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Major article

Student nurses' experiences of infection prevention and control during clinical placements

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Background: Little is known about nursing students' experiences of infection control in the clinical setting despite its importance protecting patients and reducing risks of occupational exposure.
Methods: We conducted an online survey involving a fixed choice Likert-type scale with 19 items and an open question to solicit more detailed information with a national sample of student nurses in the United Kingdom.
Results: Four hundred eighty-eight student nurses completed questionnaires. All participants reported lack of compliance for every item on the Likert scale, most frequently from community settings and long-term care facilities for older people. Incidents most commonly witnessed were failure to comply with hand hygiene protocols, failure to comply with isolation precautions, poor standards of cleaning in the patient environment, not changing personal protective clothing between patients, and poor management of sharp instruments. Qualified nurses did not provide good role models. Medical staff were the occupational group most heavily criticized for poor compliance.
Conclusion: Students demonstrated sound understanding of infection control and were able to identify lack of compliance on the basis of preclinical classroom instruction. The study findings indicate that ensuring safe infection control practice remains a challenge in the United Kingdom despite its high priority.

Health care-associated infections (HCAIs) are the most frequently reported adverse events in health care delivery.[1] Education about infection prevention and control (IPC) is important at an early stage in student nurses' preclinical experience to protect patients and reduce risks of occupational exposure to infection.[2,3] Studies exploring student nurses' knowledge of IPC have produced mixed findings. Some reports indicate sound knowledge. In these studies student nurses were better informed than medical students and more convinced that IPC was important, and their self-reported levels of compliance were higher.[3,4] Other studies have identified poor understanding of the principles of IPC among student nurses[5,6] and specific gaps in knowledge, probably because time dedicated in nursing curricula is insufficient to cover all necessary topics in sufficient depth.[7] There appears to be little official guidance about what student nurses should be taught. However, there is general agreement over the key IPC precautions that should be delivered in preparation for clinical practice in the research literature: hand hygiene, use of personal protective equipment (PPE), isolation precautions, safe handling and disposal of sharp instruments, principles of asepsis, maintaining cleanliness in the clinical environment, and ensuring that equipment is decontaminated between patients.[8-10]

Numerous studies have explored different approaches to the delivery of IPC instruction to student nurses.[8,9] Classroom delivery in universities has been criticized because nurse educators are generalists who may rely on textbook material that does not keep abreast with recent, rapid developments in IPC.[9] This can be overcome with up-to-date e-learning packages,[8] and simulated patient care exercises in the clinical skills laboratory have been suggested as a way of helping student nurses grasp the complexity of clinical decision making in relation to IPC.[10] The presence of university teachers in clinical areas has also been identified as a mechanism for encouraging compliance with IPC precautions by ward staff.[11] Student nurses have identified qualified nurses as important role models for key aspects of IPC.[12,13]

Student nurses' experiences of IPC in the clinical setting have received less attention than methods of instruction. There appears to be an assumption that they will be able to transfer knowledge

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about the principles of IPC acquired in the classroom to patient care. However, little is known about the examples set by qualified practitioners despite their importance as students' role models.

A search of the literature identified 2 studies[14,15] that explored student nurses' clinical experiences of IPC. An interview study with 40 student nurses revealed examples of good practice, especially when qualified nurses performed aseptic procedures, but poor practice was more frequently reported: failure to clean equipment and change PPE between patients, unsafe handling of intravenous lines and urinary catheters, and poor compliance with hand hygiene protocols.[14] Student nurses in this study benchmarked quality of IPC witnessed in clinical areas against practice taught by university teachers. They did not challenge poor compliance because they were afraid of failing placements and did not want to be seen in a negative light by the staff responsible for their clinical reports. Some student nurses admitted compromising standards to fit in with local practice.

In a second study, student nurses reported high levels of poor IPC during clinical placements.[15] The most commonly reported incidents were poor compliance with isolation precautions, presence of contaminated equipment in the clinical environment, breaches of aseptic technique, failure to cleanse hands, and exposure of staff to blood and body fluids.

