THE SOLUTION

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A new device to detect ESBLs and carbapenemases in only 15 minutes

- The traditional bacterial culture techniques require between 16 and 32 hours to isolate and identify the pathogenic organism. In contrast, **real-time detection would permit adapting immediately the treatment to the bacteria concerned.**

- In order to use antibiotics only when required and stem the rise of resistant pathogens, it is essential to prescribe the appropriate drug. Therefore, **new, rapid and easy-to-use diagnostic tools to detect both ESBLs and carbapenemases are urgently needed.**

- **The BL-DetecTool is a promising mechanism aimed at detecting broad-spectrum β-lactamases (ESBL and carbapenemases), which confer resistance to 3rd generation cephalosporins and carbapenems, directly from the patient's biological sample.**

BLDETEC**TOOL**
BL detection in 15 min

TARGET GROUP

The main market for this product are facilities where fast detection with the device can be used for more targeted treatment of patients, and for efficient and cost saving treatments, including:

- Intensive care units
- Surgical units
- Patient admissions unit of hospitals
- Clinical microbiology laboratories
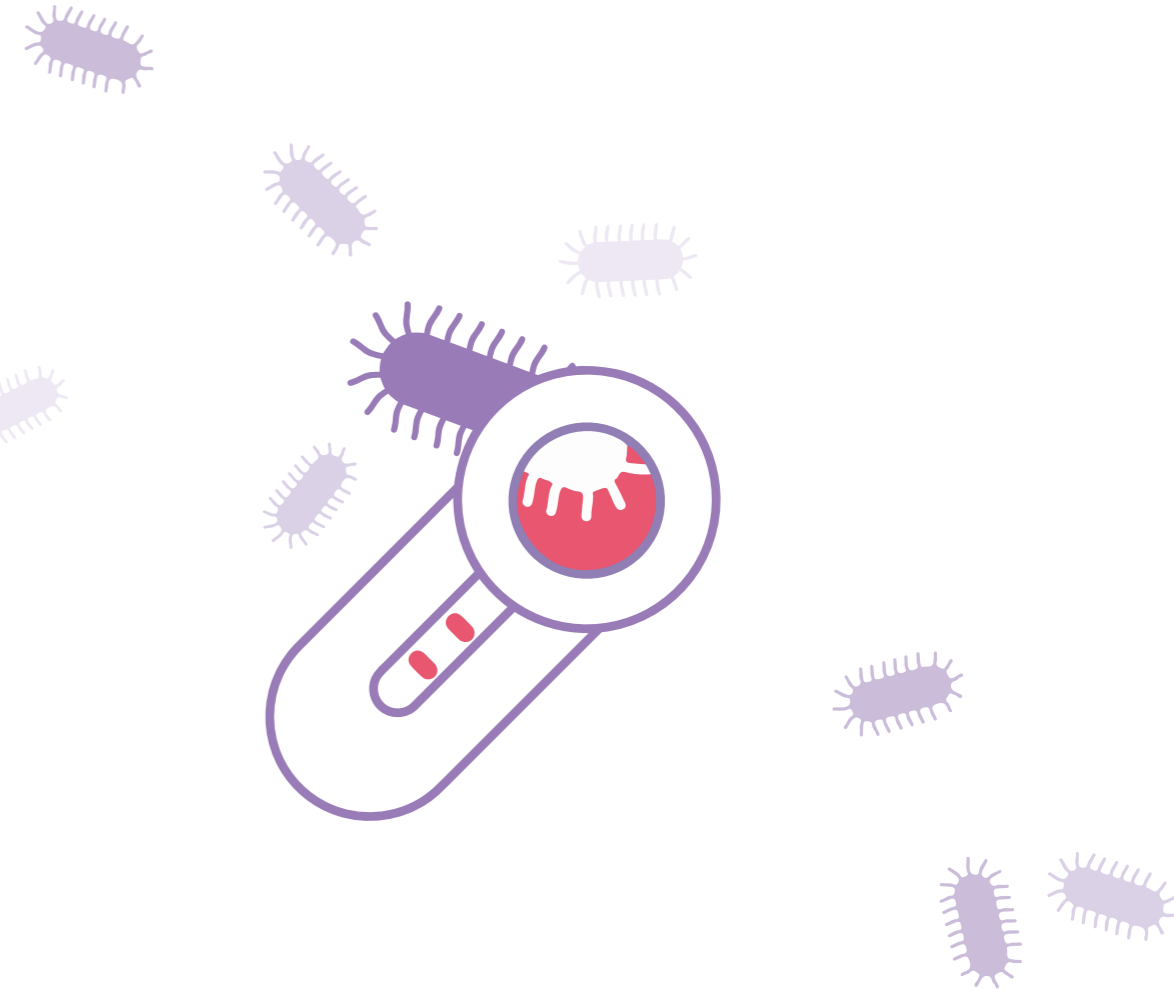- Nursing homes

