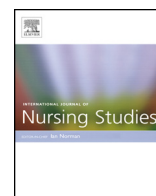




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Practices and impacts post-exposure to blood and body fluid in operating room nurses: A cross-sectional study



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ABSTRACT

Background: Improper or inadequate actions taken after blood and body fluid exposures place individuals at risk for infection with bloodborne pathogens. This has potential, significant impact for health and well-being.

Objectives: To evaluate the practices and the personal impact experienced following blood and body fluid exposures among operating room nurses.

Design: A cross-sectional, multi-center study.

Settings: Government and private hospitals from all parts of Thailand.

Participants: Operating room nurses from 247 hospitals.

Methods: A questionnaire eliciting responses on characteristics, post-exposure practices, and impacts was sent to 2500 operating room nurses.

Results: Usable questionnaires were returned by 2031 operating room nurses (81.2%). Of these 1270 had experience with blood and body fluid exposures (62.5%). Most operating room nurses did not report blood and body fluid exposures (60.9%). The major reasons of underreporting were low risk source (40.2%) and belief that they were not important to report (16.3%). Improper post-exposure practices were identified, 9.8% did not clean exposure area immediately, 18.0% squeezed out the wound, and 71.1% used antiseptic solution for cleansing a puncture wound. Post-exposure, 58.5% of them sought counseling, 16.3% took antiretroviral prophylaxis, 23.8% had serologic testing for hepatitis B and 43.1% for hepatitis C. The main personal impacts were anxiety (57.7%), stress (24.2%), and insomnia (10.2%).

Conclusions: High underreporting, inappropriate post-exposure practices and impacts of exposure were identified from this study. Comprehensive education and effective training of post-exposure management may be keys to resolving these important problems.

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What is already known about the topic?

- Operating room nurses are at high risk for occupational blood and body fluid exposures.
- Prompt reporting of all occupational blood and body fluid exposures among operating room nurses is critical to ensure appropriate post-exposure management.
- Inappropriate or inadequate actions taken after blood and body fluid exposures increases risk for infection with bloodborne pathogens.
- Blood and body fluid exposure is associated with unpleasant side effects of antiviral drugs and infection risk. It also increases medical expenses for exposed personnel.

What this paper adds

- This is the first national study in Thailand to demonstrate high underreporting, inappropriate post-exposure practices and impacts of blood and body fluid exposures among operating room nurses.
- Immediately after exposure some appropriate actions were taken by some operating room nurses, however, few pursued serologic testing for hepatitis B or C and none had testing for human immunodeficiency virus.
- Results indicate the need for comprehensive training that includes practice in appropriate post-exposure actions and preventive actions such as vaccination against hepatitis B virus to prevent bloodborne infections and other negative health consequences among operating room nurses.

1. Introduction

Operating room nurses are recognized to be at high risk for occupational blood and body fluid exposures through needlestick injuries, sharp injuries and splashes (Clark, 2007; Cutter and Jordan, 2012; Jagger et al., 2011). The estimated occupational risks for human immunodeficiency virus, hepatitis B virus, and hepatitis C virus after a single percutaneous exposure are 0.3%, 6–30%, and 2–4%, respectively (Centers for Disease Control and Prevention, 2008). The risk of transmission depends on several factors such as depth of injury, amount of blood, source-patient risk, host immunity, and post-exposure practice and management (Centers for Disease Control and Prevention, 2008). Several organizations have developed guidelines and procedures for the management of occupational blood and body fluid exposures (Centers for Disease Control and Prevention, 2008; Centre for Healthcare Related Infection Surveillance and Prevention (CHRISP), 2014; New York State Department of Health AIDS Institute: www.hivguidelines.org, 2015; Sheffield Occupational Health Service, 2011; The Blood and Body Fluid Exposure Hotline, 2015). After exposure to blood and body fluid exposures, the following actions should be performed immediately. These include washing the area with soap and water; reporting the incident to the occupational health and safety services or infection prevention and control units; identifying the source patient and who may need to be tested for human immunodeficiency virus, hepatitis B virus, and hepatitis C virus; getting

post-exposure counseling; reporting to the designated treatment facility; conducting baseline testing for human immunodeficiency virus, hepatitis B virus, and hepatitis C virus after obtained informed consent; if necessary, taking post-exposure prophylaxis for human immunodeficiency virus, in accordance with the guidelines and starting antiretroviral prophylaxis within 2 h after exposure. Subsequently actions are to continue the antiretroviral drug according to physician advice and monitoring of antiretroviral adverse events; practice of safe sex until follow-up testing is complete; and follow-up with post-exposure testing at 1 month, 3 months, and 6 months, and in some cases 1 year (Centers for Disease Control and Prevention, 2008; Centre for Healthcare Related Infection Surveillance and Prevention (CHRISP), 2014; Sheffield Occupational Health Service, 2011; The Blood and Body Fluid Exposure Hotline, 2015). One recent guideline suggests that routine testing at 6 months post-exposure is no longer recommended (New York State Department of Health AIDS Institute: www.hivguidelines.org, 2015). In critical cases, in-depth counseling should be provided (Centers for Disease Control and Prevention, 2008; Centre for Healthcare Related Infection Surveillance and Prevention (CHRISP), 2014; Sheffield Occupational Health Service, 2011; The Blood and Body Fluid Exposure Hotline, 2015).

However, the effectiveness of guideline and procedure implementation relies on timely reporting of incidents. Timely reporting helps to initiate proper actions and management immediately after exposure in order to reduce the risk of infection with bloodborne pathogens (Centers for Disease Control and Prevention, 2008; Centre for Healthcare Related Infection Surveillance and Prevention (CHRISP), 2014). Unfortunately, the occurrences of blood and body fluid exposures are underreported. Estimates of the underreporting rate for needlestick injuries and sharp injuries suggest it is between 27 and 78% (Au et al., 2008; Azadi et al., 2011; Fullerton and Gibbons, 2011; Kessler et al., 2011; Nagao et al., 2009; Voide et al., 2012) whereas mucocutaneous exposures are not reported at 83% (Kessler et al., 2011). The reasons of underreporting are being busy or lack of time (Au et al., 2008; Kessler et al., 2011; Voide et al., 2012), believed low risk (Kessler et al., 2011; Voide et al., 2012), lack of knowledge about reporting procedures (Kessler et al., 2011), the need to complete excessive paperwork (Au et al., 2008), fear of post-exposure prophylaxis (Kessler et al., 2011), and dissatisfaction with follow-up investigations (Azadi et al., 2011).

In Thailand, most operating room nurses are registered nurses, bachelor of nursing science degree or equivalent (a four-year program). Some of them are technical nurses (a two-year program), practical nurses (a one-year program), and nurse assistants or nurse aides (a six-month program). All of them are trained approximately 1–4 h about prevention and control of infection in healthcare settings. Guidelines and procedures for the management of occupational blood and body fluid exposures are taught in some universities/colleges/schools. However, all hospitals in Thailand provide education and/or training about the prevention and post-exposure management of occupational blood and body fluid exposure for new employees

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