Experience and early lessons implementing Carbapenemase producing Enterobacteriaceae (CPE) screening in an acute hospital in a lower risk region

Issue and Context
Our IP&C team prepared to implement a screening & management protocol for a 1237 bedded acute University NHS foundation Trust in response to the Public Health England (PHE) (2013) Acute Trust toolkit for the early detection, management and control of Carbapenemase-producing Enterobacteriaceae. Prior to implementation there was an unknown prevalence of CPE however based on clinical isolates and no reported incidents or outbreaks of CPE considered a lower risk region. Prior to implementing CPE screening, we were unable to identify the relevant healthcare admission data for patients in the preceding 12 months, particularly admissions outside the UK to help predict the impact and cost of screening and isolation.

Methods & Measurement
The IP&C team identified existing patient admission pathways and worked with clinical teams to adapt or develop their systems to include the CPE risk assessment questions and screening if applicable. Areas including pre-operative, pre-procedure assessment and maternity were intentionally engaged as this provided advanced notice, time for screening and systems that were easily adaptable to add a small number of questions to, though suitable environments for screening patients were not always available.

IP&C electronic alert systems (PAS, ICNet & Sunquest ICE) were updated to alert all positive cases and the known ‘at risk of CPE’ cases to improve communication, particularly when patients are re-admitted with positive or incomplete screens. A programme of education & training was implemented by the IP&C team across the Trust including our IP&C link network. We also developed various tools to facilitate communication including newsletters and an information toolkit for the early detection, management and control of Carbapenemase-producing Enterobacteriaceae. Prior to implementation there was an unknown prevalence of CPE however based on clinical isolates and no reported incidents or outbreaks of CPE considered a lower risk region. Prior to implementing CPE screening, we were unable to identify the relevant healthcare admission data for patients in the preceding 12 months, particularly admissions outside the UK to help predict the impact and cost of screening and isolation.

Evidence of improvement
A database was developed to monitor all patients who triggered CPE screening including risk factor and sample details. Between 05/2015 & 05/2016 there were 171 patients tested for CPE, of these only 92 patients (54%) were reported to IP&C and to add to the database and alert system. In total there were 5 positive CPE results (3%) though 1 was known to be positive from another hospital, all of which were reported to IP&C (Figure 2). There was one IP&C incident due to a lapse in communication and subsequent delayed isolation which required contact tracing (7 contacts, 0 positives). Of the 92 reported cases, complete screens (3 samples) were completed on 53 (58%) patients, with 90% of the incomplete screens being due to the patient being discharged before a complete set of screening samples were collected (figure 2).

As a result of the screening programme and IP&C database, we identified that of the 92 patients reported to IP&C, 49 had healthcare admissions abroad in 27 countries. India was the most visited country (5) and had the highest number (3) of positive CPE results in our hospital (Figure 3). An interesting finding was a 138% increase in the procurement of long sleeve fluid repellent gowns in the year after CPE screening & management policy was launched.

Future Steps
One of the key learning points was clearly that the IP&C team were unaware of 79 patients (46%) and therefore unable to add alerts and track the screening samples. Improvements have been developed to capture the data of all patients screened for CPE to address this risk and remove the need for separate notification processes. We propose a combined approach to screening should be considered in partnership with primary care services to address the issue of incomplete screens as this may offer a cost saving if re-admitted.

The introduction of PCR testing imminently will also provide an improved turnaround time for samples & may help reduce the costs of isolation nursing as a result.

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No conflicts of interest to declare

References