and the purchase of Renewable Energy Credits.

Measurement and UOM	FY2008 baseline	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
<b>GHG emissions—Scope 1 and 2</b>											
Scope 1 absolute (metric tonnes CO <sub>2</sub> -e)	86,139	87,184	88,173	81,952	80,258	77,086	74,465	73,881	74,215	88,498	98,252
Scope 1 normalized (metric tonnes CO <sub>2</sub> -e per \$M COPS)	18	18	17	15	15	14	12	13	11	14	13
Scope 2 absolute (metric tonnes CO <sub>2</sub> -e)	460,842	430,196	357,845	337,123	282,711	239,344	217,260	184,367	164,304	133,520	121,161
Scope 2 normalized (metric tonnes CO <sub>2</sub> -e per \$M COPS)	97	91	70	63	51	42	36	33	25	22	16
Total absolute (metric tonnes CO <sub>2</sub> -e)	546,981	517,380	446,018	419,075	362,970	316,430	291,725	258,248	238,520	222,018	219,413
Total normalized (metric tonnes CO <sub>2</sub> -e per \$M COPS)	115	109	87	79	66	56	48	46	37	36	29

2020 Goal: [reduce Scope 1 & 2 GHG emissions by 50% \(normalized to Cost of Products Sold \[COPS\]\)](#). Current status: [reduced by 75%](#)

Data represents Scope 1 (direct) and Scope 2 (indirect from electricity) energy sources.

Measurement and UOM	FY2016	FY2017	FY2018
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GHG emissions—Scope 3 GHG emissions (absolute) (metric tonnes Co2-e)	FY2016	FY2017	FY2018
Purchased goods and services	966,282	1,069,505	1,065,132
Capital goods	42,728	37,691	39,602
Fuel- and-energy-related activities ( <i>not included in Scope 1 or 2</i> )	39,222	33,976	24,912
Upstream transportation and distribution	72,640	125,904	280,636 <sup>1</sup>
Waste generated in operations	9,641	9,996	11,446
Business travel	86,583	108,937	117,123
Employee commuting	102,232	73,195	83,829
Upstream leased assets	27,094	47,011	32,299
Downstream transportation and distribution	Not relevant <sup>2</sup>	Not relevant <sup>2</sup>	Not relevant <sup>2</sup>
Processing of sold products	Not relevant <sup>2</sup>	Not relevant <sup>2</sup>	Not relevant <sup>2</sup>
Use of sold products	263,924	298,638	326,682
End-of-life treatment of sold products	Not disclosed <sup>3</sup>	Not disclosed <sup>3</sup>	Not disclosed <sup>3</sup>
Downstream leased assets	Not relevant <sup>2</sup>	Not relevant <sup>2</sup>	Not relevant <sup>2</sup>
Franchises	Not relevant <sup>2</sup>	Not relevant <sup>2</sup>	Not relevant <sup>2</sup>
Investments	Not relevant <sup>2</sup>	Not relevant <sup>2</sup>	Not relevant <sup>2</sup>

2020 goal: Establish scope 3 GHG emission baselines for categories applicable to BD. Current status: We provided limited reporting of Scope 3 emissions in previous years and in FY2018 we continued to work with external partners to establish baseline Scope 3 emissions across all categories. This information will be used to inform future strategy.

2020 goal: Initiate climate resilience planning for BD facilities. Current status: As the devastating hurricanes across the United States in 2017 demonstrated, resilience planning for extreme weather events is essential to ensure operations are restored as quickly as possible. Work has been carried out to deepen our understanding of potential risks to our supply chain and operations, to ensure potential impacts are mitigated or reduced. Further work is being carried out in FY2019 to understand risks and opportunities associated with climate change.

<sup>1</sup> The increase in emissions for transportation and distribution is due to the availability of a larger data set and resulting change to methodology.

<sup>2</sup> Relevance based on 1% threshold relative to total Scope 3 emissions inventory. Determined this category to be not relevant to the Company's business activities and did not estimate the associated GHG emissions.

<sup>3</sup> Upon review of the source data used to calculate this category, some errors were identified that potentially affected the accuracy of the data previously reported. We are in the process of recalculating emissions for this category and plan to report data in subsequent reports.

GRI disclosure: 305-3

Further information about our climate change strategy and programs to reduce GHG emissions can be found in our responses to the CDP (formerly the Carbon Disclosure Project). BD has reported to the CDP since its inception in 2003.

Throughout FY2019 we will be assessing our climate management program and disclosures against the recommendations of the Task Force for Climate-related Financial Disclosures (TCFD).

## 2020 goal

### Minimize our environmental footprint and conserve natural resources

In FY2018, we continued to invest in on-site power generation and identify opportunities to reduce our environmental footprint across all sites.

#### Solar

In FY2018, we completed two on-site solar installations.

The BD manufacturing plant in Canaan, CT, completed installation of the largest solar electricity generation system within BD and the largest for a manufacturer in the state of Connecticut. The 2,655-kilowatt system is comprised of 6,400 ground and roof-mounted panels that work together to produce a total of 3.5 megawatts of electricity annually (*enough to provide power to 324 average-sized U.S. homes*). This is approximately 7.7% of the annual usage in the Canaan site. The second phase of this project will expand the overall size and output of the existing rooftop solar array and is expected to be completed in 2019.

#### Combined heat and power

We currently have four facilities with combined heat and power (CHP) generation capabilities, the latest being completed at the end of 2018 in Drogheda, Ireland. This CHP unit generates 1.5 megawatts of power—that's enough to power over 300 average-sized homes for a year—and provides 75% of the plant's electrical usage.

The CHP unit will also reduce Drogheda's reliance on the power grid, which increases the site's energy resilience; by producing our own energy on-site, we avoid peaks in energy demand and are

In collaboration with several external partners, our BD European headquarters in Eysins, Switzerland installed solar panels on the roof of their leased building. As part of this project, 550 solar panels were installed on the site, covering all 900 m<sup>2</sup> of available roof space. At peak operation, these panels can generate 167,750 kilowatt hours of energy per year—enough to power 25 households in Switzerland. The project also includes a power purchase agreement that allows the site to purchase any additional energy needs from renewable sources, thus ensuring that this site is run on 100% renewable energy. Through this agreement, energy that the solar panels generate that isn't being used (*for instance on weekends or holidays*) will be sold back to the energy provider.

able to continue to operate in situations causing energy outages, such as extreme weather. BD continues to evaluate solutions such as CHP, solar PV, solar hot water and fuel cells to fulfill our sustainability goals and build energy resilience into our sites.

In the United States, we continue to participate in U.S. Environmental Protection Agency (EPA) programs. We report our use of renewable energy to the Green Power Partnership and are a SmartWay® Transport Partner.

