Impact of Implementing a Structured Educational Program on Environmental Cleanliness Within the Hospital Environment

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Background

Clostridium difficile infection (CDI) was considered to be one of the most significant nosocomial infection on a colorectal surgery care unit (CSCU) of a tertiary care hospital in Montreal. Environmental contamination with CDI spores has been associated, in many scientific literature, with its indirect transmission. Appropriate environmental cleaning and disinfection in health care facilities therefore, remains a fundamental aspect of reduction and control of nosocomial infections such as CDI.

This study aims to determine whether the establishment of a comprehensive environmental cleaning education program based on repeated teaching and strategic monitoring of cleaning methods could improve the overall environmental cleaning practices.

Method

We used the experimental pre-post-test design with a control unit (CU) represented by a surgical unit “3W”, while the CSCU “4NW” represented the pilot unit (PU). In both units, random rooms including frequently touched surfaces and equipment were selected for testing using the fluorescent technique (GLO-GERM). Staff on 4NW exclusively, received instant feedback on the GLO-GERM audit result and were taught repeatedly about the importance of proper cleaning. We focused mainly on Nursing and Environmental services (Housekeeping “HSKP”) staff. Rooms and equipment were restet for cleanliness on three other occasions in both units. Pre-intervention and post-intervention values were then compared. Overall, about 300 care equipment and “high touch” environmental surfaces on both units were viewed with GLO-GERM, once or twice a week. The reading of the result took place at least 24 hours following application of the GLO-GERM. The audit process was done in the presence of the assistant head nurse, the nurse in charge or the nurse educator in order to ascertain objective results. Our intervention was guided by the Model for Improvement as a frame work to guide improvement work and test changes on a small scale using Plan-Do-Study-Act (PDSA) cycles.

Results

The percentage of cleaned surfaces improved incrementally on the PU between the three trials and went from 28% pre-intervention to values of 70%, 72% and 66% post-intervention. The percentage of cleaned equipment had also improved on the PU and went from 11% pre-intervention to values of 46%, 71% and 67% post-intervention. No significant improvement was observed in the CU where the percentage of cleaned surfaces remained below 52% while that of cleaned equipment remained below 15% during the project period.

Discussion

This project was completed in approximately two months. Our intervention was focused on education and on-the-spot feedback to the PU’s staff (Nursing and Environmental Services). The education focused on the importance of cleaning the hospital environment and its impact on the prevention and control of C. difficile. To measure the progress of compliance, environmental audits were performed and instant feedback was provided to the staff following the reading of the audit results. Although, the GLO-GERM audit was carried simultaneously on both PU and CU, teaching and on-the-spot feedback were not provided to the CU. Otherwise, a PDSA interdisciplinary team was created where the staff engaged in the improvement process. To ensure sustainability, follow-up meetings took place weekly.

Immediately after the first week of implementation of the practice change intervention, improvement in the audited variables was noted demonstrating increased compliance with cleanliness of the hospital environment. In the following weeks, the compliance progress continued to show, beyond any doubt, a much bigger improvement in the PU compared to the CU. Thus, we strongly believe that our intervention may have contributed to the improvement in the audit results. To ensure continuous compliance, the audit process along with the PDSA cycles was explained to the assistant head nurse and the nurse educator who were also provided with the necessary tools (audit list, GLO-GERM and flash-light). Some champions mainly from Environmental Services and Nursing were also identified and were oriented to carry on with the process. Several associated projects that facilitate environmental cleaning, such as diminishing clutter in patient rooms, were already carried out by the nurse educator and an orderly champion using the PDSA cycles of improvement. Finally, we have seized the opportunity to share our processes and results with managers of all the other units in order to promote our comprehensive environmental cleaning education program.

Main Success Elements

- Desire/Readiness for change
- Leadership and support from the management level
- PDSA team creation

Limits of the Study

- The compliance improvement may have been influenced by the staff awareness of the monitoring process.
- GLO-GERM don’t tell us the frequency nor the technique of cleaning
- The nature of certain surfaces and equipment make GLO-GERM reading challenging.
- Not all HCW have been reached in this project

Conclusion

An educational program with close monitoring of practice may result in improvement of the hospital environmental cleanliness. Such a program should include a theoretical framework to support the change, efforts to control the quality as well as instant feedback to affected employees in an effort to sustain the changes.

References