



# Zero Sharps Injuries— A Goal We Can Live With!™

by Ron Stoker

Reducing exposures  
in the operation room

Over the last six months in the Sharps Safety section of this publication, we have examined a variety of safety products that can be used to reduce needlestick injuries, scalp injuries and bloodborne pathogen exposure to healthcare workers in the operating room. One of the main reasons that we focus on this prevention is the possibility of contracting HIV. As documented, there have been 57 cases of the transmission of HIV to healthcare workers. There are an additional 137 cases of transmission to healthcare workers where the source of the infection could not be determined. The vast majority of these documented cases of occupational HIV transmission occurred from a percutaneous exposure through a contaminated needle or other sharp device.

### Cost of Sharps Injuries

The direct cost of sharps injuries come from the initial and follow-up testing and treatment of the exposed healthcare personnel. Although the costs have roughly been estimated at \$3,000, the author is aware of many institutions that have discussed costs ranging up to \$9,000 for the initial and follow-up testing, depending on the treatment that is provided. In addition to these costs are the personal and emotional costs to healthcare workers with anxiety, change of sexual practices, delay of child bearing, and so on. Some healthcare workers end up leaving the industry because of the challenges associated with these anxieties. According to NaSH the two areas of the hospital with the most number of injuries are inpatient units (39 percent) and operating rooms (27 percent).

### Most Surgeons Experience Sharps Injuries—and Don't Report Them!

In a survey conducted in 2007, the *New England Journal of Medicine* reported that most surgeons experienced a needle injury during their training and most of these sharps injuries went unreported. Of course this placed these physicians at risk of contracting diseases such as HIV or hepatitis. While all healthcare workers who perform invasive procedures with sharp instruments are at risk, those who work in the operating room are at the greatest risk. Surgeons in training have the highest risk of exposure to bloodborne diseases, given the numerous encounters involving the use of sharp instruments on patients and the increased risk of injury while learning new skills. The risk is heightened by the high prevalence of bloodborne diseases among patients, including HIV, hepatitis B and C.

The researchers surveyed more than 700 surgeons in training in 17 programs in the United States. They were asked about whether their most recent injury was reported or involved a high-risk patient, the perceived cause of the injury, and the surrounding circumstances.

Surprisingly, the researchers found that 99 percent had experienced a needlestick injury by their final year of training, and half involved high-risk patients. On average, a surgical resident had eight needlestick injuries during their training. Of the most recent injuries, half were not reported and 16 percent of those involving a high-risk patient were not reported. Close to half said lack of time was the reason for not reporting the injury.

In another report, NaSH reported that nurses sustain the highest percentage of percutaneous injuries. In addition, there are a variety of exposures which occur that are not even noticed until later. A factor unique to the surgical environment is that exposure to blood on the hands often occurs without the knowledge to the exposed worker until gloves are removed after the end of the procedure. Because of the significant risk to health, improved prevention is needed to reduce injuries and to protect doctors, nurses, technicians and others who are injured on the job.

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### Bloodborne Pathogens

The main concern regarding needlesticks is the transfer of bloodborne pathogens to healthcare workers. The three most common bloodborne pathogens found in surgical patients' blood are hepatitis C, hepatitis B and HIV. The consequences of these occupational exposures to bloodborne pathogens are not only infections. Each year thousands of healthcare workers are affected by the psychological trauma during months of waiting for notification of serological results. Other personal consequences can include postponement of childbearing, altering sexual practices, side effects of prophylactic drugs, infection, chronic disabilities, loss of employment, denial of worker compensation claims, liver transplant and premature death.

### Injuries with Safety Products

The addition of safety devices into the operating room has not eliminated sharps injuries. In fact, the CDC conducted a study lasting more than eight years where they collected information from NaSH hospitals on approximately 1,700 injuries with safety devices.

### Safety devices should have the ability to provide immediate protection at the point of use and throughout the disposal process.

Almost 40 percent occurred before activation of the safety feature was appropriate, usually during use of the sharp. An additional 34 percent occurred because the user either did not activate the safety feature or improperly activated the safety feature. Amazingly, 19 percent of the injuries occurred while the user was activating the safety feature.

Clinicians should take precautions when using sharps and should be prepared to use the device the very moment the sharps are first exposed. Significant care should be exercised when using the sharp, during cleanup and during disposal. Activate the safety feature on an engineered sharps injury prevention device as the procedure is being completed. Make sure that audible or visual indicators that the feature is locked in place are used.

As discussed in previous articles, it is important for clinicians to never pass exposed sharps by hand from one person to another. Rather than do so, a predetermined neutral zone or tray can be used for setting used sharps down and picking them up again.

The majority of injuries occur during or immediately after use of a sharps device. These injuries can occur when the device is inserted or withdrawn from the patient or when the patient moves unexpectedly. Injuries also occur frequently during the cleanup of the case or when moving from one location to another. These injuries can occur when placing sharps into a sharps container or by disposing of the sharps inappropriately. This occurs when a sharps device is left at the bedside or has been inappropriately placed in a standard trash receptacle.

