Are our attempts to control CPE going down the drain?

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1. Introduction

- Carbapenemase-producing Enterobacteriaceae (CPE) are of urgent public health concern.
- There is emerging evidence that contaminated drains may contribute to protracted outbreaks of CPE.
- We evaluated whether the drains of sinks and showers on a ward affected by an ongoing outbreak of CPE (*Klebsiella pneumoniae* OXA-48) could be a possible point source for transmission.

2. Methods

- Drains from 28 clinical wash hand basins, patient sinks and showers on a 19 bedded vascular ward were sampled.
- These were cultured overnight in enrichment broth and then plated onto selective agar for CPE.
- The drains were then treated with a 10,000ppm chlorine solution.
- The same drains were resampled one week later.

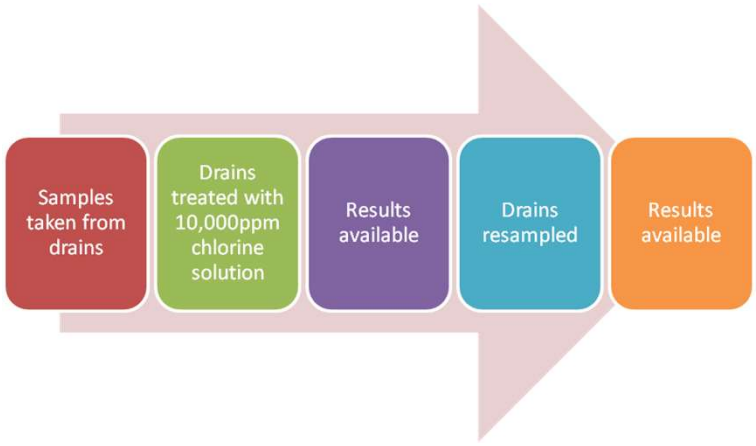

Fig 1: Drain sampling process

Fig 2: Shower drain with cover removed

3. Results

- 25 of the 28 drains sampled cultured positive for Gram-negative bacteria.
- Five of these were CPE with the remainder comprising a mix of mostly pseudomonads and enterobacters.
- There were no Klebsiellae among the CPEs found, but OXA-48s were identified in the Citrobacters and one Enterobacter species.
- Of the second samples, 25 of 30 were culture positive for Gram-negative bacteria and 5 of these were a CPE.
- 3 of the 5 positives were the same organism as identified in the first samples. The outbreak organism was not cultured on either round of sampling.

4. Discussion

- We did not identify the outbreak strain in the drains of sinks and showers on a ward with a protracted outbreak of CPE.
- This suggested that sink and shower drains were not a point source for transmission.
- However, the carbapenemase involved in the outbreak (OXA-48) was detected, suggesting that sink and shower drains could be a reservoir for clinically relevant carbapenemases.
- Further studies are required to ascertain the effectiveness of treating the drains and to develop protocols in order to achieve this.

References

1. Public Health England (2013) Acute trust toolkit for the early detection, management and control of carbapenemase-producing Enterobacteriaceae.

Disclosures: JO is a consultant to Gama.

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