

5 SURVEILLANCE FOR ANTIMICROBIAL RESISTANCE

a Update on carbapenemase-producing Enterobacteriaceae

The Antimicrobial Resistance Laboratory and Culture Collection (AMRL-CC) of the Centre for Opportunistic, Tropical and Hospital Infections (COTHI) at the NICD have 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 receive clinically significant isolates from all specimen types based on antimicrobial susceptibility testing criteria for molecular confirmation. For September 2016, a total of 103 Enterobacteriaceae isolates were received. Sixty-eight isolates were screened, 57 of which expressed carbapenemases. No isolate expressed multiple carbapenemases (Table 1). Majority of the screened isolates were *Klebsiella pneumoniae* (49) 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 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, September 2016 and January-August 2016

Organism	NDM		OXA-48 & Variants		KPC	
	Jan-Aug 2016	Sept 2016	Jan-Aug 2016	Sept 2016	Jan-Aug 2016	Sept 2016
<i>Citrobacter freundii</i>	6	-	4	1	-	1
<i>Enterobacter cloacae</i>	26	-	31	1	1	-
<i>Escherichia coli</i>	9	-	56	8	-	-
<i>Klebsiella pneumoniae</i>	222	13	303	31	3	-
<i>Klebsiella spp.</i>	-	-	1	1	-	-
<i>Morganella morganii</i>	4	-	2	-	-	-
<i>Serratia marcescens</i>	26	1	22	-	-	-
Total	293	14	419	42	4	1

NDM: New Delhi metallo-beta-lactamase; **OXA:** oxacillinase; **KPC:** *Klebsiella pneumoniae* carbapenemase.