

5 SURVEILLANCE FOR ANTIMICROBIAL RESISTANCE

a An update on carbapenemase-producing Enterobacteriaceae

The Centre for Opportunistic, Tropical and Hospital Infections (COTHI) at the NICD has been testing referred isolates of suspected carbapenemase-producing Enterobacteriaceae (CPE) for the presence of selected carbapenemases. CPE have become a threat to healthcare and patient safety worldwide by compromising empiric antibiotic therapeutic choices and increasing morbidity, hospital costs and the risk of death. We are receiving clinically significant isolates from all specimen types based on antimicrobial susceptibility testing criteria for molecular confirmation. For October 2016, a total of 117 Enterobacteriaceae isolates were received. Eighty-three isolates were screened, 73 of which expressed carbapenemases. Eight isolates expressed two carbapenemases each (Table 1). Majority of the screened isolates were *Klebsiella pneumoniae* (59) followed by *Escherichia coli* (9).

It is important to note that these figures do not represent the current burden of CPEs in South Africa. However our data reveal the presence of carbapenemases in Enterobacteriaceae isolates

from all specimen types, nationally. As a first step CPE surveillance is required to determine the extent of the problem in order to restrain the emergence and spread of resistance. The AMRL-CC is currently running a surveillance programme at national sentinel sites for CPE infections in patients with bacteraemia which provides representative data. This significant data will inform public health policy and highlight priorities for action. Controlling the spread and limiting the impact of CPEs in South Africa requires intensive efforts in both the public and private healthcare sectors going forward. NHLS and private laboratories are encouraged to submit suspected CPE isolates based on antimicrobial susceptibility testing (AST) criteria to AMRL-CC, NICD/NHLS. Please telephone (011) 555 0342/44 or email: olgap@nicd.ac.za; for queries or further information.

Source: Centre for Opportunistic, Tropical, and Hospital Infections, NICD-NHLS; (olgap@nicd.ac.za)

Table 1. Enterobacteriaceae by CPE enzyme type, AMRL-CC, COTHI, NICD, January-September 2016 and October 2016

Organism	NDM		OXA-48 & Variants		VIM	
	Jan-Sept 2016	Oct 2016	Jan-Sept 2016	Oct 2016	Jan-Sept 2016	Oct 2016
<i>Citrobacter freundii</i>	6	1	5	1	-	-
<i>Enterobacter aerogenes</i>	1	-	6	1	-	-
<i>Enterobacter cloacae</i>	26	-	36	3	2	-
<i>Escherichia coli</i>	8	-	66	9	-	-
<i>Klebsiella oxytoca</i>	2	-	4	2	-	-
<i>Klebsiella pneumoniae</i>	242	14	360	48	11	-
<i>Klebsiella</i> spp.	-	-	8	1	-	1
<i>Providencia rettgeri</i>	14	-	1	-	-	-
<i>Serratia marcescens</i>	27	-	23	-	1	-
Total	326	15	509	65	14	1

NDM: New Delhi metallo-beta-lactamase; **OXA:** oxacillinase; **VIM:** Verona integron-encoded metallo-beta-lactamase.