

7 SURVEILLANCE FOR ANTIMICROBIAL RESISTANCE

a Update on carbapenemase-producing Enterobacteriaceae

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. CPE surveillance is required to determine the extent of the problem as a first step in order to restrain the emergence and spread of CPE. The Johannesburg Antimicrobial Resistance Laboratory and Culture Collection (AMRL-CC) of the Centre for Opportunistic, Tropical and Hospital Infections (CO THI) at the NICD test referred isolates of suspected carbapenemase-producing Enterobacteriaceae (CPE) for the presence of selected carbapenemase genes. In January 2016, a total of 81 Enterobacteriaceae isolates was received. Seventy-seven isolates were screened, 61 of which expressed carbapenemases (Table 4 and Table 5). The majority of these CPE isolates were *Klebsiella pneumoniae* (43) followed by *Enterobacter cloacae* (7).

It is important to note that these figures do not represent the current burden of CPEs in South Africa. Given that CPE infections are currently not reportable or notifiable in South Africa, there is no platform for appropriate surveillance reports and consequently no locally representative data is available. This is of major concern as meaningful data can inform public health policy and highlight priorities for action. Controlling the spread and limiting the impact of CPEs in South Africa will require 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.za.za)

Table 4. Enterobacteriaceae by CPE enzyme type, AMRL-CC, CO THI, NICD, January–December 2015 and January 2016

Organism	NDM		OXA-48 & Variants	
	Jan-Dec-15	Jan 2016	Jan-Dec-15	Jan 2016
<i>Enterobacter cloacae</i>	23	4	15	3
<i>Escherichia coli</i>	14	-	41	3
<i>Klebsiella pneumoniae</i>	295	19	161	24
<i>Providencia rettgeri</i>	23	3	-	-
<i>Serratia marcescens</i>	47	3	6	2
Grand total	402	29	223	32

NDM: New Delhi metallo-beta-lactamase; **OXA:** oxacillinase.

Table 5: Enterobacteriaceae isolates by specimen type and province, AMRL-CC, CO THI, NICD, January–December 2015 and January 2016

Organism	EC	FS	GA	KZ	WC	Total Jan 2016	Total Jan-Dec 2015
<i>Enterobacter cloacae</i>	4	-	6	2	4	16	111
Non-sterile	2	-	1	1	-	4	19
Sterile	2	-	4	-	4	10	75
Unknown	-	-	1	1	-	2	15
Not stated	-	-	-	-	-	-	2
<i>Escherichia coli</i>	1	-	1	-	1	3	66
Non-sterile	1	-	1	-	-	2	9
Sterile	-	-	-	-	1	1	50
Unknown	-	-	-	-	-	-	7
Not stated	-	-	-	-	-	-	-
<i>Klebsiella pneumoniae</i>	5	1	25	12	6	49	543
Non-sterile	2	-	4	1	1	8	81
Sterile	3	-	20	6	5	34	333
Unknown	-	1	1	5	-	7	123
Not stated	-	-	-	-	-	-	6
<i>Providencia rettgeri</i>	1	-	2	-	-	3	24
Non-sterile	-	-	-	-	-	-	1
Sterile	1	-	2	-	-	3	14
Unknown	-	-	-	-	-	-	9
Not stated	-	-	-	-	-	-	-
<i>Serratia marcescens</i>	1	-	-	4	-	5	55
Non-sterile	-	-	-	1	-	1	-
Sterile	1	-	-	-	-	1	12
Unknown	-	-	-	3	-	3	42
Not stated	-	-	-	-	-	-	1
Total	12	1	34	18	11	76	799