

# Ditch the bad bug - reducing new acquisitions of vancomycin resistant enterococci (VRE) in a large tertiary Intensive Care Unit (ICU): Results of a quality improvement project

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## Background

Multi-resistant organisms (MRO) such as vancomycin resistant enterococci (VRE), have the potential to cause significant harm, particularly to vulnerable patients in the ICU. New acquisitions of MRO colonisation are associated with:

- Increased risk of bacteraemia
- Increased mortality
- Extended length of stay
- Substantial financial burden to already resource strained health care facilities due to the requirement of isolation and dedicated equipment and consumables.

Additionally, isolation has been shown to hinder patient satisfaction (Sprague, Reynolds, & Brindley, 2016)

Despite implementation of various infection prevention and control (IPC) strategies to contain the spread of VRE, new acquisitions were rising steadily amongst the patient population admitted to general ICU.

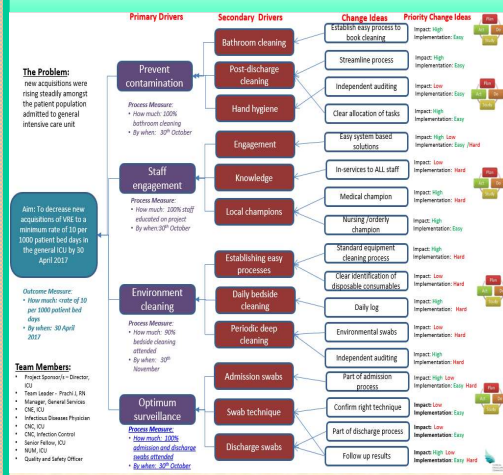
## Aim

Our objective was to decrease incidence of new VRE acquisition to a minimum rate of 10 per 1000 patient bed days in the general ICU over a period of 6 months, during 2017-2018.

## How did we do it?

Through an evidence informed approach, a nurse-led, multidisciplinary, multi-stakeholder project group was established. The group reviewed existing infection control and cleaning practices as well as explored innovative solutions tailored to the department specific needs. These were implemented following clinical practice improvement methodology.

## Project Driver Diagram



## Broader gains

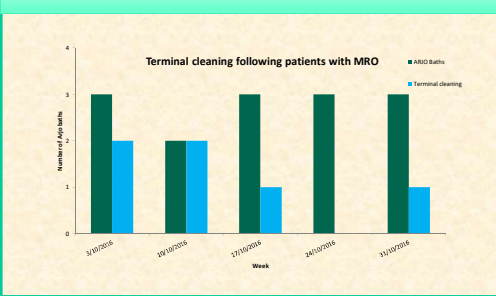
The ICP practices established in the unit have benefits of preventing transmission of a spectrum of multi-resistant organisms. Reduced number of VRE colonisation will result in:

- Decreased need for isolation of patients in single rooms,
- Improved availability of ICU beds attributed to reduction in isolation requirement for patients booked out of ICU.
- Enabling positive experience for patients

## Post contamination terminal cleaning of bathrooms

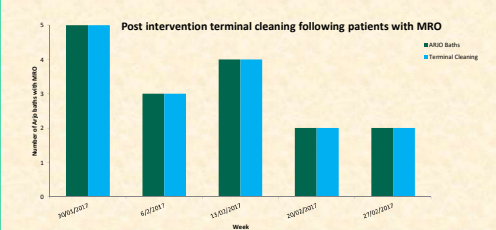
Local infection control protocols recommend terminal cleaning of bathroom after its use by a patient with MRO (Dempsey, 2015, p. 81). However, in the absence of any established or standardised process, compliance with this protocol was low. This increased the potential for VRE transmission to the next patient through contaminated environment.

## Pre-implementation



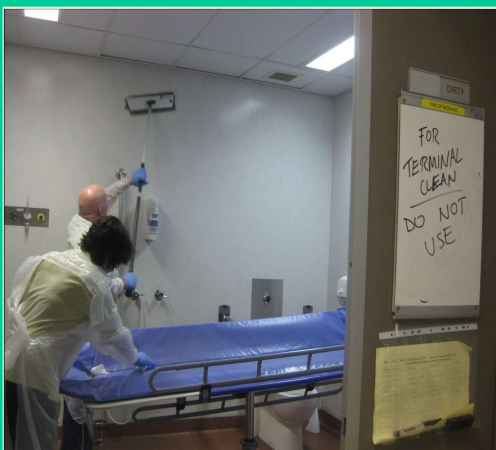
## Post-implementation

We developed a pragmatic and simple process using existing bed cleaning application for booking bathrooms for terminal-cleaning, along with a log of cleaning request and its completion by cleaning staff. The post intervention compliance to this protocol is 100%.



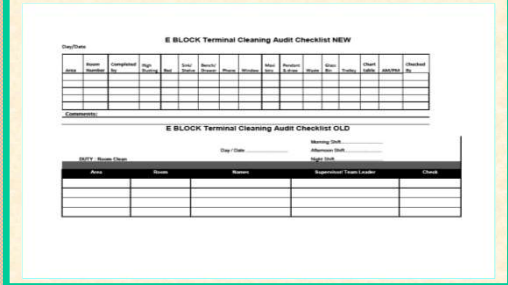
## Environmental cleaning

New measures were combined with succinct educational in-services presented to small groups by the project lead to raise awareness regarding the project and its interventions amongst clinicians. Process of room set-up was reinvented to ensure disposal of items used for personal care irrespective of MRO status. A chart audit combined with action log by cleaning department staff was used to assess the effectiveness of the intervention.



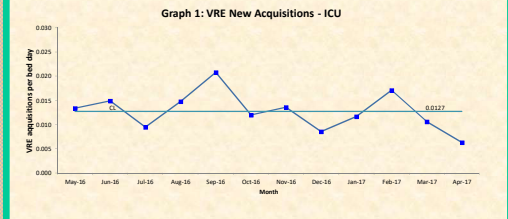
## Redesigning & Refining processes

Through critical enquiry, we identified the potential for optimising after-hours terminal-cleaning process of ICU rooms and standardised same by clear delineation of responsibilities. A new, comprehensive checklist (see Figure 1) was introduced which has improved the process and reduced the number of complaints raised and repeat requests regarding terminal-cleaning saving time and efforts.



## Results

The ICU achieved 12-month lowest prevalence of new acquisitions of VRE colonisation at the end of the project with rate of 6.28 per 1000 patient bed days.



## Conclusion

Our results demonstrate that nurses can play a critical role in facilitating interdepartmental collaboration to refine processes and reinvigorating IPC strategies across the spectrum, which resulted in reduced prevalence of new colonisation of VRE

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## Acknowledgements