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TARGET AUDIENCE

- Clinicians
- Clinical microbiologists
- Hospital managers
- Device users (health professionals)
- All partners globally

BL-DetecTool is under development thanks to a grant from the EIT Health Innovation Projects programme. The products issued from this collaboration will be commercialized under the name of NG DetecTool. Further information can be found on www.ngdetectool.com.

For further information on the BL-DetecTool, visit www.bldetectool.com
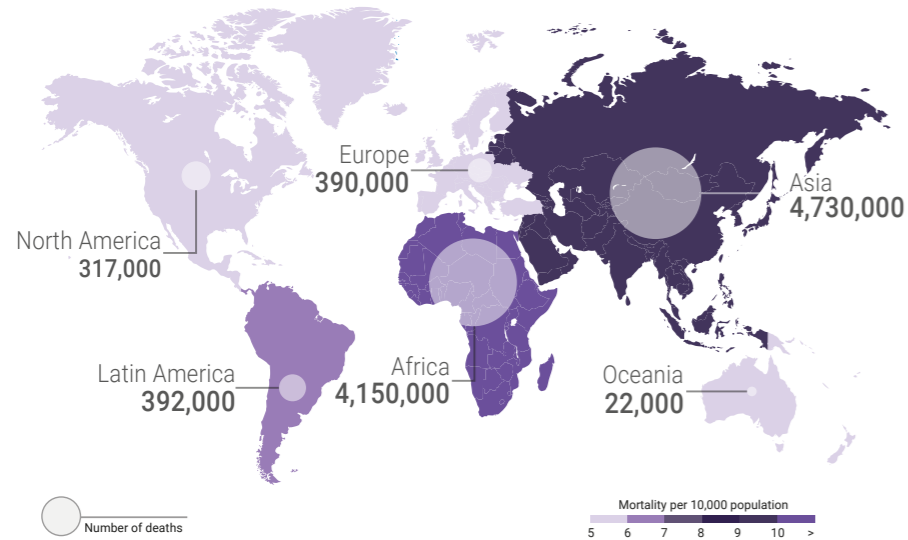

BL-DetecTool

An innovative device for rapid detection of broad-spectrum β-lactamases.

ASSISTANCE PUBLIQUE HÔPITAUX DE PARIS · IESE Business School · cea · ISGlobal · UNIVERSITAT DE BARCELONA · eit Health
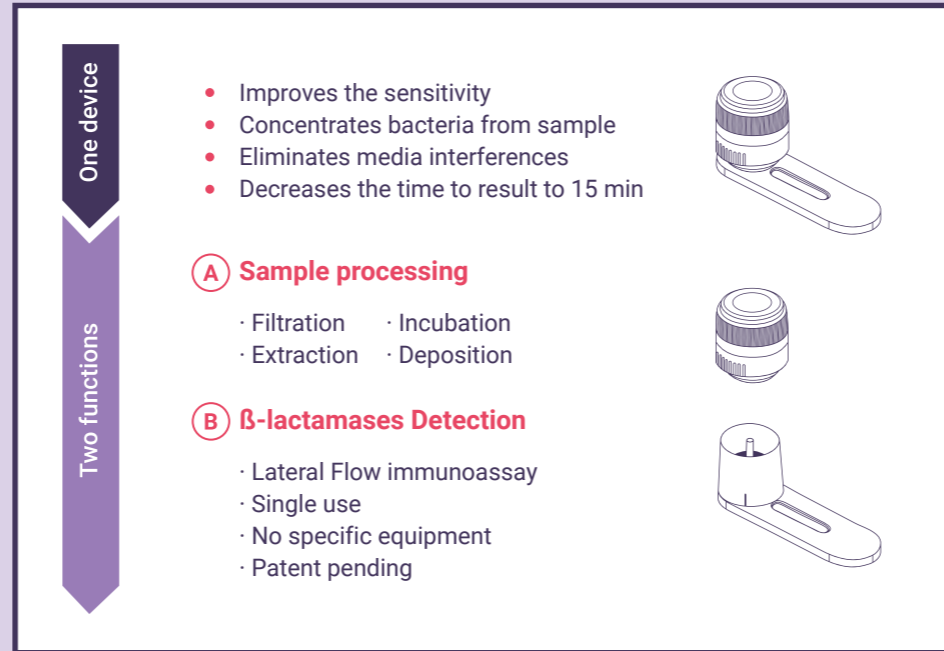
Antimicrobial resistance is a global challenge

