Innovative Training for Occupational Health and Infection Control Workplace Assessment in Health Care

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ABSTRACT

A user-friendly, high quality workplace assessment field guide and an accompanying worksheet are invaluable tools for recognizing hazards in the hospital environment. These tools ensure that both front line workers as well as health and safety and infection control professionals can systematically evaluate hazards and formulate recommendations. This South African example illustrates how role play and pictorial guided orientation can empower workers to use these tools in response to complex political, cultural and environmental factors.

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INTRODUCTION

Consistent application of infection control principles across the health care spectrum is crucial to protect patients and health workers alike. There is increasing recognition that preventing infectious disease transmission in health care must take into account the principles and state-of-the-art practices in infection control as well as occupational health.[1] In response to this recognition, audit tools have been developed to assist occupational health and infection control practitioners to assess workplaces for compliance with good practices.[2] A field guide and its companion assessment worksheet, originally from an infection control audit[2] but expanded with respect to other occupational health concerns,[3] was piloted and validated for use in low and middle income countries such as South Africa.[4] Its intent was to provide a template for consistent identification of potential workplace hazards, assessment of risk, a process for prioritization and assignment of responsibility with timelines for completion. These tools were revised based on pilot testing in a South African hospital,[4] and were intended to be introduced in clinical units within two hospitals in the Free State Province to train practitioners on their use in real settings. An unanticipated public sector strike[5] led to the need to change the training format – as access to the health care facilities during this time was not possible. Building on studies that have shown the effectiveness of interactive training, including the use of role play,[6 7] and the extensive work conducted using role play in training in occupational health and safety,[8] we decided to rapidly develop an alternate training approach using role playing and pictorial guided orientation. The methods and results of this training exercise are detailed below.

MATERIALS AND METHODS

A case scenario using an Emergency Department was developed (see Case Study for detailed case instructions). Prior to its use, nine occupational health and infection control practitioner trainees from two target hospitals were given a presentation on basic principles of occupational health and infection control, completed an Online Basic Infection Control module and quiz (available online at www.Picnetbc.ca), participated in exercises illustrating correct hand hygiene technique, were able to prac-

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tice the correct use of personal protective equipment, and oriented to the field guide and workplace assessment worksheet or checklist (available on-line at www.ghrpinnovation.com). The field guide lists 206 possible hazard codes, grouped as shown in Table 1, in a manner that enables users to quickly find the code that best corresponds with a given hazard. These codes were developed in collaboration with colleagues from South Africa, various regions of Latin America and individuals from the World Health Organization and the International Labour Organization.

After this 1.5 day orientation held at the local university, a half-day session using the newly developed case scenarios was conducted to train the practitioners on how to conduct a workplace inspection in an Emergency Department. Four distinct areas within the unit: Triage, a cubicle in Acute Treatment, the Medication Room and the X-ray suite were pictorially illustrated on large poster-sized paper (see Figure 1 photos) and designed to display specific hazards as well as deliberately omitting key safety features. The scene was set using the case scenarios and roles were assigned. Researchers acted the parts of the unit supervisor, triage nurse, isolation room nurse and radiology technologist, and trainees were assigned the role of health and safety representatives responsible for workplace assessments. Dialogue was encouraged and unscripted, allowing for dynamic verbal interaction between the instructors/researchers and the trainees in their respective roles.

The trainees were taught how to conduct a workplace assessment by following nine steps: (1) Prepare and gather information; (2) Look for hazards; (3) Identify concerns and best practices – record the information; (4) Assess the risk; (5) Identify prevention and control measures, (6) Prioritize (rank) concerns; (7) Summarize findings; (8) Revise and share; and (9) Follow up and monitor. The trainees were then told that each area within the unit had obvious hazards, hazards of omission, as well as "model" practices. They were instructed to use the field guide and worksheet to identify and code the hazards and were encouraged to attach stickers to the illustrations to highlight any deficiencies. The researchers kept a record of the hazards identified and missed. Following the workplace site inspection, the trainees were instructed to rank the risk of at least seven of the hazards and to prioritize them without assistance by research staff. Researchers then rejoined the group and questions were answered regarding the process. The trainees were then provided feedback.

To ascertain whether the first group would be competent enough to train the second group using the same technique, the same process was repeated two days later at which time the trainees became the trainers for seven other occupational health and infection control practitioners from the same two hospitals who had participated in the field guide orientation sessions but had not already attended the case scenario. Figure 2 shows participants assessing the mock triage area for hazards.

The evaluation methods consisted of observations by the research team and scoring of the participants, and most importantly, engaging in discussion with the trainees regarding their own rating of the effectiveness of this technique.

