WOODSTOCK HOSPITAL

Misting Away Transmission in an Acute-care Facility with Advanced Technology:

The Collaborative Journey of Implementing an Environmental Disinfection System

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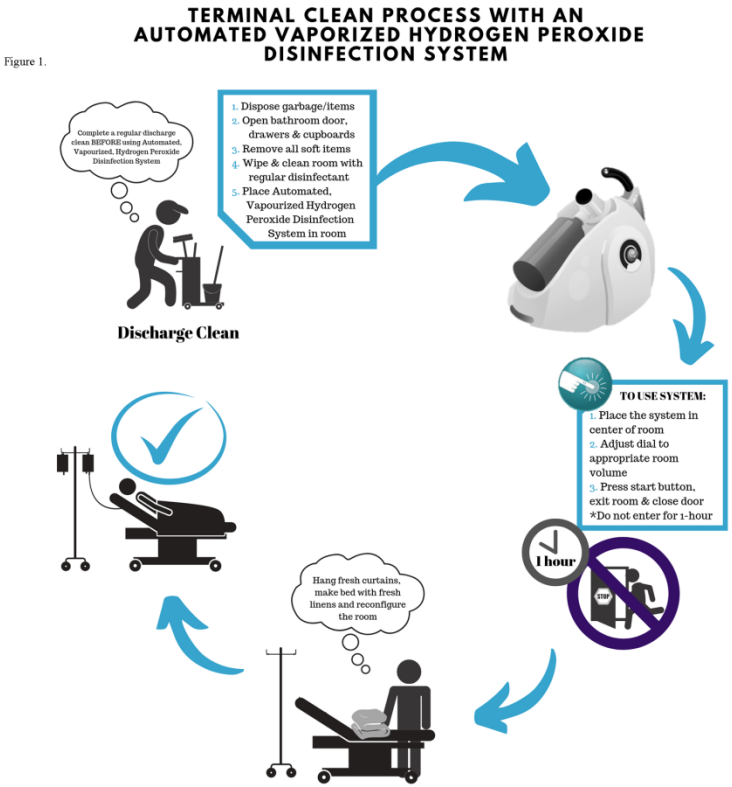
Background

Woodstock Hospital is a 178-bed capacity, full-service acute care hospital, providing primary care to a population of 55,000 people and offers specialized care to nearly 110,000 people within the County of Oxford, in Southwestern Ontario[1]. The Infection Prevention & Control team prides itself on maintaining healthy relationships with all departments across the hospital. With over 425 frontline nursing staff and 60 frontline Environmental Services (EVS) staff the implementation of new disinfection technology comes with challenges.

Issue

In 2017, Woodstock Hospital's nosocomial Vancomycin Resistant Enterococcus (VRE) cases were effectively decreased by 48%, due to a change in cleaning product from a quaternary ammonium chloride everyday disinfectant to accelerated hydrogen peroxide. Organizationally, a bed realignment project occurred during the same time period, reducing internal patient transfers. Unfortunately, in February 2018, a VRE outbreak on a medical unit resulted in ten nosocomial cases. During a gap analysis, Infection Prevention & Control (IPAC) noticed a lack of cohesiveness between interdisciplinary teams, which was a probable epi-link regarding VRE transmission. New strategies had to be implemented to enhance collaboration and adherence to best practices and outbreak prevention.

Figure 1.



Project

In February 2018, IPAC and EVS initiated a trial of an automated, vaporized, hydrogen peroxide disinfection system for all VRE and *C. difficile* (*C. diff*) terminal cleans (see Figure 1 for disinfection process). EVS staff were instructed to perform the normal discharge clean and trained on measuring each patient room. Based on this, the system was in turn set to vaporize the sufficient amount of product for effective saturation during the 1-hour disinfection process. Frontline staff were educated about the product and process. The system met IPAC best practices and safety requirements, while eliminating potential human error.

After 3 months, a retrospective review of the system trial identified multiple gaps in staff education. IPAC and EVS worked collaboratively with the vendor to ensure additional staff training, facility-wide education occurred and EVS policies were updated. Subsequently, IPAC continued to work with multiple departments to assess the impact using a variety of surveys and data analysis.

