Using Simulation to Enhance Environmental Cleaning Practices in Diverse Healthcare Settings

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Structured Abstract

LOCAL PROBLEM

Inadequate cleaning and disinfection practices in the healthcare setting create an environment in which infectious pathogens can linger for days or even weeks on high-touch surfaces, presenting an increased risk of infection transmission to healthcare workers and patients. The World Health Organization recently cited environmental cleanliness as a key element for infection control across all healthcare settings. Yet researchers have found that less than half of all surfaces in United States healthcare settings are adequately cleaned. In the three study settings, administrators have recently documented significant incidences of non-compliant environmental cleaning behaviors of healthcare workers, related patient complaints, and the subsequent negative impact on patient satisfaction surveys. Healthcare workers cite inadequate training as the primary reason for non-compliance to established environmental cleaning protocols.

PROJECT PURPOSE

The purpose of this project was to assemble a collaborative group of stakeholders to develop and implement an evidence-based intervention to improve environmental cleaning practices and protocol compliance in three diverse healthcare settings.

METHODOLOGY

The National League for Nursing (NLN) Jeffries Simulation Theory was used to guide this project by providing an organized sequence for developing and implementing a well-designed simulation-based intervention to train healthcare workers on established cleaning protocols. The settings included a 451-bed regional hospital, a 1,003-bed academic medical center, and a 6-room independent nurse practitioner's (NP) office, respectively located in the southeast and mid-Atlantic regions. A team of key stakeholders was formed at each location to collaborate on the design and operationalization of the intervention, and included different collaborators at each site, such as directors, managers, a practice owner, healthcare staff, and human resource partners. Each team assessed the need for organizational change, reviewed and synthesized evidence, established goals and timelines, designed the simulation template, created the training scenarios, and produced handouts for the participants. Education on appropriate environmental cleaning skills for healthcare workers was accomplished through simulation-based training with debriefing for a total of two sessions per site. Immediate pre-and post-implementation surveys were completed to establish the participants' confidence levels in appropriately following the established cleaning protocols for each organization. The number of touch points that were appropriately cleaned during each simulation session was documented.

RESULTS

The pre-and post-implementation surveys documented a positive delta of 66.66% at the academic medical center, 37.5% at the regional hospital, and 62.5% at the NP office, for an overall average of 55.55% improvement in the participant confidence levels in their abilities to correctly perform environmental cleaning skills. A post-simulation comparison of the number of touch points cleaned correctly revealed that 53% of the participants effectively removed the Glow Germ fluorescent powder from each of the surfaces tested at the three sites. During the debriefing process at the regional hospital, which presented the lowest positive delta, all participants expressed the need for additional review of established cleaning protocols. Moreover, participant confidence levels improved in the areas which captured the ability to recognize appropriate dwell times for the cleaning chemicals, understand the route of disease transmission, and identify appropriate post-completion times to disinfect their hands. Finally, opportunities for ongoing environmental cleaning practice improvements were documented, including using more cleaning solution on the cleaning rags, using more than one cleaning wipe per surface, and periodically reviewing dwell and dry times with the healthcare workers.

IMPLICATIONS FOR PRACTICE

The findings were shared with the stakeholders at each of the three respective sites. Each site approved a plan to adopt the implementation into practice to enhance compliance with established environmental cleaning protocols. The team at each site was presented with the simulation template and handouts for future ongoing implementation. Utilizing the NLN Jeffries Simulation Theory framework and integrating best evidence resulted in an organized and sustainable simulation-based intervention to enhance the environmental cleaning practices of healthcare workers. An ongoing protocol to adequately train healthcare workers will assist in creating a safer healthcare environment for patients and key stakeholders.

Keywords: environmental cleaning, simulation, practice improvement, training, compliance

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