#### Energy

Our energy consumption has risen in absolute terms, driven by an increase in production at our facilities and increased heating due to seasonal weather demands. However, when normalized, consumption fell by 32% from our baseline year. Our commitment to renewable energy continues, with a slight

increase in the amount of electric power obtained from green energy (*such as solar power*) and the purchase of Renewable Energy Credits here in the United States, where 95% of our electricity needs were provided from renewable sources.

Measurement and UOM	FY2008 baseline	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
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#### Total energy consumption

Scope 1 absolute (GJ)	1,612,680	1,637,978	1,651,631	1,537,598	1,497,646	1,383,635	1,402,728	1,392,115	1,397,783	1,693,681	1,885,488
Scope 1 normalized (GJ per \$M COPS)	339	346	323	289	271	245	231	249	215	275	245
Scope 2 absolute (GJ)	3,445,539	3,406,771	3,494,912	3,546,681	3,519,173	3,544,498	3,603,519	3,561,303	3,607,165	3,543,932	3,648,781
Scope 2 normalized (GJ per \$M COPS)	725	719	684	666	637	628	593	637	556	576	474
Total absolute (GJ)	5,058,219	5,044,749	5,146,543	5,084,279	5,016,819	4,928,133	5,006,247	4,953,418	5,004,948	5,237,613	5,534,269
Total normalized (GJ per \$M COPS)	1,064	1,064	1,007	954	908	874	824	887	771	851	719

2020 Goal: [reduce energy consumption by 40% \(normalized by Cost of Products Sold \[COPS\]\)](#). Current status: [reduced by 32%](#)

Data represents Scope 1 (direct) and Scope 2 (indirect from electricity) energy sources.

#### Renewable energy (RECs, green power)

Electric power consumed (GJ)	3,395,768	3,367,530	3,457,703	3,509,566	3,480,121	3,523,349	3,590,057	3,543,512	3,590,931	3,534,058	3,604,725
Green power consumed (GJ)	104,745	161,475	181,361	264,315	226,065	188,872	120,820	117,737	267,569	454,256	455,994
Renewable energy credit (REC) purchased (GJ)	19,616	133,412	570,815	670,714	1,012,696	1,318,215	1,504,618	1,758,398	1,861,873	1,891,327	2,008,224
<b>Grand total (GJ)</b>	<b>3,520,130</b>	<b>3,662,418</b>	<b>4,209,878</b>	<b>4,444,596</b>	<b>4,718,882</b>	<b>5,030,437</b>	<b>5,215,495</b>	<b>5,419,647</b>	<b>5,720,372</b>	<b>5,879,641</b>	<b>6,068,943</b>

#### As part of electric power consumption

% of electric power via REC purchases	1%	4%	17%	19%	29%	37%	42%	50%	52%	54%	56%
% of electric power sourced from green energy and REC purchases	4%	9%	22%	27%	36%	43%	45%	53%	59%	66%	68%
<b>Total green power and REC purchased (GJ)</b>	<b>124,362</b>	<b>294,888</b>	<b>752,176</b>	<b>935,030</b>	<b>1,238,761</b>	<b>1,507,088</b>	<b>1,625,438</b>	<b>1,876,135</b>	<b>2,129,442</b>	<b>2,345,583</b>	<b>2,464,218</b>

#### As part of total energy

% of total energy consumption from REC purchases	0%	3%	11%	13%	20%	27%	30%	35%	37%	36%	36%
% of total energy consumption from green energy and REC purchases	2%	6%	15%	18%	25%	31%	32%	38%	43%	45%	45%

2020 Goal: [Increase renewable energy consumption by 50% of total energy \(absolute\)](#). Current status: [increased by 45%](#)

## Water

We continue to decrease water consumption through various projects in addition to ongoing water conservation efforts. While there was a slight increase in absolute terms in water consumption, when normalized to COPS, water consumption continued to fall.

Further information about our water management strategy and programs can be found in our responses to the CDP.

Measurement and UOM baseline	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
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### Water consumption

Absolute ( <i>cubic meters</i> )	5,343,732	4,802,520	4,307,169	4,337,638	4,445,804	4,532,445	4,808,851	5,010,052	4,950,713	4,516,838	4,552,752
Normalized ( <i>cubic meters per \$M COPS</i> )	1,125	1,013	843	814	805	803	791	897	763	734	591

2020 Goal: [reduce water consumption by 40% \(normalized by Cost of Products Sold \(COPS\)\)](#). Current status: [reduced by 47%](#)

### Waste water discharge

Absolute ( <i>cubic meters</i> )	4,063,515	3,714,231	3,092,729	3,125,696	3,254,063	3,387,555	3,684,822	3,603,491	3,503,209	3,261,378	3,571,635
Normalized ( <i>cubic meters per \$M COPS</i> )	855	784	605	587	589	600	606	645	540	530	464
% discharged ( <i>of total consumption</i> )	76%	77%	72%	72%	73%	75%	77%	72%	71%	72%	78%

## Waste

This year we are reporting regulated waste generation and have included this in the metrics; data has been restated back to our baseline year. We have seen a rise in waste in absolute terms, driven by increased production.

However, we have improved landfill diversion and waste recycled, and while the amount of hazardous waste has increased slightly (*due to unplanned production waste*), when normalized to COPS performance has improved.

Measurement and UOM	FY2008 baseline	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
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### Total nonhazardous waste generated

Absolute (metric tonnes)	51,078	47,791	49,635	50,609	48,622	47,487	46,106	45,375	50,979	47,719	55,386
Normalized (metric tonnes per \$M COPS)	10.75	10.08	9.71	9.50	8.80	8.42	7.58	8.12	7.85	7.76	7.19

2020 Goal: [reduce total waste by 50% \(normalized by Cost of Products Sold \[COPS\]\)](#). Current status: [reduced by 33%](#)

### Nonhazardous waste landfilled

Absolute (metric tonnes)	24,107	23,707	19,913	15,545	13,356	12,267	9,363	8,229	9,654	9,601	9,371
Normalized (metric tonnes per \$M COPS)	5.07	5.00	3.90	2.92	2.42	2.17	1.54	1.47	1.49	1.56	1.22
% nonhazardous waste landfilled	47%	50%	40%	31%	27%	26%	20%	18%	19%	20%	17%
% nonhazardous waste diverted from landfill	53%	50%	60%	69%	73%	74%	80%	82%	81%	80%	83%

2020 Goal: [increase diversion rate by over 85% \(absolute as % of total nonhazardous waste\)](#). Current status: [increased by 83%](#)

### Nonhazardous waste incinerated

Absolute (metric tonnes)	5,096	3,226	3,228	3,198	2,998	4,156	4,231	3,550	5,980	6,295	7,585
Normalized (metric tonnes per \$M COPS)	1.07	0.68	0.63	0.60	0.54	0.74	0.70	0.64	0.92	1.02	0.99
% incinerated	10%	7%	7%	6%	6%	9%	9%	8%	12%	13%	14%

