Hospitals Tap into Creative Solutions to Prevent Sharps-Related Injuries

By Michelle Beaver

Bad news: Too many healthcare workers are exposed to bloodborne pathogens each year due to needlesticks.
Good news: There are a myriad of sharps safety plans that staffs can implement to bring down these rates.

Better news: some of the plans are extremely effective, as has been discovered across the nation at facilities such as Lexington Medical Center in Columbia, S.C. Fifteen years ago staff members from administration, risk management, and the infection control department at Lexington developed a sharps safety program with the hope of seeing “a significant decline in the number of employee exposures and related risks” and to be compliant with The Needlestick Safety and Prevention Act, says Evelyn Hammond, RN, MSN, CNOR, operating room (OR) nurse manager at Lexington.

It worked.

“These steps fueled and energized those involved to begin the journey of creating and developing a sound, successful sharps safety program that would minimize not only the risk of exposures, but to provide care and support to anxious clinicians who are haunted daily with the threat of contracting bloodborne-pathogen related diseases through a job-related injury,” Hammond says.

Sharps injury rates are decreasing, exposure to blood and other bodily fluids is also down and when an accident does occur staff members are more likely to report it than before the program was enacted, Hammond believes.

Such improvement arrives not a moment too soon. Each year hospital-based healthcare workers sustain about 385,000 needlesticks and other sharps related injuries, some of which lead to transmission of hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV), and possibly more than 20 other pathogens.³ Occupational HIV and hepatitis seroconversion is uncommon, but the consequences, of course, are atrocious and include direct costs of treatment (which can range from $500 to $3,000) as well as the unquantifiable costs of stress and trauma to the afflicted person and their colleagues³.

The Flexibility to Evolve

A good sharps safety plan must be able to change as need dictates, says Gina Pugliese, RN, MS, of the Premier Safety Institute, and should be viewed as a “work in progress.” The evaluation of safety devices should also be ongoing, she contends.

A beneficial way to add fluidity to a plan is to consult staff members from across the gamut, says Pam Gill, RN, BSN, an HIV/HBV exposure prevention nurse at Iredell Memorial Hospital in Statesville, N.C.

“A coordinator along with key people should be selected as a task force or committee to begin the process of recognizing present problems within the facility and establishing goals and outcomes,” Gill says. “Gaining the trust, cooperation, and support of clinical staff is absolutely necessary to create the overall culture of safety. If you don’t have these, the facility will be severely limited in the progress that could be made in sharps safety.”

Indeed, forming a team is the first component of a solid plan, Pugliese says.

“Everyone in your facility should be involved in noting trends and evaluating safety devices,” she adds. “To make the changes ‘official’ however, it’s best to have the team of people that developed the original plan—a mixture of administrators and frontline personnel—coordinate the updates to the plan. Depending upon your device evaluation methods, you may want to add additional personnel, such as those staff who have most extensively worked with new equipment, to the process.”²

The next step? List all devices that could lead to an exposure of bloodborne pathogens, even if their risks are not obvious.
"Note that even if you have never experienced an injury with a certain category of sharps, you should still take steps to find safety substitutes for any device that could potentially expose a worker to a bloodborne pathogen," Pugliese says.

She also recommends that staff members describe their facilities’ safety device evaluation methods.

“While the Occupational Safety and Health Administration (OSHA) requires your plan to document how you conduct your device evaluations, there’s no formula for how these evaluations should actually be done, which leaves room for flexibility,” Pugliese says. “You can conduct safety device evaluations on either a formal or an informal basis. A formal evaluation might involve written evaluation forms to be completed by each worker who comes in contact with the device. An informal evaluation might involve bringing sample devices to the individual department or setting up a group of frontline workers to test the products and provide verbal feedback.”

After evaluating devices, record the results and include information such as how many tools were tested, where the test took place, etc., and then assess and document the extent to which frontline workers were involved in device evaluation.² Examples of frontline participation include establishing formal committees for planning, identifying, evaluating, and/or selecting new devices; informal conversations with users of devices; participation in safety audits; and noting any exposure incident investigations,” Pugliese says. “You can document these formal and informal interactions by keeping meeting minutes, copies of documents requesting employee participation, employee response forms, or even notes from informal conversations with workers.”

