



## INFECTIOUS DISEASES

### Preventing Bilateral Injuries in SQ Injections

When you're giving a subcutaneous (SQ) injection, you might want to "ditch the pinch," says a researcher from Orvis School of Nursing, University of Nevada in Reno. Many health care workers are taught to give SQ injections by pinching a fold of skin to isolate the subcutaneous tissue. But the needle sometimes goes right through the patient's skin and into the health care worker's skin, potentially transmitting blood-borne pathogens to either—or both—people. In fact, pinching tissue prior to injection raises the risk of bilateral exposure by 100-fold, the author says.

Transmission of blood-borne diseases from patients to health care workers has been covered extensively in the research literature, and although that's the most common direction of transmission, health care worker-to-patient is also possible. For instance, the author says, at least 52 health care workers with hepatitis B virus have been implicated in transmitting it to more than 500 patients. It's a rare risk, but a risk nonetheless.

The author reviewed data on 2,402 percutaneous injuries occurring during SQ injections between 2000 and

2009. Of those, 85 (3.5%) were bilateral exposure injuries. The number ranged from a low of 4 injuries (1.7%) in 2004 to 21 (8.3%) in 2008. Injuries occurred among physicians, medical students, nurses, nursing students, and technologists. However, nurses and nursing students were most likely to have been involved, administering 73% of all SQ injections that resulted in a percutaneous injury. Of those injection injuries, 81 (4.6%) resulted in bilateral exposure. Physicians and medical students administered 16.5% of injections that resulted in percutaneous injury; 0.5% of those injuries involved bilateral exposure.

Most injuries occurred when insulin was being administered (45%), followed by heparin (8.2%) and enoxaparin (3.5%). Injection of insulin or heparin into an elevated skin fold was far more likely to be associated with a bilateral exposure injury than were all other injection techniques.

Disposable syringes were involved in most bilateral injuries; prefilled cartridges were involved in 22%. Half of all the percutaneous injuries—and 82% of all bilateral exposures—involved a safety-engineered sharp device. In a bilateral exposure, the needle penetrates directly from the patient's tissue into the health care pro-

vider's tissue; a safety device cannot prevent exposure, the author points out. In nearly all of the bilateral incidents, the health care worker was wearing a single or double pair of gloves. The author notes that research has found gloves significantly reduce the volume of contaminated inoculum after a percutaneous injury.

Patients described as thin, emaciated, or lacking subcutaneous tissue were "dramatically" more likely to be associated with a bilateral exposure injury, the author found. Pinching the skin in such patients creates a very thin fold, she says, thus increasing the likelihood of the needle traveling straight through the tissue.

Nearly 1 in 30 injection-related injuries experienced by a nurse will potentially expose both nurse and patient to the blood or body fluids of the other, the author says. But she adds that slight changes in injection practice, such as using appropriately sized needles that allow injection into the subcutaneous tissue at a shallower trajectory, could eliminate bilateral exposure injuries. She cites a study that found a 5-mm needle and a 90-degree insertion angle deposited medication into the tissue correctly 99.6% of the time. ●

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