### Nonhazardous waste recycled

Absolute (metric tonnes)	21,678	20,677	25,788	30,362	31,409	30,377	31,485	32,380	34,228	30,850	36,676
Normalized (metric tonnes per \$M COPS)	4.56	4.36	5.04	5.70	5.68	5.38	5.18	5.80	5.27	5.02	4.76
% recycled	42%	43%	52%	60%	65%	64%	68%	71%	67%	65%	66%

2020 Goal: [increase recycling rate by over 70% \(absolute as % of total nonhazardous waste\)](#). Current status: [increased by 66%](#)

### Regulated waste (biohazardous and controlled waste)

Absolute (metric tonnes)	196	181	707	1504	858	687	1028	1216	1117	974	1753
Normalized (metric tonnes per \$M COPS)	0.04	0.04	0.14	0.28	0.16	0.12	0.17	0.22	0.17	0.16	0.23

### Hazardous waste generation

Absolute (metric tonnes)	2,853	2,219	2,617	2,141	2,300	2,507	2,747	2,871	3,154	2,352	2,499
Normalized (metric tonnes per \$M COPS)	0.60	0.47	0.51	0.40	0.42	0.44	0.45	0.51	0.49	0.38	0.32

2020 Goal: [reduce hazardous waste by more than 60% \(normalized by Cost of Products Sold \[COPS\]\)](#). Current status: [reduced by 46%](#)

## Air emissions

Measurement and UOM	FY2008 baseline	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
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### VOC emissions

Absolute (metric tonnes)	202	139	116	113	134	123	139	138	149	190	216
Normalized (metric tonnes per \$M COP)	0.042	0.029	0.023	0.021	0.024	0.022	0.023	0.025	0.023	0.031	0.028

### HAP emissions

Absolute (metric tonnes)	15	13	23	23	18	17	14	12	16	23	25
Normalized (metric tonnes per \$M COP)	0.0032	0.0028	0.0044	0.0044	0.0032	0.0031	0.0023	0.0022	0.0024	0.0038	0.0033

### VOC + HAP emissions

Absolute (metric tonnes)	217	152	138	137	152	141	153	150	165	213	241
Normalized (metric tonnes per \$M COP)	0.046	0.032	0.027	0.026	0.028	0.025	0.025	0.027	0.025	0.035	0.031

2020 Goal: reduce VOC and HAPs emissions by 65% (normalized by Cost of Products Sold [COPS]) Current status: reduced by 31%

### Ozone-depleting substances emissions

Absolute (metric tonnes)	322	274	249	254	235	236	228	218	195	185	190
Normalized (metric tonnes per \$M COP)	0.068	0.058	0.049	0.048	0.043	0.042	0.038	0.039	0.030	0.030	0.025

2020 Goal: reduce ozone-depleting substance emissions by 95% (normalized by Cost of Products Sold [COPS]) Current status: reduced by 64%

2020 Goal: 100% elimination of use of HCFC141b in manufacturing. Current status: While a number of our facilities have completed conversion plans and eliminated the use of hydrochlorofluorocarbon (HCFC), we continue to make progress implementing conversion plans at remaining facilities and expect to complete all conversions as scheduled.

## 2020 goal

### Establish supplier responsibility evaluation methodology

Supplier risk management continues to be a focus area for BD. As a company, we are taking significant steps to assess and monitor our suppliers against various risks that not only can have significant financial impact, but also can disrupt our ability to deliver critical products to the healthcare market. We have developed a robust assessment process to identify our “Critical to Healthcare” products, which is being implemented into our risk model.\* Our supplier risk program takes a quantifiable approach to assess both likelihood of a disruption event and the impact of it. We continue to work cross-functionally to mitigate

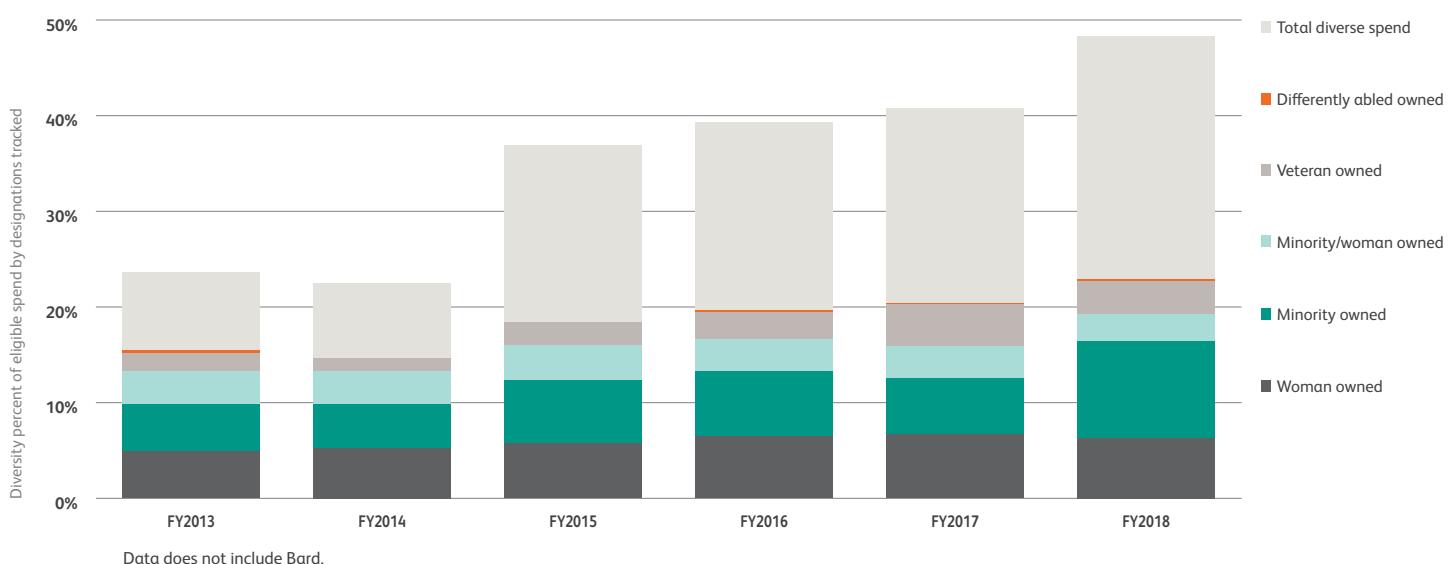
these risks. With the acquisition of C.R. Bard, we are focusing our efforts on enhancing and expanding the current risk model to address supply disruption risks for all our business units. Additionally, we are piloting a proactive risk event monitoring service that provides us with a centralized approach to assessing events around the world that may impact our supply chain. The program will continue to evolve over the coming years by broadening the scope of suppliers under risk management and leveraging sophisticated technologies to aid us in the program.

