



2018 ANNUAL REPORT



PIONEERING DIAGNOSTICS

A world leader in the field of *in vitro* diagnostics for over 55 years, bioMérieux is present in 43 countries and serves more than 160 countries with the support of a large network of distributors. In 2018, revenues reached €2.4 billion, with over 90% of international sales.

bioMérieux provides diagnostic solutions (systems, reagents, software and services) which determine the source of disease and contamination to improve patient health and ensure consumer safety. Its products are mainly used for diagnosing infectious diseases and some critical illnesses. Its diagnostic solutions are also used for detecting microorganisms in agri-food, pharmaceutical and cosmetic products.

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Committed to being a socially responsible company with a humanistic vision
Committed to people
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GLOSSARY



EDITO

” Alexandre Mérieux
Chairman and CEO

In 2018, bioMérieux recorded highly satisfactory results with sales growth of 9.9% (at constant exchange rates and scope of consolidation) and profitability reaching nearly 15% of sales. These results confirm the solid performance we have seen in recent years. They are the outcome of sustained business activity thanks to the balance of our clinical and industrial product lines and the scope of our international network.

For more than 55 years we have been developing our expertise in infectious disease diagnostics to address major public health challenges such as antimicrobial resistance, sepsis and respiratory infections.

The patient has always been at the center of our strategy of developing products with high medical and economic value. Because our diagnostic tests results are delivered more and more rapidly and precisely, they make a genuine impact on improving patient care. In addition, they contribute to economically sustainable healthcare systems by keeping costs under control.

For example, the innovative syndromic approach to molecular diagnostics provided by our BIOFIRE® product line, is a clear growth driver that has propelled bioMérieux to the position of market leader.

More than 25 years ago, we leveraged our expertise in clinical diagnostics and applied it to the protection of consumer health by developing industrial microbiological control solutions. Today this area of our business represents near by 20% of sales, driven in 2018 by the dynamic performance of products for the pharmaceutical industry and by the rapid growth of molecular biology solutions for the agri-food sector.

As a global public health player, today bioMérieux earns more than 90% of revenues outside of France. In 2018, the Americas region recorded very strong sales (growth of 12.5%), and North America, our biggest market, accounted for 38% of sales. The Asia Pacific region also delivered solid results with growth of 12.4%. Sales in Europe rose steadily by nearly 6%.

To sustain this strong momentum, we continue to prepare for the future by investing at a higher level in R&D than the more average investment for our sector. In addition, bioMérieux has made three strategic acquisitions: Astute Medical, a U.S. company that developed the NEPHROCHECK® test for the early risk assessment of acute kidney injury; Hybiome, a Chinese company specialized in automated immunoassay tests (in which we acquired a majority stake); and, in early 2019, Invisible Sentinel, a U.S. start-up that develops and manufactures innovative molecular diagnostic solutions for the detection of pathogens in food and beverages.

Since bioMérieux was founded, we have always placed great importance on the quality of social dialogue and on our employees' professional development and success. With them, we cultivate a state of mind that may be summarized in three words: BELONG.DARE.IMPACT. As these three pillars illustrate, we care about having a humanistic culture, being part of a unique community and our commitment to the territories in which we operate. This approach is inspired by our pioneering spirit, our belief in collaborative innovation and our capacity to undertake entrepreneurial initiatives. This mindset guides our actions on a daily basis and enhances our impact on global health.

We are fully aware that our public health mission brings with it a unique responsibility to society and to future generations and we remain committed to social responsibility in the conduct of our business.

Thus, bioMérieux actively promotes health awareness, education and prevention. We also uphold our commitment as a socially responsible company by sponsoring initiatives to help the communities where our sites are located and by supporting the Mérieux Foundation and the Christophe et Rodolphe Mérieux Foundation, two family foundations that fight infectious diseases in developing countries.

bioMérieux has what it takes to be a leader in our industry: highly motivated teams, proficiency in the technologies that will drive the diagnostics of tomorrow and a unique international footprint. I am confident that we will be able to maintain the current momentum and continue to fulfill our public health mission far into the future.

2018

ATA GLANCE



PRODUCT NEWS

CLINICAL APPLICATIONS

BIOFIRE® FILMARRAY® PNEUMONIA

Launch of innovative syndromic panels for the diagnosis of lower respiratory tract infections. These panels have received CE marking and FDA clearance

VITEK® MS

FDA clearance of the expanded CE-marked database in 2017 for the identification of challenging pathogens such as *Brucella*, *Candida auris* and *Elizabethkingia anophelis*. The database now contains 16,000 strains representing 1,316 species

NEPHROCHECK®

This test for the early risk assessment of acute kidney injury was included in the consensus guidelines of medical societies: ERAS® Cardiac Surgery and Acute Dialysis Quality Initiative (ADQI)

VIDAS® PTH (1-84)

Launch of a third-generation quantitative test to measure parathyroid hormone and support the diagnosis of hyperparathyroidism and hypoparathyroidism



INFRASTRUCTURE

Inauguration of the Shanghai (China) training campus

Acquisition of land for the construction of a new BIOFIRE® FILMARRAY® manufacturing facility at Salt Lake City (United States)

Automation of the BACT/ALERT® blood culture bottle packaging line in Durham (United States)

Expansion of the Craponne (France) site

Construction of a new building to house immunoassay R&D and expansion of VIDAS® production capacity at Marcy l'Étoile (France)

ACQUISITIONS

IN THE FIELD OF IMMUNOASSAYS



Astute Medical (United States)
High medical value NEPHROCHECK® test for the risk assessment of acute kidney injury



Hybiome (China)
Automated immunoassay tests for hospitals

PARTNERSHIPS

CNES-NASA
Cooperation agreement for the quality control of water in the International Space Station using AQUAPAD

DEINOVE (FRANCE)
Agreement for bioMérieux to provide DEINOVE with more than 250 bacterial strains (130 species) for screening of antibiotic and antifungal activities

LABORATORY OF MEDICAL MICROBIOLOGY, UNIVERSITY OF ANTWERP (BELGIUM)
Renewed support for the Global Point Prevalence Survey (GLOBAL-PPS)

CENTERS FOR DISEASE CONTROL AND PREVENTION (UNITED STATES)
Commitment to take part in the AMR Challenge, a new initiative by the US CDC

EUROPEAN PROJECTS (INNOVATIVE MEDICINES INITIATIVE)
Participation in the COMBACTE-CDI (COMbating BACTerial resistance in Europe) project
Co-leader of the VALUE-Dx project

BAXTER (UNITED STATES)
Collaboration to improve identification and treatment of acute kidney injury



INDUSTRIAL MICROBIOLOGICAL CONTROL

BACT/ALERT® VIRTUO®

FDA clearance for the BPA and BPN culture bottles for use by blood banks

GENE-UP® CRONOBACTER

Launch of a test to detect the pathogen *Cronobacter* spp for products in the agri-food industry

ENDOZYME® II GO

Launch of an innovative test for the detection of endotoxins in pharmaceutical products

IN THE FIELD OF INDUSTRIAL MICROBIOLOGICAL CONTROL



Invisible Sentinel (United States)
The VERIFLOW® platform is an innovative molecular biology solution for the detection of pathogens and spoilage organisms in food and beverages, in particular, wine and beer (early 2019)



DIAGNOSTICS IS POWER

The power to sustain antibiotic efficacy for future generations



#pioneeringdiagnostics

CLINICAL APPLICATIONS

bioMérieux wants to unleash the full power of diagnostics to fight infectious diseases and make an even greater impact to improve patient care. The fight against antimicrobial resistance is at the heart of our public health mission.



The work I do every day helps combat antimicrobial resistance, for the health of my children and children everywhere.

” Sakurako
Marketing manager

CLINICAL APPLICATIONS

DIAGNOSTIC TESTING: INSTRUMENTAL IN COMBATING ANTIMICROBIAL RESISTANCE



Antimicrobial resistance has been recognized as a major global public health threat. International organizations, including the United Nations, the European Commission, the G20, the WHO, and the Centers for Disease Control and Prevention, have all taken steps to strengthen the international community's determination to address this threat.

As a world leader of *in vitro* diagnostics, we have been active in the field of infectious diseases for more than 55 years. Combatting resistance to antibiotics lies at the heart of our company's global public health mission.

80%
of sales in clinical applications from products that contribute to the fight against antimicrobial resistance either directly or indirectly

75%
of R&D expenses dedicated to combatting antimicrobial resistance

The Company offers a unique and comprehensive range of diagnostic solutions that support the responsible use of antibiotics.

700,000 deaths annually worldwide and an estimated 10 million deaths a year by 2050 ⁽¹⁾

A potential cost to global economic output of \$100 trillion ⁽¹⁾ and an annual decrease in global GDP* of between 1.1% and 3.8% ⁽²⁾ by 2050

* Global Domestic Product
1) Tackling drug-resistant infections globally: Final report and recommendations. The Review on Antimicrobial Resistance, Chaired by Jim O'Neill, May 2016.
2) Press release from the World Bank: "By 2050, drug-resistant infections could cause global economic damage on par with 2008 financial crisis", September 19, 2016.

bioMérieux offers a unique and comprehensive range of diagnostic solutions that support the responsible use of antibiotics.

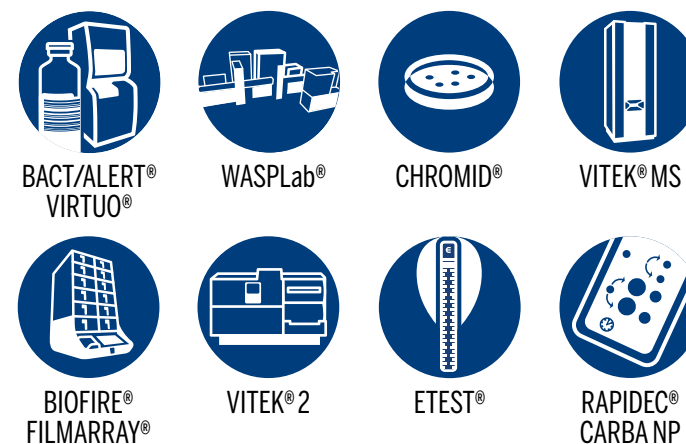
Our diagnostic tests make it possible to:



Confirm bacterial infection and identify the causative pathogen to ensure optimal patient outcomes and avoid unnecessary antibiotic use with:



Determine a pathogen's resistance profile to select the most appropriate treatment, limit use of broad-spectrum antibiotics and avoid adverse side effects with:



Monitor patient response to personalized treatment duration and discontinue antibiotics as early as possible with the VIDAS test to measure procalcitonin level.



The bioMérieux offer also includes MYLA[®] lab informatics solutions, allowing to connect several systems to treat microbiological data to consolidate test results, and BIOMÉRIEUX EPISEQ[®], an epidemiological surveillance tool for prevention and infection control to avoid outbreaks and limit the spread of resistance.

VITEK[®] MS: AN EXPANDED DATABASE

In 2018, the expanded database of VITEK[®] MS, a mass spectrometry microbial identification system, received CE marking and FDA clearance. The expanded base safely identifies *Brucella*, a bacterium that is often difficult for lab personnel to recognize, as well as emerging and drug-resistant pathogens such as *Candida auris*, *Elizabethkingia anophelis* and other clinically important microorganisms. This innovative solution further improves the performance of the VITEK[®] MS system by adding 272 new species to its database, including 217 new bacterial species and 55 fungal species, bringing the number of strains in the VITEK[®] MS database to 16,000 representing 1,316 species.

MYLA[®]: AN IT SOLUTION TO CONSOLIDATE TEST RESULTS

MYLA[®] is an IT solution that ensures connectivity between several instruments via a microbiology laboratory information system (LIS). It acts as a "control tower" by supervising the flow of information from instruments while providing full traceability of exchanges with the IT system and delivering relevant indicators of laboratory efficiency. MYLA[®] consolidates all VITEK[®] MS, VITEK[®] 2 and BACT/ALERT[®] 3D results, thereby reinforcing the medical value of individual diagnostic tests. Since 2018, this solution also connects additional instruments that are complementary to the bioMérieux product ranges, so that it is possible to consolidate all laboratory data on antibiotic sensitivity. MYLA[®] is a valuable tool to support antibiotic stewardship programs.

LUMED: FOR THE RESPONSIBLE USE OF ANTIBIOTICS IN HOSPITALS

In October 2017, bioMérieux signed a distribution agreement with Lumed, an innovative Canadian start-up working at the intersection of IT and medicine. This agreement covers distribution of the APSS (Antimicrobial Prescription Surveillance System) software in Canada, the United States and France. The APSS solution supports clinical decision-making and was specifically designed for antimicrobial stewardship teams.



Thanks to data analysis techniques, I contribute to the development of high medical value diagnostic tests to improve the health of patients around the world.



Laure
Biostatistician

CLINICAL APPLICATIONS

A UNIQUE RANGE OF SOLUTIONS TO FIGHT SEPSIS

Sepsis is a serious infection in which the body's immune response leads to potentially fatal organ dysfunction. It develops from the clinical deterioration of a common infection, such as respiratory, gastrointestinal, urinary infections, as well as skin and wound infections.

Although sepsis may affect people of all ages, the groups at highest risk for development of sepsis are: immunocompromised patients, children under one year, adults aged over 60, and patients who may be more susceptible following an illness.

Even though it is often under-recognized, sepsis is one of the leading causes of death worldwide and one of the main infection-related causes of death:

27 to 30 million people affected each year ⁽¹⁾

6 million deaths ⁽¹⁾

1 death every 3 to 4 seconds worldwide ⁽¹⁾

mortality of 20 to 30%, and in the case of septic shock, up to 70% ⁽²⁾

Early recognition and rapid diagnosis are essential to begin effective antibiotic treatment; any delay in starting appropriate treatment is associated with increased mortality.

1) Global Sepsis Alliance, <https://global-sepsis-alliance.org>
2) Chun et al., *Journal of Laboratory Automation*, 2015, Vol. 20(5) 539–56.

SEPSIS SOLUTION, BIOMÉRIEUX'S UNIQUE INTEGRATED APPROACH

bioMérieux offers the most extensive range of products on the market for sepsis diagnostics and management, with immunoassay, microbiology and molecular biology tests. The Sepsis Solution allows workflow optimization so that samples from sepsis patients undergo analysis as quickly as possible, thus providing clinicians with results that facilitate medical decision making.

THIS PRODUCT OFFERING INCLUDES:

- ➔ The measurement of a patient's procalcitonin level with the VIDAS® B.R.A.H.M.S PCT™ test, a specific marker of severe bacterial infection.
- ➔ Blood cultures, with the BACT/ALERT® range and BACT/ALERT® VIRTUO®, a fully-automated blood culture system that continuously processes samples 24/7.
- ➔ Molecular syndromic diagnostics, with the BIOFIRE® FILMARRAY® Blood Culture Identification Panel, which after just 2 minutes of hands-on time for a positive blood culture, identifies pathogens and 3 antibiotic resistance genes associated with blood stream infections in one hour.
- ➔ Rapid, automated identification of pathogens using mass spectrometry with the VITEK® MS system.
- ➔ Identification of pathogens and automated antibiotic susceptibility testing with the VITEK® 2 system.
- ➔ The ETEST® antimicrobial susceptibility testing range, providing precise information about the concentration at which disease-causing bacteria are sensitive to antibiotics.
- ➔ Lab Consulting solutions to analyze sample flow in the laboratory and suggest organizational adjustments to improve operational efficiency and time-to-results.
- ➔ MYLA® software, which processes microbiology data and ensures connectivity to link several analysis instruments.