RESULTS

Table 2 displays the hazards portrayed in the clinical scenarios, by risk category and by specific hazard codes for both training sessions. Trainees had an overall score of 75% for both sessions, which was distributed among the different hazard categories. Trainees asked good questions, and the second session demonstrated that the first group grasped the technique very well. Most importantly, trainees indicated that they preferred the freedom to openly and animatedly discuss the hazards they had identified, debate how they should be coded, and actively point out noncompliant staff. They felt that the ability to apply stickers to the hazards (including placing stickers on noncompliant staff actors) reinforced their learning. Particularly helpful was the ability to review the hazards with the research staff following the initial assessment, see where

Table 1. Workplace Assessment Field Guide for Health care Table of Contents

hazards had been missed, discuss the model practices, and offer suggestions for improvement to the field guide, without inhibition that would likely be present in a real clinical setting. Participants also noted that they felt less constrained by the pressures of time that would be experienced on a busy unit during a practice session.

Figure 1. (Clockwise L-R): Triage, Acute Treatment Patient Room, Medication Room and X-Ray Suite Posters Used for Role Playing Settings

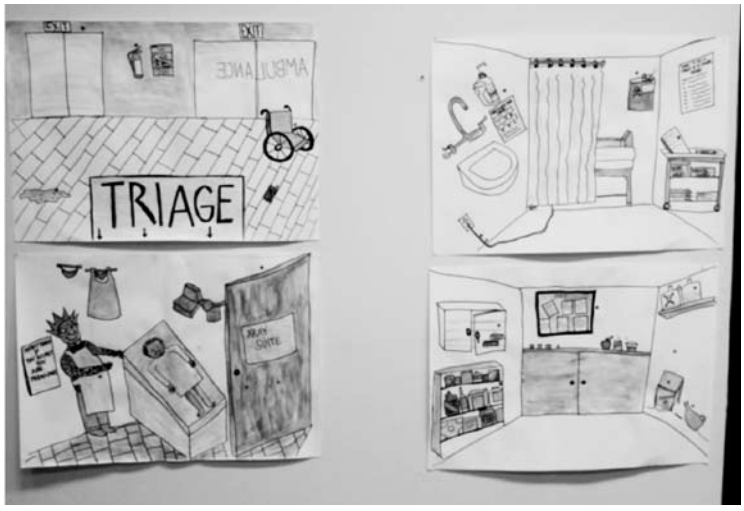

Figure 2. Health Care Workers Participating in a Mock Workplace Assessment in Bloemfontein, South Africa

DISCUSSION

Infection control to protect South African health care workers was recently highlighted by a study revealing the high risk of multiple-drug resistant tuberculosis in South African health workers;[9] conducting workplace assessments (also referred to as audits or inspections) constitutes an objective way to identify gaps in occupational health or infection control practices, document areas for improvement and implement change management processes.[10] A user-friendly, high quality workplace assessment field guide is potentially a valuable tool for ensuring that both the front line workers, as well as occupational health and infection control personnel, can systematically and readily recognize hazards in the hospital environment. However, it is unknown how to train practitioners to use these tools. The research team had previously speculated that the ideal teaching method would be actual on-site training, following from the philosophy of community-based learning,[11] and this is what we had used previously in other settings.[7] While the evaluation was not rigorous, with no pre-versus-post evaluation with concurrent comparison group, the observations of the team and comments of the trainees were convincing as to the superiority of the approach using role play. While necessity dictated the change, it proved to be the "mother of invention" in that the trainees indicated that this approach offered considerable advantages over actual training in real clinical settings. The researchers concurred and will now adopt this method even if there are no external barriers to training in real clinical settings.

As has been pointed out by experts in theatrical techniques, a danger in use of role play is inadvertently stereotyping the various characters involved[12] (e.g., in this case, the union health and safety representative, a busy manager, a patient with dementia, etc.). While our experience supports others who illustrate the usefulness of role play, we hasten to add that in using this technique it is essential to highlight the diversity in possible responses and attitudes of each player. Providing the freedom of the trainees to adopt whatever persona they wish in playing these roles is an important part of the exercise and needs prior discussion. We found in our scenarios that the discussion of the attitudes role played was indeed an important part of the exercise, and provided an opportunity to better understand the potential perspectives of each of the parties. Indeed using interactive methods such as role play provides a very rich training opportunity that may be absent from real-scenario teaching.