- Resistance to antimicrobial drugs **threatens our ability to treat infectious diseases, increases health costs, and poses a serious risk to the progress made in global health** in the past decades.

- **The increase in the number of infections caused by extended-spectrum β-lactamase-producing Enterobacteriaceae (ESBL-E) and the emergence of carbapenemases-producing Enterobacteriaceae (CPE) has become a worrisome clinical issue.**

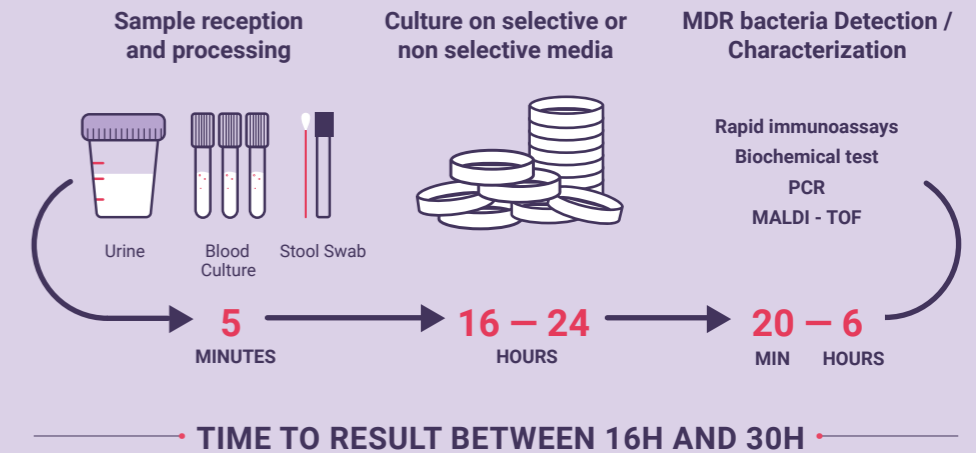**Without action, 10 million deaths could be attributable to antimicrobial resistance every year by 2050**

Europe
390,000

Asia
4,730,000

North America
317,000

Latin America
392,000

Africa
4,150,000

Oceania
22,000

Number of deaths

Mortality per 10,000 population
5 6 7 8 9 10 >

Source: Review on Antimicrobial Resistance 2014

One device

- Improves the sensitivity
- Concentrates bacteria from sample
- Eliminates media interferences
- Decreases the time to result to 15 min

Two functions

(A) Sample processing

· Filtration   · Incubation
· Extraction   · Deposition

(B) ß-lactamases Detection

· Lateral Flow immunoassay
· Single use
· No specific equipment
· Patent pending

- For the first time, a new detection system will allow for a **fast, affordable, user-friendly and direct detection of antibiotic degrading enzyme (β-lactamases) in clinical samples**.

- The detection system corresponds to a strip, which allows the immunological detection, enclosed in a plastic device, which carries out sample treatment in a very simple way (filtration, concentration, extraction, incubation) and deposits it onto the strip.

- The concept of the device and the different steps involved in the test are being evaluated in different media (urine, blood, fecal swab) with different bacteria.

Using the BL-DetecTool, the workflow for identification of multi-drug resistant bacteria is shortened to 15 minutes:

Current Workflow

Sample reception and processing

Culture on selective or non selective media

MDR bacteria Detection / Characterization

Rapid immunoassays
Biochemical test
PCR
MALDI - TOF

Urine   Blood Culture   Stool Swab

5 MINUTES

16 − 24 HOURS

20 − 6 MIN   HOURS

· TIME TO RESULT BETWEEN 16H AND 30H ·

Workflow with BL-DetecTool

Sample reception and processing

MDR bacteria Detection / Characterization

Urine   Blood Culture   Stool Swab

BL-DetecTool

5 − 10 MINUTES

15 MINUTES

· TIME TO RESULT 20 TO 30 MIN ·