ACQUISITION OF ASTUTE MEDICAL

In April 2018, bioMérieux acquired the U.S. company Astute Medical, which developed and produced the NEPHROCHECK® test for the early risk assessment of developing acute kidney injury (AKI). The test has received FDA clearance and CE marking. This high medical value predictive test is based on using urinary biomarkers that indicate kidney stress in advance of AKI, which can change the way hospital physicians manage this disease. AKI is a frequent complication of severe conditions, in particular sepsis, and it increases mortality associated with sepsis. This acquisition follows the partnership formed between Astute Medical and bioMérieux in 2015, according to which Astute granted bioMérieux a license to develop and market the NEPHROCHECK® test on bioMérieux's VIDAS® immunoassay system.

NEPHROCHECK® TEST INCLUDED IN CONSENSUS RECOMMENDATIONS BY MEDICAL SOCIETIES

In the second quarter of 2018, the NEPHROCHECK® biomarkers were included in the consensus guidelines issued by the Enhanced Recovery after Cardiac Surgery (ERAS®) Society and the Acute Dialysis Quality Initiative (ADQI), an international organization with over 150 members, specialists in the diagnosis and management of acute kidney injury and related conditions requiring dialysis.



I help design diagnostic tests that are performed on patient samples to detect infectious diseases.

” Camille
Scientist in R&D Biosciences



Despite significant progress in the prevention, diagnosis and treatment of lower respiratory tract infections, including pneumonia, these infections cause nearly three million deaths annually ⁽²⁾.

It is the leading cause of death due to infectious diseases worldwide ⁽²⁾ and one of the primary reasons for hospitalization in Europe and the United States ⁽³⁾.

Lower respiratory tract infections may be due to bacteria or viruses. Treatment with antimicrobials is often possible. Early identification of the cause of infection and of the antibiotic resistance profile in the case of a bacterial infection are critically important in order to limit mortality due to such infections.

1) GBD 2017 Disease and Injury Incidence and Prevalence Collaborators. Global, regional, and national incidence, prevalence, and years lived with disability for 354 diseases and injuries for 195 countries and territories, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet*. 2018 10;392(10159):1789-1858.
2) *Global Health Estimates 2016: deaths by cause, age, sex, by country and by region, 2000-2016*. Geneva, World Health Organization; 2018.
3) McDermott KW, Elixhauser A, Sun R. Trends in hospital inpatient stays in the United States, 2005-2014. *HCUP Statistical Brief #225*. June 2017. Agency for Healthcare Research and Quality, Rockville, MD.

THE BIOMÉRIEUX SOLUTIONS

BIOFIRE® range multiplex molecular biology solutions:

- Respiratory Panel
- Respiratory 2 Panel
- Respiratory 2 *plus* Panel
- Respiratory EZ Panel (sold in the United States)
- Pneumonia Panel
- Pneumonia *plus* Panel

The VIDAS® test to measure procalcitonin levels for the management and monitoring of patients with a lower respiratory tract infection or sepsis

CHROMID® chromogenic culture media for the detection of *Pseudomonas aeruginosa*, *Staphylococcus aureus* and methicillin-resistant *Staphylococcus aureus* (MRSA)

The VITEK® range for the identification and automated antimicrobial susceptibility testing of bacteria and yeasts

The ARGENE® range in molecular biology

CLINICAL APPLICATIONS

EXPANDING OUR PORTFOLIO FOR THE DIAGNOSIS OF RESPIRATORY INFECTIONS

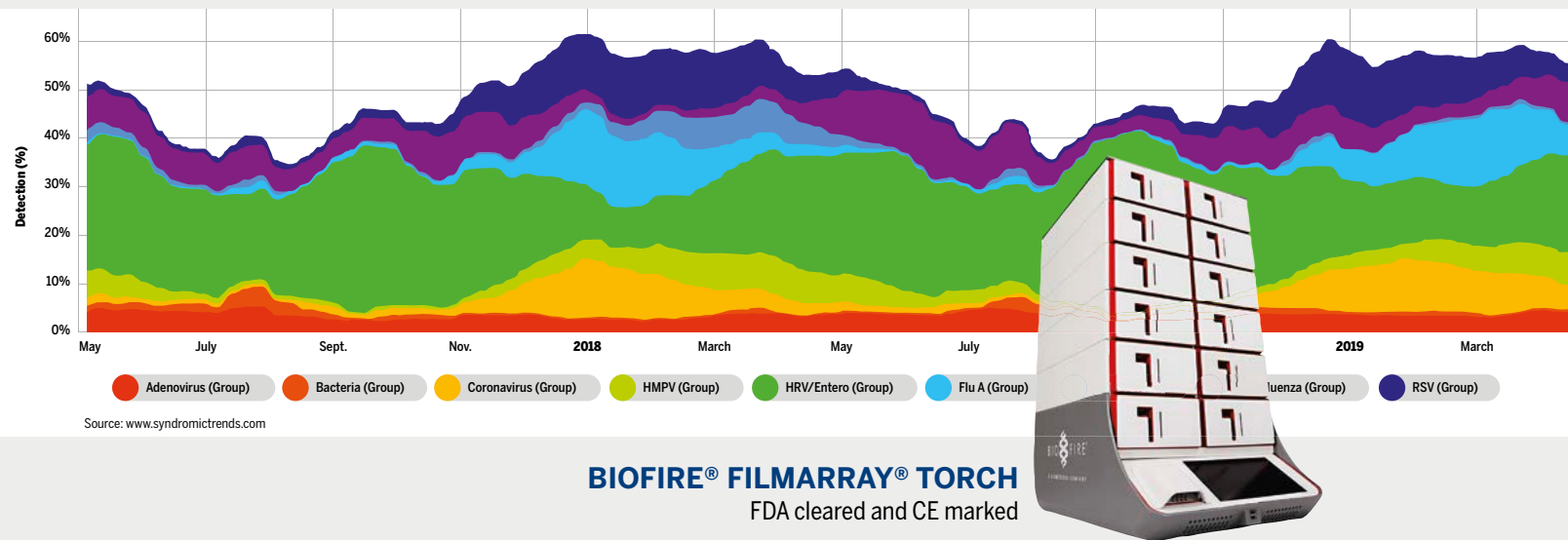
Respiratory infections are a major global health burden due to their high frequency and consequent mortality.

Worldwide, one person has an average of more than two upper respiratory tract infections per year.

It is the leading cause of new cases of diseases, all diseases combined, both infectious and non-infectious ⁽¹⁾.

While typically caused by a virus, bacterial infections may also be the causative agent with considerable consequences for patients. Identifying the infectious agent is important to limit the inappropriate use of antibiotics, to treat patients in a timely manner, and to avoid epidemics.

Syndromic molecular diagnostics, an effective tool in the fight against respiratory infections



BIOFIRE® FILMARRAY® PNEUMONIA PANELS

LAUNCH OF INNOVATIVE SYNDROMIC PANELS FOR THE DIAGNOSIS OF LOWER RESPIRATORY TRACT INFECTIONS

In 2018, the BIOFIRE® FILMARRAY® Pneumonia Panel and the BIOFIRE® FILMARRAY® Pneumonia Panel *plus* received 510(k) clearance from the U.S. Food and Drug Administration (FDA) as well as CE marking. These panels, which aid in the diagnosis of lower respiratory tract infections, are the most sophisticated panels to be developed to date. The BIOFIRE® FILMARRAY® Pneumonia Panel identifies 33 targets (18 bacteria, 8 viruses and 7 antimicrobial resistance genes) in sputum (including endotracheal aspirate) and bronchoalveolar lavage (including mini-BAL) samples. The Pneumonia Panel *plus* includes the same targets with the addition of the MERS-CoV emergent virus.

These two innovative panels report results in semi-quantitative levels for 15 bacteria in order to help clinicians to differentiate micro-organisms that are naturally present in the body from those responsible for the infection. It is noteworthy that this is the first time the BIOFIRE® FILMARRAY® System has utilized its real-time PCR quantification capabilities, and the first time the FDA has cleared a semi-quantitative multiplex panel.

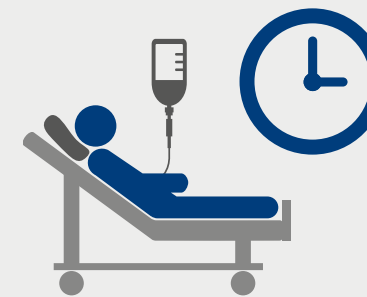
BIOFIRE® FILMARRAY® RESPIRATORY PANELS

The BIOFIRE® FILMARRAY® Respiratory Panel simultaneously tests for 20 viruses and bacteria that cause respiratory tract infections. It is improved and complemented by the Respiratory Panel 2 and Respiratory Panel 2 *plus*, which simultaneously and even more rapidly test for 21 and 22 pathogens, respectively, in just 45 minutes. The RP2 Panel received FDA clearance in 2017 as did the RP2 *plus* Panel, as well as CE marking.

The Respiratory Panel EZ detects 11 viruses and 3 bacteria associated with respiratory infections. The panel is CLIA-waived (for use outside of clinical laboratories) and is available only on the United States market.

NEW RECOMMENDATIONS CONCERNING THE USE OF DIAGNOSTIC SYNDROMIC TESTS

In late 2018, PCR multiplex syndromic testing was recommended by the Infectious Diseases Society of America (IDSA) in hospitalized immunocompromised patients, as well as in hospitalized patients who are not immunocompromised, if it might influence care⁽⁴⁾.



REDUCED LENGTH OF STAY



APPROPRIATE USE OF ANTIBIOTICS



ENHANCED INFECTION CONTROL

SHORTENING THE LENGTH OF HOSPITAL STAYS

A randomized controlled trial conducted in the emergency department and medical units of a UK hospital showed that the average hospital stay was reduced for patients for whom the BIOFIRE® FILMARRAY® Respiratory Panel was routinely used, compared to those not using the panel. This test also makes it possible to better target antiviral treatment in the case of influenza and to increase the number of patients receiving a brief course of antibiotics (one dose)⁽⁵⁾.

EPIDEMIOLOGICAL SURVEILLANCE

Syndromic Trends is an epidemiology tool based on using the BIOFIRE® FILMARRAY® Respiratory Panels in the United States. Contributing laboratories are able to compare their data to that of other laboratories at local, regional and national levels.

* Polymerase Chain Reaction
4) Uyekei TM, Bernstein HH, Bradley JS, et al. Clinical practice guidelines by the Infectious Diseases Society of America: 2018 update on diagnosis, treatment, chemoprophylaxis, and institutional outbreak management of seasonal influenza. Clin Infect Dis 2019 5;68(6):e1-e47.
5) Brendish NJ, Malachira AK, Armstrong L, et al. Routine molecular point-of-care testing for respiratory viruses in adults presenting to hospital with acute respiratory illness (ResPOC): a pragmatic, open-label, randomised controlled trial. Lancet Respir Med 2017;5(5):401-411.



THE VIDAS® TEST TO MEASURE PROCALCITONIN LEVELS SUPPORTING ANTIBIOTIC STEWARDSHIP IN RESPIRATORY INFECTIONS

In February 2017, bioMérieux received FDA clearance for the expanded use of VIDAS® B-R-A-H-M-S PCT™. This test helps physicians determine the most appropriate antibiotic to prescribe for patients presenting with lower respiratory tract infections. Using the VIDAS® B-R-A-H-M-S PCT™ test in these frequent and critical clinical situations will contribute to limiting the inappropriate and unnecessary use of antibiotics, avoiding the side effects associated with their use while slowing and even preventing the emergence of resistant bacteria.



DIAGNOSTICS IS POWER

The power to protect consumer health



[#pioneeringdiagnostics](#)

INDUSTRIAL APPLICATIONS

Harnessing the power of diagnostics is essential to protect consumer health. Ensuring the safety of agri-food and pharmaceutical products and preventing the risk of contamination are priorities for bioMérieux, which in 2018 confirmed its position as leader in industrial microbiology.



I'm proud to fly the bioMérieux colors when I interact with customers, since the added value of our solutions has a real impact on everyone's health.

” Camille
Sales Representative

Implementation of ENDOZYME® II recombinant Factor C reagent benefited our supply chain security, quality control and corporate sustainability initiatives by replacing an animal-sourced reagent with an equivalent synthetic for the detection of bacterial endotoxins. This benefits not only us, but horseshoe crabs and the species in the respective ecosystem that depend on them. Based on our initial evaluation, we look forward to the speed and quality benefits of the innovative ENDOZYME® II GO ready-to-use test plate.

” Jay Bolden
Sr. Consultant Biologist,
Eli Lilly and Company, USA

In the pharmaceutical industry, microbiological control prevents the bacterial contamination of medicines and monitors the manufacturing environment during all phases of production. Such controls meet increasingly demanding requirements, in particular for the development of injectable medicines, biotherapies, and cell and gene therapies for patients whose immune systems are compromised.

bioMérieux is constantly expanding its product ranges and for several years has been investing in what are proving to be very important approaches: the automation and digitalization of diagnostic solutions. The Company develops and improves automated systems and carries out initiatives to promote the digitalization of microbiology, which in the pharmaceutical industry remains a manual and non-connected activity. Important developments have taken place for two automated ranges: the solid-phase cytometry instrument SCANRDI® and the automated blood culture system BACT/ALERT®. Both of these systems, which speed up and automate sterility testing, have met with particular success among companies specialized in cell therapy, as well as bioproduction and biomedicine firms. The rapid delivery of the results of microbiological controls helps reduce the time required for medicines to become available to allow for better patient care.

INDUSTRIAL APPLICATIONS

THE IMPORTANCE OF DIAGNOSTICS FOR PHARMACEUTICAL PRODUCT QUALITY

Microbiological control is essential to guarantee the safety of medicines during production. As a leader in this market, bioMérieux offers the most comprehensive range of solutions to meet the needs of companies in the pharmaceutical sector during the various stages of production. The Company has turned its attention to two key areas: automation and digitalization.

ENDOZYME® II GO LAUNCH OF AN INNOVATIVE TEST FOR THE DETECTION OF ENDOTOXINS

This new test in the bioMérieux ENDONEXT™ range, introduced in May 2018, is based on recombinant Factor C (rFC) proteins from horseshoe crabs, an endangered species in Asia and a protected species in the United States. The blood of horseshoe crabs is used in most currently marketed tests for endotoxin detection.

ENDOZYME® II GO enables endotoxin testing in pharmaceutical grade water, injectable drugs and other pharmaceutical products. It improves the reliability of a test that previously had been made with animal-sourced raw materials. It promotes an easy and fast workflow and is particularly adapted to raw materials and final product testing.

From 2018, it has been very successful with major pharmaceutical companies beginning to roll out this technology at their production sites for ethical, environmental or technical reasons.

ENDOZYME® II GO was shortlisted as one of the winners of the 2018 Medicine Maker Innovation Awards, which recognizes innovative technologies launched in 2018 to support the development and manufacture of pharmaceutical products.

PARTNERSHIPS WITH PHARMACEUTICAL COMPANIES

In recent years, we have stepped up partnerships with major pharmaceutical companies in order to take on board the needs and future challenges of these customers earlier in our development process, and to allow them to benefit from innovations that better match their development strategies.

ENDOZYME® II GO, developed in close collaboration with these companies, provides the perfect illustration of this approach.