## Supplier diversity program

Supplier diversity encompasses more than simply tracking spending or “doing the right thing”—it supports our business objectives. Being committed to supplier diversity entails developing and implementing strategies that ensure our supply base aligns with the diverse customers and communities we serve, as well as the diverse markets we seek.

Further details on our **Supplier Diversity Program can be found on our website.**

### Supplier Diversity Program: percent of spend by designation



Data does not include Bard.

For information about supply chain due diligence and transparency, see the compliance section of our sustainability website.  
<https://www.bd.com/en-us/company/sustainability-at-bd/corporate-policies-and-resources-for-suppliers>.

\*Products are assessed using a set of five criteria, including criticality to the delivery of healthcare, the availability of alternative products or methods, and the potential impact to patient safety.

## Eliminate priority materials of concern in specified product categories.

### Chemicals management

Our Materials of Concern (MOC) list serves as our policy that addresses the reduction of MOC across our portfolio. The list contains both regulated and nonregulated substances that are MOC for BD and is updated twice a year. It includes substances the Company has put special emphasis on—for example, PVC and phthalates—and those that BD has chosen to avoid and/or eliminate from its products and packaging.

BD carefully considers the potential impact of the materials we use in our products and packaging and considers customer preferences related to chemicals of concern in finished goods. In order to monitor the changing landscape around chemicals of high concern among customers, regulatory bodies and advocacy groups, BD established a Chemical Review Board in 2013. This internal board, led by our Director of Global Product Stewardship, includes representation from R&D for each of our business units and functional expertise from toxicology and procurement. This group is equipped to evaluate the feasibility of alternative materials, provide guidance to R&D within the Company and leverage material expertise across the organization to accelerate our work to eliminate priority MOC.

While our 2020 Sustainability Goals related to the elimination of priority MOC do not specifically reference safer alternatives, internal work processes (*such as the Chemical Review Board*) exist to manage that aspect of chemicals management.

At the corporate level, BD has a Global Product Stewardship function, led by a Director of Global Product Stewardship and

### Chemical footprint project

BD actively engages in dialogue with our customers and advocacy groups to understand their position on the use of safer chemicals, for consideration in our work to eliminate priority MOC.

This engagement includes our continued response to the **Chemical Footprint Project**. The mission of the Chemical Footprint Project is to transform global chemical use by measuring and disclosing data on business progress to safer chemicals. It provides a tool for benchmarking companies as they select safer alternatives and reduce their use of chemicals of high concern. As in previous years, we have chosen to make our response public.

Director of Global Product Stewardship Compliance. The Global Product Stewardship function reports to the VP of Environment, Health & Safety and Sustainability (EHS&S); the VP EHS&S reports to the Company's Executive VP Integrated Supply Chain.

The Global Product Stewardship team is in place to monitor changing global environmental regulations affecting our product portfolio (*including chemicals of high concern*) and provide governance over compliance activities carried out by our business units. The Global Product Stewardship team also administers our system of collecting information from suppliers through a dedicated team of supply base compliance associates. The team also maintains our MOC list, and owns the central database used to manage chemical information at the product portfolio level.

The Global Product Stewardship team, and in turn our EHS&S function, are accountable for the Company's overall system of chemicals management and are responsible for governance over compliance with product environmental regulations such as REACH and RoHS.

Following the acquisition of Bard, we are currently evaluating our expanded portfolio against our 2020 product stewardship goals.

Our MOC list and materials for suppliers are available at

<https://www.bd.com/en-us/company/sustainability-at-bd/corporate-policies-and-resources-for-suppliers>.

BD is working to eliminate priority materials of concern\* in each of the following product categories:

**Devices:** PVC and phthalates

**Instruments:** phthalates, brominated flame retardants (BFRs) and heavy metals

**Packaging:** PVC and expanded polystyrene

\* intentionally added

## 2020 goal

### Improve lifecycle impacts of current and future products

BD continues to focus efforts on improving the lifecycle impacts of our products.

In 2018, we continued our engagement with the **Healthcare Plastics Recycling Council** (HPRC) both in the United States and the European Union, and the **Sustainable Healthcare Coalition** (SHC) in Europe. The activities we undertake as part of our engagement with these entities support, among other projects, our efforts to limit and minimize waste produced during the lifecycle of our products.

#### BD recovery center

In 2012, we established a process at our facility in San Diego to manage the end of life disposal of products from the BD Pyxis™ portfolio, by recovering materials and components for refurbishment or recycling.

Upon return to the facility, the units are carefully taken apart; certain items, such as drawers, are returned to the original manufacturer. Electronic parts are returned to our Tijuana, Mexico, facility for recovery operations. Other nonelectrical items, such as plastics, are sold for recycling. The remaining shell is inspected before being refurbished and reused. In FY2018, this

process diverted over 3,000 tons of waste material from landfills; since FY2012, over 15,000 tons of waste material have been diverted. In addition, this project has generated significant cost savings for BD.

We will continue to explore opportunities to improve the end-of-life disposal options for products through programs such as this. Where product take-back is not appropriate or viable, we will look to alternatives—such cross-industry partnerships found in HPRC—to make progress on our goal of improving the life cycle impacts of our products.





# Empowerment

## Positive workforce and community impacts

### Introduction

We profoundly respect that what we do is for the good of people. That's why BD associates work with humanity and kindness across cultures, regions and relationships. It is the behavior that is necessary to be responsible global citizens. It is what it means to care.

#### 2020 goal

##### **Increase the diversity of our workplace, particularly in leadership roles.**

Our focus is on furthering Inclusion & Diversity (I&D) at BD to drive innovation, to better understand patient and customer needs, and to make BD the best possible place for all people to work. Creating a culture of individual belonging, building and engaging diverse teams and leveraging the unique ideas, backgrounds and experiences of our associates will deliver better outcomes for our global marketplace. At BD, furthering Inclusion & Diversity is not just the right thing to do—it is both a cultural priority and a strategic imperative.

This year, we further demonstrated our commitment by creating and staffing a vice president role within our Inclusion & Diversity organization. The WW VP of Inclusion & Diversity is responsible for:

- The Company's inclusion and diversity strategy in full alignment with the Company's Purpose and strategic business objectives
- Implementing and executing the organization's inclusion and diversity initiatives and programs to ensure that BD has a diverse talent pipeline at the senior leadership levels of the Company and delivers on our inclusion goals
- Partnering closely with the CHRO, senior Company executives and leaders, Human Resources business partners and COEs, Global Inclusion Council and Associate Resource Group (ARG) leaders to advance and strengthen our inclusion and diversity efforts and leadership pipeline

The I&D team works with our business, functional and regional leaders, Council, ARGs and Human Resources. Together, they plan, develop and direct strategies to more effectively recruit, develop and retain the Company's diverse workforce.

