



# DIAGNOSTICS IS POWER

The power to sustain antibiotic efficacy  
for future generations



**#pioneeringdiagnostics**

# ANTIMICROBIAL RESISTANCE

## A GLOBAL PUBLIC HEALTH THREAT

Over the past century, the number of deaths due to infectious diseases has decreased dramatically through the extensive use of antibiotics.

Antibiotics have also made a number of “modern-day medical miracles” possible, such as organ transplantation, cancer chemotherapy, treatment of preterm babies or major surgeries.

Without antibiotics, the infections associated with these diseases and medical interventions would be extremely frequent and potentially fatal.

### A GLOBAL EMERGENCY

RECOGNIZED BY:  
WHO, CDC, G20,  
UNITED NATIONS GENERAL ASSEMBLY,  
EUROPEAN COMMISSION, ETC.

### 700,000 DEATHS

ANNUALLY WORLDWIDE.  
IF WE DO NOT TAKE ACTION  
THIS FIGURE IS ESTIMATED TO REACH  
10 MILLION DEATHS A YEAR  
BY 2050<sup>1</sup>

### \$100 TRILLION

POTENTIAL LOSS FOR WORLD  
PRODUCTION<sup>1</sup> AND A PROJECTED  
ANNUAL DECREASE IN GLOBAL GDP\*  
OF BETWEEN 1.1% AND 3.8%  
BY 2050<sup>2</sup>

\* Gross Domestic Product

### WHAT IS ANTIMICROBIAL RESISTANCE (AMR)?

Because antibiotics are so effective, they have been massively overused to treat both humans and animals. The development of AMR is accelerated by the selective pressure exerted by the widespread use of antimicrobials.

Cases of antibiotic resistance were usually detected in hospitals, but they have now spread outside these settings to the community. Some bacteria have become resistant to multiple drugs, leading to situations where there are no treatment options left to fight the patient's infection. A lack of new antibiotics in the development pipeline further compounds the situation.

### URGENT MEASURES NEED TO BE TAKEN<sup>3</sup>:

- Launch public awareness campaigns and train healthcare professionals
- Improve hygiene and infection control and prevention to limit the spread of resistant pathogens
- Reduce unnecessary use of antimicrobials in human and animal health
- Increase the use of diagnostic testing and strengthen the role of microbiology laboratories
- Improve global surveillance of antimicrobial resistance
- Encourage research and development of new diagnostic tests
- Foster the development of new antibiotics and alternatives as well as vaccination
- Facilitate market access for new products to fight antibiotic resistance

1) Tackling drug-resistant infections globally: Final report and recommendations, The Review on Antimicrobial Resistance, Chaired by Jim O'Neill, May 2016. ■ 2) World Bank Press release, “By 2050, drug-resistant infections could cause global economic damage on par with 2008 financial crisis”, September 20, 2016. ■ 3) Based on Tackling drug-resistant infections globally: Final report and recommendations, The Review on Antimicrobial Resistance, Chaired by Jim O'Neill, May 2016.

# DIAGNOSTIC TESTS

## INSTRUMENTAL FOR ANTIMICROBIAL STEWARDSHIP PROGRAMS

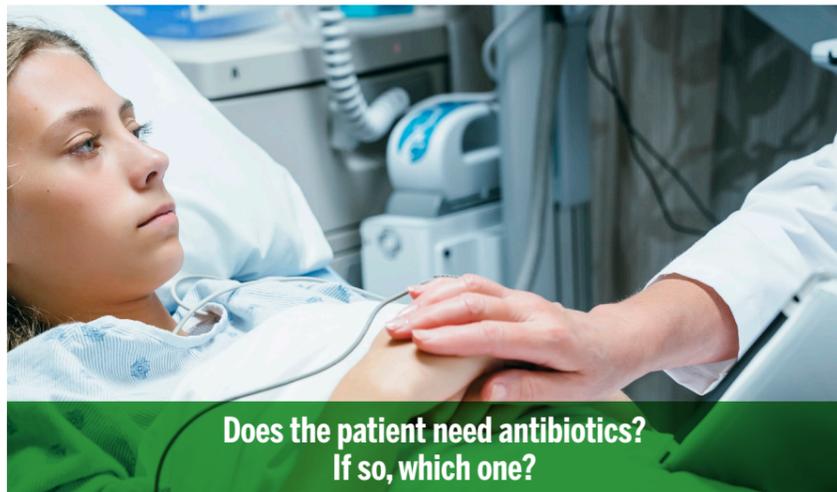
Diagnostic tests have an impact at both individual and collective levels, by contributing to the protection and the improvement of public health and the reduction of healthcare costs.