BACT/ALERT® VIRTUO® FOR BLOOD BANKS

In December 2018, the culture bottles BACT/ALERT® BPA and BPN received 510(k) clearance from the U.S. Food and Drug Administration (FDA) for quality control testing of platelets with the BACT/ALERT® VIRTUO® fully automated blood culture system. This innovative system is now available to blood banks and blood transfusion services in the United States and in countries that recognize the CE marking. It improves blood banks' productivity and reduces contamination risks for patients receiving a transfusion.



I'm proud to manufacture tests that detect infectious diseases because they help protect us, since we are all patients and consumers.

William
Filling operator

INDUSTRIAL APPLICATIONS

DIAGNOSTICS FOR FOOD SAFETY

The manufacture of food products is subject to very strict controls to guarantee their microbiological quality. Microbiological testing is carried out throughout the entire production process, from raw materials to finished product, as well as in the production environment in order to ensure food safety for the consumer.

Testing the microbiological quality of foods is one of the historical industrial applications that bioMérieux has developed for more than 25 years, based on a host of solutions.

With its GENE-UP® and CEERAMTOOLS® ranges, bioMérieux meets the requirements of various sectors in the food industry for manufacturers of dairy, beef, seafood and even chocolate products.

bioMérieux has developed GENE-UP®, an innovative solution that considerably simplifies laboratory workflows through improved productivity while limiting the risk of inter-sample contamination. The menu for the GENE-UP® platform enables detection of the disease-causing organisms most commonly tested for in the food chain. It is used to detect organisms such as *Salmonella*, *Norovirus*, *Escherichia coli* O157:H7, *Listeria*, enterohaemorrhagic *Escherichia coli* and, since February 2018, *Cronobacter*, with the development of the first kit in unit-dose format, which significantly simplifies workflows.

In early 2019, bioMérieux launched a new unit-dose format of its reagents for use with the entire range. This method has been approved by AOAC (a scientific organization that develops globally accepted standards of analytical methods) and by AFNOR (the French Standardization Association). The new format further simplifies workflows for our customers while providing rapid and extremely precise results.

Major companies in the agri-food sector have chosen the GENE-UP® system for molecular pathogen detection due to its numerous innovative features. Additionally, thanks to bioMérieux's worldwide presence, the training and services provided to set up their analysis systems represent a genuine advantage for these international companies.

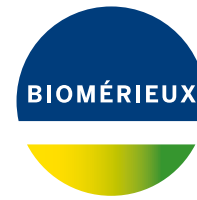
*The team here spent a long time looking at a technology that would deliver fast test results and reduce false positive results for customers. With one of our largest customers, we undertook a worldwide search of all the technologies before settling on GENE-UP® which we collectively thought would be the best option for our requirements.**

* NZ Herald - "450 experts keeping food safe" - March 15, 2019

Dr Michael Hodgson
Business Manager
at AsureQuality's Auckland
Laboratory, Australia

INVISIBLE SENTINEL ACQUISITION OF A US-BASED MOLECULAR BIOLOGY SPECIALIST

Based in Philadelphia, Invisible Sentinel Inc. develops, manufactures and markets innovative and user-friendly molecular diagnostic tools for the rapid, accurate and reliable detection of pathogens and spoilage organisms in food and beverages. VERIFLOW®, its innovative molecular biology testing platform, does not require sophisticated lab infrastructure. It is used by a diverse range of sectors in the food and beverage industry: beer, wine, poultry, fruit juices and even nutraceuticals. With this acquisition completed in early 2019, bioMérieux strengthens its position in food pathogen testing and spoilage organism detection by expanding it to new customer segments such as breweries and wineries. The Invisible Sentinel product line is the perfect complement to bioMérieux's molecular diagnostic testing solution GENE-UP® system used for food quality controls.



SERVICES

DIAGNOSTICS IS POWER

The power to save lives



#pioneeringdiagnostics

Diagnostic testing plays a key role in improving patient care and protecting consumer health. For our customers, bioMérieux provides a portfolio of services so that they will use diagnostic tests under the best conditions, helping laboratories worldwide perform better and more efficiently, no matter where they are located. Whether for clinical applications or applications in industrial microbiological control, the health priority is the same: to deliver test results as rapidly as possible.



I design new digital services to continuously improve the customer experience, which is important to me because it affects the health of patients and consumers.

” Nassim
Digital transformation project coordinator

CLOSE TO OUR CUSTOMERS WITH A RANGE OF SERVICES

Customer satisfaction is a priority for bioMérieux. The Company provides the same level of quality and an expanded service offering to meet the specific needs of all our customers, regardless of where they are located. Our diagnostic tests help protect the health of patients and consumers worldwide.

Remote access (VILINK®) allows us to troubleshoot in real time in most cases, with minimal interference to our laboratory workflow.

” Margarida Pinto
Director of the CHLC Group Microbiology Lab, Lisbon, Portugal

SERVING CUSTOMERS AROUND THE GLOBE

Around 1,500 employees are working on the ground to ensure the availability of installed systems and the performance of our diagnostic solutions. Our teams are committed to offering personalized services.

94.5% of customers were satisfied in 2018*

Our ambition is to maintain and exceed our customers' expectations.

The customer satisfaction survey conducted in 2018 showed that our customers recognize bioMérieux's performance record, particularly when it comes to reagents, instruments and the quality of after-sales service, maintenance and training.

In 2017, we launched a transformation plan for the bioMérieux customer service activity in order to strengthen the organization and make it more efficient. The effects were felt in 2018 with:

- Strengthened management of customer relations both locally and globally;
- The creation of a team of experts in charge of training and coaching for employees in different countries and dedicated to project management focused on ensuring that the notion of service is taken on board as of the design phase of our solutions.

The customer service activity, which is in charge of maintenance, service contracts and workflow audits, displayed strong growth in 2018, reaching 12%.

REMOTE SYSTEMS MANAGEMENT

For several years, we have deployed a vast program to increase the connectivity of bioMérieux systems with the aim of improving our ability to interact remotely and thereby reducing intervention times, in particular for software updates, system calibration and preventive maintenance.

It helps in overall maintenance, and any issues which may affect optimal performance are detected, where even we may miss them. This definitely helps in system optimization.

” Dr Michael Mawlon
Consultant Microbiologist Nazareth Hospital, Shilong, Meghalaya, India

LOGISTICS AT THE HEART OF THE BUSINESS

At the interface between production and our customers, our logistics teams are responsible for making sure that products are available and orders are delivered worldwide, thanks to more than 400 people and a distribution network including two international platforms and 25 local warehouses. Their main objective is to ensure the availability, quality and on-time delivery to our customers of reagents, instruments and spare parts.

In 2018, we continued efforts to streamline our logistics network. To strengthen the network and ensure better traceability, a system to track customer orders was rolled out worldwide: every time an order is placed, the customer can visualize the detailed order and check its status.

91% of customers were satisfied or very satisfied with Supply Chain performance in 2018*
95% "On Time in Full" delivery service rate

* Based on the results of a customer satisfaction survey conducted in 38 countries among 6,000 customers

In guiding the Company's development, bioMérieux has always focused on meeting healthcare challenges all over the world. With over 90% of sales outside of France today, the scope of our activity is geographically balanced.

AN INTERNATIONAL SUCCESS

AMERICAS REGION	EUROPE, MIDDLE EAST, AFRICA (EMEA) REGION	ASIA PACIFIC REGION
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The Company recorded solid growth in North America (+14%) and sales were robust in Latin America (+4.1%), except for Brazil.

CLINICAL DIAGNOSTICS
Growth driven primarily by BIOFIRE® FILMARRAY® and the microbiology lines.

INDUSTRIAL MICROBIOLOGICAL CONTROL
Strong sales dynamics for our culture media ranges.

In Europe (+3%) growth was driven by Southern Europe, Scandinavia and the Benelux countries, with solid momentum in the Middle East, Russia and Africa (+19%).

CLINICAL DIAGNOSTICS
The VITEK®, VIDAS® and BIOFIRE® FILMARRAY® lines made a significant contribution to the business.

INDUSTRIAL MICROBIOLOGICAL CONTROL
Strong performance by our solutions for the agri-food sector and pharmaceutical industry.

Growth was powerfully driven by China, which has become the third largest market for bioMérieux, and by India and Southeast Asia.

CLINICAL DIAGNOSTICS
Sustained momentum in particular through the development of the BIOFIRE® FILMARRAY® range.

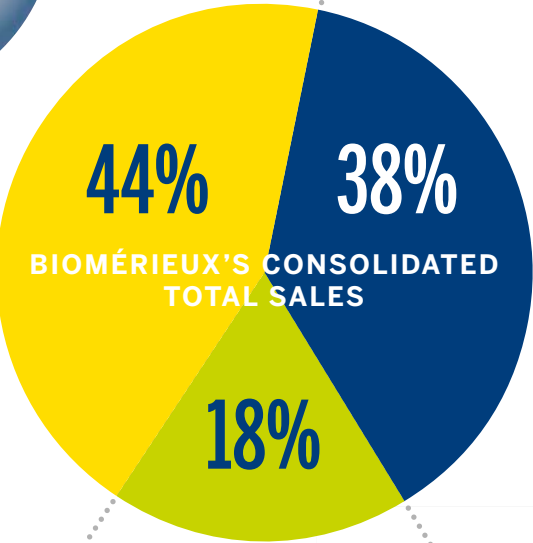
INDUSTRIAL MICROBIOLOGICAL CONTROL
The culture media ranges have made an especially positive impact on business development.

AMERICAS REGION
SALES
€1,070 MILLION
GROWTH
+12.5%*



SALES
LATIN AMERICA
6%

SALES
NORTH AMERICA
38%



EUROPE, MIDDLE EAST, AFRICA (EMEA) REGION
SALES
€922 MILLION
GROWTH
+5.9%*



ASIA PACIFIC REGION
SALES
€430 MILLION
GROWTH
+12.4%*



* Year to year, at constant exchange rates and scope



DIAGNOSTICS IS POWER

Together, we help save lives



*Through financial planning and analysis,
I help drive the business forward
in our pursuit to improve public
health worldwide.*

77 Deirdre
Financial controller

#WeArebioMérieux

CORPORATE RESPONSIBILITY

True to our public health mission and driven by the power of diagnostics, bioMérieux is committed to protecting life. We are focused on improving the quality of life of the many communities we interact with, the development of our employees, furthering access to care for the most vulnerable patients, countering new infectious threats worldwide, and sustaining the efficacy of healthcare systems for future generations.

COMMITTED TO BEING A SOCIALLY RESPONSIBLE COMPANY, WITH A HUMANISTIC VISION

As a pioneer in the field of *in vitro* diagnostics, bioMérieux has been committed to fighting infectious diseases worldwide for more than 55 years. Our company has always adopted a socially responsible, humanistic approach to business development in line with the values upheld by the Mérieux family.

We take a long-term view when it comes to our employees as well as to outside stakeholders and the community in general. Our public health mission means we have a particular responsibility to today's society and future generations.

Through our activities, bioMérieux supports the advancement of the United Nations Sustainable Development Goals (SDG), which aim to provide a blueprint to build a better and more sustainable future for all.

In 2019,
bioMérieux was listed 26th
on Corporate Knights Corporate
100 index, ranking the most
sustainable companies with more
than 1 billion dollars revenue.

A PRINCIPLED GOVERNANCE MODEL

bioMérieux is a family company, founded in 1963 by Alain Mérieux, and directed today by CEO Alexandre Mérieux. The Company is 59% owned by Institut Mérieux. Since 2005, Fondation Christophe et Rodolphe Mérieux, under the aegis of Institut de France, has been a one-third shareholder in Institut Mérieux. The Foundation indirectly collects the only dividends that Institut Mérieux distributes in order to finance its activities in the field. Fondation Christophe et Rodolphe Mérieux works in the field to fight against infectious diseases in disadvantaged countries.

THE UNITED NATIONS GLOBAL COMPACT

Each year since 2003, we have renewed our support for the United Nations Global Compact. bioMérieux has committed to respecting the 10 principles set out in the Global Compact, based on four pillars: respect for human rights, labor conditions, the environment and the fight against corruption (see p. 58).

RATING AGENCIES' RECOGNITION FOR OUR CSR POLICY

For several years, extra-financial agencies have recognized bioMérieux's commitment to corporate social responsibility (CSR). These agencies, which evaluate the company's social, societal and environmental performance, have included bioMérieux in their SRI (Socially Responsible Investment) indices, such as the Ethibel Forum (Ethibel Sustainability Index (ESI) Excellence Europe) and FTSE Russell (FTSE4Good Index). After joining additional indices in 2017, bioMérieux obtained new labels: Vigeo Eiris, OEKOM Research, CDP (Carbon Disclosure Project) and EcoVadis. In 2018, the Company was listed in the Corporate Knights Global 100 Index.

EcoVadis, a platform for rating corporate social and environmental performance, ranked bioMérieux among the top 1% of companies worldwide recognized for their CSR performance with a 72/100 score, up compared to the previous year.

THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS





Through my work each day for our customers, I contribute to preventing the inappropriate use of antibiotics and to improving diagnostic practices, so that patients will receive better care.

Ghislain
Product manager

COMMITTED TO PEOPLE

As a public health stakeholder, bioMérieux places the patient and, more broadly, public health at the heart of its business activity.

As a Company, we are aware of our social responsibility and, in accordance with Article 25 of the Universal Declaration of Human Rights, we are committed to providing global health solutions that improve the management of infectious diseases.

Our commitments are focused on the fight against antibiotic resistance, the early detection of sepsis and epidemics in Low-and Middle-Income Countries. In addition, we have strong ties with local stakeholders where we are located. And we support also the action of Fondation Mérieux and Fondation Christophe and Rodolphe Mérieux in the fight against infectious diseases.

SUSTAINING ANTIBIOTIC EFFICACY FOR FUTURE GENERATIONS



Bacterial resistance to antibiotics is a major public health threat worldwide.

If we do not take action, by 2050 antimicrobial resistance could cause 10 million deaths annually⁽¹⁾.

bioMérieux is a pioneer in the development of *in vitro* diagnostic solutions for the identification of disease-causing agents and the detection of antimicrobial resistance, helping physicians to determine the most appropriate treatment. The Company also takes part in programs to educate healthcare professionals and to raise public awareness about the importance of the appropriate use of antibiotics in order to combat this threat.

GLOBAL-PPS at the end of 2018:

- ➔ More than 80 participating countries;
- ➔ Nearly 800 participating hospitals on all continents;
- ➔ Data collected from over 200,000 hospitalized patients;
- ➔ 3 scientific grants awarded to healthcare professionals from Brazil, Egypt and the Philippines.

BIOMÉRIEUX SUPPORTS THE GLOBAL-PPS

In 2018, bioMérieux renewed its support for Professor Herman Goossens and Dr. Ann Versporten of the University of Antwerp (Belgium), coordinators of the GLOBAL-PPS (Global Point Prevalence Survey)*. This study of unprecedented international scope, which began in 2015, provides key information about the use of antibiotics and antimicrobial resistance in hospitals worldwide. The GLOBAL-PPS makes it possible to compare results within a single center and among different centers and monitor their evolution over time by repeating the survey annually so that improvement plans can be developed at hospital and country levels.

