

## 5 ANTIMICROBIAL RESISTANCE

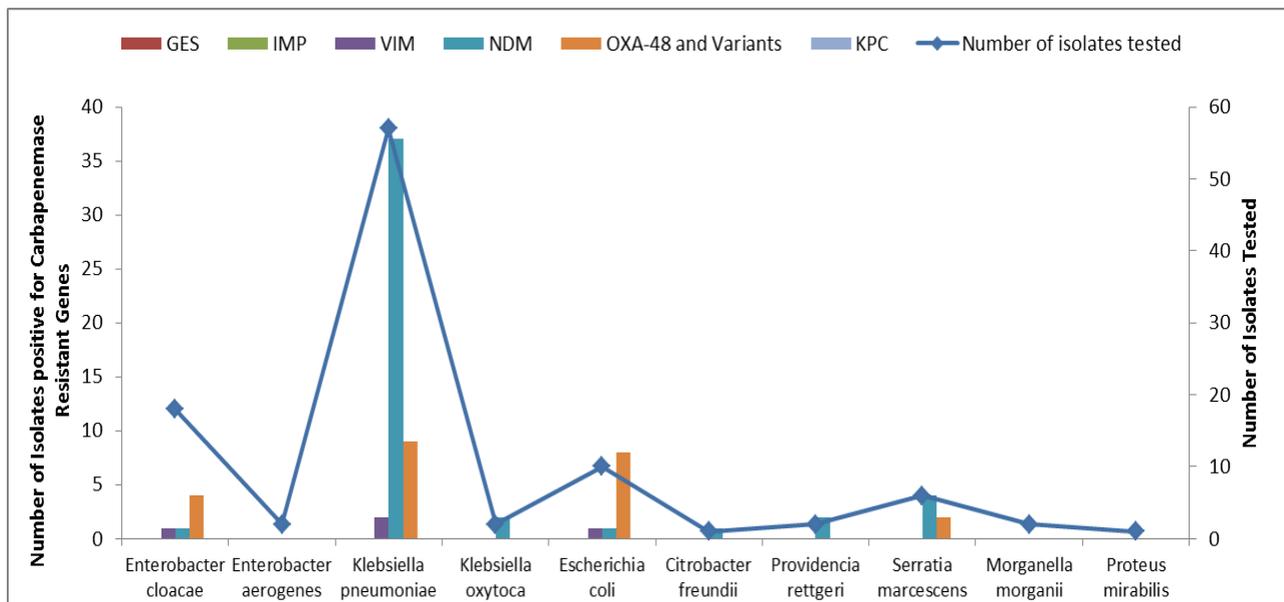
### Update on carbapenemase-producing Enterobacteriaceae

Carbapenemase-producing Enterobacteriaceae (CPEs) 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 CPEs. The Johannesburg Antimicrobial Resistance Laboratory-Culture Collection (AMRL-CC) of the Centre for Opportunistic, Tropical and Hospital Infections (CO THI) at the NICD/NHLS has been testing referred isolates of suspected CPE for the presence of selected carbapenemase genes. For May 2015, a total of 102 Enterobacteriaceae isolates were received. One hundred and one carbapenem resistant isolates were screened, 71 of which were CPE isolates. Majority of the isolates were *Klebsiella pneumoniae* (57) followed by *Enterobacter cloacae* (18), *E. coli* (10) and *Serratia marcescens* (6) (Figure 7).

Forty-eight  $bla_{NDM}$ -positive isolates were identified; four from private hospitals (all from KwaZulu Natal) and 44 from public hospitals – 27 from Gauteng, 16 from KwaZulu-Natal (KZN) and 1 from Eastern Cape. Twenty-three  $bla_{OXA-48}$ -positive isolates were identified; five from private hospitals

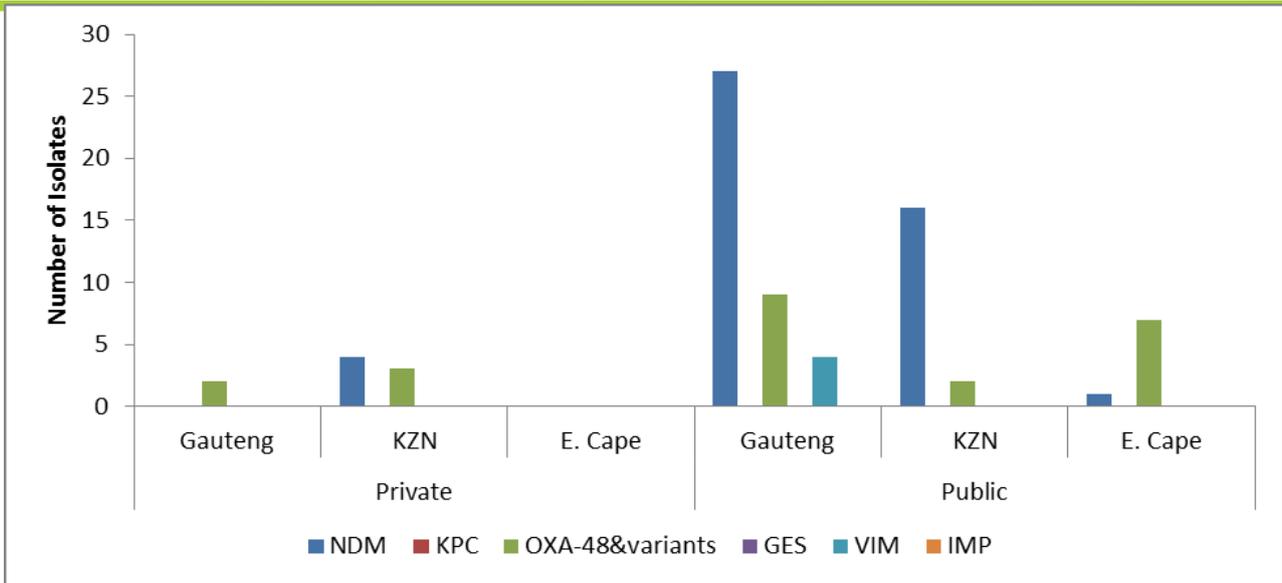
in Gauteng and KZN, and 18 isolates from public hospitals: nine from Gauteng province, seven from the Eastern Cape and two from KZN. Four  $bla_{VIM}$ -positive isolates were identified from public hospitals in Gauteng. No other CPE enzyme types were identified in May (Figure 8).

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 are available. This is of major concern, since 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 the AMRL-CC, NICD/NHLS. Please telephone (011) 555 0342/44 or email: [olgap@nicd.ac.za](mailto:olgap@nicd.ac.za); for queries or further information.



GES: Guiana extended-spectrum; IMP: imipenemase; VIM: verona integron-encoded metallo-beta-lactamase; NDM: New Delhi metallo-beta-lactamase; OXA: oxacillinase; KPC: *Klebsiella pneumoniae* carbapenemase

**Figure 7. Enterobacteriaceae isolates screened (n=101) and confirmed CPEs (n=71) at the Antimicrobial Resistance Laboratory-Culture Collection, CO THI (NICD-NHLS), May 2015**



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**Figure 8. The total number of CPEs (n=71) in the public and private sectors from three provinces, May 2015**

**Source:** Centre for Opportunistic, Tropical, and Hospital Infections, NICD-NHLS