The strategic pillars of our Inclusion & Diversity framework continue to include:

**Intensify commitment**—launching a Global Inclusion Council comprised of highly influential, next-generation leaders to facilitate action and drive change for their business, region or function

**Build pipeline**—launching a pilot development program to accelerate the readiness of diverse internal pipeline talent

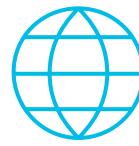
**Reshape workplace**—completing a workplace fairness assessment of all talent processes and policies to refresh our offerings, starting with a launch of a global Flexible Workplace Policy

**Create mindset**—expanding our unconscious bias education to conscious inclusion education

**Set goals and measure outcomes**—analyzing results from our annual Voice of Associate (VoA) survey. This will inform the strategic actions we take to continuously improve our culture and better address the needs of all associates



More than  
65,000  
associates<sup>38</sup>



Serving  
190+  
countries

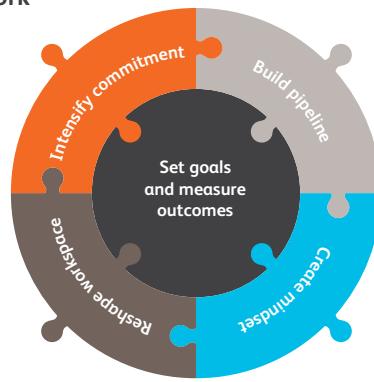
#### Inclusion and diversity—strategic framework

#### Intensify commitment

Incorporate inclusion and diversity into **everyday conversations and behaviors** while remaining accountable for meaningful change through role modeling

#### Reshape workplace

**Equip and educate leaders** and adapt regionally relevant, family-friendly policies and programs for new ways to get work done in support of a more **engaged and dynamic** workplace for all associates



#### Set goals and measure outcomes

Set the highest-level Company benchmark, collect, analyze and act on **data on hiring, retention, succession and employee perception** while holding ourselves accountable by measuring progress

We furthered our strategic framework for Inclusion & Diversity this year by establishing a Global Inclusion Council, made up of leaders from every business, region and function within BD, with our CEO, Vince Forlenza, as the executive sponsor. The purpose of the Council is to:

- Partner with leaders to build and execute action plans at the business, functional and regional levels
- Define processes and challenge barriers to inclusion in key areas of focus and identify ideas for new strategically aligned efforts
- Understand key external best practices, determine how BD can potentially leverage and align on metrics and measures, and measure progress

Individually, each council member worked within his/her respective organization to develop an inclusion plan for FY2019, consisting of customized goals and metrics to guide the organization's I&D efforts and establish accountability.

#### Build pipeline

Create a **competitive business advantage** through increased leadership focus on **attraction, development and retention of diverse associates**

#### Create mindset

Build inclusion and diversity as a critical element of our success, **training and developing** associates to bring about **lasting and meaningful change**

This year, we also devoted efforts toward broadening the reach and impact of our ARGs. Each ARG has developed an annual plan that aligns with our Inclusion & Diversity strategy, including identifying opportunities to deliver impact and value to our businesses.

At a corporate level, we established key driver goals (KDG) specific to leading indicators of I&D. These metrics will be reviewed at regular intervals with both the Management Committee and the board of directors. Additionally, we established pilot development programs for diverse talent, which will be evaluated and measured over the course of the year for its efficacy for our associates.

In summary, we have continued to make good progress in effecting change in our culture with respect to I&D over the past few years, with a forward-looking focus on increased internal and external communication, enhanced diverse talent acquisition efforts, expanded diverse leadership development, and improved governance of our global I&D model.

<sup>38</sup> This number includes Bard associates.

## Progress toward our workforce diversity goals

We have continued to experience good momentum and measurable progress toward our diversity representation goals, comparable to other companies within our industry.

Our strategy to maintain progress in diversifying our workforce includes more effective hiring of diverse talent as well as developing and retaining our internal diverse talent.

### Leadership representation metrics

	End of FY2016	End of FY2017	End of FY2018
Executive gender	22%	21%	23%
Management gender	37%	38%	39%
Executive ethnicity	14%	17%	17%
Management ethnicity	26%	27%	27%

Data does not include Bard associates.

### Demographic data

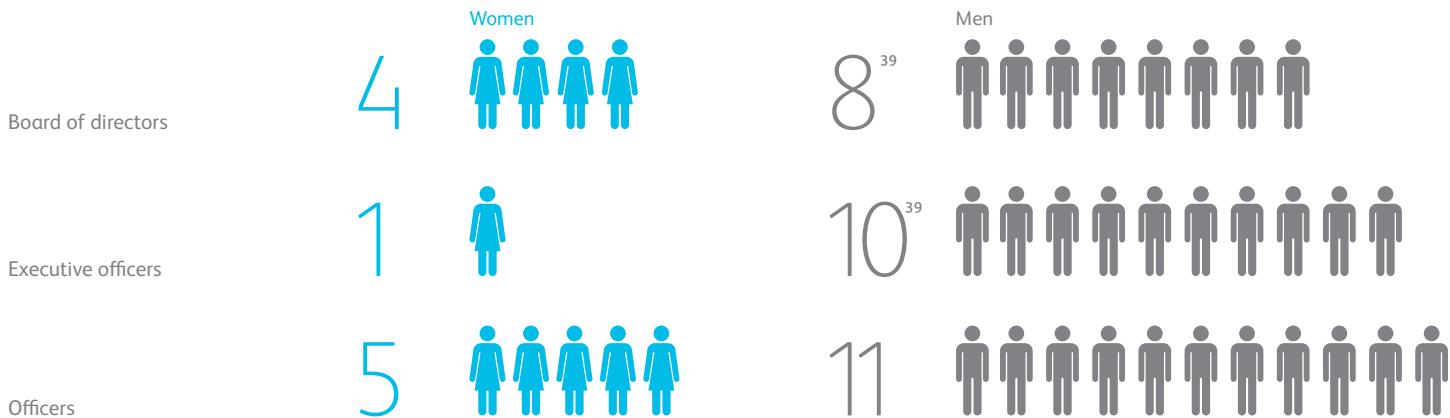
In this section of the report, the total number of associates being reported is 43,581, which excludes Bard associates.

As part of the integration activities following the acquisition of Bard, BD has been working to incorporate Bard associates into our single HR IT system. Over the course of the next year, we will incorporate this data into our reporting and will adjust our efforts according to the needs of the newly formed organization. In the charts below, "other" is defined as people who do not identify as those ethnicities listed above, or who identify as more than one ethnicity, and "not disclosed" indicates that the associate chose not to answer.