As a world leader in *in vitro* diagnostics, bioMérieux has been committed to the fight against infectious diseases for more than 55 years. Combating resistance to antibiotics lies at the heart of the Company's global public health mission.

bioMérieux's unique and comprehensive range of diagnostic solutions support antimicrobial stewardship for the responsible use of antibiotics to improve patient care. They are also useful for the implementation of epidemiological surveillance programs through the consolidation of microbiological data at hospital, country and global levels.

**“Diagnostics are the single biggest potential game changer in the fight against AMR.”**

**LORD JIM O'NEILL,**  
BRITISH ECONOMIST AND MEMBER OF PARLIAMENT,  
COORDINATOR OF THE AMR REVIEW



**Does the patient need antibiotics?  
If so, which one?**

**Can the antibiotic prescription  
be optimized?**

**When can the antibiotic treatment  
be safely discontinued?**

### ROLE OF DIAGNOSTIC TESTS

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

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

Monitor patient response to personalized treatment duration and discontinue antibiotics as early as possible.

### BIOMÉRIEUX'S SOLUTIONS TO SUPPORT MEDICAL DECISIONS AND SERVE PUBLIC HEALTH



VIDAS®  
B-R-A-H-M-S PCT™



BIOFIRE®  
FILMARRAY®



PREVI® COLOR



BACT/ALERT®  
VIRTUO®



WASPLab®



CHROMID®



VITEK® MS



BIOFIRE®  
FILMARRAY®



VITEK® 2



ESTEST®



RAPIDEC®  
CARBANP



VIDAS® B-R-A-H-M-S PCT™

LAB INFORMATICS



MYLA®

to provide actionable results and consolidate data

EPIDEMIOLOGICAL SURVEILLANCE, PREVENTION AND INFECTION CONTROL SOLUTIONS to avoid outbreaks and limit the spread of resistance

“ The in vitro diagnostics industry is heavily involved in the fight against antimicrobial resistance. As a leading global player in infectious disease diagnostics, bioMérieux is an active advocate of the responsible use of antibiotics. True to our public health mission, we consider the development of diagnostic tests and education to be among our core priorities, with the aim of supporting antimicrobial stewardship and preserve the efficacy of these medications today and for the future. ”

**Alexandre Mérieux,**  
Chairman and CEO of bioMérieux

## FIGHTING ANTIMICROBIAL RESISTANCE IS EVERYONE’S CONCERN



# OUR COMMITMENT

## INNOVATION

- ➔ 75% of bioMérieux's clinical R&D budget is dedicated to developing effective diagnostic tests to combat antimicrobial resistance.

## EDUCATION AND AWARENESS

- ➔ for healthcare professionals: laboratories, physicians, nurses and pharmacists
- ➔ for hospitals: to support antimicrobial stewardship programs
- ➔ for patients and the general public:
  - [www.antimicrobial-resistance.biomerieux.com](http://www.antimicrobial-resistance.biomerieux.com)
  - European Antibiotic Awareness Day
  - World Antibiotic Awareness Week.

## SURVEILLANCE

- ➔ bioMérieux is the only private partner of the Global Point Prevalence Survey (GLOBAL-PPS) managed by Antwerp University (Belgium). This unprecedented study of antibiotic consumption and microbial resistance in hospitals worldwide provides data that are instrumental when implementing antimicrobial stewardship programs.

## PUBLIC/PRIVATE PARTNERSHIPS

- ➔ We are a partner to programs such as CARE (China Against drug REsistance) and COMBACTE (COMbatting BACTerial resistance in Europe), a unique research consortium within the scope of the Innovative Medicines Initiative (IMI).
- ➔ We are co-leading a consortium (26 partners) to carry out the VALUE-Dx project which aims to demonstrate the medical and economic value of diagnostics to combat AMR by optimizing antibiotic use. This project is EU funded through the IMI joint undertaking.
- ➔ We are actively participating in the AMR Challenge initiated by the US Centers for Diseases Control (CDC).

## WORKING WITH INTERNATIONAL ORGANIZATIONS

bioMérieux is:

- ➔ a signatory to the declaration on antimicrobial resistance at the 2017 World Economic Forum in Davos (Switzerland),
- ➔ a representative of the diagnostics industry on the AMR Industry Alliance's Board,
- ➔ a voting member of the Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria (PACCARB),
- ➔ a leading member of the AMR working group at AdvaMed (Advanced Medical Technology Association) and MedTech Europe,
- ➔ the leader of the French «Antibiorésistance» project of the Industrial and Governmental Health Strategy Committee.