

Implementation of Phosphoric Acid to Decontaminate Clinical Hand Basins in an Intensive Care Unit

Megan Gritt, Infection Prevention Nurse Consultant
Alfred Health Infection Prevention & Healthcare Epidemiology Department
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What's
covered:

The
Why

The
Where

The
How

The
Results



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SINKS

The Why

A close-up photograph of a person's hands being washed in a white ceramic sink. Water is running from a faucet, creating a clear stream that falls over the hands. The person is wearing a dark blue long-sleeved top and a patterned skirt. The background is a light blue wall.

2016 CPE case surge in ICU setting

Hospital sinks:

- **Act as reservoirs**
- **Been linked to a multitude of outbreaks globally**
- **Create a continued challenge in decontamination efforts**

The Where



The How: Screening



A close-up photograph of a person wearing blue nitrile gloves. They are holding a clear glass petri dish containing a red, viscous liquid. A wooden stick is being used to stir the liquid, creating a grid-like pattern on the surface. The background is a light-colored, possibly white, surface.

The How: Culturing

78% (40/51) sinks

CPE positive at

baseline screening

The How: Sink Hygiene Initiative

Sink Hygiene Initiative:

1. Promoting appropriate sink use
2. Decluttering sink surfaces
3. Auditing/replacing faulty faucets or components
4. Regular chemical decontamination

DON'T SINK IT



- ✘ Pharmaceutical waste- discarding drugs
- ✘ TPN
- ✘ Feeds/ NG aspirates
- ✘ Dialysate
- ✘ Contaminated bed bath waste

This waste causes a biofilm, bacterial build-up in the drains

The How: Treatment



Culturing results

- 1005 swabs collected (over screening period 2017-2025)
- 158/1005 (15.7%) of swabs positive for CPO
- 154/158 (96.2%) of positive isolates were *S. marcescens*
- 155/158 (96.9%) *bla*_{IMP-4}

But are we trending?

