Title:
Single-Use Disposable Commode Pan/Bedpan Liners to Reduce Future Risk of Hospital-Acquired Clostridium Difficile Infection

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Clostridium difficile infection, Human fecal waste management and Nursing

References:
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Abstract Summary:
The history and evolution of the pilot project developed is in reference to the first hospital acquired (HA) Clostridium difficile infection (CDI) outbreak in a rural hospital within western Canada and how one can best manage human fecal waste to decrease the likelihood of HA inpatient transmission.

Learning Activity:

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE

The learner will be able to identify a safe and efficient method to manage human fecal waste to decrease the incidence of Clostridium difficile spore transmission at the patient bedside, bathroom and in shared spaces.	Overview of Clostridium difficile infection and hospital acquired transmission, and the need to manage human fecal waste disposal efficiently and effectively.
The learner will be able to describe a cost effective method for managing human fecal waste resulting in a decrease in nursing time and prevention of hospital acquired (HA) Clostridium difficile infection (CDI) amongst inpatients.	Assessment of current human fecal waste management for inpatients with suspect and/or confirmed Clostridium difficile infection; a safe, cost effective method to manage human fecal waste to prevent hospital acquired Clostridium difficile infection; and a resultant decrease in nurse workload and increase in quality patient care.

Abstract Text:

Purpose (background/significance)

At a rural acute care hospital in western Canada, a hospital acquired (HA) Clostridium difficile infection (CDI) outbreak began in early October 2015 and was declared over late January 2016. The CDI outbreak resulted in 13 HA infections and 5 in-patient deaths (one of which was found directly related to the acquisition of CDI). From the onset of the CDI outbreak, a daily outbreak meeting was conducted involving interdisciplinary team members; including the facility manager, the unit manager, infection prevention and control (IP&C), environmental services, and a medical officer of health. An outbreak debriefing was conducted at the end of the outbreak to discuss what went well and what could have been 'done better' in the form of a patient safety review.

The clinical concern or problem findings from the patient safety review were comprised of system related issues. Some system issues included outbreak management, communication and education, environmental services and understanding of isolation room cleaning, and human fecal waste management and reusable patient care equipment (i.e. commodes, commode pans, bedpans). Though outbreak management, communication and education, isolation room cleaning concerns have been resolved, the issue of human fecal waste management and reusable commode pans and bedpans remained problematic as a source of potential spread of CDI.

Through interviews conducted with nursing staff on the CDI outbreak unit, it was discovered reusable commode pans and bedpans used to collect loose stools for hospitalized in-patients with CDI were being 'dumped' in the patient room toilet and flushed. Water from the bathroom sink tap was then used to remove any residual fecal matter in the reusable commode pan or bedpan, which in turn was 'dumped' into the toilet and flushed. Toilet flushing is known to cause aerosolization of human waste. Nursing staff did wear personal protective equipment (PPE) during care for all isolated CDI patients.

Alternatively, human fecal waste from hospitalized patients collected in commode pans or bedpans could be taken to the dirty utility room for disposal in the hopper. Although, the hopper does cause aerosolization when flushed if not covered with a lid, nursing staff are to wear appropriate PPE during this procedure as well.

The first issue addressed was how nurses disposed of human fecal waste in reusable commode pans and bedpans when they could not to leave the room of the isolated CDI patient wearing their PPE. It was suggested and implemented, during the CDI outbreak, if a commode pan or bedpan required emptying, a second nurse would assist by putting on PPE and taking the soiled commode pan or bedpan to the dirty

utility room for disposal. This process was not sustainable. The second issue addressed was the transportation of human fecal waste away from CDI infected inpatient room could possibly contribute to the cross contamination of the 'clean' hospital environment causing unaffected patients to become infected with CDI.

Method (new initiative)

The new initiative to address HA CDI from human fecal waste management issues can be posed in the form of a PICO question: for adults in acute care, does the use of single-use disposable commode pan and/or bedpan liners reduce the future risk of hospital acquired (HA) Clostridium difficile infection (CDI) compared with reusable commode pan and/or bedpan?

Utilizing evidence-based practice nursing and nursing research resources from the University of Mary Welder Library such as CINAHL and Medline, key search terms were used to find literature relevant to the new initiative for this PICO project, for example, but not limited to Clostridium difficile and infection, prevention, hospital acquired infection, human waste disposal, reprocessing of non-critical reusable medical devices (i.e. commode pans, bedpans) and disposable liners.

The literature search did not find any reference to the use of single-use disposable commode pan and/or bedpan liners to reduce the future risk of hospital acquired Clostridium difficle but did emphasize the importance of a CDI infected patient having a dedicated toilet or commode, appropriate medical device reprocessing of reusable medical devices (i.e. commodes, patient care equipment) and environmental cleaning. A pilot project was needed to study the efficacy of a single-use disposable commode pan and/or bedpan liners as a method to better manage human fecal waste for suspected and confirmed CDI hospitalized patients in order to reduce or eliminate the transmission of CDI. In consultation with interdisciplinary team members there was enthusiastic support to initiate a targeted human fecal waste management process as one means of preventing the spread of HA CDI.

Results

As predicted, frontline health care workers (i.e. the nurse) who piloted the disposable bedpan/commode pan liners found them to be an efficient and simple alternate for human fecal waste management for adults presenting with suspect and/or confirmed CDI. In addition, it was found there was a subsequent decrease in workload and an increase in quality nurse bedside patient care, a positive change to nursing practice. As well, the increase in nurse-care time aided to secure sustainability of the proposed product for human fecal waste management of adults with suspect and/or confirmed CDI. The advantages of the cost-benefit analysis of the liners was presented to hospital leadership. Some of the health and budget implications are:

- there is a decrease in HA CDI transmission using provincial surveillance data with the use of bedpan/commode pan liners.
- there is a substantial decrease in frontline nursing time.
- the use of bedpan/commode pan liners is a better way for human fecal waste management with a prevention of HA CDI.
- commode/bedpan liners are cost effective for human fecal waste management compared to past practices related to reusable bedpan and commode pans.
- there are no HA CDI inpatient cases related to human fecal waste management.
- the cost savings of HA CDI inpatient cases has significantly affected financial outcomes.

Conclusion

The strengths and challenges gained from the pilot project process to assess, plan, develop, implement and evaluate change starts with identifying and acknowledging there may be a problem and/or issue. There are numerous facets of assessment, including cultural, social norms, demographics, and readiness

for change plus costs to consider. It is not simply bringing in a new product and expecting a change in practice. It is an interdisciplinary team effort to plan through evidence-based research, engage leadership, build alliances, obtain resources and work plan development strategies to ‘hash out’ the details of the proposed policy or education change. Implementation may not be limited to the frontline health care worker (i.e. the nurse). One must have a strategic plan of action including budget, time, and resources to market change. Evaluation in this process is crucial to assess the need to re-evaluate outcomes together with ongoing surveillance of compliance. It is learning how to hold on to the strengths and forecast the challenges that may arise and selling one’s solutions to improve patient safety through quality evidence-based initiatives. The liners are only one aspect in the prevention of inpatient HA CDI.