### FY2018 worldwide associates by gender



### Gender breakdown of the board of directors and executive officers



### 2018 board of directors—ethnicity

Asian/Indian	0
Black or African American	1
Hispanic/Latino	0
Other	0
White	11

<sup>39</sup> Includes Vincent A. Forlenza, Chairman of the Board, CEO.

GRI disclosure: 405-1

## Executive and management positions

For the following tables, the total number of associates for each disclosure in executive and management positions is noted in the corresponding table. Bard associates are not included in this data.

Executives and management positions by gender (worldwide)						
	Executive			Management		
	FY2016	FY2017	FY2018	FY2016	FY2017	FY2018
Female	22%	21%	23%	38%	38%	39%
Male	78%	79%	77%	62%	62%	61%
<b>Total</b>	<b>295</b>	<b>280</b>	<b>283</b>	<b>6,923</b>	<b>7,340</b>	<b>7,722</b>

BD defines executives as those in VP, SVP or EVP roles. Management positions are defined as those in manager, director or equivalent roles.

Executive and management positions by age (worldwide)						
	Executive			Management		
	FY2016	FY2017	FY2018	FY2016	FY2017	FY2018
Under 35	0%	1%	0%	11%	11%	11%
35–54	72%	70%	68%	72%	72%	72%
55 and older	27%	29%	32%	17%	17%	17%
<b>Total</b>	<b>295</b>	<b>280</b>	<b>283</b>	<b>6,923</b>	<b>7,340</b>	<b>7,722</b>

BD defines executives as those in VP, SVP or EVP roles. Management positions are defined as those in manager, director or equivalent roles.

Executive and management positions by ethnicity (U.S. only)						
	Executive			Management		
	FY2016	FY2017	FY2018	FY2016	FY2017	FY2018
Asian/Indian	9%	11%	10%	14%	15%	14%
Black or African American	3%	3%	2%	4%	4%	4%
Hispanic/Latino	2%	3%	4%	5%	7%	7%
Not disclosed	5%	2%	3%	4%	3%	5%
Other	0%	1%	1%	3%	2%	2%
White	81%	81%	80%	71%	71%	68%
<b>Total</b>	<b>237</b>	<b>225</b>	<b>225</b>	<b>4,354</b>	<b>4,555</b>	<b>4,698</b>

BD defines executives as those in VP, SVP or EVP roles. Management positions are defined as those in manager, director or equivalent roles.

## Associates

For the following tables, the total number of associates for each disclosure is noted in the corresponding table. Bard associates are not included in this data.

Associates by age (worldwide)			
	FY2016	FY2017	FY2018
Under 35	35%	36%	32%
35–54	52%	51%	54%
55 and older	12%	12%	14%
<b>Total</b>	<b>45,814</b>	<b>47,750</b>	<b>43,581</b>

In FY2016 and FY2017, age was not disclosed for 1% of the dataset. Workforce includes all associates, both management and nonmanagement.

New hire rate by age (worldwide)			
	FY2016	FY2017	FY2018
Under 35	10%	13%	13%
35–54	6%	5%	7%
55 and older	1%	0%	1%

Workforce includes all associates, both management and nonmanagement.

New hire rate by gender (worldwide)			
	FY2016	FY2017	FY2018
Female	8%	10%	9%
Male	9%	9%	11%

Workforce includes all associates, both management and nonmanagement.

Turnover rate by age (worldwide)			
	FY2016	FY2017	FY2018
Under 35	13%	15%	8%
35–54	7%	7%	6%
55 and older	13%	2%	2%

By turnovers, we mean the associates in the workforce who were with the Company on the last day of the previous financial year (*September 30, 2017*) but no longer with the Company in the reporting time period. Workforce includes all associates, both management and nonmanagement.

Turnover rate by gender (worldwide)			
	FY2016	FY2017	FY2018
Female	12%	14%	8%
Male	9%	10%	9%

By turnovers, we mean the associates in the workforce who were with the Company on the last day of the previous financial year (*September 30, 2017*) but no longer with the Company in the reporting time period. Workforce includes all associates, both management and nonmanagement.

## 2020 goal

### Achieve best-in-class associate safety performance

#### FY2018 performance update

Our efforts in FY2018 were again driven by the goal of ensuring that all associates are working safely and in an environment designed to protect and maintain health. With the acquisition of Bard, we had an opportunity to identify new best practices and expand them across our operations. As part of this integration, we harmonized programs and expectations across all of our operations. To do so, we established a two-way mentorship model to enhance knowledge and support the implementation of practices new to the sites.

This process is part of ongoing efforts by our governance team to seek out new strategies that enhance health and safety site management, which is actively involved in, and is ultimately responsible for, meeting EHS targets. Associates receive regular, ongoing training, which is regularly audited. All of these efforts feed into, or are managed by, our Performance Verification Process. This model not only provides our operating guidelines, but also sets minimum requirements that EHS teams are measured against.

#### BD Safety Policy

We are committed to driving a culture in which the health, safety and well-being of our associates, visitors and contractors is an integral part of every decision we make. Each of us must take personal responsibility for the safety and care of each other to ensure that we all remain safe at work each and every day.



Vincent A. Forlenza  
Chairman and Chief Executive Officer



While pursuing Bard integration, we worked to ensure health and safety measurements were consistent across all our operations—including Bard operations. This harmonization was completed in FY2018, and our Health and Safety metrics reported here include Bard operations. In FY2018, there were no fatalities.

We continue to place a focus on proactive procedures, policies and governance programs that ensure compliance, promote the identification of workplace hazards and implement corrective actions that prevent injuries and workplace illnesses. Management and leadership engagement, peer-to-peer coaching, and education and training are components critical to fostering our culture of safety. The following continue to be core elements of our safety program:

- Interventions that address safety risks unique to our operations, such as ergonomics, fall protection, the control of hazardous energy and machine guarding
- Cross-business teams of safety representatives and plant managers who meet to share best practices and accelerate safety improvements
- Measurement of leading indicators across all sites, which include root cause analysis of incidents and serious near misses, identification of safety opportunities, and the completion of risk assessments and inspections
- Teams to identify program elements for specific segments of our associate population, such as field service engineers, fleet operators, office and R&D associates, and construction contractors

	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018
Lost time injury frequency rate per 200,000 hours worked									0.29	0.32	0.26
Occupational illness frequency rate per 200,000 hours worked									0.04	0.03	0.00
Occupational injury and illness rate per 200,000 hours worked	1.4	1.2	1.1	1.0	1.0	0.9	1.1	0.9	0.7	0.7	0.6

Data provided reflects all BD manufacturing sites FY2008–FY2017, excludes Bard.