Even more important is to make certain that every sharps injury is promptly and properly recorded in a log that details the tool used, where the incident occurred, and how it occurred. “OSHA requires all healthcare employers, regardless of their size or number of workers, to provide sharps safety devices to protect their workers from exposure to bloodborne pathogens,” Pugliese says. “However, in general, small work sites with less than 10 workers do not have to maintain a sharps injury log.”

Several excellent resources are available for staffs that either want to tweak or overhaul their entire sharps safety plan. The Centers for Disease Control and Prevention (CDC), for instance, offers a workbook that helps assess sharps injury prevention programs, provides documents and literature, and assists in evaluating data.

An Ounce of Prevention

The National Alliance for the Primary Prevention of Sharps Injuries (NAPPSI) was recently disbanded, but its former membership still asserts that while retractable needles and other safety devices and practices are helpful, it is far more vital to eliminate the need for sharps in the first place whenever possible.

NAPPSI’s literature states, “As all clinicians know, vaccination (i.e., prevention) is always better than treatment, because there is never a perfect treatment. By analogy, preventing the use of a needle is always preferable to using a safety needle because products with needle safety are not perfect either.

“The term ‘primary prevention’ refers to healthcare technologies and practices that reduce or eliminate the use of sharp implements by replacing them with safer technologies and practices (example: catheter securement devices),” the literature continues. “Primary prevention is the most direct method of preventing needlestick injuries. Simply put, eliminate the sharp and you eliminate the risk.”

According to NAPPSI researchers, several recent studies show that needle-related accidents are occurring at unacceptable rates when secondary prevention is used. Potential catalysts may include the improper use of products, a failure of the product, and accidents that happen once the material is in the waste stream.

Solutions in a Worst Case Scenario

For the time being at least, needlesticks are inevitable, but according to a recent study the consequences don’t have to be. The review, “Antiretroviral post-exposure prophylaxis (PEP) for occupational HIV exposure,” examines the effects of antiretroviral PEP in the prevention of HIV infection after occupational exposure and claims that in the case of exposure to bloodborne pathogens, a month of preventative drug treatments may reduce the likelihood of getting HIV by 81 percent.
The authors state that, “in the occupational setting, HIV transmission was significantly associated with deep injury, visible blood on the sharp instrument, procedures involving a needle placed in the source patient’s blood vessel, and terminal illness in the source patient... “A four-week regimen of post-exposure prophylaxis should be initiated as soon as possible after exposure, depending on the risk of seroconversion,” the authors continue. “Healthcare workers should be counseled about expected adverse events and given strategies for managing these events.”

**Challenges**

When it comes to sharps, everyone who comes in contact with them is in some danger, especially nuclear medicine technologists, says Colleen Glynn, CNMT, RDMS, director of radiopharmaceutical products and safety solutions at Cardinal Health.

In fact, “Nuclear medicine and the operating room are the two areas of the hospital that give infection control practitioners the biggest headache,” Glynn says.

Overall, she thinks the average nuclear medicine employee is “very well versed in how to prevent needlestick injury,” but dangers still abound. Every day commercial nuclear pharmacies dispense more than 50,000 unit doses to departments, she says, and not only are the needles used in nuclear medicine biohazardous, they are also radioactive.

“There are so many injections given on a daily basis that the technologists are well aware of the risk of both hazards,” she adds.

One main hazard is the technology itself.

“Nuclear medicine injections must be made with a syringe shield to protect the nuclear medicine technologist from radiation as they are making the injection,” Glynn says. “Current safety needles do not fit into the syringe shield without the potential for contamination. Furthermore, the current safety devices may spray or leak a very small amount when the safety mechanism is engaged. This is unacceptable when dealing with a radioactive liquid.”

Further problems stem from the fact that technologists must often change syringe needles.

“This is because the needle on the syringe has been through a rubber septum when the dose was drawn and could result in a dull needle or a potential coring issue,” Glynn says. “Due to the nature of the profession, there is a high amount of needle recapping that routinely occurs to prevent the spread of radiation. From the infection control practitioners that I have spoken to, the nuclear medicine department creates quite an enigma for overall facility needle safety plans.”

