

Use of a peracetic acid (PAA) disinfectant to reduce total viable bacteria count in hospital handwash basin drains

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Background

Hospital sink drains and related wastewater sites can harbour a range of micro-organisms (particularly Enterobacterales and Pseudomonas species). These organisms can be spread to patients causing sporadic infections and outbreaks. They may also act as niches for the exchange of antimicrobial resistance genes due to horizontal gener transfer between species.

Studies that have introduced ‘water-free patient care’ have noted significant reductions in colonisation and infection with multi-drug resistant organisms.

Other strategies including trying to limit / reduce bacterial load and biofilm in wastewater drains by the regular application of a variety of biocidal products.

Aims

We aimed to evaluate the efficacy of a new drain disinfectant product (clinell® drain disinfectant, GAMA Healthcare, UK) which contains peracetic acid

Methodology

Seven hand wash basins in four wards were randomly selected to be tested over a period of 6 weeks in three phases;

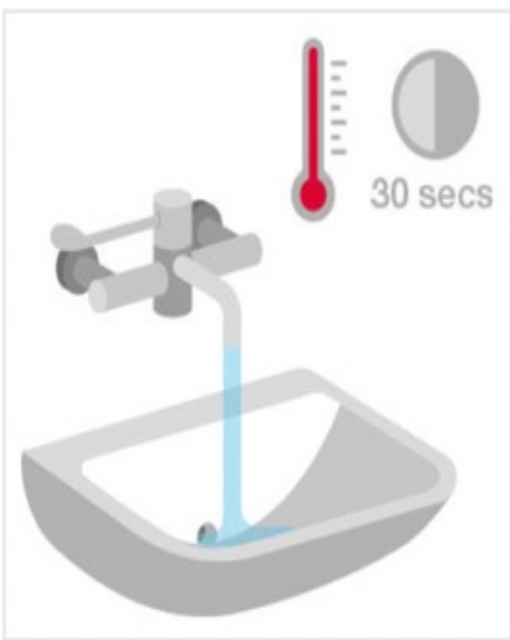
Phase 1: baseline data,

Phase 2: daily application of the PAA product (TVC samples taken immediately before and approx. 20 mins after application of PAA product

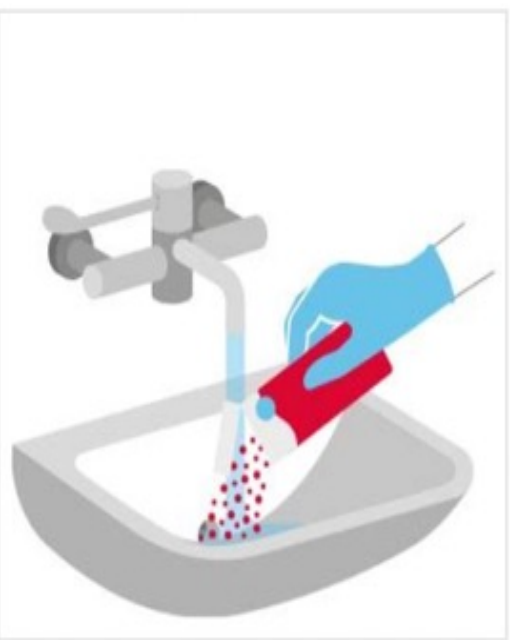
Phase 3: post implementation when application of PAA product was discontinued.

Each phase lasted for two weeks during which a sample of fluid was carefully removed from the drain trap and assessed for Total Viable Count (TVC). Testing and application of PAA was done Monday-Friday only.

During the implementation phase PAA was applied daily (hot tap activated for 30 seconds, PAA sachet added and tap immediately turned off, product was allowed to dwell in drain for minimum of 15 mins without being used).



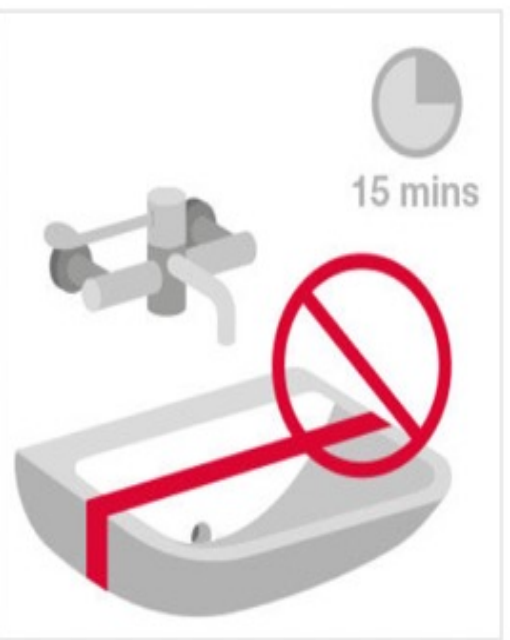
Turn on the hot tap for 30 seconds.



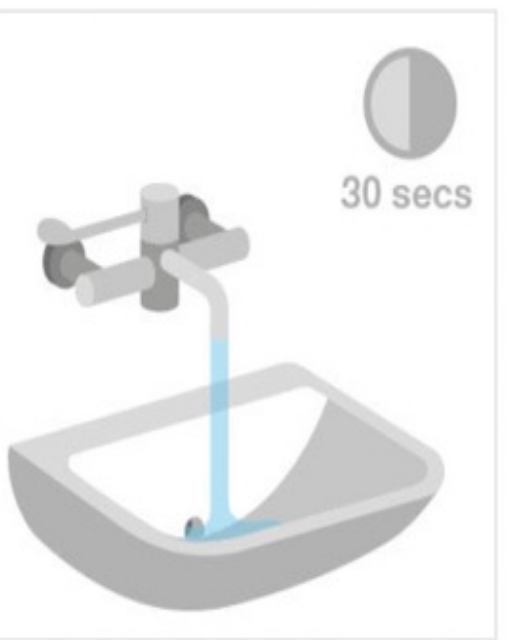
Pour entire contents of the sachet into the running water near the drain. Turn off tap immediately.



