

**P2586 Molecular and infection surveillance of carbapenemase-producing *Enterobacteriaceae* in three medical centres in Cologne (Germany) from 2011 to 2017**

Andreas Friedrich Wendel\*<sup>1</sup>, Christina Wessels<sup>1</sup>, Monika Malecki<sup>1</sup>, Carlos Tellez-Castillo<sup>2</sup>, Sören G. Gatermann<sup>3</sup>, Frauke Mattner<sup>1</sup>

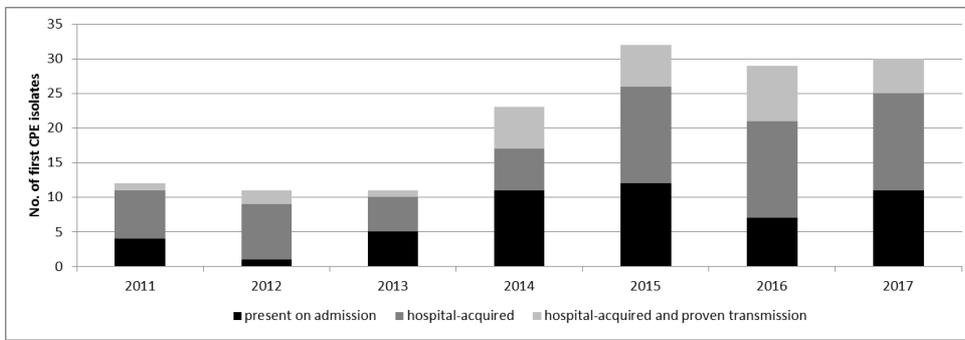
<sup>1</sup> Institute of Hygiene, Cologne Merheim Medical Centre, University Hospital of Witten/Herdecke, Köln, Germany, <sup>2</sup> Department of Clinical Microbiology, MVZ synlab Leverkusen GmbH, Germany, <sup>3</sup> Department of Medical Microbiology, Ruhr-University Bochum, Bochum, Germany

**Background:** Germany is a low-prevalence country of carbapenemase-producing *Enterobacteriaceae* (CPE). A surveillance of CPE (facility-wide by location) was established at three medical centres in Cologne (tertiary (A), secondary (B) and children (C), 1500 beds) in 2011.

**Materials/methods:** We analysed all *Enterobacteriaceae* from clinical and screening specimens based on non-susceptibility to imipenem, meropenem or ertapenem. Identification, antimicrobial testing (VITEK2, Etest) and phenotypic and genotypic carbapenemase tests were performed. Epidemiological and clinical data were collected prospectively. Genotyping was carried out using RAPD and PFGE.

**Results:** From 2011 to 2017 148 CPE from 134 patients were detected (Figure 1. Number of CPE introductions and nosocomial acquisition), of which 50% were from screening specimens. The two most prevalent CPE were VIM-1-*E. cloacae* complex (n=43) and OXA-48-*K. pneumoniae* (n=42). The number of CPE-patients differed greatly between the centres; the majority (82%) were from centre A. Almost half were detected on general wards. Two third of the CPE were hospital-acquired, detected after a mean length of stay of 22 days; in 40% of these no likely source of acquisition was identified. CPE present on admission were strongly associated with a hospital stay abroad (70%). 14 events with at least one transmission (all with *K. pneumoniae* or *E. cloacae* complex) were confirmed, mostly on ICUs. Hospital-acquired infections were observed in 33 patients. In approx. 80%, first CPE detection and onset of symptoms occurred simultaneously. Eight patients suffered from bacteraemia. In 2017 the incidence and prevalence in hospital A were as follows: total prevalence 0.22 (per 100 patients), acquisition rate 0.08 and incidence density of acquired infections 0.02 (both per 1000 patient days). In routine clinical care, only 11 patients were declared CPE-negative after extensive screening. However, two third of the CPE patients carried other multidrug-resistant bacteria. Adherence to infection control measures was high for single room isolation (90%) and low for risk factor-based admission screening (55%).

**Conclusions:** This study highlights the epidemiology of carbapenemases in three different medical centres over a period of seven years. The results support the need for a facility-wide CPE-surveillance system to develop unit-specific IPC strategies.



29<sup>TH</sup> ECCMID  
13-16 APRIL 2019 AMSTERDAM, NETHERLANDS  
POWERED BY M-ANAGE.COM