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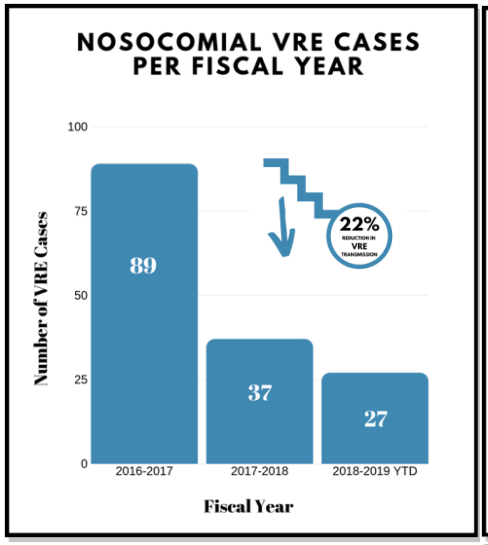
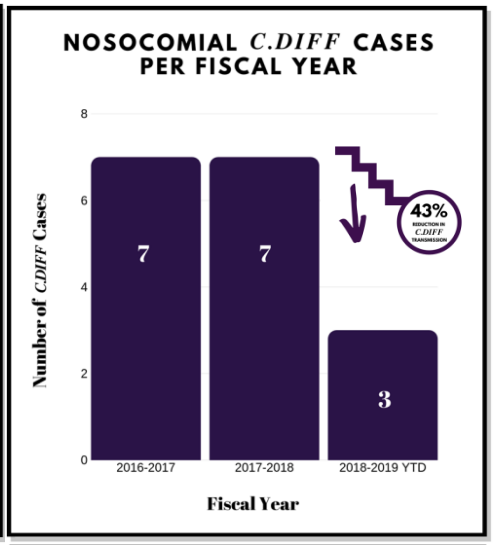
Results

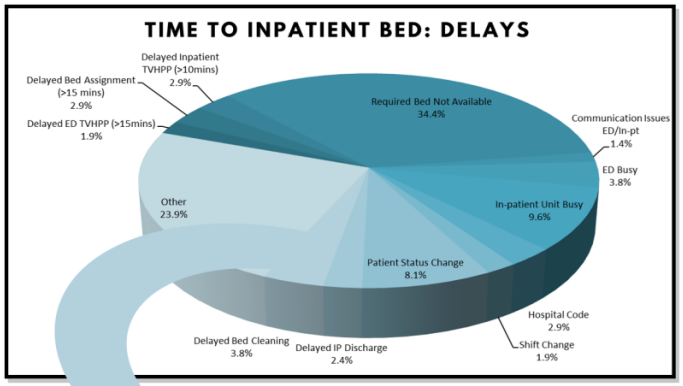
Over the next eight months, EVS continued to use the automated, vaporized, hydrogen peroxide disinfection system for all *C. diff* and VRE rooms. During this period, IPAC continued to collaborate with multiple stakeholders across the facility. In comparison to the previous year, transmission was reduced by 22% for VRE and by 43% for *C. diff.* IPAC investigated all gaps identified in retrospect and followed up with departments. EVS staff surveys conveyed positive reviews on the system, particularly in regards to the ability for EVS to accomplish other tasks while the system disinfects the room; and with feedback on areas requiring improvement, such as storage location and supply management. Performance Improvement Specialists reported that Time to Inpatient Bed was not impacted due to cleaning times and Occupational Health received zero chemical exposure complaints linked to the system.

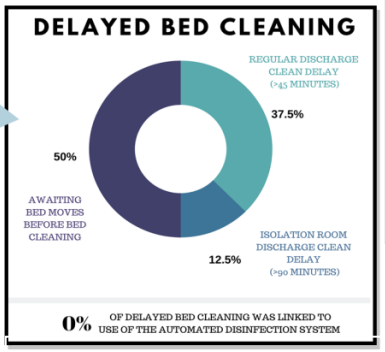


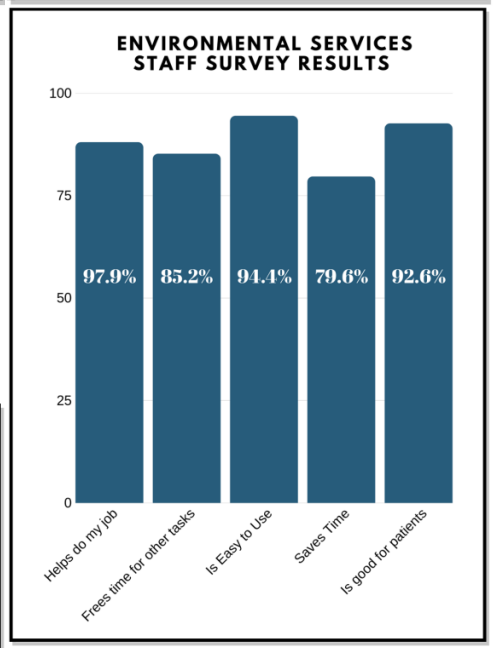


Lessons Learned

Additional education and IPAC's collaborative method of re-engaging key stakeholders was effective in assisting with the reduction of transmission. Interdepartmental data collection processes tend to provide retrospective data, which impacts obtaining statistical data in a timely manner. It would be beneficial to receive this data during implementation in order to identify gaps and barriers sooner. Furthermore, it would have been advantageous to implement adult learning principles prior to the study to enhance department collaboration[2].







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