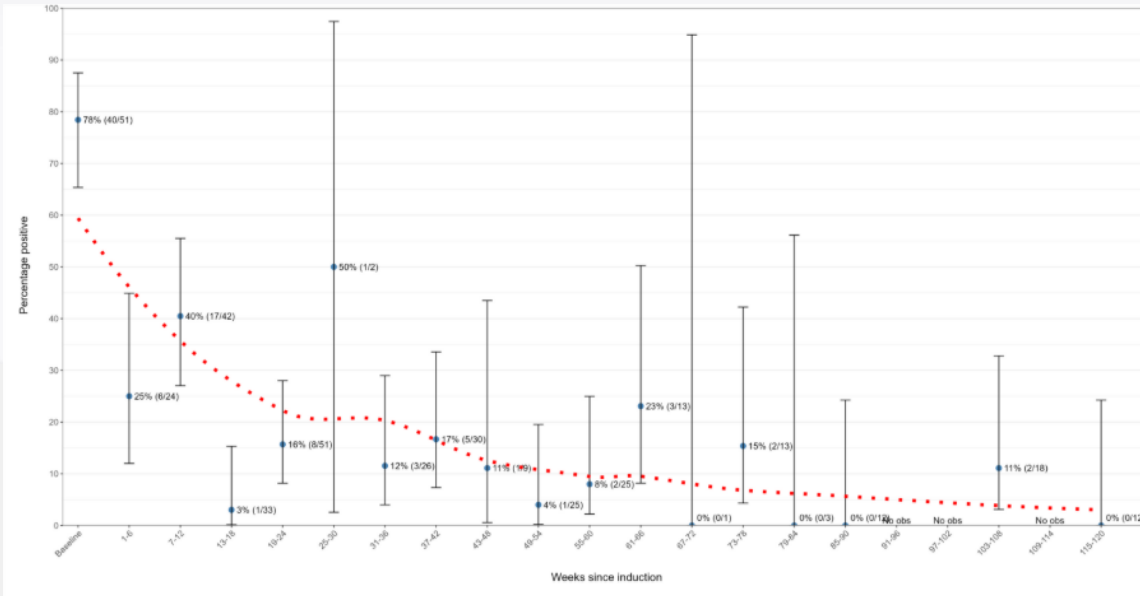


Figure 1. Study period 1, February 2017 – March 2020

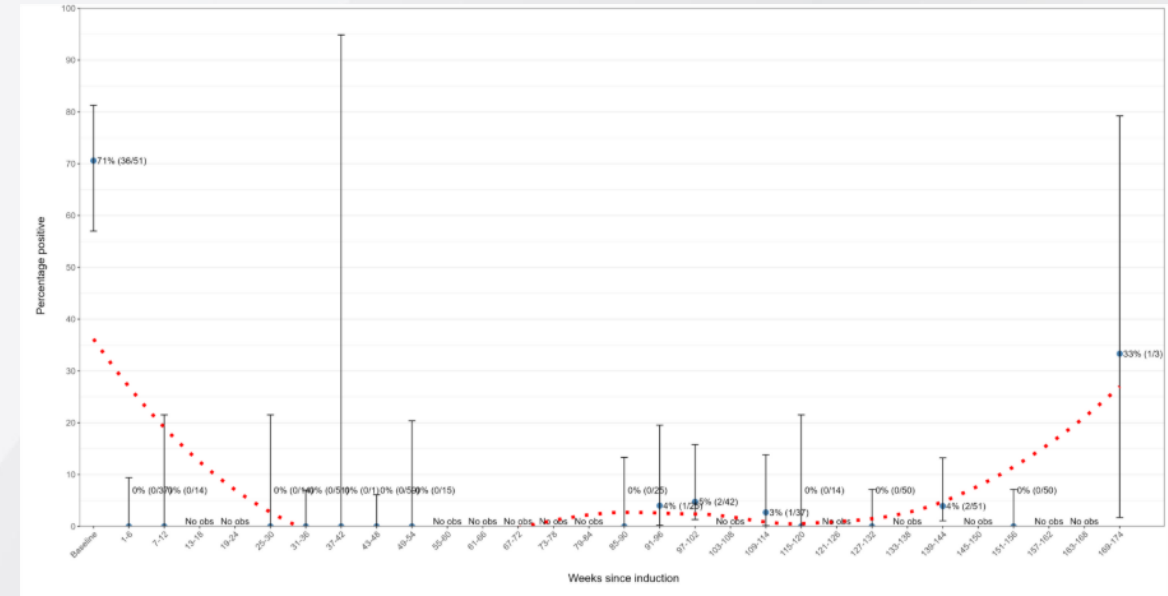


Figure 2. Study period 2, May 2021 – June 2025

Barriers and Limitations

- Operational nature, not randomized controlled trial
- We were on a break – pause due to COVID-19
- Sampling focused on superficial plumbing only
- Variability in sampling intervals (4 – 12-week range)
- Single-site study limits generalizability
- Cost, resource and labour considerations



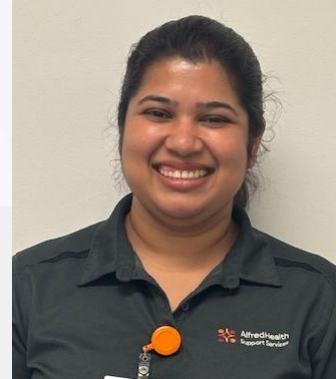
Final Thoughts and Considerations

Phosphoric acid cleaning is an effective intervention to suppress CPO in superficial plumbing of ICU handbasins, however, maintenance treatment is essential for sustained suppression

Considerations:

- Screening - Once you know, are you obligated to treat?
- Treatment - Once you start, can you ever stop?

Thank You and Please Meet Our Team!



References:

1. Carling PC. Wastewater drains: epidemiology and interventions in 23 carbapenem-resistant organism outbreaks. *Infect Control Hosp Epidemiol*. 2018;39(8):972-979. doi:10.1017/ice.2018.138
2. Sherry NL, Lane CR, Kwong JC, et al. Genomics for Molecular Epidemiology and Detecting Transmission of Carbapenemase-Producing Enterobacterales in Victoria, Australia, 2012 to 2016. *Journal of Clinical Microbiology*. 2019;57(9). doi:10.1128/jcm.00573-19