Factors Responsible for Needlestick Injuries to Nurses

Exposures of health care workers to blood borne pathogens through accidental contact with sharp instruments have been widely publicised and the prevention and control of exposure to sharp instruments is a high profile issue. The dominant perspective in the literature and in most agency guidelines is that the transmission of blood borne pathogens from patients to health care workers is largely preventable through the use of universal precautions and special equipment (primarily systems that re-sharpen needles after use and needleless access devices). Exclusive reliance on these strategies is inadequate, however for several reasons.

First, the adoption of universal precautions to date has been far from universal. Studies have shown, for example, that nurses' compliance with universal precautions is affected by the availability of protective equipment, the perceived commitment of management to safety and perceptions regarding the interference of precautions with job performance. Second the adoption of needleless technology can even entirely remove the need for healthcare professionals to handle bare needles and sharp objects.

Third, awareness is increasing that needle-stick accidents, like medical errors, compliances, and other reportable incidents in hospitals, may be related to organizational factors such as staffing and the nurse practice environment as well as staff education and the types of equipment used.

Objectives of the study
- to determine the factors responsible for likelihood of needle-stick injuries in hospital nurses
- to prepare information booklet on needle stick injuries

Methodology:
Analyzed 400 data from a survey conducted in 2001 of nurses working in Govt hospitals in Delhi. A confidential self-administered questionnaire was prepared. The data included exposure to needle stick injuries in last one month and near miss injuries. 400 questionnaires were administered, 364 returned out of which 346 were usable.

Measures:

- Exposures to contaminated sharp objects:
The nurses were asked whether they had ever been stuck with a needle or sharp object contaminated with blood. Those who responded affirmatively were then asked how many times this had occurred and how many of the incidents had occurred in the past month.

- Staffing data:
The number of full time registered nurses positions and the average daily patients census.

- Emotional exhaustion:
The emotional exhaustion subscale of the Maslach Burnout Inventory measures extend to which nurses feel emotionally overwhelmed by their work. Found out to what extent-working conditions of various types have led to a generalized sense of frustration, strain and weariness.

- Risk factors:
Survey instrument also asked nurses a series of questions about how often they re-capped used needles when they cared for patient with

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known or unknown HIV status (with responses ranging across a 4-point scale from “never” to “always”). A further series of questions asked nurses whether certain factors were present on their units that created a significant risk exposure to bloodborne infections, including carelessness and inexperience of other staff and un-cooperativeness of patients. Lastly, nurses were asked to estimate on a 4-point scale ranging from “not very good” to “excellent”, how good a job they thought their hospital had done in providing them with adequate knowledge about AIDS and with supplies in equipments needed to protect themselves.

Results:
The study revealed 18 (5.25%) of the 346 nurses who responded to the questionnaire report a needle stick injury in the previous month. 22 (6.33%) reported injury involving a needle stick containing blood. 86 (24.8%) reported an incident involving a near miss. Nurses working in hospitals with poor work climate and lower staffing levels were substantially more likely to report the presence of risk factors associated with needle-stick injuries. Nurses on units with less adequate resources, lower staffing and less nurse leadership and higher levels of emotional exhaustion were typically twice as likely to report the presence of risks due to staff carelessness and inexperience, patient non-cooperativeness, frequent recapping of needles and inadequate knowledge of supplies.

Discussion:
The analysis presented here suggest that hospital nurses’ exposures to bloodborne pathogens were associated with the organizational characteristics and staffing levels on the hospital units where they worked. Individual nurses’ risks of sustaining percutaneous injuries with used sharps were related to aggregate-level characteristic of their hospital units such that working on units by poor working climate was associated with increased risk of injuries and near misses.

Although needle stick injuries may be reduced by staff education and the use of safer equipment, managers and policymakers trying to alleviate this problem must address the effect of staffing of levels and work environments on these injuries. Nurse education can influence compliance with safer practices by teaching and modeling appropriate behavior, as well as by helping staff to better evaluate the risks and benefits of their decisions.

The recent resurgence of interest in errors and accidents in health care settings heralded by the Institute of Medicine’s 1999 report ‘To Err Is Human’ has been characterized by dismay regarding apparent pervasiveness of quality problem in medical care but also by an optimism that the incidence of misadventures in health care can be reduced by designing better system to prevent, detect and minimize hazards. Although needle stick injuries are not medical errors in the strictest sense, they are like medical error, adverse events that occur in medical settings, and they have been viewed by clinicians and administrators and examined by researchers similarly. Because needle stick injuries serve as proxy for a broad range of safety and quality issues, understanding the organizational context in which they occur is potentially very important. Remediating problems with understaffing, inadequate administrative support, and poor morale in hospitals may turn out to be among the most important steps in building a safer health care system.

References:

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