Major Article

Survey to explore understanding of the principles of aseptic technique: Qualitative content analysis with descriptive analysis of confidence and training

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Background: In many countries, aseptic procedures are undertaken by nurses in the general ward setting, but variation in practice has been reported, and evidence indicates that the principles underpinning aseptic technique are not well understood.

Methods: A survey was conducted, employing a brief, purpose-designed, self-reported questionnaire.

Results: The response rate was 72%. Of those responding, 65% of nurses described aseptic technique in terms of the procedure used to undertake it, and 46% understood the principles of asepsis. The related concepts of cleanliness and sterilization were frequently confused with one another. Additionally, 72% reported that they had not received training for at least 5 years; 92% were confident of their ability to apply aseptic technique; and 90% reported that they had not been reassessed since their initial training. Qualitative analysis confirmed a lack of clarity about the meaning of aseptic technique.

Conclusion: Nurses’ understanding of aseptic technique and the concepts of sterility and cleanliness is inadequate, a finding in line with results of previous studies. This knowledge gap potentially places patients at risk. Nurses’ understanding of the principles of asepsis could be improved. Further studies should establish the generalizability of the study findings. Possible improvements include renewed emphasis during initial nurse education, greater opportunity for updating knowledge and skills post-qualification, and audit of practice.

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Ethical considerations

Permission to undertake the study was granted by the Research Ethics Committee at the university where the principal investigator was employed. The questionnaires were anonymous and were returned in envelopes; respondents were assured that they and their employing organizations would not be identified in publications. Respondents received a one-page information sheet about the study, and they signed consent forms. Infection prevention has received considerable attention from policymakers and managers in recent years, and in some cases, punitive methods have been employed in attempts to improve compliance.9,10 We obtained data in a ward setting, rather than in classrooms, and were mindful that health workers have reported resentment and frustration regarding constant reminders about infection prevention.11 The brief, anonymous questionnaire was designed to avoid anxiety and encourage participation.

RESULTS

Questionnaires were completed by 180 registered nurses (72% response rate). Most were in clinical posts in junior (n = 125; 68.1%) or middle levels of seniority (n = 32; 17.6%). Twenty six (14.3%) were ward managers. No significant differences in response between hospitals was found.

**Manifest content analysis**

A total of 143 (78%) registered nurses responded to the “open” question, and of these, one claimed to not understand what the term “aseptic technique” means. Manifest content analysis revealed that more than half (n = 91; 64.9%) identified aseptic technique as a procedure or method, not in terms of the principles underpinning it. Typical examples from different respondents are as follows:

- Cleaning your wound trolley before and after dressings. Opening all your dressings/packs prior to putting your gloves on to do your dressing. Using hand gel. Putting your gloves on and washing hands/drying.

- Cleaning the trolley before you place a pack on it. Washing your hands. Getting someone to drop sterile gloves on the sterile field inside the pack. To put gloves on without touching the outside. Then someone to put all objects needed for the procedure onto the sterile surface without touching it.

Other nurses restricted their responses to selected elements of the procedure, singling out for special mention hand hygiene, avoiding touching equipment, and use of gloves. Wound dressings were usually suggested as an example of a procedure requiring aseptic technique. The insertion and management of intravenous lines and urinary catheters were occasionally mentioned.

Fifteen (10.5%) nurses used the words “non-touch aseptic technique,” and a further fifty eight (41%) used the term “sterile” in relation to the equipment or the field/environment in which the procedure was conducted:

- A procedure that uses a sterile technique.
- Performing a task by having a sterile workplace...and only using sterile equipment. (Respondent 29)
- Using a sterile field in procedures.

The terms “clean” or “cleanliness” were used by 19 (14.4%); with one saying

“Reduce infection. Clean procedure.”
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