



Interprofessional infection control education using standardized patients for nursing, medical and physiotherapy students



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ABSTRACT

Background: Health professions students may apply infection control principles poorly within complex clinical situations. Providing opportunities to practice these skills in simulated health care contexts may improve knowledge and transfer to improved performance in actual clinical settings.

Objective: To implement an innovative approach to interprofessional infection control education using standardized patients.

Methods: A convenience sample of 237 students participated in an interactive lecture and four standardized patient scenarios. Students collaborated and selected supplies and protective equipment to demonstrate the appropriate level of infection control practices for each clinical scenario.

Results: Learner knowledge ($p = .001$) and confidence ($p < 0.05$) performing infection control skills increased significantly. Student participants identified varying levels of comfort with interprofessional teamwork and communication, but valued both the interprofessional component and use of standardized patients in the session.

Conclusions: Overall, student and facilitator feedback about learning was positive. Results will inform the structuring of future IP simulation and infection control education sessions.

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Introduction

An intermediate level interprofessional education (IPE) session focusing on infection control skills was developed and held for Faculty of Health Sciences (FHS) students. The objective was to enhance patient welfare and safety related to infection control and to prepare learners to transition to cohesive, collaborative, patient-centered practice through an innovative approach to IPE using standardized patient (SP) simulations. Collaborative practice is designed to enhance patient- and family-centered goals and values, provides mechanisms for continuous communication among care givers, optimizes participation in clinical decision making within and across disciplines, and fosters respect for the contributions of all disciplines. Increasing the number of health professionals

educated within this paradigm will be a key contribution to improved access and quality of all health care services. This has been underlined as an essential ingredient in primary health care reform.¹ Simulation-based IPE aligns with our FHS Framework for IPE in which learners engage in a developmental process of acquiring IP competency by engaging in activities at the exposure, immersion and competence levels within their curriculum.² Simulation-based IPE thus provides an immersion experience that helps prepare learners to work collaboratively in their professional practices.

A partnership between the Schools of Nursing, Rehabilitation Therapy, and Medicine within the FHS was previously involved in the development, implementation, and evaluation of a series of innovative IPE modules using high-fidelity patient simulation.^{3–5} Three of the four modules (suctioning skills, obstetric and pediatric skills, and cardiac resuscitation skills) have been successfully integrated into the respective curricular programs. The fourth module on application of infection control skills within a complex

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patient care scenario was trialed with a group of senior students from the three schools.⁶ Although the individual schools within the FHS each have knowledge- and skills-based individual infection control education early in their programs, the results of the evaluation of this fourth IPE module suggested that health professional students needed more practice and reinforcement of infection control skills within a variety of simpler clinical practice settings, prior to progressing to the complex senior-level scenarios, and prior to the transition from student to health care professional. The current project proposed to develop, implement, and evaluate an IPE infection control module for intermediate level health sciences students using SPs.

Background

Use of combined simulation and interprofessional learning

Core collaborative competencies such as communication and teamwork can be improved through IPE.^{7,8} There is evidence that IP learning is enhanced when students see a direct relevance between the educational experience and their future practice.⁹ Experiential learning, defined as “learning that takes place as a result of an encounter with an experience that is planned by instructors within a course, program or curriculum,”¹⁰ has been used extensively and effectively in IPE. Simulation-based education offers increased relevance of training, exposing health professional students to clinical challenges prior to being responsible for similar real-life encounters.¹¹ Simulation in education refers to the re-creation of an event that is as close to reality as possible. Clinical scenarios may be developed, in which students must contend with the same complexity of interacting and unanticipated physiological, psychological and social variables that they do in real clinical practice. They must integrate the full range of knowledge, skills, attitudes and behaviors to respond effectively, safely, and with caring. They are also able to observe the outcomes of their clinical decisions and actions and reflect upon and learn from their mistakes, a powerful educational principle.¹¹

The overall aim of simulation-based IPE is to improve patient safety and quality of care.¹² Involving health professions students in IP simulation training allows them to act as a part of a team, and provides an opportunity to foster communication, collaboration and leadership.^{13,14} Research has demonstrated that IPE employing high-fidelity simulation improves team-based attitudes and competencies with retention over time.¹⁵ As well, there is growing research evidence of the transferability of competencies learned through simulation to the clinical practice setting.^{16–19}

Use of standardized patients as a mode of simulation education

The use of SPs is one form of simulation that can be used in clinical education. SPs are individuals carefully trained to present health or illness concerns in a systematic, unvarying manner. Specific role-playing instructions for the SP include standard and spontaneous response statements to possible questions the students may pose. The script is consistent with specific health concerns, as well as extraneous information to permit the student to determine appropriate care. The SP is encouraged to create necessary emotional responses to the scenario, ultimately producing a realistic patient care scenario that mimics those a learner may encounter in a real-world setting.^{20,21}

Standardized patients have been used in the education of health professions students, mainly to teach communication and clinical skills.²² Within the health care education literature, the majority of studies reported changes in learner knowledge, attitudes and skills, and very few reported changes in learner behaviors.²² Standardized

patients have been linked to improved communication, physical assessment, health teaching and clinical skills, enriched cultural assessments and improved health screening.^{23–31} Standardized patients have been used successfully in nursing health assessment courses and one study demonstrated that the introduction of an SP improved learners' behavioral performance on videotaped examinations.²⁰ The use of SPs in education has been associated with reduced learner anxiety while caring for patients in the clinical setting,³² and communication skills learned during SP scenarios have also been demonstrated to transfer across cases into different clinical situations.^{24,33} As well, SP scenarios provide the opportunity for IP groups of learners to share problem solving strategies and practice communicating with other health care professionals.³⁴

Use of interprofessional education to practice infection control skills

Infection control practices are a suitable topic for an IPE module as these competencies are shared amongst all health care professionals. Hospital-acquired infections are a major cause of morbidity and mortality. Adhering to evidence-based infection control practices can prevent many of these infections, contributing to improved patient outcomes and decreased health care costs³⁵; however, knowledge and practice deficits related to infection control practices such as hand hygiene have been documented amongst health sciences students.^{36,37}

Health sciences students are introduced to infection control practices in their respective programs. However, as our previous infection control skills module demonstrated, students may apply infection control principles poorly within the context of a more complex clinical situation.⁶ Providing pre-licensure health sciences students with opportunities to practice these skills in simulated health care settings may improve their knowledge and transfer to improved performance in actual clinical settings.

Purpose

The purpose of this project is to enhance patient welfare and safety by creating and implementing an innovative approach to infection control education through IP simulation using SPs that will contribute to preparing learners for cohesive, collaborative, patient-centered practice. Specific learning outcomes for the IPE infection control module are the following:

- (1) Health sciences students will identify and/or demonstrate appropriate infection control practices and/or identify errors or breaches of infection control practices related to standardized clinical situations.
- (2) Health sciences students will identify and/or demonstrate respectful and appropriate IP communication and collaboration.

Methods

Sample

A convenience sample of 237 intermediate level health sciences students participated in the session. Of these, 100 were first-year medical students, 87 were second-year nursing students, and 50 were second-year physiotherapy students.

Ethics

This study received approval from the Queen's University and Affiliated Teaching Hospitals Health Sciences Human Research Ethics Board. Informed consent was obtained from all participants.

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