A GLOBAL CHALLENGE

Although rarely reported a decade ago, carbapenem-resistant Gram-negative organisms are rapidly spreading worldwide, and are an increasing threat to public health and patient management. There is also a risk that they may evolve from multi-drug to pan-drug resistance.

Carbapenem antibiotics are crucial for treating the life-threatening infections caused by these highly resistant Gram-negative bacteria. They are our “last resort” antimicrobial drugs and it is essential to maintain their clinical efficacy.

Carbapenem resistance related to the production of a carbapenemase-type enzyme is currently the issue of most concern, since carbapenemase-producers are highly transferable. Early identification of carbapenemase-producers is therefore critical to prevent the spread of infection.

Diagnosis and screening of carbapenemase-producing infected patients, but also carriers, are first-line measures that contribute to:
- prevent hospital-based outbreaks,
- isolate patients when necessary,
- limit spread in the community.

A GLOBAL SOLUTION

bioMérieux provides a complete range of solutions for the detection, identification and confirmation of carbapenem resistance.

Our unique offer spans the full spectrum of in vitro diagnostic technologies, from culture media to molecular biology.

<table>
<thead>
<tr>
<th>Product</th>
<th>Code</th>
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<tr>
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“Changing the paradigm of controlling carbapenemase producers worldwide”

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RAPIDEC® CARBA NP
Leading the charge on Carbapenemases
The RAPIDEC® CARBA NP test* rapidly detects carbapenemase activity in Gram-negative bacteria, such as Enterobacteriaceae, P. aeruginosa and A. baumannii. The test is based on detection of hydrolysis of the β-lactam ring of a carbapenem molecule (imipenem).

Hydrolysis acidifies the medium, changing the color of the pH indicator (phenol red solution). The color change is visible to the naked eye; no reading device is required. No color change within 2 hours indicates absence of carbapenemase-producing activity.

Prof. P. Nordmann and Dr L. Poirel

RAPID

- Detection of carbapenemase producers in 30 minutes to 2 hours.
  E.g. identification of KPC-producing bacteria in 30 minutes.
- Performed directly on colonies grown on recommended selective or non-selective agar plates.

ACCURATE

- Excellent sensitivity and specificity (97.8% sensitivity and 97.8% specificity compared with molecular techniques**).
- Recommended for rapid identification of any Enterobacteriaceae carbapenemase activity, and specifically the variants most commonly found worldwide today: KPC, NDM, VIM, IMP and OXA-48.

HIGH MEDICAL VALUE

- Detects only carbapenemase producers (source of transmissible infection) as opposed to non-transmissible carbapenem resistance mechanisms (efflux, impermeability…).
- Facilitates rapid implementation of infection prevention and control measures, e.g. patient isolation, to limit the spread of carbapenemase producers and avoid outbreaks.
- Supports epidemiological surveillance of the spread of carbapenemase producers at local, regional or national level.

REFERENCES