



ELSEVIER

Contents lists available at ScienceDirect

American Journal of Infection Control

journal homepage: www.ajicjournal.org

Major article

Sharps injury prevention guidance among health care professionals: A comparison between self-reported and observed compliance


 Yu Gyeong Kim MSN, RN^a, Ihn Sook Jeong PhD, RN^{b,*}, Soon Mi Park PhD, RN^c
^a Department of Nursing, Pusan National University Hospital, Busan, South Korea^b College of Nursing, Pusan National University, Yangsan, South Korea^c Department of Nursing, Pusan National University Yangsan Hospital, Yangsan, South Korea**Key Words:**
 Needlestick injuries
 Double gloving
 Hands-free technique

Background: This study was performed to compare self-report and observation methods for measuring compliance with double gloving (DG) and the hands-free technique (HFT).

Methods: The participants were 81 health care professionals (29 nurses, 52 doctors) working in 22 operating rooms in a tertiary hospital in Busan (South Korea). All participants were asked to complete a self-report questionnaire. Additionally, compliance with DG and the HFT was observed from March-May 2014. Data were analyzed using descriptive statistics, χ^2 test, and κ statistic using SPSS version 18.0 (SPSS, Chicago, IL).

Results: The participants who always complied with DG and the HFT were 30.9% and 7.7% according to the self-report method, respectively, and 30.9% and 0.0% according to direct observation, respectively. The κ value comparing the self-report and observation methods was 0.557 for all study participants, 0.259 for nurses, and 0.668 for doctors for DG. The κ value was 0.027 for all participants, 0.131 for nurses, and 0.020 for doctors for the HFT.

Conclusion: DG compliance and HFT compliance showed moderate and low levels of agreement between the 2 methods, respectively. Doctors showed higher agreement than nurses between the 2 methods for DG compliance but similar to nurses for HFT compliance. Therefore, the levels of compliance with DG may be measured by either the self-report or observation methods for doctors.

Copyright © 2015 by the Association for Professionals in Infection Control and Epidemiology, Inc. Published by Elsevier Inc. All rights reserved.

Injuries by sharp objects in which victims are pierced by needles or sharp devices applied to patients occur very frequently in health care settings, especially among health care professionals who work in operating rooms.¹⁻⁴ In a survey of health care professionals ($n = 378$) conducted in South Korea, 48.7% of the subjects (81.3% of doctors, 55.9% of nurses) experienced sharps injury, and most respondents worked in operating rooms.¹ In a study of nurses ($n = 276$), the occurrence rate of sharps injury was 53.6%.² Health care professionals working in operating rooms had a higher rate of occurrence compared with ones working in internal medicine or surgical wards. In a study involving a questionnaire administered to surgeons in training ($n = 699$) in the United States, 83% of the subjects indicated that they had experienced sharps injury during their training.³ A questionnaire given to health care professionals

($n = 136$) who participated in operations at a national hospital in the United Kingdom showed that 38.8% of doctors and 11.6% of nurses had experienced sharps injury in the last year.⁴

The high frequency of sharps injury increases the risk of bloodborne infections among health care professionals, and actual infection can occur in 10%-60% of individuals when appropriate follow-up measures are not taken after exposure to hepatitis B virus.⁵ Therefore, strict prevention of sharps injury is extremely important. The Association of Perioperative Registered Nurses⁶ prepared a guidance on sharps injury prevention in the perioperative setting. For prevention of sharps injury that occurs during operations, the organization recommends double gloving (DG), use of a hands-free technique (HFT), speaking out loud when handing over a sharp medical device, paying attention to the operation field and sharp tools, and use of blunt suture needles.

Gloves worn during operations can be perforated by fine devices, suture needles, injection needles, electric cautery, sharp devices, and biologic structures such as bones. Approximately 82% of perforations are not recognized by operation teams, and bacterial migration has been confirmed in approximately 5% of gloves with

* Address correspondence to Ihn Sook Jeong, PhD, RN, College of Nursing, Pusan National University, 49 Busandaehak-ro, Mulgeum-eup, Yangsan-si, 602-739, South Korea.

E-mail address: jeongis@pusan.ac.kr (I.S. Jeong).

Conflicts of interest: None to report.

perforations.⁷ The perforation rate is significantly reduced from 25.0% for a single pair of gloves to 8.9% for DG,⁸ and visible contamination of hands is reduced from 42.1% with a single pair of gloves to 22.7% for DG.⁹ Therefore, DG is recommended for preventing sharps injury during surgical procedures.¹⁰⁻¹²

For the HFT, sharp medical devices that can cause injury to operating surgeons and scrub nurses are placed in a designated position¹³ instead of handing them over from hand to hand. For operations during which blood loss of 100 cm³ or more occurs, there is a significant difference in the occurrence rate of sharps injury from 10% without the HFT to 4% with the use of the HFT.¹³ The occurrence rate of sharps injury reportedly decreases by 35%¹⁴ to 59%¹³ when the HFT is used $\geq 75\%$ of the time.