The sole private sponsor of the study, bioMérieux is involved in two ways: in addition to the Company's financial support, our teams contribute to promoting and developing the study at local levels. In 2018, teams in Africa, Asia, Canada and Mexico helped to significantly improve medical communications with hospitals, encouraging many of them to take part in the GLOBAL-PPS. In 2018, participation in the GLOBAL-PPS continued to grow, particularly in LMICs (Low-and Middle-Income Countries), the study's priority target. The GLOBAL-PPS was mentioned in several important publications, including in the prestigious medical journal *The Lancet*, a sign of recognition of its international scope.

In 2019, the GLOBAL-PPS will include an additional module on healthcare-associated infections (HAIs). It is designed to provide additional tools to help hospitals implement action plans to reduce HAIs and promote the appropriate use of antibiotics.

1) Tackling drug-resistant infections globally: Final report and recommendations, The Review on Antimicrobial Resistance, chaired by Jim O'Neill, May 2016.

* bioMérieux is the exclusive private sponsor of the Global Point Prevalence Survey. The Company funds the survey but plays no role in the study design, selection, analysis and interpretation of data nor in drafting the report. The data, which are strictly confidential, are stored anonymously at the Coordination Center of the University of Antwerp.

WELCOMING LORD JIM O'NEILL

On March 7, 2018, bioMérieux hosted a day of debate and discussion to raise awareness of the public health challenge of antibiotics and the key role of diagnosis with 100 internal specialists at the Company's headquarters. Lord Jim O'Neill, an eminent British economist and politician, who chaired The Review on Antimicrobial Resistance (AMR), took part in the discussions. In his final report, he recommended a set of measures to be adopted at the international level to combat this threat and contributed to the recognition of AMR on the world political scene. The use of rapid diagnostics figured among the top 10 recommended measures.

BIOMÉRIEUX IS INVOLVED WITH INTERNATIONAL ORGANIZATIONS

bioMérieux is recognized for its expertise in the field of diagnostic testing for infectious diseases and the Company is actively involved with international bodies that are working to combat antimicrobial resistance:

- ➔ Signatory to the 2017 declaration on antimicrobial resistance during the World Economic Forum in Davos (Switzerland);
- ➔ Participant in the 2017 launch of the AMR Industry Alliance, representing the diagnostics industry on its Board;
- ➔ Voting member of the Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria (PACCARB);
- ➔ Member of the AdvaMed (Advanced Medical Technology Association) and MedTechEurope working groups;
- ➔ Leader of the French "Antibiorésistance" project of the Industrial and Governmental Health Strategy Committee.

COMMITMENT TO THE CDC'S AMR CHALLENGE

In September 2018, bioMérieux joined the AMR (antimicrobial resistance) Challenge, an initiative organized by the US Centers for Disease Control and Prevention (CDC) to bring government, healthcare and industry leaders together in a year-long concentrated effort to step up the fight against antimicrobial resistance. This initiative expands on the commitments of the 2015 White House Stewardship Forum on the appropriate use of antibiotics. bioMérieux was one of two infectious disease diagnostic companies invited to participate in this forum, among 150 other global healthcare leaders.

bioMérieux is an active participant in the CDC's AMR Challenge, through three commitments:

- ➔ Innovative diagnostics: In 2018, approximately 75% of bioMérieux's clinical R&D budget was dedicated to developing effective diagnostic solutions to combat AMR;
- ➔ International studies: particularly by supporting the GLOBAL-PPS;
- ➔ Public-private partnerships. Within the framework of projects financed by the European Commission and led by IMI (Innovative Medicines Initiative), bioMérieux is a partner of the COMBACTE-CDI project (COMbatting BACTERial resistance in Europe), dedicated to *Clostridium difficile* infections (CDI). In addition, the Company is co-leading a consortium (26 partners) to carry out the VALUE-Dx project, aiming at demonstrating the medical and economic value of diagnostics to combat antimicrobial resistance by optimizing antibiotic use.

EDUCATION AND TRAINING TOOLS

bioMérieux is actively involved in programs to improve awareness among healthcare professionals and the public and promote the responsible use of antibiotics:

- ➔ Organizing high-level scientific encounters all over the world;
- ➔ Developing in 2016 of the educational website www.antimicrobial-resistance.biomerieux.com;
- ➔ Publishing a series of educational booklets for laboratories and clinicians <https://www.biomerieux-diagnostics.com/clinician-booklets>;
- ➔ Supporting European Antibiotic Awareness Day and World Antibiotic Awareness Week <https://WAAW2018.biomerieux.com>;
- ➔ Training on the role of diagnostic testing in hospital antimicrobial stewardship policies;
- ➔ Raising awareness among bioMérieux's employees through an annual in-house communication campaign.

COMBATting SEPSIS, A CRITICAL GLOBAL HEALTH PRIORITY



Although people are not always familiar with sepsis, it affects 27 to 30 million people annually and causes around 6 million deaths ⁽¹⁾.

bioMérieux has made the fight against sepsis one of its public health priorities by focusing on initiatives to reach as many people as possible in order to promote awareness and education about this serious infection.

We've had great success partnering with bioMérieux to educate healthcare providers and the general public alike about sepsis. Sepsis education and awareness programs are so important, because when patients, doctors and nurses don't recognize sepsis, it takes longer for treatment to begin, and for every hour that treatment is delayed the mortality rate for sepsis increases by 8%.

Thomas Heymann
President and Executive Director
of Sepsis Alliance,
San Diego, USA

Sepsis is the body's overwhelming response to an infection, leading to severe multi-organ failure. It may affect people of all ages, but the risk is higher for some patient groups: immunocompromised patients, the elderly and children under 12 months, as well as debilitated patients.

Given the magnitude of this life-threatening condition, in May 2017 the World Health Organization adopted a resolution to improve the prevention, diagnosis and treatment of sepsis.

bioMérieux has a longstanding commitment to combat sepsis through a full range of diagnostic solutions. For example, the BACT/ALERT® VIRTUO® automated blood culture system speeds up detection of bloodstream infections by three to four hours. In the case of sepsis, when every minute counts, this can considerably increase the patient's chances of survival. In addition, bioMérieux organizes education campaigns targeting health professionals, the general public and our own employees. Educational materials are distributed worldwide via electronic communications, videos, testimonials and webinars to help people recognize the warning signs and symptoms of sepsis more easily.

MEMBER OF THE GLOBAL SEPSIS ALLIANCE

bioMérieux is a member of the Global Sepsis Alliance, a non-profit organization that supports healthcare professionals in more than 70 countries to improve care for patients with sepsis.

To contribute to the global fight against sepsis, bioMérieux supports two events organized by the Global Sepsis Alliance: the World Sepsis Congress and World Sepsis Day, with the goal of reducing the incidence of sepsis by 20% by 2020.

¹⁾ Global Sepsis Alliance, <https://www.global-sepsis-alliance.org>

ACTING AGAINST EPIDEMICS IN LOW-AND MIDDLE-INCOME COUNTRIES



IMPROVING CARE FOR CHILDREN WITH MENINGITIS IN UGANDA

Following an initial study on the diagnosis of meningo-encephalitis among adults living with HIV/AIDS, bioMérieux has continued a collaborative project in Uganda with the Infectious Diseases Institute (IDI) at the University of Kampala, expanding the clinical study to include children. The aim of this project is to assess the benefits of using the BIOFIRE® FILMARRAY® Meningitis-Encephalitis Panel as part of care given to children presenting with a central nervous system infection at the Mbarara Hospital.

DIAGNOSING PEDIATRIC INFECTIONS IN CAMBODIA

The Angkor Children Hospital in Cambodia received BIOFIRE® FILMARRAY® equipment as well as Meningitis-Encephalitis and Gastro-Intestinal Panels, which are intended to help hospital teams diagnose children admitted to the Emergency Room for suspected neuro-meningitis and gastro-intestinal infections, respectively.

JOINING FORCES TO COMBAT PLAGUE OUTBREAKS IN MADAGASCAR

Working in collaboration with the Institut Pasteur of Madagascar, bioMérieux has set up a study on diagnosis of the plague using BIOFIRE® FILMARRAY® Global Fever Panel RUO (Research Use Only). This clinical study, funded by bioMérieux in conjunction with the Institut Mérieux, aims to improve the diagnosis of this endemic disease, which causes outbreaks each year in Madagascar.

FORGING STRONG TIES WITH LOCAL STAKEHOLDERS



WITH SCHOOLS AND ACADEMIC INSTITUTIONS

In 2015, the Company established a five-year partnership with **EMLYON Business School** in France. bioMérieux was one of the first companies to join the Global Business Network, which brings together major international businesses that are partners to the school. We have become the partner with expertise in the life sciences as part of the I.D.E.A. program (Innovation, Design, Entrepreneurship & Arts), a novel learning approach adopted by EMLYON to train future innovative entrepreneurs. bioMérieux also supports the development of research projects conducted by the French Corporate Governance Institute (IFGE).

bioMérieux is a founding member of the **Fondation Université Grenoble Alpes** (France) created in 2014. The aim of this foundation is to support top-notch research projects and promote equal opportunity. In 2018, bioMérieux renewed its support for five more years. The Company has also participated since 2015 in the BioHealth Computing project at **Université Grenoble Alpes**, which combines multidisciplinary approaches and develops interfaces among the healthcare, computer engineering and mathematics fields. Within the scope of this support, the Company has funded 27 scholarships in four years, providing top students in this specialization the opportunity to continue their studies in an international environment by pursuing the "Health 4 Life" Engineering Master's degree (formerly Excellence bioHC) and enabling bioMérieux to hire young graduates from this course.

bioMérieux and the **INSA Lyon Foundation** (National Institute of Applied Sciences, France) have been partners since 2010. The Company hosts interns from the school, organizes career conferences there and participates in the INSA Business Forum. Building on this partnership, bioMérieux has become a corporate partner of the **UNITECH** program for academic excellence. The program brings together nine European universities -INSA Lyon (France), Chalmers (Sweden), Trinity College Dublin (Ireland), RWTH Aachen (Germany), ETH Zurich (Switzerland), Polytecnico di Milano (Italy), TU Delft (The Netherlands), Loughborough University (England) and UPC Barcelona (Spain)- and 22 partner businesses. It has developed a network of over 650 alumni and currently supports 80 engineers in diverse fields of specialization who have been selected to take part in the program.

In 2017, bioMérieux renewed its longstanding commitment to the **Graduate School of Biology-Biochemistry-Biotechnology (ESTBB)**, one of the schools of the science faculty of the **Catholic University of Lyon** (France) by signing a three-year partnership. Nearly 180 bioMérieux employees are ESTBB graduates, and each year we host students for internships and work-study programs. Since 2008, the HR Director France of bioMérieux has been a member of ESTBB's Excellence Council.

In the United States, bioMérieux and the **University of North Carolina** are partners. The Company sponsors the Biomanufacturing Training and Education Center (BTEC) and awards scholarships to two students annually. At its St. Louis, Missouri site, bioMérieux employs interns from **Washington University**. Also in Missouri, the Company gives scholarships to students selected from two universities. Management teams maintain close ties with these institutes of higher education, facilitating the recruitment of recent graduates to join bioMérieux teams.

WITH RESEARCH INSTITUTES

IN CHINA



At the conclusion of our ten-year collaboration with **Fudan University Shanghai Cancer Hospital**, we created a new joint research laboratory with the **Shanghai Children's Medical Center**. A three-year collaboration agreement signed in early 2019 will initially focus on a clinical study concerning the use of the **NEPHROCHECK®** test for the early risk assessment of acute kidney injuries (AKI) in young children.



IN BRAZIL

Based on the model of the research program ANTOINE (bioMarkers to differeNtiate bacTerial frOm vIral iNfEctions) conducted in conjunction with the **Lyon Civil Hospitals (HCL)** in France, bioMérieux has worked with the **Infants Institute of São Paulo** in Brazil to launch the ANTONIO project for children under age three admitted to the Emergency Room with febrile illness. This research aims to identify biomarkers that will help exclude a bacterial infection and guide the prescription of antibiotics.

IN FRANCE



With the **Lyon Civil Hospitals (HCL)**

bioMérieux and HCL have begun a new project, in addition to the ANTOINE research program launched in 2017 by the **bioMérieux-HCL** joint research laboratory located at the Lyon Sud Hospital, focusing on the diagnosis of severe bacterial infections in children admitted to the Emergency Room. The new project involves a study of the **NEPHROCHECK®** test for the early risk assessment of acute kidney injuries (AKI) among patients with multiple injuries, presenting a profile similar to that of sepsis patients, and who are treated in intensive care at Edouard Herriot Hospital.



With the **French Technology Innovation Institute in Microbiology (BIOASTER – Lyon, France)**

- ➔ The research program known as REALISM (REAnimation Low Immune Status Markers) was launched in October 2016 by bioMérieux, the **College of Industrial Physics and Chemistry of the City of Paris (ESPCI)**, **GSK**, **Lyon Civil Hospitals (HCL)** and **Sanofi** to improve the management of patients with a high risk of sepsis. The project was completed in 2018 and interpretation of the study results is taking place in 2019.
- ➔ The CODIRA 2 project (Optical characterization for the rapid diagnosis of bacterial infections) that began in 2017 with **BIOASTER** and the **Clinique des Cèdres** (Échirolles, France), focusing on the ultra-rapid diagnosis of infectious diseases, was completed in 2018.
- ➔ In late 2018, the DIREX research project was launched to study rapid microbiology using automated readers to detect Gram-positive and Gram-negative bacteria, an important step in the identification of pathogens.
- ➔ bioMérieux and **BIOASTER** are partners in the ISIT-TB project, which was launched in 2018 to identify biomarkers for the diagnosis of tuberculosis. Among patients who have been exposed to the tuberculosis bacterium, the project aims to determine which patients are likely to develop active tuberculosis, and how each patient responds to treatment. At the same time, molecular markers are being prototyped on the **BIOFIRE® FILMARRAY®** platform.

WITH ASSOCIATIONS



Since 2007, bioMérieux has been a loyal supporter of **Sport dans la Ville**, an association that helps young people find their place in society and the professional world through sport. bioMérieux sponsors and hosts young people so they can gain professional experience. In 2018, the Company contributed to the purchase of a second retrofitted school bus (Apprenti'Bus) to be used for training. As one of the Apprenti'Bus traveling educational support initiatives, the recruitment team at bioMérieux took part in an interviewing and coaching workshop dedicated to teenagers looking for their first job. The Company also contributed to building a digital space within the Lyon Campus of the Association to raise awareness among young people. It was inaugurated on January 30, 2019 in the presence of Alexandre Mérieux.



Since 2014, bioMérieux has been a partner of the **Institut Télémaque**, which provides schooling and homework support for youngsters from poor social backgrounds, from 7th grade through high school graduation. For the 2017-2018 school year, the Company funded in-house tutors who accompanied 16 young people selected by the Institute.



In early 2019, Alain Mérieux, President of Institut Mérieux, officially launched **L'Entreprise des possibles**, a highly innovative social initiative that calls on businesses in the Lyon area and their employees to help the homeless and vulnerable individuals. As one of the founding companies in the group, bioMérieux immediately responded to the call to action along with other businesses in the Lyon area.

In South Africa, bioMérieux has established a partnership with the training firm **Skill Tech Solutions** to train 23 unemployed people in 2018, some of whom have a disability.