# Social investing

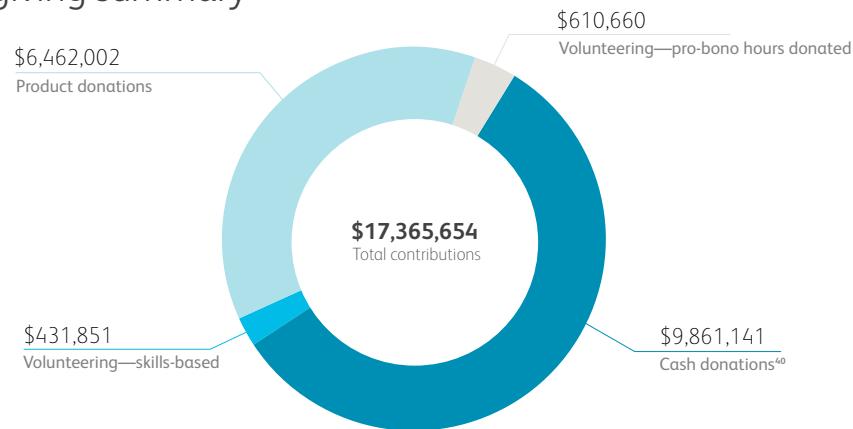
Advancing the world of health™ is the inspiration behind our global enterprise and is a call to action that resounds with BD associates around the world. By giving our time, our talent and our resources through philanthropic and charitable efforts,

we seek to improve global health standards and access to healthcare for all communities. Since we were founded over 110 years ago, BD has actively donated cash, products and expertise to nonprofit organizations, globally.

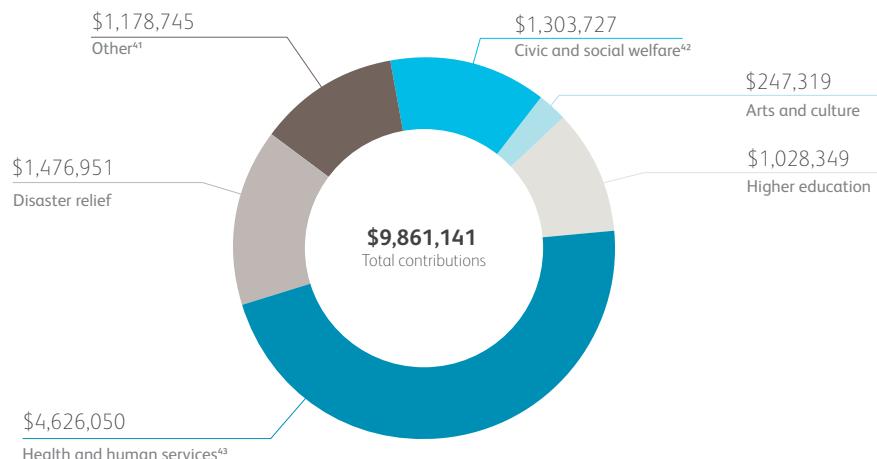
## BD FY2018 charitable giving summary, by the numbers

Total cash donations	\$9.9 million
Total product donations	\$6.4 million
Value of Company match to associate donation	\$1.3 million
BD match to employee funds raised for disaster relief through Americas (hurricane relief)	\$40,840
BD match to employee funds raised for disaster relief through Direct Relief (California wildfires)	\$42,670
No. of grants issued, worldwide	244
No. of nonprofit beneficiaries	185
No. of matching gifts distributed	26,579

## FY2018 charitable giving summary



## FY2018 cash contributions



<sup>40</sup> Includes matching gifts and contributions from individual BD locations

<sup>41</sup> Includes inclusion and diversity and volunteer associate engagement

<sup>42</sup> Includes basic needs/hometown giving

<sup>43</sup> Includes care for the uninsured/underinsured, diabetes and prevention, global health, infection prevention, maternal and newborn health, vaccine preventable diseases, women's health, cancer and other health

**Partner with nonprofits to address unmet needs, locally and globally**

## 20 million syringes donated to support polio eradication

BD donated 20 million autodisable syringes, valued at \$1 million, to Rotary—a nonprofit organization dedicated to tackling the world's most pressing humanitarian challenges—in support of the Global Polio Eradication Initiative.

With facilitation by Direct Relief, a global humanitarian aid organization, the 20 million syringes were delivered and used

for vaccinations in four states within India—Maharashtra, West Bengal, Tamil Nadu and Haryana.

More than six decades prior, in 1954, BD donated 1 million of the first sterile disposable syringes for the Salk polio vaccine field trials in the United States, which inoculated nearly 1 million school children known as “Polio Pioneers.”

## BD Helping Build Healthy Communities™ initiative

Community health centers are on the front lines, every day, providing life-saving care to more than 27 million people in vulnerable rural and urban communities across the United States.

Without these community-based “family doctors,” millions of uninsured and underinsured Americans would go without healthcare.

Implemented in partnership with [Direct Relief and the National Association of Community™ Health Centers](#), the BD Helping Build Healthy Communities™ initiative awards grants to community health centers, to support the implementation of innovative approaches to meeting the unique healthcare needs of local, underserved and vulnerable populations.

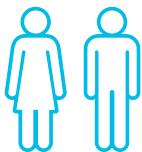
In FY2018, the initiative's sixth year, BD invested \$1 million, with five health centers each receiving \$200,000. Clinical data indicates that this funding is having a meaningful impact on grant winners' ability to expand access to quality patient care, particularly among patients experiencing diabetes, hypertension, depression and difficulty with medication compliance.

For example, after the first full year of funding, 2017 grant winner Cherokee Health Systems, in Knoxville, TN, increased the number of patients participating in its medication therapy management (MTM) program, from 30 patients to 176. It also expanded from two to five clinic sites, added a new pharmacist, and is reaching patients in rural areas through telepharmacy. Grant winner Coastal Family Health Center, in Gulfport, MS, expanded its MTM program from 95 to 137 patients and screened nearly all of those patients for depression.

### BD Helping Build Healthy Communities™ initiative: by the numbers



The program won the [2017 U.S. Chamber of Commerce Foundation Healthy10 Award](#).



Since 2013, [45,000](#) patients have been impacted.



Since 2013, [31](#) community health centers in [13 states](#) have received [\\$3.6 million](#) in grants.

Since 2013, BD has provided [Direct Relief](#) with more than [22 million insulin syringes](#) and more than [3,200 pen needles](#), valued at [\\$6.4 million](#).

These items have been distributed to [845](#) community health centers, free clinics and community clinics in [49 states and Puerto Rico](#).



## Expanding on program success

In response to the success of the BD Helping Build Healthy Communities™ program, and to reach an even broader vulnerable population, BD worked with the [National Association of Free and Charitable Clinics \(NAFC\)](#) to introduce three companion programs in 2017, which support free and charitable clinics.

One of these programs, the [BD Advancing Community Health: Enhancing Clinical Effectiveness](#) program, was codeveloped with [Heart to Heart International](#). It aims to improve the diagnosis and treatment of chronic disease among vulnerable populations, through the installation of point-of-care (POC) laboratories.

