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Post-exposure prophylaxis among Ugandan nurses: "Accidents do happen"

J. Mill [a,*], E. Nderitu [b], S. Richter [a]

[a] Faculty of Nursing, University of Alberta, Edmonton, Alberta, Canada
[b] Advanced Nursing Studies, School of Nursing and Midwifery, East Africa, Aga Khan University, Nairobi, Kenya

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ABSTRACT

Purpose: In 2009 we conducted a study to explore Ugandan nurses' practice of universal precautions while caring for persons living with HIV. During our interviews about universal precautions, nurses' also shared their experience with post-exposure prophylaxis (PEP) following needle-stick injuries. We present findings related to nurses' understanding of PEP and their experience with, and reporting of, needle stick injuries.

Background: Nurses have high rates of exposure to blood-borne pathogens. Although there is minimal risk of the transmission of blood-borne pathogens from health care workers (HCWs) to patients and vice versa, post-exposure prophylaxis, has become routine following the occupational exposure of HCWs to HIV.

Methods: Focused ethnography was used to guide the data collection and in-depth interviews were used to collect the data between October and November 2009.

Results: Sixteen nurses from a variety of units in a large teaching hospital participated. Needle-stick injuries were a fairly common occurrence, but written policies were frequently inaccessible to nurses and they did not have adequate knowledge of PEP. Some nurses were reluctant to report injuries and avoided following PEP procedures due to lack of knowledge about PEP, concerns about anti-retroviral side effects and the stigma associated with PEP. Participants were aware of PEP however there was a wide variation in their understanding of the procedure to follow after a needle-stick injury.

Conclusion: Employers have a responsibility to update PEP guidelines and to orientate HCWs to these. Educators must ensure that undergraduate nurses have a comprehensive understanding of universal precautions and current practice for PEP.

1. Introduction

Nurses have prolonged contact with patients and often carry out procedures that place them at increased risk of preventable occupational exposure to blood-borne infections (Kuruuzum et al., 2008; Sadoh, Fawole, Sadoh, Oladimeji, & Sotiloye, 2006). Therefore the Centres for Disease Control (CDC) recommends that nurses and all health care workers (HCWs) practice universal precautions when providing patient care. Universal precautions are a set of guidelines, such as the use of gloves, masks and gowns, to protect patients and HCWs from exposure to pathogens including blood-borne viruses (Center for Disease Control & Prevention, 1987; Sadoh et al., 2006; World Health Organization, 2003). Despite the low risk of transmission of blood-borne pathogens from HCWs to patients and vice versa (Shafran, 2010), should an occupational exposure to HIV occur the use of anti-retroviral therapy, termed post-exposure prophylaxis (PEP), has become routine (Bassett, Freedberg, & Walensky, 2004; Hamlyn & Easterbrook, 2007; Merchant, Moran, & Mount, 2006). PEP refers to the use of a combination of antiretroviral medications for up to 28 days by health workers who have experienced a significant exposure to HIV-infected blood or body fluids (Hamlyn & Easterbrook, 2007). The likelihood of transmission of HIV following occupational exposure is influenced by the type of exposure (e.g., percutaneous needlestick versus mucous membrane injury) and the viral load of the HIV sero-positive patient (Hamlyn & Easterbrook, 2007; Merchant et al., 2006). In 2009 we conducted a study to explore Ugandan nurses' practice of universal precautions while caring for persons living with HIV. During our discussions about universal precautions, nurses' also shared their experience with PEP following needle-stick injuries. In this paper we present findings related to

* Corresponding author. Tel.: +1 888 492 8089; fax: +1 7804922551.
E-mail address: judy.mill@ualberta.ca (J. Mill).

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nurses' understanding of PEP and their experience with, and reporting of, needle stick injuries. Findings related to the practice of universal precautions more generally are reported elsewhere (Nderitu, 2010).

1.1. Background

Nurses, and particularly those in countries where disease burden is high and resources are limited, are at risk of exposure to blood-borne infections from needle-stick injuries. Phillips, Chung, and Perry (2012) reported a high rate of sharps injuries among 442 Zambian HCWs, with nurses having the highest number of injuries (244/346 nurses). In a study with 428 Indian HCWs Muralidhar, Singh, Jain, Malhotra, and Bala (2010) reported that 80% ($n = 343$) of participants had experienced a needle-stick injury in the previous year with 100% ($n = 49$) of nurses reporting an injury and 85.3% ($n = 59$) of nursing students reporting a needle-stick injury. Reda, Vandeweerd, Syre, and Egata (2009) examined the use of universal precautions by 330 Ethiopian HCWs and reported that 29% ($n = 96$) of participants had experienced a needle-stick injury in the previous year and 41% ($n = 137$) reported risky practices such as re-capping needles; HCWs with more experience were less likely to have a needle-stick injury. Odongkara et al. (2012) examined the occupational exposure of 235 HCWs in northern Uganda to HIV and reported that 46% (108) of respondents had been exposed to potentially infectious body fluids and that HCWs with more experience were less likely to report needle-stick injuries. Nsubuga and Jaakkola (2005) reported that 57% ($n = 299$) of 526 Ugandan nurses suffered a needle-stick injury in the previous year. Lack of training, long hours, recapping needles, and not using gloves to handle needles were significant risk factors for needle-stick injuries. In a more recent Uganda study (Kamulegeya, Kizito, & Balidawa, 2013) with 209 participants, 38 (18.2%) recently graduate HCWs reported a needle stick injury in the previous 12 months.