Employees of our subsidiaries have also been active in various projects to support local communities, such as:

- ➔ Cooking meals for the Ronald McDonald Foundation: several times each year, bioMérieux teams help with the cooking at the Ronald McDonald House in Tübingen (Germany) and in St. Louis (United States);
- ➔ Renovating a school in Turkey;
- ➔ Supporting the Dynamo Camp in Italy, a recreational therapy camp for children with serious illnesses;
- ➔ Taking part in a Day for the Alzheimer's Society in the UK;
- ➔ Preparing and distributing meals for more than 100 people at the *Botanique* metro station in Brussels (Belgium).

WITH YOUNG PEOPLE



In November 2018, bioMérieux participated in **L'Usine Extraordinaire** held at Le Grand Palais in Paris. Under the aegis of **Fondation Agir Contre l'Exclusion**, this French event was organized to promote our industry among the public, in particular adolescents. Around 100 employees from our French sites were in attendance to present their jobs and meet with young people.

In the United States, the Durham site organized, for the first time, a **Manufacturing Day** in October 2018. This initiative, which is overseen by the National Association of Manufacturers, aims to promote manufacturing jobs, in particular to attract young people by organizing an open house. Around 40 students and members of the local community were welcomed at the North Carolina bioMérieux site where **BACT/ALERT®** blood culture bottles are produced.



**FONDATION
CHRISTOPHE & RODOLPHE MÉRIEUX**
SOUS L'ÉGIDE DE L'INSTITUT DE FRANCE

FIGHTING AGAINST INFECTIOUS DISEASES ALONGSIDE THE FOUNDATIONS



HELPING MOTHERS AND CHILDREN

The Foundations work alongside local partners in countries where laboratories have been set up and countries affected by humanitarian crises. Health, hygiene, education and the development of socio-economic activities are the fields where initiatives are organized to improve living conditions and access to care for the most vulnerable populations, in particular mothers and their children.

DEVELOPING ACCESS TO HEALTHCARE FOR REFUGEES, DISPLACED AND DISADVANTAGED POPULATIONS

IN LEBANON

The foundation stone of a mother and child health center to serve vulnerable Lebanese and refugee communities was laid in 2018 by the Mérieux Foundation, representatives of the city of Douris, and the NGO Amel Association, with the support of the Department of International Cooperation of the Government of the Principality of Monaco. This primary care center in the Bekaa Plains will provide medical care to families, access to health education, and orientation services to direct families to health and social facilities that can address their needs.

As part of its sponsorship activities, bioMérieux supports the initiatives of the Mérieux Foundations: the Fondation Mérieux, which has public interest status, and the Fondation Christophe et Rodolphe Mérieux, under the aegis of the Institut de France. These two independent family foundations work in close cooperation to combat infectious diseases and to sustainably improve the quality of life and health of vulnerable populations, in particular mothers and children.

In 2018, bioMérieux allocated €2.350 million to the Mérieux Foundations. This support was used to carry out a number of projects to benefit disadvantaged communities.

IN BANGLADESH

The Foundations contribute to improving access to care for people in isolated areas of Bangladesh. In particular, they work alongside the NGO Friendship to fund and launch laboratory activities at the Shyamnagar Hospital and to provide training for lab personnel. On the island of Maheshkhali, a center to provide care for children with disabilities has been set up thanks to a partnership with the Bangladeshi Ministry of Health, the NGO AMD (Medical Aid for Development), and the NGO SARVP (Social Assistance and Rehabilitation for the Physically Vulnerable).



SUPPORT FOR EDUCATION AND SOCIO-ECONOMIC DEVELOPMENT

IN MADAGASCAR

The Foundations support health education initiatives for Malagasy children through a partnership with local stakeholders and government authorities. Using modern technologies, they are developing interactive health education kits, that give children an active role and stimulating discussion. The WASH (water, sanitation and hygiene) kit was distributed in nearly 100 schools in 2018. It takes a playful approach to teaching children about good hygiene and good habits that help prevent the spread of diseases. Additional kits are being developed on other topics: nutrition, sexual education and the prevention of sexually transmitted diseases.

MEETING BASIC NEEDS

IN HAITI

Since the construction of the Village of Nazareth in 2012, the Foundations have continued to support this orphanage located in Leogane, home to nearly 70 young girls. The aid allows the center to operate and grow, and each year construction projects make it possible to develop income-generating activities. Projects in 2018 included the installation of dry toilets, repainting of all the buildings, and the renovation of four classrooms.

SUPPORT FOR THE ROHINGYAS REFUGEES

As part of an equipment donation program, bioMérieux has donated BIOFIRE® FILMARRAY® and mini VIDAS® systems to the Mérieux Foundation to support initiatives in Bangladesh that provide aid to the Rohingyas refugees.



CHRISTOPHE MÉRIEUX PRIZE AWARDED TO DR. PATRICIA BRASIL

Dr. Patricia Brasil, a researcher and professor of tropical medicine and clinical research at the Oswaldo Cruz Foundation in Brazil, received the 2018 prize for her study of pregnant women and neonatal complications following infection with the Zika virus. She created the Febrile Disease Research Clinic at the Evandro Chagas Institute of Clinical Research (IPEC) and focuses her work on emerging and re-emerging infectious diseases.



I feel enthusiastic about my work to manufacture quality products that will help improve the lives of women and men all over the world.

” Sébastien
Manufacturing Technical Assistant

COMMITTED TO OUR WORKFORCE

At bioMérieux, we are convinced that economic performance is meaningful only when it is combined with social performance, and therefore the professional development of our employees is very important to us. With 70% of our workforce located in France and the United States, these two countries are the benchmark and the drivers of the socially responsible policy that we seek to apply to all our employees worldwide.

Two systems are in place to meet professional development needs: Mériex Université, a corporate university created to train Group employees, and a regional organization to be in line with local requirements.

SUPPORTING THE SUCCESS AND SKILL DEVELOPMENT OF EVERY EMPLOYEE



Mériex Université is a corporate university founded in 2014 to support the development of the employees of the companies that are part of Institut Mériex.

It provides training, ensures the transmission of a strong entrepreneurial culture within the Group and helps to build bridges among its various entities.

Its teams are active in three regions: EMEA (Europe, Middle East and Africa), the Americas and Asia Pacific.

Our priority focus today is blended learning, which combines complementary training approaches: e-learning, face-to-face training, massive open online courses (MOOC), lectures, video training, etc. In 2018, several remote training options became available through the Learning Portal, which opened in 2017 in order to complement face-to-face training. Employees have unrestricted access to video tutorials and use the software to continue developing their skills.

224,600 hours of training provided in 2018

+20 hours of training per employee (on average)

ORGANIZATIONAL EFFECTIVENESS

Mérieux Université works with bioMérieux teams during team-building exercises designed to enhance the organization's collective performance and help teams develop, transform and improve the ways they work together.

In 2018, 1,296 people were coached.

MANAGEMENT ET LEADERSHIP

NEW LEADER INDUCTION

This training program for newly recruited managers fosters the development of a shared management culture to facilitate their successful transition. Since it was created in 2015, it has been an added feature in the Company's attractiveness.

In 2018, 32 people participated in the program.

FIT FOR THE FUTURE

This week of intensive training is a genuine talent booster, bringing together employees to work on topics that are of key interest to bioMérieux. They also attend presentations by renowned speakers from outside the Company. After working on their projects for six months, participants present them to the Management Committee for validation and implementation of actions plans across the Company.

In 2018, 19 employees took part in the fourth edition of this training program.

PROGRAM GMS & CLUSTER HEADS

This seminar brings together subsidiary and cluster directors with the aim of communicating the Company's strategy and the challenges of this function, building a community of practices, and gathering participants' insights and feedback about cross-functional initiatives.

The seminar was held for the third time in May 2018.

MANAGERIAL AND RELATIONAL CULTURE

Mérieux Université also supports bioMérieux teams through courses on managerial and relational culture so that they can meet the challenges of working with collective agility and cross-functionality, making decisions and taking initiatives.

The "Fit for the Future" program was a really great experience for me, and far beyond my expectations. We had a very broad mix of senior people, more than 11 nationalities, representing a wide range of departments, companies, cultures and disciplines. This led to a lot of knowledge and perspective sharing, which I found really enriching. This excellent program, with great content, reflective conversations and well-structured sessions, will have a long-lasting effect on me.

Can Aydoğan
Marketing Manager, Turkey

SCIENTIFIC CONFERENCES

Each year, two types of events are organized to share information on scientific topics.

IN 2018 :

- ➔ The Institut Mérieux Encounters focused on Brazil and current trends in microbiology;
- ➔ The bioMérieux Days were held three times on the topics of preserving antibiotic efficacy, tuberculosis and serious respiratory infections.

EMPLOYEE SKILLS TRAINING

These training programs are designed to improve employees' skills in line with the evolving demands of their jobs and customer needs. They cover a number of different sectors and functions.

SALES: We continued to develop inter-regional training programs for sales forces and began setting up an international network of trainers so that our employees will receive training in their local language.

SUPPLY CHAIN: In partnership with Mérieux Université and the Rennes School of Business (France), bioMérieux Supply Chain teams have developed a six-module training program open to all Company employees. The "Supply Chain Academy" aims to develop skills, encourage future talent and earn market recognition for the bioMérieux Supply Chain as a key player in customer satisfaction.

MARKETING: We continued to roll out "Marketing 4 Impact" for global and local marketing teams. This training program revisits the position and role of marketing, especially the connection with R&D and local marketing.

PURCHASING: The "Purchasing Academy" was founded to strengthen two key skills for employees in this division: complex negotiating skills and the capacity to influence. Pilot training sessions were organized at the end of the year to prepare for global deployment in 2019.

ETHICS, COMPLIANCE AND CYBERSECURITY: Training for all employees about information security aims to improve data protection and emphasize each individual's responsibility and understanding of good practices. More targeted modules cover specific issues that are important for employees working in areas such as finance, for example.

2,850 people received job-related trainings

800 people received "change management" support

700 people received leadership training

PROMOTING PROFESSIONAL DEVELOPMENT AND WELL-BEING IN THE WORKPLACE



QUALITY OF SOCIAL DIALOGUE

Since it was founded, bioMérieux has been strongly committed to the quality of social dialogue and works in close concertation with social partners and employee representatives in France and throughout our subsidiaries. Discussions focus on a number of pivotal topics for the Company. In 2018, the bioMérieux Central Works Council met 11 times for information or information/consultation meetings. The European Works Council, created in 2008, met twice during the year.

5 AGREEMENTS NEGOTIATED WITH LABOR UNIONS IN FRANCE

- ➔ 2018 Agreement on the Mandatory Annual Negotiations, signed unanimously
- ➔ Agreement to extend the terms of employee representatives until October 31, 2019 while awaiting the establishment of the Economic and Social Committee (ESC), signed unanimously
- ➔ Agreement on the Customer Service organization providing nonstop service seven days a week
- ➔ La Balme/Saint-Vulbas site agreement concerning implementation of working hours between 4 pm and midnight to improve customer deliveries, signed unanimously
- ➔ Agreement on the quality of life at work, negotiated in 2018 and signed in early 2019

PREVENTING PSYCHOSOCIAL RISKS

Since 2016, the prevention of psychosocial risks (PSR) has been included in the single assessment guidelines for occupational hazards (*Document Unique d'Évaluation des Risques Professionnels*, DUERP) at the Company. In 2017, a pilot training for PSR working groups on the identification of the various stress factors and the different resources available to overcome these factors was tested at the La Balme/Saint-Vulbas, Grenoble and Verniolle sites in France. It was then rolled out across all sites in 2018.

The promotion of healthy living takes many forms:

- ➔ All Group employees are covered by health insurance;
- ➔ Sites encourage employees to engage in sports activities;
- ➔ Seasonal influenza vaccination campaigns are organized at most sites (France, United States, Asia Pacific);
- ➔ In the United States, bioMérieux is rolling out a pilot healthcare and education program through a medical center for employees and their families in St. Louis. The St. Louis and Durham sites raise awareness among employees and their families about priority public health measures. A digital program to help people lose weight is also available to employees.

EQUAL OPPORTUNITY

DISABILITY

The 2018-2021 disability agreement renewed the voluntary contribution of €257,000 annually, which is nearly 10 times more than the mandatory contribution. As a result, it is possible to implement a policy to promote the hiring, integration and training of people with disabilities and to support job retention by adapting workstations.

Within the scope of the disability agreement, the EMEA* recruitment team renewed the “#HandiBioRecrutement” program, which promotes hiring employees with disabilities in two ways: by increasing awareness among managers and by organizing a dedicated recruitment day.

“HandiBio” Days were organized in France at the Marcy, Craponne, Combourg and Grenoble sites with the goal of improving employee awareness about disability.

SHARE OF EMPLOYEES WITH DISABILITIES IN THE WORKFORCE

	% IN 2018	% IN 2017
EMEA*	1.1	1.2
FRANCE	4.5	3.7
AMERICAS	2.1	2.5
ASIA PACIFIC	0.2	0.2



GENDER EQUALITY

- ➔ The gender equality index reaches 88/100 in 2018.
- ➔ 48% of the global workforce are women and 39% of executives are women. In France, 43% of management positions are held by women.
- ➔ The Executive Committee will be renewed, as a priority, through the appointment of women until parity has been achieved.
- ➔ The policy implemented by the Group resulted in a larger percentage of women employees being promoted in 2018. Of 669 promotions worldwide, 51.6% concerned women employees.

The Women Ready for Leadership Diversity (WoRLD) network is open to all bioMérieux employees worldwide, both women and men. Since it was created in 2013, this in-house network has been promoting greater diversity in management positions in parallel to initiatives by the Human Resources Department. In 2018, WoRLD renewed two major partnerships, first with l'Alliance pour la Mixité en Entreprise (AME), an organization that connects the networks of around 15 companies operating in the Rhône-Alpes region, and secondly with the social enterprise JUMP. These partnerships provided bioMérieux employees the opportunity to participate in 10 or so inter-company events organized by AME in 2018 to address the challenges of increasing the role of women in corporate management. In October 2018, bioMérieux also hosted the JUMP Forum in Lyon for the third year running. Nearly 250 participants attended the forum, which focused on the theme of “Sharing power for more responsible leadership.” Finally, in-house networking events continued to help participants expand their network of bioMérieux contacts.

* Europe, Middle East, Africa

HIRING YOUNG PEOPLE

Attracting and hiring young people, who represent a talent pool for the future, is a priority of bioMérieux’s HR policy. The Company supports their integration into the workforce through its training programs.

The Company opens its doors to young people through a wide range of options:

- Job shadowing for high-school internships;
- Pharmacy student interns;
- International internship program (V.I.E): 12 participants worked on an assignment with one of the Company’s subsidiaries and 5 were offered a contract at the end of their assignment in France, Singapore and Australia;
- Internships and work-study: 176 interns and 147 work-study candidates were taken on (with qualifications ranging from the baccalaureate to a graduate degree), and these figures are steadily rising.

- ➔ The Company participated in nearly 20 student fairs

The 2018 Bike & Run event, a sports challenge involving manager/student pairs, was organized on the EMLYON campus in France. A total of 13 bioMérieux managers ran with 11 university students from Centrale Lyon, ESTBB, Grenoble INP, EMLYON and Sciences PO Lyon. On the Bike & Run website, internship vacancies at bioMérieux were consulted 478 times.

THE “BEST PLACE TO WORK” APPROACH

The “Best Place to Work” program was launched in late 2016 at all our subsidiaries in the EMEA* region to strengthen employees’ pride of belonging, trust in management and a friendly atmosphere within the Company.