Because DG and use of the HFT are effective for preventing sharps injury during operations, health care professionals are required to practice these methods. In previous studies, the rate of DG among health care professionals of South Korea who participate in operations was between 13.8%¹⁵ and 18.8%.¹⁶ The rate of health care professionals who responded that they use the HFT 100% of the time was reportedly 1.9%¹⁷ for South Korea and 19%¹³ for other countries. It is notable that previous studies on the level of compliance with DG and the HFT were done by a self-report method, not by direct observation.

The compliance with DG and the HFT may be influenced by the survey methods, and the current compliance level of the 2 practices may not represent the accurate levels considering the previous studies. For example, the compliance with hand hygiene procedures was higher in the self-report method than was directly observed, and better food handling and hygiene practices, than was observed on videotapes.^{18,19} Direct observation is recommended for use for measuring hand hygiene compliance by the World Health Organization.²⁰ Because DG and the HFT are recommended behaviors to reduce risk of sharp injuries as hand hygiene is recommended to reduce risk of infection, the accurate compliance level of the 2 practices could be attributed to the use of different survey methods.

Therefore, this study was aimed to investigate and compare the level of compliance with DG and HFT regulations among health care professionals (doctors and nurses) who participated in operations using self-report and observation methods. The specific purposes of study were as follows:

- (1) To examine the level of compliance with DG and HFT guidelines among health care professionals using a self-report method;
- (2) To examine the level of compliance with DG and HFT regulations for health care professionals using an observation method; and
- (3) To examine agreement in the levels of compliance with DG and the HFT measured by the self-report and observation methods.

METHODS

Design

In this study, 2 survey methods (a self-report technique and observation method) were used to examine and compare the level of compliance with DG and the HFT for health care professionals who participated in operations.

Participants

Subjects selected for this study were health care professionals working in operating rooms at a university hospital located in Busan (South Korea). These individuals included doctors and nurses who participated in surgical operations between March 28 and April 7,

2014, and were evaluated with both the self-report and observation methods. Among the 154 doctors and 57 nurses who participated in operations at the hospital, 118 doctors and 56 nurses ($n = 174$) provided written consent to participate in the self-report method. Subjects for the observation method were selected among individuals assessed by the self-report method that participated in 5 operations during the data collection period. Operations performed during this study were ones carried out for >30 minutes and <4 hours. Non-incision operations, procedures involving local anesthesia that did not require high level of infection prevention, and emergency operations that are difficult to observe were excluded.

Subjects for the observation method were limited to individuals who participated in at least 5 operations to increase stability of the data. For example, if DG was only observed once, the result could only be classified as worn or not worn and presents a limitation for examining the general practice of DG. Therefore, more stable and ordinary compliance findings were expected from repeating the observations at least 5 times. On the other hand, the self-report questionnaire asked how many times DG was performed during the 5 operations. Accordingly, subjects for the observation method needed to participate in at least 5 operations during the survey period; those who participated in <5 procedures were excluded. As a result, 52 doctors and 29 nurses ($n = 81$) were selected for the observation method. This number corresponded to 46.6% of the subjects subjected to the self-report method. Eighty-one subjects participated in 244 operations. Out of these procedures, 405 cases were observed for DG, and 16,021 cases were evaluated for the HFT.

Instruments

In this study, a self-report questionnaire and observation checklist were used as study tools.

Self-report questionnaire

The self-report questionnaire was used to survey general characteristics of the subjects along with compliance with DG and the HFT. General characteristics included sex, age, clinical experience, educational background, exposure to sharps injury prevention guidance, and necessity for practicing DG and the HFT. Compliance with DG and the HFT was evaluated with a 4-point scale based on how often DG or the HFT was performed by the study subjects. Responses included always (5 out of 5 operations), mostly (3-4 out of 5 operations), sometimes (1-2 out of 5 operations), and rarely (none of the 5 operations).

Observation checklist

An observation checklist was used so that a third person could observe and record whether the study subjects actually performed DG and the HFT. The checklist for DG had a table containing 2 columns and 5 rows to indicate whether DG was practiced or not practiced during the 5 operations. The checklist for the HFT selected 6 surgical devices associated with a high occurrence of sharps injury (surgical knife, suture needle, cautery tip, forceps, trocar, and injection needle) to determine whether the HFT was practiced or not practiced when using the corresponding devices. To select the 6 surgical devices with a high occurrence of sharps injury, instruments reported to have a high frequency of sharps injury in the literature²¹ were included in the study and evaluated for validity by 10 nurses with >10 years of experience in operating rooms.

Data collection

Data collection was performed after obtaining approval from Pusan National University Institutional Review Board (H-1401-018-014). The operation schedules of the institution along with the doctors

Download English Version:

<https://daneshyari.com/en/article/2636725>

Download Persian Version:

<https://daneshyari.com/article/2636725>

[Daneshyari.com](https://daneshyari.com)