There has been limited research to evaluate the efficacy of PEP in preventing HIV following occupational exposure (Bassett et al., 2004; Merchant et al., 2006) and the efficacy has not been demonstrated in a randomized control trial [RCT] (Hamlyn & Easterbrook, 2007). This may be related to the ethical limitations associated with conducting an RCT to evaluate the efficacy of PEP. A case-control study with 33 health workers demonstrated an 81% decline in risk for HIV among individuals who took zidovudine for 28 days post-exposure (Cardo et al., 1997). Recent American guidelines (Merchant et al., 2006) emphasize the need to start PEP as soon as possible after exposure to HIV and the importance of consultation with experts in PEP management following exposure. Although a three-drug PEP regimen is more common than a two-drug PEP regimen in the United States and Europe, Bassett et al. (2004) compared the efficacy of the two approaches, and concluded that completing a two drug PEP regimen might be more beneficial than adding a third drug. Newer drugs such as raltegravir, an HIV integrase inhibitor, may be useful for PEP therapy due to their lower toxicity, potential to delay administration, and ability to suppress the replication of the HIV virus (Marsden, Krogstad, & Jack, 2012). PEP regimens with fewer side effects might improve adherence and encourage HCWs to start, and complete, PEP after exposure to the HIV virus.

Stigma and discrimination related to HIV and AIDS generally, and by HCWs toward persons living with HIV specifically, have been reported not only in low and middle income sub-Saharan Africa countries (Bemelmans et al., 2011; Mill et al., 2013; Rosenburg et al., 2012) but also in high income countries such as Canada (Gardezi et al., 2008; Mill et al., 2009, 2010) and the United States (Yannessa, Reece, & Basta, 2008; Zukoski & Thorburn, 2009). Nurses and other HCWs may be hesitant to access PEP because both steps in the process may be stigmatizing. First, the nurse must agree to have an HIV test and second, if positive, must disclose her status to hospital administration to access PEP treatment. Recent advances in immunization (e.g., for hepatitis B) and antiretrovirals (for HIV) and strict adherence to universal precautions have reduced the risk of transmission from HCWs to patients to very low levels (Bednarsh & Klein, 2003; Shafran, 2010), calling into question the need for mandatory disclosure. Aultman and Borges (2011) argued that the mandatory disclosure of HIV status may actually fuel stigma, while McGinn, Caine, and Mill (2013) suggest that mandatory disclosure of blood-borne pathogens, including HIV, may be related more to the need to assuage the fears of the public than to accurately assess the real risk of transmission.

Based on very limited information about the use of universal precautions by nurses in a low income country such as Uganda, we designed a study to explore this phenomenon. The term universal precautions was used in the current study to focus specifically on the prevention of exposure to blood and body fluids; findings related to Ugandan nurses practice of universal precautions are reported elsewhere (Nderitu, 2010). During the discussion of universal precautions, participants also discussed the use of PEP in their organizations; these findings are reported in the current paper.

2. Methods

Focused ethnography (Morse & Field, 2001) was used to guide data collection and analysis and in-depth interviews were used to collect the data between October and November 2009. Muecke (1994) used the term focused ethnography to mean time-limited exploratory studies in a discrete community or organization, limiting the number of key informants to persons with a store of knowledge and experience relative to the problem or phenomenon of study. Knoblauch (2005) argues that conventional ethnography differs from focused ethnography in the following way; the former is time extensive and the researcher gets deeply involved in the field while in the latter the research is short-term and not continual. Focused ethnography is an appropriate methodology when the researcher plans to explore a shared experience in a narrow and specific area of inquiry (Morse & Richards, 2007; Speziale & Carpenter, 2003) as was the case in the current study. We were interested in exploring the specific area of the practice of universal precautions among Ugandan nurses. While exploring the research question "What is the experience of Ugandan nurses in the practice of universal precautions", participants also shared their experience with PEP following needle-stick injuries.

Ethical approval was obtained from the Makerere University Ethics Committee, the University of Alberta Research Ethics Board (Panel B) and the Uganda National Council for Science and Technology. Administrative approval for the study was obtained from the Ugandan teaching hospital where the study was conducted. Nurse managers placed information letters in clinical units around the hospital and purposeful sampling (Vidich & Lyman, 2011) was used to recruit participants. Informed consent was obtained from those who agreed to participate. The inclusion criteria for the study included nurses: with a minimum of a 2 year education certificate, diploma or bachelor of nursing; working on medical, surgical or casualty units; with at least 1 year of nursing experience; and willing to participate.

Each participant completed one in-depth interview with the second author to explore the practice of universal precautions; the interviews were audio-recorded and transcribed verbatim. The interviews ranged from 40 min to 1 h in length and were conducted in a private room in a large teaching hospital in Uganda between October and November 2009. The researcher took field notes to record impressions of the interviews (e.g. non-verbal