



Debates in Infection Prevention

Outbreaks of carbapenemase-producing Enterobacteriaceae in acute care: should we screen case-contacts already discharged to the community? — Argument against the motion

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The increase in antibiotic resistance has become increasingly prevalent in Gram-negative bacteria over the last decade, and the organisms of greatest concern are the carbapenemase-producing Enterobacteriaceae (CPE). The greatest harm to public health is through the transmission of these organisms between patients who subsequently become colonized with CPE. Due to the worldwide distribution of CPE, the national toolkit for England refers to the screening of 'at-risk populations' [1–3]. Whereas the updated Scottish guidance does reiterate the screening of inpatients, the decision around screening patients who have already been discharged is left to the local infection and prevention control team based on a risk assessment, although this not based on strong evidence [4,5].

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The efficacy of any CPE screening pathway is subject to complex factors and is reliant on three parts: first, the prompt identification of patients who require screening as part of the investigation; second, the correct screening methodology, both in terms of rectal screening and laboratory detection; third, the interventions executed on receipt of positive result, involving both isolation and cleaning of the environment [6].

The screening of patients that have been discharged is a risk assessment to be made by the local infection control team. Patient comorbidities, local epidemiology as well as the logistics of physically screening patients are contributing factors. We will examine each of these in turn. If the contacts of the index case have risk factors for developing invasive infections, then there would be a case for screening if that would impact on antimicrobial prophylaxis for elective procedures. Next, the colonization rates of rectal CPE within the population vary across the country, and it may be influenced by socio-economic class and ethnicity. It is worth noting, however, that there are currently no data on the rates of CPE colonization in the public, and so the rates of CPE screening within those patients defined within the tool would not reflect the background colonization rate. The last factor is probably the most complex, that of logistics. Once the decision for screening discharged patients is made, then a framework must be developed for screening. A partnership between secondary and primary care providers is key, for, as the patients with CPE colonization are found, there may be implications for those patients discharged to long-term care facilities. The contacts would require rectal screening, and this will not be straightforward in the primary care setting, as patients may not be able to self-screen. This becomes important as the quality of the screen may lead to false-negative results. As the general consensus leads towards single screens for CPE, this makes the

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value of correct community screening essential. In a secondary care setting, processes should be in place to recall patients for screening, which may be in an outpatient or ward setting. The area for screening should ideally be a single room facility, with the ability to be cleaned by hydrogen peroxide vapour. The local teams will need to decide how and when this cleaning should occur. Depending on the numbers of patients to be screened, they could be cohorted, but the co-ordination of these patients may be hampered by their ability to return to secondary care without transport or carers. The final factor to consider is who will perform the screening in both primary and secondary care. Within primary care, the screening could be performed by practice nurses, but they would require training for a procedure they would perform rarely. Within secondary care, this could be performed by either ward nurses or infection prevention and control nursing staff. However, with the already stretched resources within healthcare, as these patients to be screened are not inpatients, it might be seen a low priority.

The decision to screen discharged patients for CPE is complex and depends on various factors. Sometimes in these scenarios, pragmatic solutions may be reached. One of these might include flagging these patients as 'at risk' so that they are screened as the next admission. These patients would be initially isolated, and these precautions could be stepped down if the subsequent result is negative; however, this may be difficult to co-ordinate if patients receive care from multiple secondary care facilities.

Currently, CPE screening of discharged patients is not warranted routinely and should be determined on a case-by-case basis. A national framework should be defined to operationalize and fund strategies for screening of these patients, with a health-economic approach such that primary and secondary care infection control teams work in partnership. If the direction of travel for the national CPE toolkit heads towards universal screening, then this approach would need to be revisited.

Conflict of interest statement

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