### Key Features of Safety Products

Safety devices should have the ability to provide immediate protection at the point of use and throughout the disposal process. Most devices, however, did not provide protection during the use of the device on the patient. I anticipate that more safety products in the future will have passive safety features rather than active ones. Most safety products have safety features that are not passive; that is, the user must activate the safety feature after use to ensure his/her protection, and the protection of others.

As I have examined hundreds of safety products, I have noticed that not all of them are explicitly obvious to the casual

observer. It is not always obvious how some safety features work. For this reason it is very important that facilities provide training on new safety products. If you do not know how to use a safety feature on a product, ask! A supervisor or coworker should be able to instruct on the proper use of a safety device.

### Assess Current Devices

With the upcoming New Year, it is an opportunity to make resolutions focusing on reducing the number of exposures to bloodborne pathogen sharps injuries. So how do we begin? Each organization should assess the current devices that are being used. Identify the non-safety products you are currently using, including the following categories: anesthesia needles, winged-set blood draw, needle holder combination, blood draw via syringe, flush syringes, introducer needles, IV access, IV catheters, instrument transfer, sharps retrieval devices, medical fluid waste disposal, needle containers and counters, ophthalmic scalpel, scalpels, scalpel blade remover, scalpel handle, instrument organizer, sharps container, biological fluid absorption, etc.

### Identify and Evaluate Safety Products

Identify safety products that could be used to replace conventional needles and other sharps. Make sure you take time to evaluate safety products. Over the next few months I will be providing a number of evaluation forms that can be used to evaluate safety products. Using these types of evaluation forms makes it easier for frontline personnel to evaluate products. It can provide some standardization of the evaluation criteria and can enhance the ability to compare responses from different departments in the hospital. Always remember to document the evaluations. Remember, if the evaluation is not documented, it did not happen! OSHA requires that a facilities exposure control plan be updated on at least an annual basis. Part of this required update is the identification, evaluation and implementation of the use of safety products.

Make sure that you ask yourself questions such as:

- ▶ Does this safety product require healthcare workers hands to remain behind the sharp at all times?
- ▶ Is the safety mechanism in effect before, and remains effective after, disposal?
- ▶ Are frontline workers included in identifying, evaluating and implementing the use of safety products?
- ▶ Are needleless devices feasible to be used for this procedure?
- ▶ Can the safety feature be activated using one hand?

One way of determining how well your safety culture is improving would be an audit of the contents found in sharps containers. For example, are recapped syringes found in your sharps containers? Are there safety devices found inside your

sharps container where the safety feature is not activated? Do you find blood tube holders that are not attached to activated safety needle?

As you review your exposure control plan, look at when the most recent evaluation of safety technologies was completed. How long ago was it? Was it three months? Six months? Has it been more than a year?

### Remove Unnecessary Sharps—No Needle, No Risk

Some conventional sharps can be removed and replaced with needleless or no-sharps alternatives for some procedures. Some cutting methods can be replaced with laser devices or electrocautery. Endoscopic surgeries are replacing open surgeries.

Some engineering controls may also be used in the OR to reduce sharps injuries. Have you tried using round-tipped scalpel blades instead of sharp-tipped blades? Blunt suture needles have been shown to reduce sharps injuries and are successfully used in many procedures.



### Improve Practices

Some institutions have made dramatic improvement in their sharps injury rates by looking at practices very carefully. They attempt to hold every clinician accountable individually for the sharps they use. Each clinician should dispose of any sharp objects they are personally using. Institutions encourage protecting oneself by examining procedure trays, patient beds, etc. for exposed sharps that might have been used during a procedure. Look for sharps that may have been left after a procedure. Make sure that all reusable sharps are transported in a closed container that is secured to prevent the spillage of the contents. Hands should always be kept behind sharps. Finger should never be

placed into a sharps container. If disposing of a sharp that has an attached tubing, such as a butterfly needle, be careful that the tubing does not recoil and lead to injury. Visually inspect the outside of a sharps container before using it for any signs of a protruding sharp. Never use a hand but always use forceps or tongs to remove protruding devices and place them in a new container. Replace sharps containers before they become overfilled.

### Keep Track of Injuries and Safety Product Evaluations

“When performance is measured, performance improves. When performance is measured and reported back, the rate of improvement accelerates.”—Thomas S. Monson, business and religious leader.

I have a 16-year-old son who runs every day whether it is sunny, rainy or snow. He typically likes to run a three mile course. As he gets ready to go, he takes two swallows of water and reaches down and clicks his watch and takes off. At the end of the run he clicks his watch again. I often ask him, “Sean, why do you run every day.” His response, “Well, dad, I really enjoy it. It makes me feel good.”

“Then why are you always timing yourself? Why don’t you just run?” I question.

“Come on, dad, you know why I do it! How will I know if I am improving if I don’t time myself?” he replies.

And he is right. I think that it is important to establish a reporting mechanism to keep track of sharps injuries and evaluation procedures. By establishing a mechanism to keep track of evaluation procedures it will allow us to compare our current performance with past performance, and allow us to establish acceptable standards. Evaluating our performance in the operating room may not make our goal attainment faster, but it can certainly help us reduce the number of needlestick and other sharps injuries, and can help save our very lives. Zero sharps injuries—it’s a goal we can live with! †

Zero Needle Sticks—A goal we can live with!; trademark of the International Sharps Injury Prevention Society (ISIPS)

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