



Pseudomonas aeruginosa outbreak linked to sink drainage design in a tertiary hospital

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Introduction

Pseudomonas aeruginosa (PAE) in sink drainage system can cause outbreaks in healthcare settings. Here we describe an outbreak of PAE linked to the sink in our neonatal unit (NICU)

Methods

Sudden surge of PAE positive cultures in neonatal unit (NICU) initiated investigations of an outbreak. The outbreak is from 29th September to 4th October 2022.

Results and Discussions

NICU is a ward with 30 beds. From 24th August 2022 until 30th October 2022, NICU was temporarily placed in medical daycare ward for ductal cleaning. End of 26th August to 26th September 2022, 5 clinical samples isolated PAE compared to baseline 3 i.e. from 2 tracheal aspirate, 4 blood and 1 eye swab. Reviewed of notes all were clinically significant. Thorough investigations to identify the source were initiated that includes in use test and environmental sampling.

Total of 32 samples taken from in use test and surface swabbing from medical and non-medical device. Results was one sample from a sink drainage in the cubicle of the affected babies grew PAE which can likely be the source of the outbreak.

Remedial actions were taken immediately. Enhance cleaning and disinfection protocols were done using 5 cycles of sodium hypochlorite solution 1000 ppm (4 hourly cleaning every 5 days).

Lesson learnt includes replacing domestic sink with medical sink at NICU; with partition and placed more than 1 meter from incubator to prevent splashes.



Figure 1. Domestic sink is close to incubator



Figure 2. Clinical sink with partition to prevent water splash

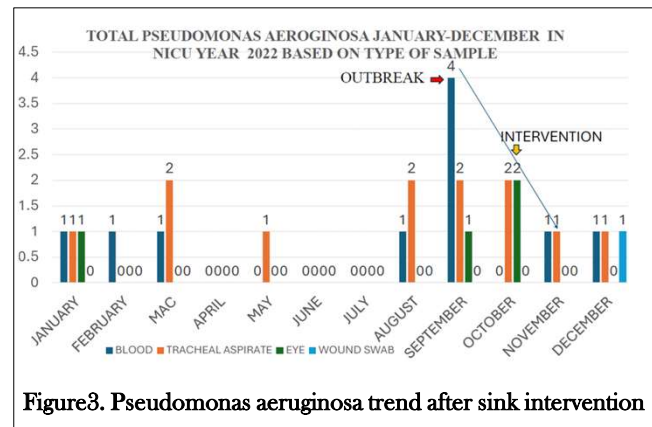


Figure 3. *Pseudomonas aeruginosa* trend after sink intervention

Conclusions

1. This outbreak highlights the risks associated with the use of sinks and outlines the approach used to manage the *Pseudomonas aeruginosa* outbreak.

2. PAE contamination of the sink drains proved difficult to disinfect adequately. Hence ensuring proper maintenance of sink drainage system and implementation of infection control measures are utmost important to ensure safety of patients especially the most vulnerable.

References

- Caitinn B Lineback et al, Hydrogen peroxide and sodium hypochlorite are more effective against *Staphylococcus aureus* and *Pseudomonas aeruginosa* biofilms than quaternary ammonium compounds Antimicrob Resist Infect Control. 2018 Dec 17:7:154
- V Scharer et al, An intensive care unit outbreak with multi drug resistant *Pseudomonas aeruginosa* – spotlight on sinks

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