IDAY IDEA TANK

iDay, is a dedicated day during which employees are invited to make suggestions and share ideas about improving employee engagement. This initiative, organized on February 8, 2018, met with resounding success. Some 7,000 employees took part and nearly 20,000 suggestions and more than 110,000 expressions of support were received from all over the world. The 7 winners selected by the jury traveled to the headquarters or to a site of their choice and met with colleagues and management teams. The idea that received the most support was implemented in 2018: a collaborative platform among co-workers for various purposes: from swapping houses during holidays to traveling abroad to learn a new language...

RECOGNITION FOR OUR INITIATIVES

RANDSTAD AWARDS

For the second year in a row, bioMérieux received a Randstad Award in 2018 and was rated the third most attractive company in France. This recognition reflects the Company’s efforts to promote mobility, an ambitious training policy and the development of in-house initiatives that support work-life balance.

In early 2019, bioMérieux again received an Randstad Award and confirmed its 3rd place among the most attractive companies.

BIOMÉRIEUX CHINA, A TOP EMPLOYER

bioMérieux China was officially recognized by the Top Employers Institute as one of the best employers for the quality of working conditions.

TROPHÉE USINE 2018 - HR INITIATIVE AWARD

bioMérieux was selected to receive an award from the French magazine *L’Usine Nouvelle* for the best industrial strategy involving and rewarding employees. The *Trophée Usine 2018 - Initiative RH* award recognizes the Company’s capacity to mobilize its teams in order to improve productivity.



My job is to ensure that the tests we manufacture comply with laboratory requirements, which contributes to improving health worldwide.

” Nadine
Quality System specialist

COMMITTED TO RESPECTING THE ENVIRONMENT

In 2016, bioMérieux laid out its “Vision 2020” policy, through which it aims to achieve ambitious objectives to protect the environment and the safety and health of employees on all company sites.

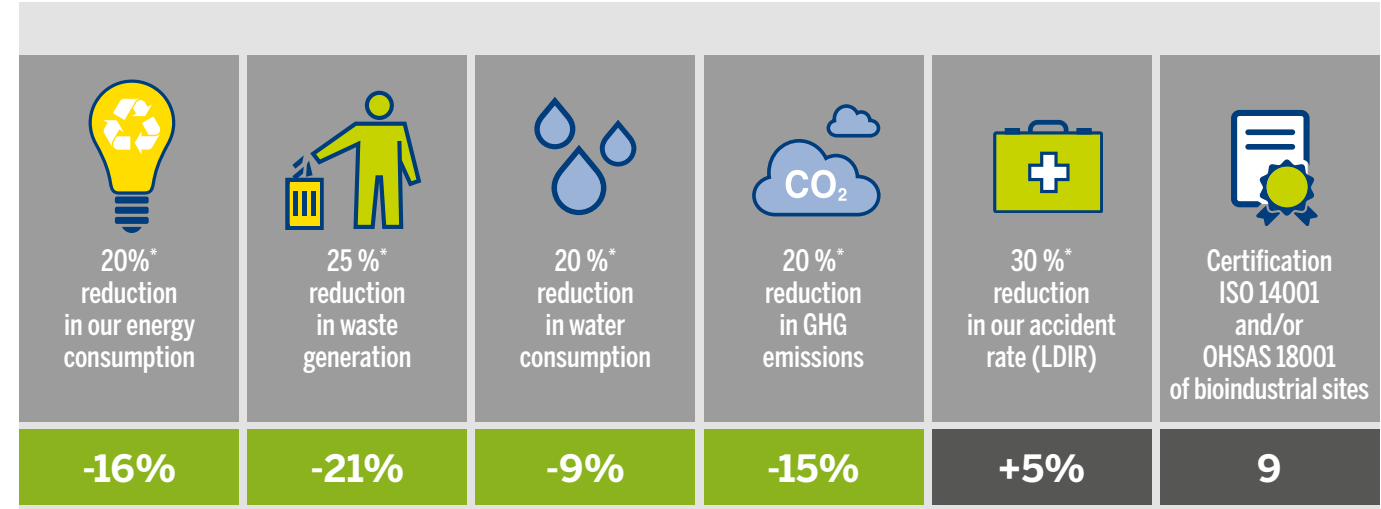
This policy is aligned with the Corporate strategy, and is managed and monitored by a global Health, Safety and Environment committee.



VISION 2020: EXPANDING OUR HEALTH, SAFETY AND ENVIRONMENTAL OBJECTIVES IN 2018

In 2017, we added the assessment of water consumption to this program, and following results that exceeded expectations in 2016 and 2017, we raised our energy consumption and waste reduction objectives. In 2018, we made an addition to Vision 2020, setting the objective of reducing greenhouse gas emissions, which concerns both direct and indirect emissions related to energy consumption.

VISION 2020 OBJECTIVES AND RESULTS AT END OF 2018



* From 2016 to 2020

REDUCING THE ENVIRONMENTAL IMPACT OF OUR PRODUCTS DURING THEIR LIFE CYCLE



For several years now, the Company has applied an eco-design approach to take on board the environmental aspects of the product life cycle during the development processes. This approach is based on sobriety in terms of the choice and use of materials in a broad sense to manufacture and commercialize our diagnostic systems.

The aim is to think about manufacturing, transportation, use and end-of-life of products right from the beginning of the innovation process, as part of a sustainable approach.

ENERGY SAVINGS

By 2020, we have planned to implement energy management systems at our main sites. Today 50% of the electricity consumed by our European sites comes from renewable sources. Since October 2018, 100% of CO₂ emissions related to gas consumption at French sites are offset. In the United States, a detailed energy audit was launched at the St. Louis and Durham sites, with the aim of assessing insulation in buildings, establishing consumption profiles of machinery and reassessing that equipment consumption is consistent with production needs.

SAVINGS DURING TRANSPORTATION AND DISTRIBUTION

bioMérieux works closely with suppliers and logistics providers to improve the Company's health, safety and the environment results. In 2018, HSE specifications were drawn up for key family products and services, and a carbon emissions roadmap was developed for distribution.

Since 2017, maritime transportation has been replacing air transportation for some shipments, increasing from 13% in 2017 to 20% in 2018. In addition, for the first time, in 2018 a shipment was transported by rail from France to Mongolia. This pivotal initiative illustrates a determination to increase the number of shipments using alternative means of transportation, which reduces the Company's carbon footprint.

The ambitious program to provide remote maintenance of our instruments, which started in 2017, has considerably reduced travel by technicians. The roll-out of the VILINK® application, which allows us to provide remote assistance for some maintenance operations, customer services and IT updates of systems, has generated a reduction in travel of up to 50%.

SITE PARTICIPATION AND EMPLOYEE ENGAGEMENT

To reach the ambitious Vision 2020 objectives and maintain the level of vigilance, the "Proud to be a daily hero" global awareness campaign was launched in October 2018. It aims at encouraging each employee to act safely and in a clean way.

The first focus of the campaign was to prevent accidents as employees move from place to place. This campaign is designed in particular to reduce the rate of accidents, which is still too high in the regions of Europe, the Middle East and Africa. Worldwide, however, the total accident rate was at 3.9 (-60% compared to 2010), which represents a good performance.

At the same time, we are seeking to reduce employees' exposure to musculoskeletal disorders, in connection with initiatives by the Human Resources Department for the prevention of psychosocial risks. Each year, our sites develop projects to improve workstation ergonomics, which are measured and assessed for their efficiency.

Following a grass-roots survey conducted in June 2018 on risk exposure, an action plan for 2019-2020 was drawn up to apply the HSE model to commercial operations worldwide. A training module about car safety, adapted to local languages and regulations, was also rolled out to close to 2,000 drivers.

In France, the Combourg, Grenoble and Verniolle sites received ISO 14001 and OHSAS 18001 certifications. Today all our sites in the regions of Europe, the Middle East and Africa have been certified and the commitment of our North American sites has been confirmed.

Proud to be a daily hero

HSE IN MOTION





I apply my IT expertise to finetune the production of diagnostic tests that will be used to perform medical analyses for patients across the globe.

” Daniel
Industrial IT Expert

COMMITTED TO ETHICS IN BUSINESS



bioMérieux has put in place internal rules and procedures to protect the Company against risks in connection with its international industrial business activity, and to provide employees with the necessary tools to anticipate and manage such risks. In an environment where challenges related to risk management, compliance and ethics are on the rise, the Company also carries out initiatives to secure its network of partners.

2018 PRIORITIES

Particular attention was focused on the implementation of a program to ensure compliance with the General Data Protection Regulation (GDPR), the new European regulation on data protection, while also continuing to strengthen compliance with the new Sapin II Law.

PROTECTION OF PERSONAL DATA AND PATIENT DATA

To ensure compliance with new regulations concerning the protection of personal data, in particular the GDPR, bioMérieux has implemented a compliance program.

A network of data privacy representatives is active at all Company sites and subsidiaries and the global functions. The network serves as the interface between the Data Protection Officer and the business entities, particularly as concerns compliance with the GDPR.

Every employee accessing personal data receives training and must adhere to the principles of these regulations.

Our customers and partners can find more specific information about compliance on our Corporate website: www.biomerieux.com.

ETHICSLINE: A GLOBAL AWARENESS CAMPAIGN

Any employee who has an ethics question may contact their regional Compliance Officer. In addition, a local hotline allows employees to speak to someone in their local language, and a dedicated website is available to employees worldwide who wish to make a report. This alert system, which was set up in France in 2014, has been rolled out in the 43 countries where bioMérieux operates. As part of a global awareness campaign to encourage employees to speak up if they have an ethics concern, in the summer of 2018 all employees at each subsidiary received a message and a card with information about how to contact the EthicsLine.

KEY AREAS OF FOCUS

Preventing corruption

Securing the distribution network

Preventing conflicts of interest

Applying export regulations

Protecting patient data

PREVENTING CORRUPTION

Risk mapping has been undertaken within each subsidiary so that procedures to manage corruption risks may be analyzed, improved and strengthened.

In 2018, a new process was introduced to automatically and routinely identify third-party risks and to verify the ethical practices of business partners.

In 2018, all global and local distributors (i.e. more than 500 companies) were contacted to ensure that their employees who work with bioMérieux receive the Company's corruption prevention training module, which is available in 18 languages.

EMPLOYEE TRAINING

Training is one of the primary ways to build awareness among all employees about international rules and in-house procedures to promote respect for ethics and compliance.

A mandatory annual training program is organized for all employees, in addition to modules specific to their function and risk exposure. Within the first few months of joining the Company, new hires receive training on the Global Code of Conduct, the Corruption Prevention Manual and the conflicts of interest policy. Each year, employees must validate a certificate of compliance with the rules of the Code of Conduct.

In 2018, nearly 24,000 on-line training modules on these topics were provided to employees across all subsidiaries via the Company's Learning Portal.

CODE OF CONDUCT AVAILABLE IN 9 LANGUAGES

The Global Code of Conduct, which sets out the rules of conduct and integrity and the procedures governing the behavior of employees wherever bioMérieux conducts business, is now available in 9 languages: English, French, Spanish, Portuguese, Italian, German, Turkish, Russian and Chinese.



STRENGTHENING OUR ORGANIZATION

In a context of increasing geopolitical risk and ever more rapid changes in market regulations – particularly those affecting exports – we have increased the number of Ethics & Compliance employees worldwide and strengthened our organization. Local compliance teams, which are active at each of our sites, have taken on an increasingly important role to ensure that the Company's global policies are adequately applied across all business entities. Local compliance "Champions" were appointed in 2018 and will undergo specific training in 2019.

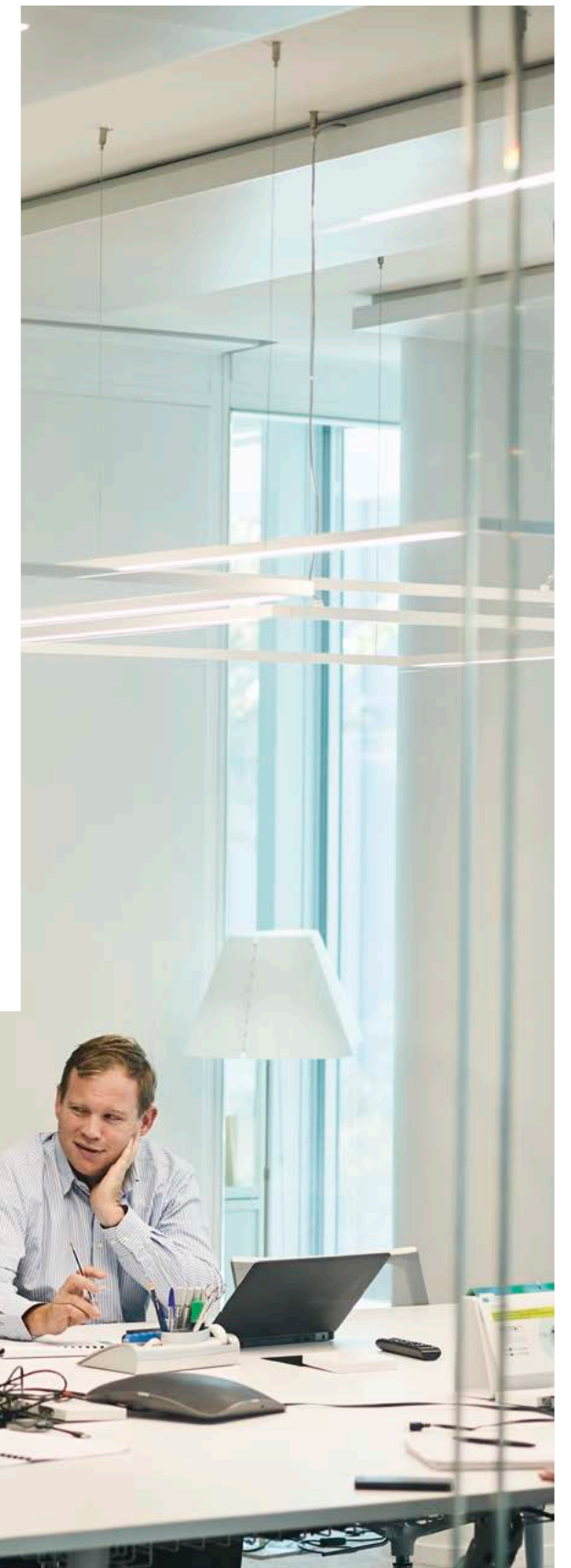
RESPONSIBLE PURCHASING

At bioMérieux, we engage our suppliers in a continuous improvement approach and involve them in our sustainable growth strategy based on environmental protection, social progress and respect for human rights. Our commitments to our suppliers and what we expect of them are outlined in the Charter for Responsible Purchasing between bioMérieux and its Suppliers, which was updated in 2018.

We have stepped up our supplier evaluations by adding CSR criteria to the selection process and by monitoring our strategic partners' annual CSR performance. In 2018, we launched a supplier CSR assessment process with the help of the rating agency EcoVadis.

TAX POLICY

bioMérieux operates in more than 160 countries. The Company implements a responsible tax policy in compliance with applicable local and international rules.



