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P1253 A prospective multi-centre evaluation of the NG-test Carba5, a multiplex immunochromatographic assay for the rapid detection of carbapenemase-producing *Enterobacteriaceae* in culture

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Background: The spread of carbapenemase-producing Enterobacterales (CPE) is a public health concern. Rapid detection and identification of CPE is essential to prevent further spread and inform appropriate antimicrobial therapy. During a prospective multi-centre study, we have evaluated the NG-test Carba5 (NGBiotech), a multiplex Lateral Flow ImmunoAssay (LFIA) allowing the detection of NDM, OXA-48-, KPC-, VIM- and IMP-like carbapenemases from bacterial culture in less than 15 minutes.

Materials/methods: The NG-test Carba5 (NGBiotech) was used to prospectively screen isolates sent to three national reference centres (Belgium, UK, France), a regional referral laboratory (Andalusia, Spain), and a clinical microbiology laboratory (Careggi University Hospital, Florence, Italy) for CPE detection. The NG-test Carba5 was used as recommended by the manufacturer in parallel with the local workflow in place for the detection of CPE. The time to a positive result was recorded.

Results: A total of 1095 isolates was tested between February - October 2018. KPC (n=151; 62% were from Italy), OXA-48-like (n=231; 43%, 26%, 21% came from France, Belgium and UK, respectively), NDM (n=119; 52% and 36% were from UK and France, respectively), VIM (n=94; 61% were from Spain), IMP (n=28; 79% were from Spain) and multiple carbapenemase producers (n=26) were all detected in a time-to positivity average of 2-3 minutes (Table 1). Only 3/652 CPE (IMI-1, OXA-427 and OXA-23) were not detected, illustrating that the NG-test Carba5 was able to detect 99.5% of CPE circulating in the countries involved in the study. Of note, the NG-test Carba5 detected 12 IMP-8-positive isolates not detected by the Xpert® Carba-R assay (Cepheid).

Conclusions: The NG-test Carba5 is able to detect the 'big 5' carbapenemase families on their own or in combination with other carbapenemases. The overall sensitivity and specificity were nearly 100%. It requires minimum hands-on-time (<1 min), is easy to implement and has a time-to-positivity of less than 3 mins, in most of the cases. This tool is critical for implementing rapid infection control measures and is also relevant in areas with a high prevalence of NDM-, OXA-48-, KPC-, VIM- or IMP-like producers to discriminate between the carbapenemase families, especially with novel avibactam-based treatments.