ONS:Edge Knowledge Report
Healthcare Acquired Infections in Cancer Patients

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Background

Healthcare Acquired Infections
Healthcare acquired infections (HAIs) are the most common complication of hospital care. In the United States alone, a staggering 1.7 million HAIs occur every year. HAIs are among the top ten leading causes of death: 99,000 every year according to the California department of Public Health. Centers for Disease Control and Prevention (CDC) estimate that on any given day, about 1 in 25 hospital patients has at least one healthcare-associated infection. The economic impact of these infections is substantial, as afflicted patients require on average $24,500 more in care, with overall costs to the US healthcare system totaling $4.5 billion each year.

HAI in cancer patients
All patients are susceptible to developing HAIs, but cancer patients are especially vulnerable for several reasons. First, they may undergo surgical procedures, and their treatment often requires the use of indwelling intravascular access devices. Second, malignancy and chemotherapy weaken their immune systems. Third, they can be exposed to other patients with transmissible infections due to frequent contact in healthcare settings.

Implications of a HAI for a cancer patient can be significant. It is important to keep in mind that strict adherence to a cancer treatment plan is critical for the successful management of the cancer patient; delays in the administration of anti-cancer therapies can jeopardize a favorable outcome. Given that 1.6 million new cancer cases are expected in the US in 2014, development of HAI in cancer patients represents a major public health problem. With the increased risk of HAI among these patients, which are largely preventable, their avoidance should be a major focus of healthcare providers treating cancer patients.

Evaluating Healthcare-Acquired infection awareness and antisepsis practices among oncology nurses

A recent survey funded by CareFusion (Vernon Hills, IL) and conducted by ONS:Edge aimed at evaluating infection prevention knowledge and practices among oncology nurses. Perceptions of HAI frequency and severity as well as awareness of infection prevention protocols and guidelines were assessed. These goals were achieved by surveying 199 oncology nurses with more than three years’ experience in cancer care. One hundred sixty-seven surveys could be stratified by workplace of the participant, which highlighted differences in HAI prevention practices and perceptions between nurses working in inpatient versus outpatient cancer treatment settings.
Results

Awareness of antisepsis guidelines and training
- Fourteen percent of respondents replied “No” or “I don’t know” to the question, “Does your clinic or hospital follow a protocol for avoidance of infections in cancer patients.” This number reached 20% in Physician’s Office and Infusion Center settings.
- Half of the respondents acknowledged having regular training and certification around infection prevention, but 45% reported receiving “initial training and occasional reminders” as best describing their training.

Antisepsis practices
- More than 75% of surveyed nurses use alcohol + chlorhexidine (2% or 3.15%) for antiseptic skin preparation.
- Participants were asked with which brands of skin antisepsis products they were familiar. Among the possible choices, ChloraPrep® (2% chlorhexidine gluconate/70% isopropyl alcohol) was the most familiar brand name and was cited by 95% of the respondents. Betadine® (povidone-iodine) was familiar to 75% of survey participants. Only 5.5% of participants reported familiarity with Prevantics® (3.15% chlorhexidine gluconate and 70% isopropyl alcohol). None of the nurses surveyed chose “other.”

Perception of HAI as an interrupter of cancer treatment
- Participants were split on the frequency with which they believe HAI interrupts chemotherapy. Overall, half of participants felt that HAI interrupts or delays chemotherapy more than 1% of the time, with one-third of respondents estimating that this proportion was 1-5%. A lower proportion of participants practicing in physician’s office and infusion center settings (39%) felt that HAI interrupts chemotherapy more than 1% of the time, compared to participants practicing in hospital settings (ranged from 41-54%).

Perceived and real burden of HAIs in cancer patients
Frequency of HAIs is highly dependent on the type of underlying neoplastic disease. For instance; the majority of patients with acute leukemia, lymphoma, and multiple myeloma develop infection during the course of their disease (about 80%, 75%, and 50%, respectively). However, serious infections also occur in patients with solid tumors even in the absence of significant immunosuppression.

Altogether, an average number to remember is that 1 out of every 10 patients who receives chemotherapy gets an infection that requires a hospital visit.

The majority of surveyed nurses consider avoidance of HAIs as a top priority, and 100% of them report this as a focus in their clinic. This suggests the HAI issue gets attention of cancer care providers. However, HAI burden remains underestimated in oncology facilities based on nurse perception of HAI frequency and severity in cancer patients. Indeed, survey results suggest that, for most of them, HAIs are still not considered significant interrupters of chemotherapy.
Improving antisepsis practices in outpatient settings

In the recent decades, many oncology services have shifted from inpatient to outpatient settings. Each year, more than 1.1 million individuals receive chemotherapy or radiotherapy in US physician offices, hospital-based outpatient clinics, and nonhospital-based cancer centers. Even while patients with high risk for infection such as hematopoietic stem cell transplant recipients and patients with febrile neutropenia are still treated in acute care hospitals, general vulnerability of cancer patients warrants the standardization of infection prevention practices in outpatient settings.

However, according to the Association for Professionals in Infection Control and Epidemiology (APIC), not all outpatient facilities have implemented dedicated infection prevention policies. Sadly reflecting this observation, several outbreaks of infections resulting from breaches in basic infection prevention practices (e.g., syringe reuse, mishandling of intravenous administration sets) have been reported in the last decade. Furthermore, federal and state regulatory oversight of many outpatient settings, including outpatient oncology facilities, is limited. As a result, routine inspections for infection prevention practices do not take place in oncology outpatient settings. These facts are in agreement with the observation in our survey that in physician’s offices and infusion centers, 1 nurse out of 5 is not aware of any infection prevention protocol.

Altogether, these data prompt the need for continued education, training and surveillance of oncology providers around antisepsis practices. This is especially important in outpatient facilities, where awareness of HAI-associated risks and training can be greatly enhanced. To bridge the gap between inpatient and outpatient facilities in terms of oncology-treatment associated infections, it would be beneficial to expand hospital antisepsis practices to outpatient facilities and ensure a better communication between settings.

Guidelines for infection prevention in cancer patients

In addition to general infection prevention procedures recommended by the CDC and the World Health Organization (WHO), guidelines specific to cancer patients are now available. The Oncology Nursing Society (ONS) published “PEP Guidelines/Expert Opinion Table for Prevention of Infection.” CDC provides a basic infection control and prevention plan that can be used as a template to develop an outpatient facility-specific plan. Of note, they recommend the consultation of an expert in infection prevention to optimize facility design and workflow in terms of infection prevention. In any case, regular protocol review by care team members should be organized.
The nurse community is familiar with the skin antisepsis formulation of 2% chlorhexidine gluconate/70% isopropyl alcohol, and it is important to note that this formula is an integral part of the recommendations made by CDC, ONS, and many other notable societies.

**Conclusion**

HAIs are of particular concern for patients with cancer. It is crucial to keep raising awareness around infection prevention and to ensure written infection control policies and procedures are in place in outpatient facilities, along with ongoing training and surveillance, as well as the use of antisepsis products recommended by CDC and oncology guideline committees.

**Infection Prevention Resources for the Oncology Nurse**

References


3. March 8, 2010 - The Healthcare Management Council, Inc. (HMC)


