

Pathogens chipping away at our last line of defence – the rise of the metallo-beta-lactamases

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We describe the first known report of a VIM1 metallo-beta-lactamase-producing *Klebsiella pneumoniae* outside Europe – confirmed by our colleagues in Canada. The patient had no travel history, and surveillance failed to identify additional cases. The

importance of healthcare professionals being diligent in identifying these multi-drug resistant isolates is emphasised.

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To the Editor: We recently published the first known report of a Verona integrin-encoded metallo-beta-lactamase-1 (VIM-1) in a member of the Enterobacteriaceae (in this case *Klebsiella pneumoniae*, KPSA01) outside Europe.¹

The *Klebsiella* isolate producing this enzyme was isolated from an abdominal pus swab from a 70-year-old patient, following a partial colectomy for acute diverticulitis in a Pretoria hospital in 2010. Unfortunately the patient developed post-surgical complications and died. The patient had no history of recent travel outside South Africa. Active surveillance was performed after isolating this resistant isolate (KPSA01), including rectal swabs from patients in the same intensive care unit (ICU), but no additional cases were identified.

Because the isolate exhibited a suspicious phenotype, i.e. carbapenem resistance (with both E-tests and the VITEK II analyser), susceptibility to the monobactam aztreonam, and synergy between

ethylenediaminetetra-acetic acid (EDTA) and the carbapenems, the production of a metallo-beta-lactamase (MBL) was suspected. This was subsequently confirmed by Dr Johann Pitout at Calgary Laboratory Services, University of Calgary, Canada, to be a Verona integrin-encoded metallo-beta-lactamase-1 (VIM-1).

MBL production, although common in *Pseudomonas aeruginosa* and *Acinetobacter*, is rare in Enterobacteriaceae – except for isolates from the Mediterranean, and some Asian countries. The two most common MBLs are VIM and IMP, with the New Delhi metallo-beta-lactamase-1 (NDM-1) identified in visitors to the Indian subcontinent. However, NDM-1 has now also been confirmed in a recent outbreak at an East Rand hospital (personal communication – Drs Ben Prinsloo and Juanita Smit from Lancet Laboratories and my Ampath colleagues).

This underscores the importance for healthcare workers – hospital staff, clinicians and pathology laboratories alike – to be vigilant in our surveillance and identification of these isolates, which are threatening our last line of effective therapy for infections caused by multi-resistant Enterobacteriaceae.

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Reference

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