THE PRINCIPLES OF THE UNITED NATIONS GLOBAL COMPACT



PRINCIPLES RELATED TO HUMAN RIGHTS

1. bioMérieux and its employees are committed to support and respect the protection of internationally proclaimed human rights
2. bioMérieux and its employees are committed to make sure they are not complicit in human rights abuses

PRINCIPLES RELATED TO LABOR

3. bioMérieux and its employees are committed to uphold the freedom of association and recognize the right to collective bargaining
4. bioMérieux and its employees are committed to contribute to the elimination of all forms of forced and compulsory labor
5. bioMérieux and its employees are committed to contribute to the abolition of child labor
6. bioMérieux and its employees are committed to contribute to the elimination of discrimination in respect of employment and occupation

PRINCIPLES RELATED TO THE ENVIRONMENT

7. bioMérieux and its employees are committed to support a precautionary approach to environmental challenges
8. bioMérieux and its employees are committed to undertake initiatives to promote greater environmental responsibility
9. bioMérieux and its employees are committed to encourage the development and diffusion of environmentally-friendly technologies

PRINCIPLE RELATED TO ANTI-CORRUPTION

10. bioMérieux and its employees are committed to work against corruption in all its forms, including extortion and bribery

CORPORATE GOVERNANCE

BOARD OF DIRECTORS

Since 2017, Alain Mérieux, Chairman and CEO of Institut Mérieux is Founding President of bioMérieux.

The Board of Directors, which met 5 times over the course of 2018, is comprised of 11 members:

ALEXANDRE MÉRIEUX
Chairman and CEO, bioMérieux

PHILIPPE ARCHINARD
Chairman and CEO, Transgene

JEAN-LUC BELINGARD
Vice President, Institut Mérieux

HAROLD BOËL
CEO, Sofina (Belgium)

PHILIPPE GILLET
Chief Innovation Officer, SICPA SA (Switzerland)

MARIE-HÉLÈNE HABERT
Director of Communication and Patronage, Dassault Group

MARIE-PAULE KIENY
INSERM Research Director
Formerly, Assistant Director General, World Health Organization

AGNÈS LEMARCHAND
Administrator, various companies

FANNY LETIER
Co-founder of GENE0,
capital entrepreneur

MICHELE PALLADINO

DIRECTOR REPRESENTING EMPLOYEES

FRÉDÉRIC BESÈME
CSR Manager, bioMérieux

COMMITTEES OF THE BOARD OF DIRECTORS

THE AUDIT COMMITTEE

It is comprised of Mrs Agnès Lemarchand, Mr Philippe Archinard and Mr Harold Boël, its chairman.

The Committee met 7 times in 2018.

THE HUMAN RESOURCES, NOMINATIONS AND COMPENSATION COMMITTEE

It is comprised of Mrs Marie-Hélène Habert, Mr Jean-Luc Belingard and Mrs Fanny Letier, its chairman.

The Committee met 3 times in 2018.

THE STRATEGY COMMITTEE

It is comprised of Mrs Marie-Paule Kieny, Mr Michele Palladino, Mr Philippe Gillet and Mr Jean-Luc Belingard, its chairman.

The Committee met once in 2018.

MANAGEMENT COMMITTEE

The Management Committee is responsible for implementing the Company's strategy decided by the Board of Directors. It meets once every three months and monthly by telepresence.

Since January 1st, 2019 it is comprised of:

ALEXANDRE MÉRIEUX
Chairman and CEO

MICHEL BAGUENAUT
Executive Vice President, Company Secretary

GUILLAUME BOUHOURS
Executive Vice President, Finance, Purchasing & Information Systems

PIERRE BOULUD
Executive Vice President, ASPAC Region, Portfolio & Strategic Planning

NICOLAS CARTIER
Executive Vice President, Industrial Microbiology Unit

PIERRE CHARBONNIER
Executive Vice President, Global Quality, Manufacturing & Supply Chain

FRANÇOIS LACOSTE
Executive Vice President, Clinical Unit

VALÉRIE LEYLDÉ
Executive Vice President, Human Resources & Communications

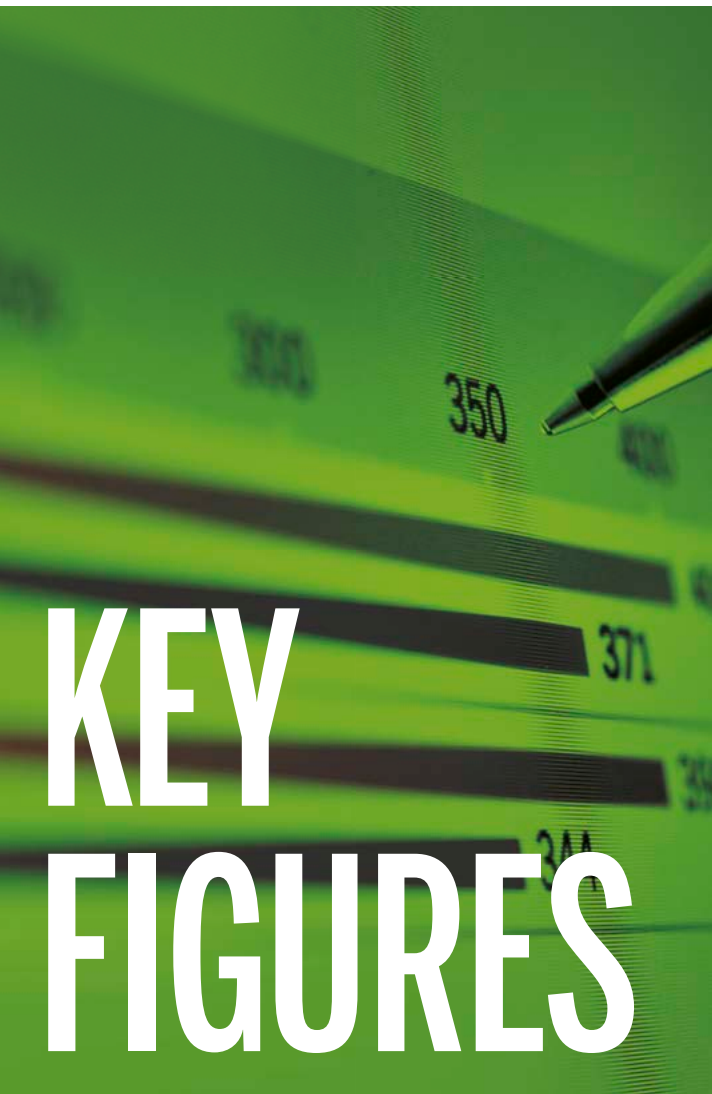
MARK MILLER
Executive Vice President, Chief Medical Officer

YASHA MITROTTI
Executive Vice President, Europe, Middle East, Africa Region & Global Commercial Performance

RANDY RASMUSSEN
Executive Vice President, Molecular Biology

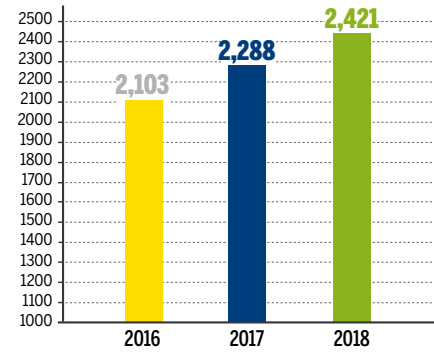
KIRK RIRIE
Executive Vice President, Chief Innovation Officer

STEFAN WILLEMSSEN
Executive Vice President, Americas Region



SALES

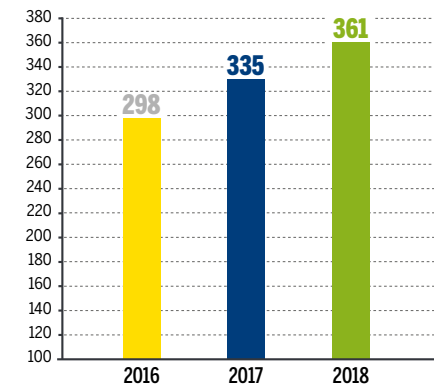
in millions of euros



Sales amounted to €2,421 million in 2018, versus €2,288 million in 2017, an increase of 9.9% at constant exchange rates and scope of consolidation.

CONTRIBUTIVE OPERATING INCOME BEFORE NON-RECURRING ITEMS*

in millions of euros

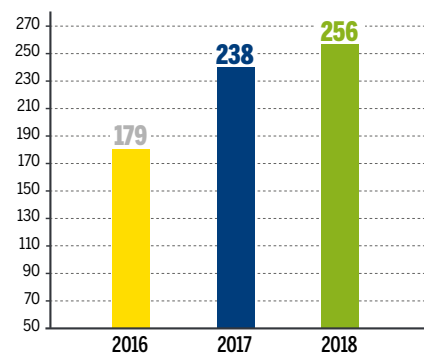


Lifted by the strong sales organic growth, contributive operating income came slightly above initial target. It was up by 7.8% compared to 2017, to reach €361 million, or 14.9% of sales.

* Contributive operating income before non-recurring items corresponds to operating income before non-recurring BioFire acquisition and integration costs and before accounting entries relating to the company's purchase price allocation.

NET INCOME FOR THE PERIOD

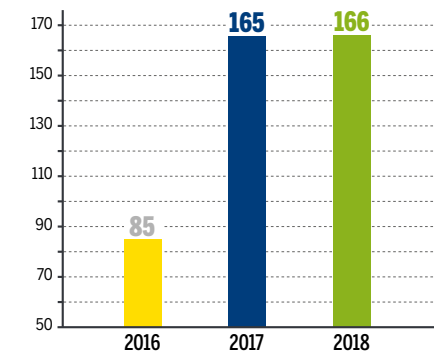
in millions of euros



Net income of consolidated companies for the year amounted to €256 million, up by 7.6% compared to 2017. It represented 10.6% of sales.

FREE CASH FLOW*

in millions of euros

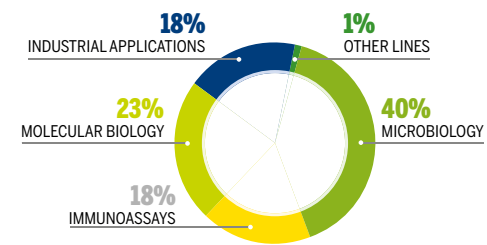


Excluding the one-off payment to the U.S. pension fund, free cash flow amounted to €222 million in 2018, versus €165 million in 2017, representing an increase of more than 30%. Including the one-off payment, reported free cash flow came to €166 million.

* Cash flow before acquisitions of companies, divested operations, share buyback programs and dividends.

BREAKDOWN OF SALES

by application



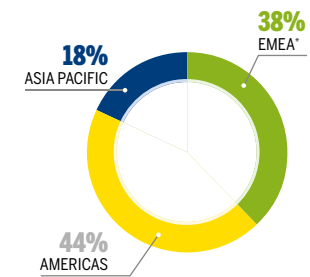
Approximately 60% of sales were generated in clinical and industrial microbiology, two areas where bioMérieux is the world leader.

In 2018, sales growth in molecular biology (23% of sales in 2018 compared to 19% in 2017) was driven by the success of the BIOFIRE® FILMARRAY® line.

Supported by the commercial strength of the VITEK® and BACT/ALERT® lines, microbiology represented 40% of revenue, up by 6%.

BREAKDOWN OF SALES

by geographical region

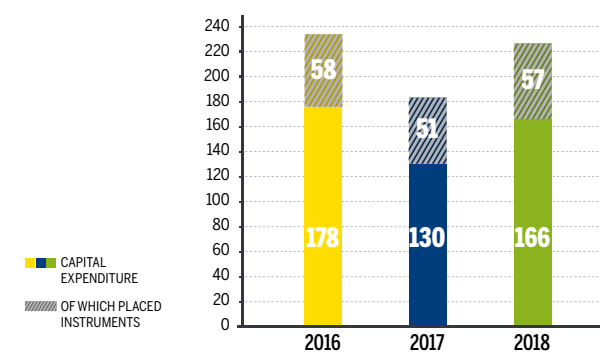


The Group's growth was chiefly driven by strong sales in the Americas region especially in the BIOFIRE® FILMARRAY® line, as well as solid sales dynamics in Asia Pacific.

* Europe, Middle East, Africa.

INVESTMENTS

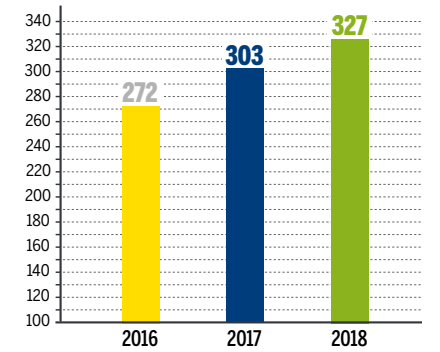
in millions of euros



The capital expenditures made over the year amounted to €223 million, the results of the industrial investment strategy intended mainly to increase capacity and productivity of production facilities. The total capital expenditures for the year represented 9% of sales.

R&D EXPENSES

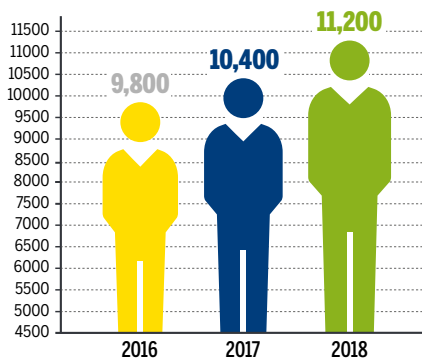
in millions of euros



Continuing its innovation efforts, the Group invested €327 million in research and development in 2018, or 13.5% of sales.

This increase reflects the intensification of activities associated with the BIOFIRE® FILMARRAY® line.

WORKFORCE AS AT DECEMBER 31*

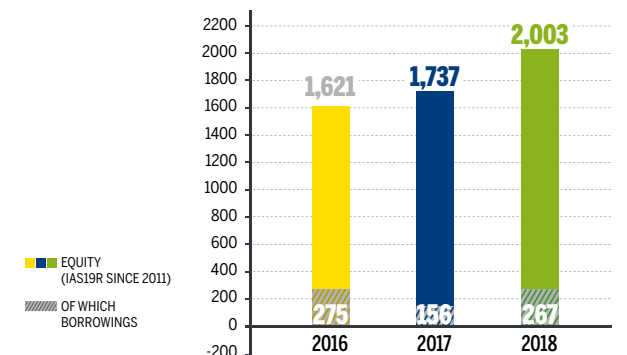


Changes in the workforce in 2018 mainly reflect the strengthening of BioFire Diagnostics' industrial and commercial teams to support the growth of the BIOFIRE® FILMARRAY® line as well as the strengthening of teams in Asia Pacific.

* Full-time equivalent.

CHANGES IN THE FINANCIAL POSITION

in millions of euros



Net debt stood at €267 million at the end of the year, representing only 13% of equity. This leaves a high degree of flexibility to promote the Group's strategic ambitions.

FINANCIAL TABLES

CONSOLIDATED INCOME STATEMENT

In € millions	12/31/2018	12/31/2017
NET SALES	2 421.3	2 288.2
Cost of sales	-1 119.1	-1 076.4
GROSS PROFIT	1 302.2	1 211.8
OTHER OPERATING INCOME	31.2	31.2
Selling and marketing expenses	-480.3	-447.5
General and administrative expenses	-165.2	-156.4
Research and development expenses	-326.9	-304.4
TOTAL OPERATING EXPENSES	-972.4	-908.3
CONTRIBUTIVE OPERATING INCOME	361.0	334.7
BioFire acquisition's fees and depreciation costs ^(a)	-17.5	-18.2
OPERATING INCOME BEFORE NON-RECURRING ITEMS	343.5	316.5
Other non-recurring income (expenses)	0.2	-1.6
OPERATING INCOME	343.6	314.9
Cost of net financial debt	-18.5	-16.2
Other financial items	-4.5	-6.2
Income tax	-65.2	-54.5
Investments in associates	0.2	-0.4
NET INCOME OF CONSOLIDATED COMPANIES	255.6	237.6
Attributable to the minority interests	-1.1	-0.6
ATTRIBUTABLE TO THE PARENT COMPANY	256.6	238.1
Basic earnings per share	2.18 €	2.02 €
Diluted earnings per share	2.17 €	2.01 €

(a) Corresponds to non-recurring BioFire acquisition and integration costs and accounting entries relating to the company's purchase price allocation.