Glynn believes that Cardinal Health’s SECURE® family of products are the best choices for nuclear medicine compliance.

Any time a product is instated, however, strict education should follow, according to Gill.

“I believe that one of the most common sharps-related mistakes that occur in facilities today is the implementation of safety products with no follow-up support or annual education and training,” Gill says. “Bringing manufacturer representatives in to in-service a product with no continuous clinical support leaves some staff with no training, and others still feeling uncomfortable with a product that can lead to an injury.”

Another vital area is standardization, Gill says.

“Facilities should be careful with this,” she adds. “One product is probably going to be safe for the majority. There should be “zero tolerance” when it comes to sharps injuries. Make sure that the safety products that are chosen for a specific area and task effectively address the risk of that task. Talk to the frontline workers in all areas.”

**Case in Point**

A multi-tiered approach worked well for Secours St. Francis Health System in Greenville, S.C. Sharps safety must be dynamic, says Krystal Kennedy, RN, BSN.
“This health system has worked very hard to reduce sharps injuries,” Kennedy says. “The multidisciplinary sharps safety sub-committee meets approximately every five weeks and constantly tries to find more ways to increase sharps safety.”

The staff at St. Francis has implemented needleless IV connectors, needleless drug delivery through patches, sutureless catheter securement, surgical glues and adhesives.

Similar measures have been taken at Northside Hospital System in Atlanta, where the staff now uses the aforementioned products as well as needleless hemodynamic monitoring.

“Northside Hospital System has set high standards for patient and healthcare worker safety … ” says Bard Statlock territory manager Chris Milz. “With Venetec’s StatLock for Peripheral IVs and central line catheters, Northside has prevented needlesticks, reduced nursing time related to troubleshooting IVs and increased patient satisfaction and comfort.”

At Lexington, one of the first sharps safety projects was also the most successful, Hammond says, and included the implementation of a needleless IV system. Later, the program grew to involve other safety devices and practices including Statlock, peripheral central line needleless ports, and coated Foley catheters with needleless ports.

In 2003, the Lexington crew focused on the operating room. ORs are often a hotspot for needlesticks and Lexington’s sharps injuries were increasing there until staff members started a sharps safety program in perioperative services.

“It was essential to gain the acknowledgement and support of management, employees, and surgeons to reduce operating room sharp-related injuries,” Kennedy says.

“This multi-faceted project came to realization through the efforts of the sharps safety workgroup whose members consist of OR management, mentors, educators, registered nurses, surgical techs, and infection control.”

The Lexington staff was only starting out, and decided to also adopt the following goals for its OR:

1. Raising sharps awareness
2. Improving communication techniques
3. Implementing a neutral zone
4. Researching safety products

Staff members advertised these goals through posters, surveys, a device fair, and demonstrations about personal protective equipment and the proper handling of bodily fluids. Lexington Medical Center also worked with Palmetto Health Trust (PHTS), a risk management services and healthcare liability insurance provider to promote creating a neutral zone before making an incision, and on the use of shielded knife handles and trocars, safety syringes and needles.

The team also took the following steps:

- Using blunt instead of sharp retractors when possible
- Activating safety features before disposal
- Practicing clear communication during surgical procedures through terms such as, “sharp up, sharp down,” etc.
- Using puncture resistant sharp containers
- Providing hepatitis B vaccinations to staff
- Creating a “staff hero” award for employees who have gone above and beyond in the realm of sharps safety
- Starting a sharps safety month at the facility
- Compiling a more user-friendly incident report packet
- Providing extra-barrier surgical gowns for staff and surgeons

Staff members were also provided with the book, “Advanced Precautions for Today’s OR,” by Mark S. Davis, MD, FACOG, and are required to take a post-test. This practice continues for each new employee, and in the OR all employees receive mandatory sharps safety reviews.
The Lexington staff is a prime example of how to tailor various plans to one facility, and of how to strive toward perfection through practical, well-researched steps. The best news of all? Any staff can follow suit.

References