Place Clinell Drain Disinfectant Indicator Tape over the sink to prevent use.



Wait for at least 15 mins. DO NOT USE THE SINK DURING THIS TIME.



Turn on the tap for 30 seconds to flush the drain before using the sink.

TVC readings were taken using Hygiena™ MicroSnap™ product which is a rapid bioluminogenic test method for the detection and enumeration of bacteria. The test consists of an Enrichment Device containing a specific growth medium and a Detection Device containing a bioluminogenic (light-producing) substrate, which is detected using a handheld luminometer.

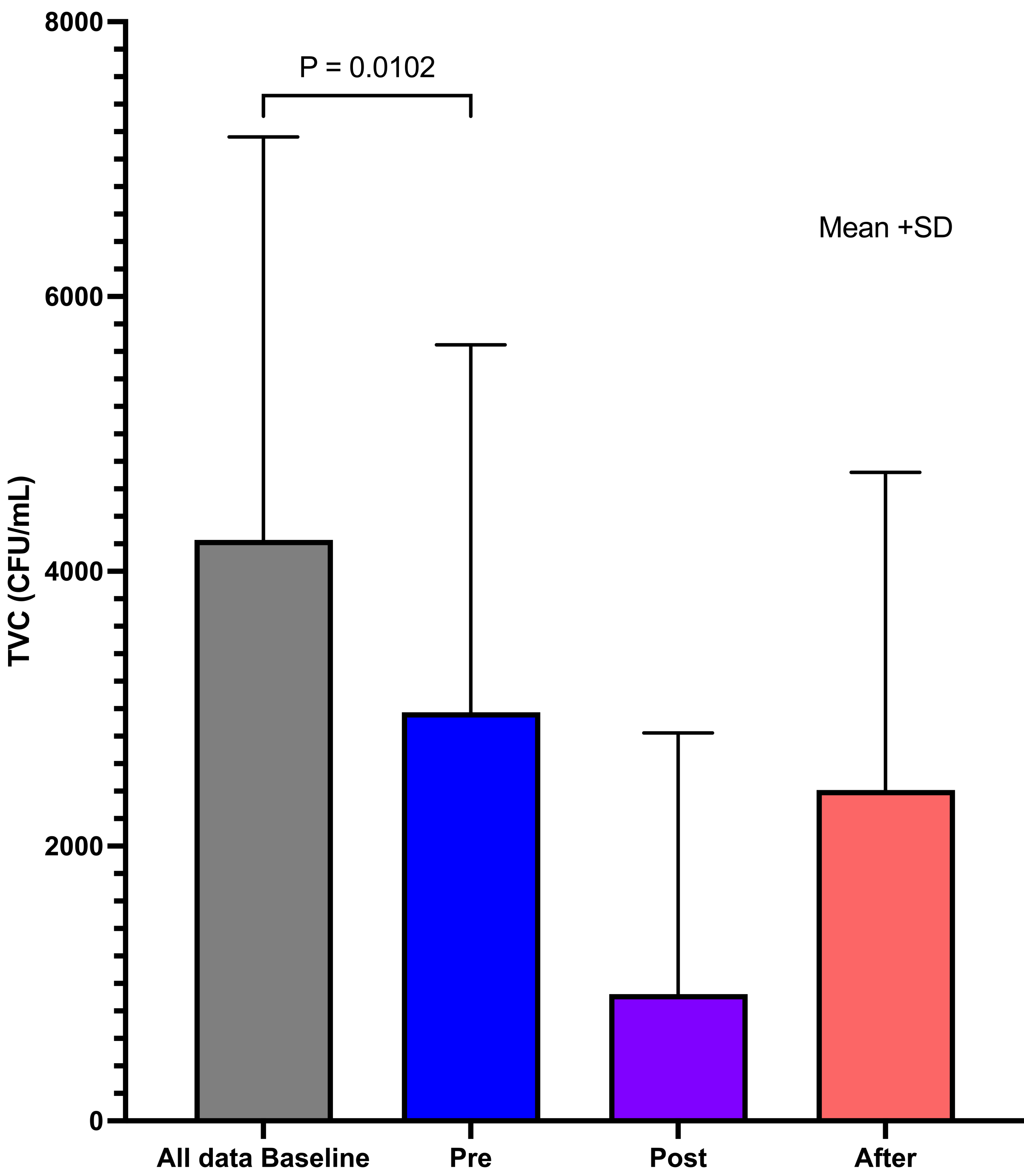


Results

The mean CFU at baseline was 4228 CFU/mL, this reduced significantly to 2974 CFU/mL (P=0.01).

However, samples were still noted to be heavily contaminated.

This effect appeared to be sustained, even after discontinuation of PAA, with a mean of 2408 CFU/mL in phase 3 of the study.



Conclusion

Application of a PAA containing product significantly reduced drain contamination as measured by TVC.

We noted a sustained effect even after discontinuation of the product.

These findings warrant further investigation which would ideally also assess risk of transmission to patients and identify specific pathogens.

References:

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