Through this program in FY2018:

- BD awarded \$250,000 in funding to support lab installation at six community clinics, located in Arizona, Kentucky, Minnesota, Texas, Nebraska and Virginia.
- BD invited associates to participate in the Company's first-ever U.S.-based Volunteer Service Trip. Seven BD associates were deployed to seven clinics, and spent 2–3 days each, providing mentorship, laboratory set up guidance and diagnostic training.
- BD volunteers will facilitate an annual audit of each POC lab to evaluate the degree to which the labs helped participating clinics improve and expand access to the care they provide their communities.

## Americares and BD Advancing Community Health Program

Under the Americares and BD Advancing Community Health Program, BD awarded \$200,000 in 2018—\$100,000 each to free clinics in Georgia and Pennsylvania—to support the process of becoming a recognized patient-centered medical home. The program aims to improve the quality of patient care at free and

charitable clinics serving low-income and uninsured patients in the U.S. Two clinics from across the country are selected annually. Four free clinics in three states have benefited since the program launched in 2017.

## Responding in times of disaster

For more than a decade, BD has partnered with international relief agencies Direct Relief, Americares, MAP International and Heart to Heart International to ensure its supplies and financial support are deployed as quickly and efficiently as possible to the people and communities who need them most. In FY2018, BD responded to a number of humanitarian crises and natural disasters, the most notable of which were hurricane Maria and the Kerala floods.

- [Hurricane Maria](#) hit Puerto Rico in September of 2017 and devastated the majority of the island, causing widespread flooding, destroying many whole neighborhoods and almost the entire power grid on the island.

BD and Bard collaborated with the Community Foundation of New Jersey (CFNJ) to create employee crisis funds to provide relief to both companies' Puerto Rico associates affected by hurricane Maria.

The two companies issued more than [\\$2 million in grants to more than 1,000 BD and Bard Puerto Rico-based associates](#).

The funds paid for associates' basic living expenses that were not covered by insurance or help from other organizations, including housing, home repair for primary residences, food, clothing and other basic living essentials.

- [Kerala floods](#): More than one million people were affected by the unprecedented flooding that took place in Kerala, southern India, in 2018. Several hundred lost their lives during monsoon season, said to be the worst rains the region has received in more than 100 years.

To support those impacted by the Kerala flooding, BD donated \$25,000 to [Americares India](#) and also donated insulin syringes, catheters and pen needles to the local government authorities.

## Drive social impact and associate engagement through volunteer programs

### BD Volunteer Service Trip program

Having celebrated its 13th year in 2018, our Volunteer Service Trip (VST) program sends teams of BD associates to developing countries to help strengthen local health systems through training, education, laboratory services and construction projects.

In FY2018, 16 BD associates completed a 3-week VST to Mexico, where they served two organizations: Direct Relief Mexico and Casa de la Amistad, a nongovernmental organization that provides comprehensive services to pediatric cancer patients and their caregivers. The team, which was the first to include legacy

Bard associates, worked on projects ranging from business development, marketing, space utilization and process efficiency, to IT and construction work. In FY2019, BD and Direct Relief will send a second team of BD volunteers to continue its relationship with Casa de la Amistad.

The Company's 2018 VST to Cameroon was indefinitely delayed, due to safety concerns in the region. In 2019, associates who were selected to volunteer in Cameroon will instead participate in the Company's fifth VST to Haiti.

### BD Volunteer Service Trips: by the numbers

**13** 

years of VST programs

**222** 

VST volunteers

**89** 

BD sites, globally

**30** 

country locations

 **6**

NGO partners

 **23**

VSTs

**\$3.3**

million in skills-based service and other volunteer time

### Henry P. Becton Volunteer Impact Awards

These global awards celebrate the outstanding and creative volunteer service of BD associates and retirees. In FY2018, BD awarded grants totaling \$75,000 to 15 nonprofit

organizations around the world, recognizing the community service of 15 associates from eight countries—including the program's first legacy Bard winners.

**\$75,000** in grants

**15** nonprofit organizations

**15** BD associates recognized for volunteerism

### Dr. Martin Luther King Jr. Day of Service

BD is committed to encouraging associates around the world to join together to serve their local communities through volunteerism—with the goal of bringing our values to life while making a meaningful difference in the communities where they live and work.

As just a single example of this team-based volunteerism, nearly 1,000 BD associates at 11 sites across the United States celebrated the Dr Martin Luther King Jr. Day of Service by packaging 160,000+ meals over 3 days for Rise Against

Hunger programs. BD ARGs, including the Women's Initiative Network (WIN) and African Americans at BD (AABD) helped coordinate events at several sites, as did local associate volunteer councils at each location. FY2018 also marked the first time that legacy Bard associates, located in Murray Hill, NJ, participated in this event.

BD plans to continue to expand this nationwide volunteer service effort in FY2019, to include additional locations.

### BD matching gift program

BD matches charitable donations to eligible nonprofit organizations, up to \$5,000 per associate, per year. In FY2018, BD matched 26,579 associate donations to 501(c)(3) organizations in the United States, for a total investment of over \$1.3 million.

In FY2018, BD harmonized its matching gift program with the Bard program, to ensure all associates receive the same match for their FY2019 community giving. In 2019, BD plans to expand its Annual Payroll Deduction Campaign to include legacy Bard associates.

# Awards, recognitions and affiliations, FY2018

## Corporate recognition

Barron's 2018 100 Most Sustainable Companies

Dow Jones Sustainability North America Index since 2005

FORTUNE's 2018 World's Most Admired Companies list

FTSE4Good Index since 2003

CR Magazine's 100 Best Corporate Citizens List

2018 CPA-Zicklin Index on Corporate Political Disclosure and Accountability—Center for Political Accountability

## Innovation

2018 Derwent Top 100 Global Innovators list—Clarivate Analytics

## Efficiency

U.S. EPA Green Power Partner

U.S. EPA SmartWay® Transport Partner

## Empowerment

AON Best Employer list (*China*)

Best Companies to Work for in the Health Sector list—Great Place to Work Institute (*Brazil*)

Best Places to Work for LGBTQ Equality—Human Rights Campaign Foundation

Employer of Choice for Gender Equality—Australia Workplace Gender Equality Agency (*Australia*)

Top Employers Africa 2018; #1 Employer in the Healthcare Services Industry—Top Employers Institute (*Africa*)

Top Employers China 2018—Top Employers Institute (*China*)



In Collaboration with RobecoSAM



FTSE4Good



To find out more about sustainability at BD or to provide feedback on our reporting,  
please contact **[BD\\_Sustainability\\_Office@bd.com](mailto:BD_Sustainability_Office@bd.com)**

BD, Franklin Lakes, NJ, 07417, U.S.

**[bd.com](http://bd.com)**

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