Both studies were small scale, and each took place with students recruited from a single university whose clinical experience was limited to a few organizations. The study reported below explored the clinical experiences of a national sample of student nurses in the United Kingdom.

METHODS

Study design

A descriptive survey was undertaken utilizing an online questionnaire. There were 19 Likert-style questions and 1 open-ended question that solicited additional comments on IPC.

The questionnaire was designed to be completed rapidly to encourage participation and was anonymous. Questions were developed from existing studies[8-10,14] augmented by the researchers' expertise in IPC. Student nurses were presented with a range of different possible lapses in IPC and asked to indicate whether they had never been witnessed, witnessed occasionally (once or twice), witnessed often (every week), or very often (every day). Responses were captured by commercial software developed especially for use with online surveys (Question Pro: https://www.questionpro.com).

Sample

The survey included student nurses undertaking preregistration courses in the 4 countries making up the United Kingdom: England, Wales, Scotland, and Northern Ireland. They were recruited via an electronic link to the survey placed on the Web site of the Royal College of Nursing (RCN). The RCN is a union membership organization that represents the interests of nurses and nursing, promotes excellence in nursing practice, and helps shape health policy across the United Kingdom. Most of its members are qualified nurses, but there is a student nurses' forum with over 2,000 members. The electronic link remained open for 3 weeks on the advice of the Web site conveners, whose experience suggested that after this time no further recruitment could be expected.

Ethical issues

Permission to undertake the study was granted by the Ethics Committee of the university that employed members of the research team and by experts in ethical issues pertaining to nursing and nurse education at the RCN. The Web site carried a short explanation about the purpose of the survey, what participation would entail, and emphasized that responses would be anonymous. Consent forms were considered unnecessary: willingness to participate would be implicit in voluntary completion and return of the online questionnaire.

Pilot study

A pilot study was undertaken with 62 student nurses undertaking preregistration training in a single university. They had undertaken clinical placements in 4 different National Health Service trusts and in nursing homes outside the National Health Service. Student nurses were invited to complete the questionnaire at the end of lectures by members of the research team with whom they had not previously had contact. There were no refusals. The questionnaire format was acceptable, captured the required information, and all the questions were answered in 15 minutes. No changes to the main study data collection instrument were considered necessary. There were 45 responses to the open question. These were inspected and used to develop a coding frame for the main study data. They provided additional detail about specific examples of noncompliance reported on the Likert scale. Participants also commented on the occupational groups responsible and types of clinical setting where lapses took place.

Statistical analysis

The number of responses to each category on the Likert scale was summated automatically by the survey software, and means were calculated. The qualitative data were categorized using the previously developed framework, which identified the type of clinical setting where the reported incident took place, the occupational group responsible, and the nature of the incident.

RESULTS

Eight hundred forty-seven student nurses accessed the survey instrument, and, of these, 488 completed it.

Likert scale

All participants reported witnessing lack of compliance, and it was reported for every item on the Likert scale (see Table 1). Lack of compliance was most commonly witnessed in relation to hand hygiene. Over 75% reported witnessing failure to cleanse hands between patient contacts, 61.2% reported health workers wearing rings (in addition to wedding bands), and 60% reported health workers wearing painted nails or nail extensions. Failure to comply with isolation precautions, poor standards of cleaning in the near patient environment, not changing PPE between patients, and poor management of sharp instruments had each been witnessed by over half the sample.

Qualitative data

One hundred three (21.2%) student nurses offered additional comments. Six of these (5.8%) reported witnessing good levels of compliance. The remainder described up to 6 examples of poor compliance, often in considerable detail. Conduct in relation to isolation precautions and aseptic technique was heavily criticized. Poor compliance was most frequently reported from community settings and long-stay facilities for older people. Qualified nurses were often criticized for poor practice, usually in relation to