CONSOLIDATED BALANCE SHEET

ASSETS (In € millions)	12/31/2018	12/31/2017
Intangible assets	507.3	430.7
Goodwill	616.5	442.7
Property, plant and equipment	807.5	711.4
Financial assets	71.8	57.9
Investments in associates	0.3	0.1
Other non-current assets	16.2	14.1
Deferred tax assets	74.3	51.6
NON-CURRENT ASSETS	2,093.9	1,708.5
Inventories and work in progress	414.9	380.3
Accounts receivable	490.0	460.1
Other operating receivables	61.7	75.1
Tax receivable	39.2	36.1
Non-operating receivables	9.6	15.7
Cash and cash equivalents	280.1	312.1
CURRENT ASSETS	1,295.6	1,279.4
ASSETS HELD FOR SALE	0.1	2.1
TOTAL ASSETS	3,389.6	2,990.0
LIABILITIES AND SHAREHOLDERS' EQUITY (In € millions)	12/31/2018	12/31/2017
Share capital	12.0	12.0
Additional paid-in capital & Reserves	1,660.6	1,487.5
Net income for the year	256.6	238.1
SHAREHOLDERS' EQUITY	1,929.3	1,737.6
MINORITY INTERESTS	74.0	-0.9
TOTAL EQUITY	2,003.3	1,736.7
Net financial debt - long-term	446.8	391.1
Deferred tax liabilities	136.0	103.8
Provisions	47.1	106.7
NON-CURRENT LIABILITIES	629.9	601.5
Net financial debt - short-term	100.2	76.9
Provisions	45.0	34.1
Accounts payable	176.9	161.3
Other operating liabilities	345.1	300.7
Tax liabilities	33.5	24.2
Non-operating liabilities	55.8	54.6
CURRENT LIABILITIES	756.4	651.8
LIABILITIES RELATED TO ASSETS HELD FOR SALE	0.0	0.0
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	3,389.6	2,990.0

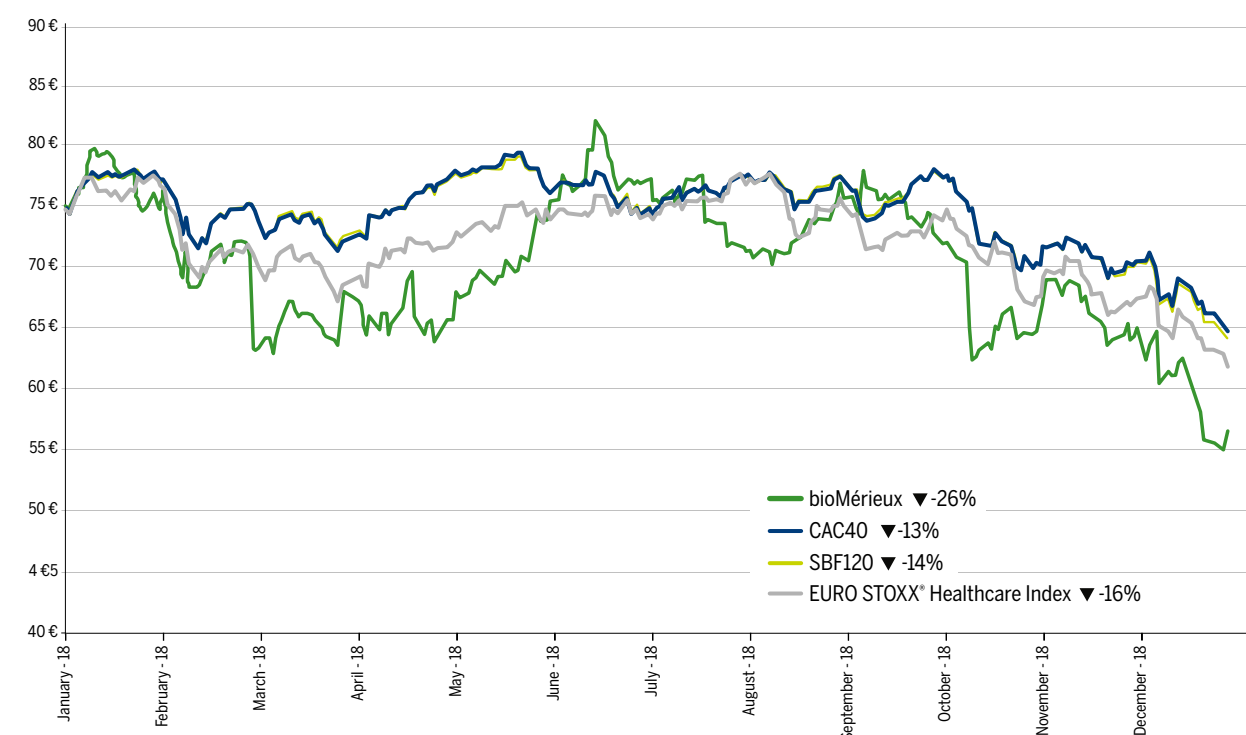
CONSOLIDATED CASH FLOW STATEMENT

In € millions	12/31/2018	12/31/2017
Net income of consolidated companies	255.5	237.5
Investments in associates	-0.2	0.4
Cost of net financial debt	18.5	16.2
Other financial items	4.5	6.2
Current income tax expense	65.2	54.5
Operating depreciation and provisions on assets	157.9	140.5
Nonrecurring items and BioFire acquisition's fees and depreciation costs	17.4	19.9
EBITDA (before non-recurring items)	518.8	475.2
Other non current operating gains/losses (w/o exceptional depreciations, assets losses and capital gains/losses)	0.1	-1.1
Other financial items (w/o accruals & disposal of financial assets)	-4.6	-6.1
Operating provisions for risks and contingencies	-47.8	5.5
Change in fair value of financial instruments	0.3	2.3
Share-based payments	6.7	7.5
Elimination of other gains and losses without any impact on cash or operations	-45.3	8.1
Change in inventories	-27.3	-4.3
Change in accounts receivable	-30.3	-25.6
Change in accounts payable	13.7	-4.1
Change in other operating working capital	41.1	-3.8
Change in operating working capital^(a)	-2.8	-37.8
Other non operating working capital	2.7	1.5
Change in non-current assets	-1.5	2.0
Other cashflows from operation	-1.6	-34.3
Income tax paid	-66.5	-91.5
Cost of net financial debt	-18.5	-16.2
NET CASH FLOW FROM OPERATIONS	386.9	341.3
Purchase of property, plant and equipment	-226.8	-183.5
Proceeds on fixed asset disposals	5.4	7.9
Purchase / Disposals of financial assets	0.0	-0.4
FREE CASH FLOW^(b)	165.5	165.3
Purchase / Disposals of investment	-5.4	-13.7
Impact of changes in the scope of consolidation	-191.4	9.3
NET CASH FLOW FROM (USED IN) INVESTMENT ACTIVITIES	-418.2	-180.4
Purchases and proceeds of treasury stocks	-22.6	-0.9
Dividends to shareholders	-40.2	-39.4
Dividends to minority interests	0.0	-0.1
Change in confirmed financial debt	115.5	-0.6
Change in ownership interest not resulting in a change in control	0.0	-11.5
NET CASH FLOW FROM (USED IN) FINANCING ACTIVITIES	52.7	-52.5
NET CHANGE IN CASH AND CASH EQUIVALENTS	21.4	108.4
NET CASH AND CASH EQUIVALENTS AT THE BEGINNING OF THE YEAR	260.4	146.6
Impact of currency changes on net cash and cash equivalents	-11.8	5.4
NET CASH AND CASH EQUIVALENTS AT THE END OF THE YEAR	270.0	260.4

(a) Including additions to and reversals of current provisions. (b) Corresponds to the sum of net cash from operating activities and net cash used in investing activities excluding the impact of changes in Group structure. It also includes purchases and sales of treasury shares and the cost of net debt.

THE BIOMÉRIEUX SHARE

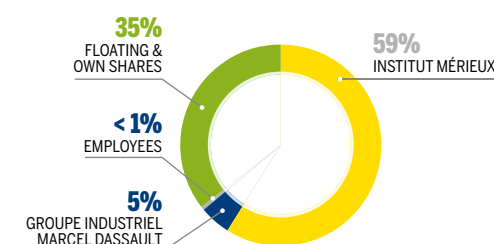
SHARE PRICE PERFORMANCE IN 2018*



* Indexes rebased on bioMérieux's stock price as at 12/31/2017 (€74.69)

BREAKDOWN OF CAPITAL

as at December 31, 2018



CALENDAR OF EVENTS

February 27, 2019	2018 Financial Results
April 24, 2019	First quarter 2019 sales (before start of trading)
May 23, 2019	Annual General Meeting
September 4, 2019	Second quarter 2019 sales and first-half 2019 results (before start of trading)
October 22, 2019	Third quarter 2019 sales (before start of trading)

THE BIOMÉRIEUX SHARE

bioMérieux shares have been traded publicly since July 6, 2004 on the CAC Mid 60®, SBF 120®, CAC Mid & Small®, CAC All-tradable® and CAC All-Share® French market indices. In addition, bioMérieux was included in new indices during 2017, specifically MSCI France Index and STOXX® Europe 600. The Company's shares are listed on compartment "A" of the Eurolist market and are eligible for deferred settlement service (*Service de Règlement Différé* – SRD).

bioMérieux's social, Corporate and environmental commitment has been recognised for a number of years by extra-financial rating agencies that evaluate its CSR performance and have included it in their SRI indices (Socially Responsible Investments) such as the Ethibel Forum (Ethibel Sustainability Index (ESI) Excellence Europe), FTSE Russell (FTSE4Good Index), Vigeo Eiris, EcoVadis, OEKOM Research, CDP (Carbon Disclosure Project) and Corporate Knights Global 100 Index.

At December 31, 2018, the closing price for the bioMérieux share was €57.50 (€74.69 at December 31, 2017) and the Company's market capitalisation was €6.8 billion.

In 2018, 30 711 238 of the Company's shares were traded on Euronext (28,750,521 in 2017).

INVESTOR RELATIONS CONTACT

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 The Reference Document approved by the AMF is available upon request or on our Web site: www.biomerieux-finance.com

GLOSSARY

Acute kidney injury (AKI) ■ Abrupt loss of kidney function that develops within 7 days, it is a broad clinical syndrome encompassing various etiologies, including specific kidney diseases, which can occur in the community, as well as in the hospital or ICU. AKI can be prevented through early detection and rapid treatment.

Antibiotic resistance ■ A microorganism's natural ability to withstand the effects of antibiotics: taking an antibiotic puts selective pressure on bacteria, eliminating bacteria that are susceptible to the antibiotic and selecting resistant bacteria, which then multiply. The widespread and often inappropriate use of antibiotics contributes to rising rates of antibiotic resistance, which is one of the biggest threats to public health worldwide.

Antibiotic Susceptibility Testing ■ Determines the susceptibility of a bacterium in the presence of antibiotics and classifies it as susceptible, resistant or intermediate.

Biomarker ■ Any indicator (nucleic acids, enzymes, metabolites and other types of molecules: histamines, hormones, proteins, etc.) present in or excreted by the body as a biological response to a disease.

Blood culture ■ Laboratory analysis used to detect bloodstream infections, carried out by taking a sample of venous blood, which is then cultured to reveal the presence or absence of pathogenic microbes.

Dengue ■ Dengue is a viral infection transmitted by the *Aedes* mosquito that causes flu-like symptoms. A person with dengue may develop life-threatening complications.

DNA Sequencing ■ Method used to determine the order of the nucleotide bases for a given DNA fragment.

Endotoxin ■ Component of the outer membrane of certain Gram-negative bacteria that can cause high fevers. Pharmacopoeial standards require that endotoxins be absent from pharmaceutical products that come into contact with the bloodstream or the central nervous system, such as injectable drugs and medical devices. It is also recommended that the endotoxins be quantified in raw materials or in-process materials.

Healthcare-Associated Infection (HAI) ■ HAIs are infections occurring in a patient during the process of care in a hospital (or other healthcare facility) that were not present at the time of admission and are directly related to the care received.

Immunoassay ■ Diagnostic test based on an antigen/antibody reaction, enabling the detection of infectious agents (bacteria, viruses, parasites) and pathogen markers.

In vitro diagnostics ■ Analysis of biological samples (urine, blood, etc.) performed outside the human body.

Mass spectrometry ■ Technique used to identify a molecule and determine its chemical structure by analyzing the mass and the charge of its ions.

Middle East respiratory syndrome coronavirus (MERS-CoV) ■ Middle East respiratory syndrome coronavirus (MERS-CoV) was first identified in September 2012 in Saudi Arabia and is responsible for the Middle East respiratory syndrome (MERS). Among people affected by the disease, symptoms include fever, coughing and shortness of breath, as well as gastrointestinal symptoms in some cases. Approximately 35% of reported patients with MERS-CoV infection have died.

Microbiology ■ The study of microorganisms. In the field of *in vitro* diagnostics: culturing biological, food and pharmaceutical samples in growth medium allows any bacteria that may be present to multiply. The bacteria are subsequently identified and their susceptibility to antibiotics tested in certain cases.

Molecular Biology ■ Technique that can detect a bacterium, virus, yeast, parasite or a biomarker through the presence of DNA or RNA genetic sequences in a sample.

Pathogen ■ A microbe that causes or has the potential to cause an infectious disease.

PCR (Polymerase Chain Reaction) ■ Molecular biology technology for *in vitro* amplification of genetic sequences, used to copy known DNA or RNA sequences in large quantities (by an order of magnitude of a billion) from an initially small quantity. This technology is particularly useful for detecting the presence of viruses.

PCT (Procalcitonin) ■ An early and specific host marker of a bacterial infection, PCT is useful to adapt antimicrobial prescriptions.

Sepsis ■ A serious systemic infection characterized by the presence of bacteria, fungi, viruses and parasites in the blood and combined with an inflammatory immune-reaction (host response) that can result in the rapid deterioration of the patient's general condition leading to possible organ failure.

Syndromic approach ■ Medical approach based on analyzing a syndrome (i.e., a set of symptoms and/or clinical signs) that uses a single test to identify the disease-causing organism(s) responsible for this syndrome, whether they are viruses, bacteria, fungi or parasites.

Zika virus ■ The Zika virus is transmitted by the bite of an infected *Aedes* mosquito. It recently caused an epidemic affecting several countries in Latin America, Africa and Asia, and currently it is probably spreading worldwide. Often asymptomatic, the disease may present as a moderate infection similar to dengue. Symptoms may include fever, muscle and joint pain, conjunctivitis, fatigue and headache. Skin rash is a characteristic feature of Zika. The potentially serious impact of the virus is connected to its ability to cause neurological complications and severe malformations, in particular neurological malformations in the fetus.

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Sculptures from Claude Quiesse: "Le Cheval" (p. 5), "Le Cavalier" (p. 58), "Les Parques" (p. 60)

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