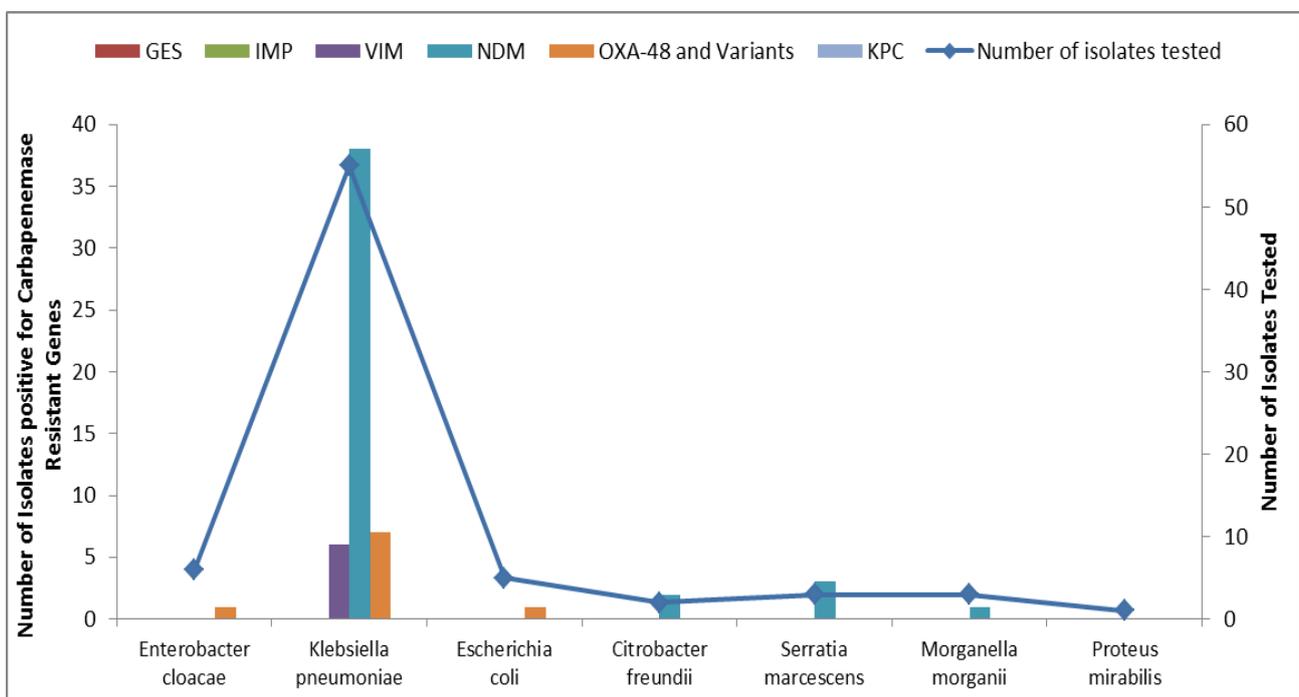


## 6 ANTIMICROBIAL RESISTANCE

### Update on carbapenemase-producing Enterobacteriaceae

The Johannesburg Antimicrobial Resistance Laboratory- Culture Collection (AMRL-CC) of the Centre for Opportunistic, Tropical and Hospital Infections (COTHI) at the NICD-NHLS, tests referred isolates of suspected carbapenemase-producing Enterobacteriaceae (CPE) for the presence of selected carbapenemase genes. CPEs have become a threat to healthcare and patient safety worldwide by compromising empiric therapeutic antibiotic options and increasing morbidity, mortality, and healthcare costs. National

CPE surveillance is necessary in order to determine the extent of the problem, and to inform strategies to restrain further spread of CPE in South Africa. For June 2015, a total of 80 Enterobacteriaceae isolates were received at AMRL-CC, NICD. Seventy-six carbapenem-resistant isolates were screened, 60 (79%) of which were CPE isolates. The majority of the isolates were *Klebsiella pneumoniae* (55/76, 72%) followed by *Enterobacter cloacae* (6/76, 8%) and *E. coli* (5/76, 7%) (Figure 2).



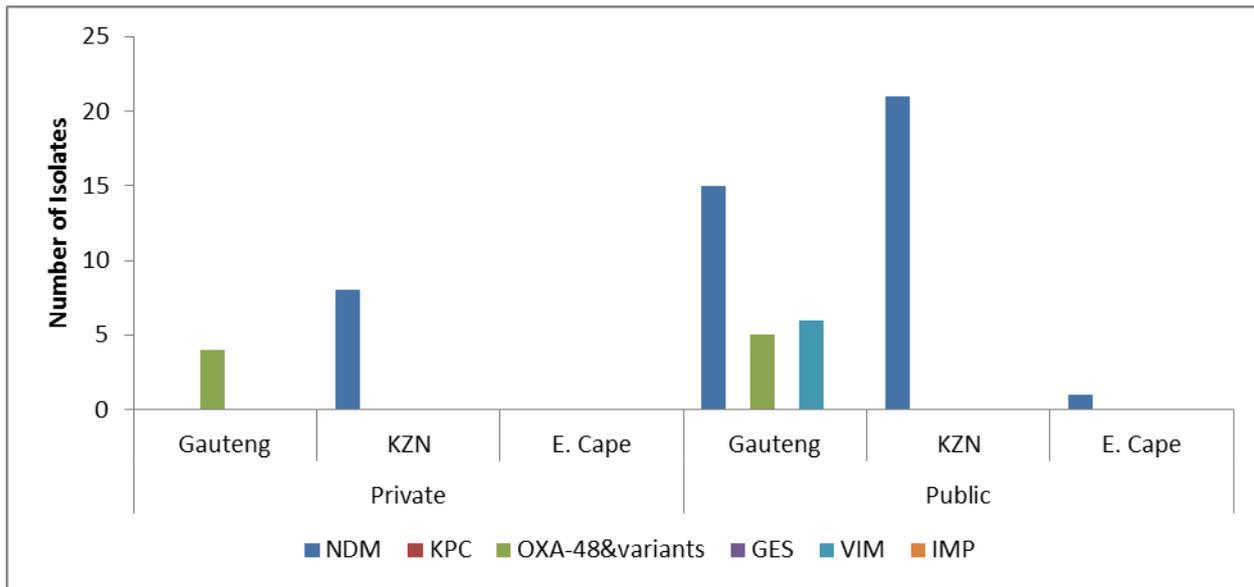
GES: Guiana extended-spectrum; IMP: imipenemase; VIM: verona integron-encoded metallo-beta-lactamase; NDM: New Delhi metallo-beta-lactamase; OXA: oxacillinase; KPC: Klebsiella pneumonia carbapenemase

**Figure 2. Enterobacteriaceae isolates screened (n=76) and confirmed CPEs (n=60) at the Antimicrobial Resistance Laboratory-Culture Collection, COTHI (NICD-NHLS), June 2015**

Forty-five *bla*NDM-positive isolates were identified: eight from private hospitals (all from KwaZulu-Natal Province (KZN)), and 37 from public hospitals (15 from Gauteng Province (GP), 21 from KZN and one from Eastern Cape Province). Nine *bla*OXA-48-positive isolates were identified: four from private hospitals in GP, and five from public hospitals in GP. Six *bla*VIM-positive isolates were identified from public hospitals in GP. No other CPE enzyme types were identified (Figure 3).

It is important to note that these figures only partly 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

comprehensive platform for appropriate surveillance reports, and therefore limited local data is publicly 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 3. The distribution of CPEs (n=60) by healthcare sector (public and private) and province, June 2015**

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