Field research can often be complicated by political, cultural and environmental

Table 2. Mock Workplace Assessment Results

Hazard Code	Items Identified	
	Session 1	Session 2
Emergency Department Triage Area		
100 (a) Floors slip-proof	x	x
100 (b) Floors, walls, doors, shelves, windows clean and intact	x	x
100 (c) Floors and doors clear of obstructions	x	x
103 (e) Fire extinguisher regularly inspected	x	x
202 (a) Measures in place for reporting workplace violence	x	x
202 (b) Procedures for handling aggressive patients	x	x
202 (d) Staff identification badges worn		x
202 (e) Contact numbers for Security posted	x	x
202 (f) Security available and immediately accessible	x	x
202 (g) Access is controlled (staff id to restrict access)		
202 (i) No working alone	x	x
Missing codes – food in the workplace (404)	x	x
Total Identified	10/12	11/12
Emergency Department Treatment Area		
100 (g) No cords on floors or other tripping hazards	x	x
101 (e) Electrical outlets well located	x	
104 (e) Medications stored in their proper place	x	
104 (h) Patient information organized and kept confidential	x	x
202 (d) Staff identification badges worn		x
400 (e) Antiseptic soap available		x
400 (g) Single use or paper towels available	x	x
402 (b) Needles not recapped		
402 (c) Sharps containers not overfilled (2/3 full)	x	x
403(b) Instructions for personal protective equipment posted		x
403 (c) Infection control protocols for categories of isolation available and understood	x	x
403 (d) Effective education and training in all infection control procedures	x	x
Missing codes – observed noncompliance with hand hygiene (400 f)	x	
Missing codes - observed noncompliance with or inappropriate glove use (400g)	x	
Total Identified	10/14	9/14
Medication Room		
104 (e) Medications locked up securely	x	x
104 (e) Medications labeled with the patient's name	x	x
104 (i) Work areas free of clutter		x
105 (b) Hazardous chemicals: labels and MSDS	x	x
400 (a) Number of sinks present in area		
300 (a) All chemical containers labeled	x	x

Continued

Table 2. Mock Workplace Assessment Results (Con't)

Hazard Code	Items Identified	
	Session 1	Session 2
603 (c) Work stations designed to reduce excessive reaching	x	
Missing code – appropriate storage of biohazardous waste (302 f)		
Missing code - Clear separation of clean and dirty items/spaces (404)	x	
Total Identified	7/9	5/9
X-Ray Suite		
503 (a) Room properly marked	x	x
503 (b) Room doors closed when equipment in use	x	x
503 (e) Personal dosimeters worn by workers	x	x
503 (h) Lead aprons and collars worn		x
503(k) Lead aprons clean and intact	x	x
Total Identified	4/5	5/5
Model safety features included a) documentation of Occupational Health and Safety forms and Acts (although trainees correctly noted that the staff bulletin board was not readily accessible to all staff) and b) the isolation cart storing personal protective equipment		
Final Score:	31/41	30/40

factors that necessitate rapid adaptation and improvisation.These events need not be impediments and can, in fact inspire innovation and lead to unanticipated improvements in training and practice.

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REFERENCES

1. World Health Organization. (2004). *Practical guidelines for infection control in health care facilities*. Geneva, Switzerland.

2. Bryce E, Scharf S, Walker M, Walsh A. The infection control audit: the standardized audit as a tool for change. *Am J Infect Control*. 2007;35(4):271-283.

3. Lavoie MC, Yassi A, Bryce E, Fujii R, Logronio M, Tennassee M, et al. International collaboration to protect health workers from infectious diseases in Ecuador. *Rev Panam Salud Publica*. 2010;27(5):396–402.

4. Yassi A, Nophale L, Dybka L, Bryce E, Kruger W, Spiegel J. Building capacity to secure healthier and safer working conditions for healthcare workers: A South African-Canadian collaboration. *Int J Occup Environ Health*. 2009;15:360–369.

5. Dugger CW. Labor Unrest Empties South African Hospitals. New York Times. Available from:http://www.nytimes.com/2010/08/28/world/africa/28safrica.html?_r=1&ref=southafrica.

6. Davis D, Thomson O'Brien MA, Freemantle N, Wolf FM, Mazmanian P, Taylor-Vaisey A. Impact of formal continuing medical education. *JAMA*. 1999;282:867-874.

7. Yassi A, Kjellstrom T, De Kok T, Weinger M. Teaching basic environmental health in universities utilising an interdisciplinary holistic approach and interactive learning methods. *EcoHealth*. 1997;3(3):143-153.

8. Wallerstein N, Weinger M. Introduction: Health and safety education for worker empowerment. *Am J Ind Med*. 1992;22(5):619-635.

9. O'Donnell M, Jarand J, Loveday M, Padayatchi N, Zelnick J, Werner L, Naidoo K, Master I, Osburn G, Kvasnovsky C, Shean K, Pai M, Van der Walt M, Horsburg C, Dheda K. High incidence of hospital admissions with multidrug-resistant and extensively drug-resistant tuberculosis among South African health care workers. *Ann Intern Med*. 2010;153:516-522.

10. Flanagan P. Current standards for infection control: audit assures compliance. *Br J Nurs*. 2008;18(16):970-975.

11. Wallerstein N, Duran B. Using community based participatory research to address health disparities. *Health Promot Pract*. 2006;7(3):312-323.

12. Spiegel JB, Yassi A. Theatre of alliances? Role-play, representation, and ecosystem health in Ecuador. *Theatre Topics*. 2007;2:129-140.