Hazardous Drug Administration Safety Process

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Background

Hazardous drugs require careful handling by healthcare workers to prevent adverse health effects resulting from exposure. Adverse health effects include gastrointestinal problems (e.g., nausea and vomiting), reproductive issues (e.g., infertility, fetal structural defects, preterm birth, and miscarriage), headache, skin rashes, and increased risk of cancer. At Salinas Valley Health Medical Center, a policy on handling chemotherapy guides healthcare workers on the appropriate use of personal protective equipment (PPE) and how to utilize closed-system transfer devices on the end of tubing, which prevents the release of aerosols, vapors, and droplets when connecting and disconnecting antineoplastic drugs. Nurses at the medical center's Outpatient Infusion (OPI) Center had worked on improving the unit's PPE use by utilizing focused peer feedback, observations through monthly audits, and reviewing evidence-based articles from the Oncology Nursing Society (ONS) that addressed health care exposure to antineoplastic agents in the workplace. However, nurses continued to identify inconsistencies in hazardous drug administration, safe handling, and cleaning processes and requested support for improvement from our Oncology Unit Practice Council (UPC). The goal of this quality improvement initiative was to consistently reduce potential exposure of our care team and patients to hazardous drugs administered in OPI in alignment with current practice standards and guidelines from oncology and safety organizations.

Methods

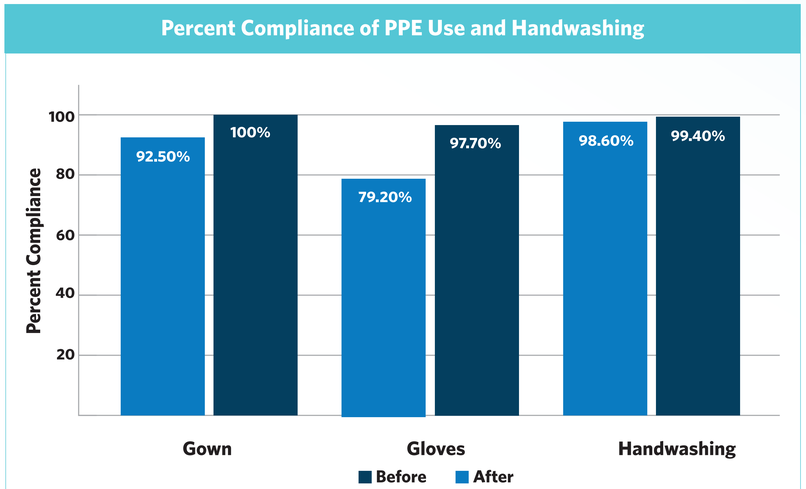
Guidelines and literature from the ONS, the National Occupational Safety and Health (NIOSH) and Occupational Safety and Health Administration (OSHA) were reviewed and synthesized. Using these resources, an evidence-based standardized process for safe handling of hazardous drugs was developed that complied with regulatory requirements and standards. We collaborated with materials management to ensure all necessary PPE was available to staff, and education was provided to nurses about the risks related to improper hazardous drug handling. A new cleaning agent was selected, and a primary factor in its selection was that it both decontaminated (i.e., removed/cleansed) and deactivated (i.e., degraded) the hazardous drugs given in OPI. The Oxivir® Tb Wipes have been tested and analyzed for treatment on ten hazardous drugs (Diversey, 2018); nine of which are frequently given in OPI. A checklist was created to guide setting up for hazardous drug administration, PPE use during and after hazardous drug administration, and workplace cleaning. Education included a demonstration of the safe handling process and the checklist purpose and use. Nurses were then observed one-on-one for verification of compliance with the new process by project leads.

To promote ongoing compliance, nurses are required to observe and audit chemotherapy administration with peers five times a month. This audit includes observation of use of the chemotherapy protective gown and double gloving and handwashing after removal of PPE.

Results

The initiative was evaluated by analyzing monthly audit results and comparing pre-and post-implementation compliance. Data were analyzed for ten months, which included five months before (January-May 2024) and five months after (June-October 2024) implementation of the new process. The volume of monthly audits by nursing staff varied from a low of 20 to a high of 47. The percentage of "yes"responses to each element of the audit (i.e., gown, gloves, handwashing) increased post-implementation. The workplace cleaning element of the checklist was not audited. Gown use increased by 7.5%, double gloving increased by 18.5%, and handwashing increased by 0.8% (see Figure 1). One of the project leads (AF) serves as a PPE champion and continues to encourage PPE use through observation and focused peer feedback.

Figure 1



Conclusions

This project standardized OPI's hazardous drug handling process. All newly hired nurses are educated on the new process to set expectations. Through this project, we were able to identify additional educational needs for patients and colleagues. We plan to develop a hazardous drug safety/cleaning process for our medical assistants and environmental services employees. We will also be collaborating with pharmacy and employee health to establish medical surveillance for those working in settings with hazardous drugs. Lastly, we will be working on improving our patient/caregiver education for handling body fluids and minimizing exposure at home after chemotherapy through the development of an English and Spanish version of a handout for nurses to review with patients on discharge from OPI. A limitation of this initiative is that we did not measure safety outcomes such as hazardous drug exposure rates.

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