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Sharps Safety Q&A

HPN: Ten years following enactment of the Needlestick Safety and Prevention Act, what would you consider to be the most significant progress made? What has made the most impact in reducing needlestick injuries?

Gina Pugliese, RN, MS, vice president, Safety Institute, Premier healthcare alliance: There have been high rates of conversion in acute care to devices with engineered sharps injury prevention features. We also have seen an ongoing decline in percutaneous injuries among healthcare workers from needlesticks and other sharps, however the majority of sharps injuries are from devices that have sharps injury prevention features but have not been activated. Among the significant progress is a large multicenter (61 hospitals) study from France that showed efficacy of different types of devices in reducing risk: devices with automatically activated safety features (eg passive) and semi-automatic (eg push button to activate) were 10X more effective than manually activate devices. 1

Of course, the most effective method of reducing needlestick injury rates is to find ways to eliminate the sharp, eg special suture needles (eg known as blunt sutures) that can be used for certain tissues in OR procedures. Needleless IV connectors have been very effective in eliminating the need for needles to access an IV line or tubing and have resulted in dramatic reduction in the number of needlesticks associated with these procedures.
Kenneth Kassler-Taub, MD, world wide vice president, medical affairs, BD Medical: The most significant progress is the significant and overall reduction in needlestick injuries and sharps injuries. Despite the fact that there is a lot more focus on reporting injuries, and we can assume that a larger proportion of injuries are reported now than before the law went into effect, there seems to be a reduction in the rate, which is very good news. The focus on reporting needs to continue so that continued progress can be achieved.

There have been some excellent advances in the technology as it’s evolved over the last ten years, with devices becoming more intuitive and easier to operate. Some even operate passively, which means there is no step required beyond the clinician’s usual technique to activate them (although some clinicians do not prefer these devices, and in some cases, selecting the passive device may mean compromising other important device features). There is also reason to be happy that over 95 percent of the hospital-based market has been converted over to using safety devices for IV catheters – although it’s not 100% which is what our goal should be.

Finally, we have moved practice away from use of needle-based systems for injecting medications through IV lines. Now there are several generations of IV tubing access ports which provide clinicians with the option of using a luer slip or luer lock syringe or IV line for injections. It will take a few years for us to understand which of these provides the best features, including reduction of risk of catheter thrombosis, and prevention of catheter related infections.

Jane Perry, associate director, International Healthcare Worker Safety Center, Div. of Infectious Diseases, Dept. of Medicine, UVa Health System - University of Virginia (Charlottesville): The significant decrease in sharps injury rates following passage of the law which was reflected in our EPINet data, and which we largely attribute to the widespread adoption of safety-engineered devices after the law went into effect. NSI rates dropped by almost a third.

Phlebotomy safety devices and other safety equipment related to blood drawing and safety IV catheters have had the biggest impact in reducing the risk of bloodborne pathogen transmission to healthcare workers, because these are the highest-risk type of devices.
Where should the focus lie for continued improvement?

Tom Sutton, vice president, Vascular Access & IV Systems, B. Braun: We still have occurrences of accidental needlesticks in the United States even though there’s a very high percentage of use of [safety] devices because in many categories the devices that are used have not been appropriately activated.

Linda Groah, SMN,RN,CNOR,NEA-BC, FAAN, executive director/CEO, AORN: Unfortunately we haven’t made the progress as indicated by the number of injuries that continue to occur, and the one area of the hospital where there are invasive procedures that has not had a reduction is in the operating room.

Lynn Hadaway, M.Ed., RN, BC, CRNI, president of Lynn Hadaway Associates Inc: We have the recent study from France that pointed to the fact that a passive device is far safer than one that requires activation by the end user. So we need to focus now, not just on any safety device, now we need to focus on the design of the device that produces better outcomes.

Another problem is many hospitals don’t put this decision in the hands of the bedside caregivers like the law calls for. They may make decisions above the level of the bedside people who are actually using these devices. The law did say that people who are using the devices should make the decisions about the device they’re using or would prefer to use.

Ana Stankovic, MD, PhD, MSPH, world wide vice president, medical and scientific affairs and clinical operations, BD Diagnostics – Preanalytical Systems: We need to engage the healthcare workers more in the process of selecting the products, not only in the alternate care settings, but in the hospital as well because very often they’re not consulted when the decisions are made to go from one product to another. The legislation very clearly states that the purchasing review process must be conducted annually and that the frontline workers need to be engaged in reviewing products available on the market and in the selection of devices to used at their institutions.
Establishing a systematic approach to data collection on needlestick injuries. This is necessary to be able to fully assess the scope of the problem, including tracking any improvements in incidence, identifying particular devices involved in injuries, and determining the root cause of injuries to aid in prevention strategies.

**Increasing needlestick safety in operating rooms.** Sharps injury rates in surgical settings have increased 6.5 percent since adoption of the Needlestick Safety and Prevention Act in 2000, according to a study published in the *Journal of the American College of Surgeons* (April 2010). A 2008 Massachusetts study of sharps injuries sustained by hospital workers at 99 hospitals showed that injuries occurred most frequently in operating rooms (32 percent).

**Standardizing safety devices in kits rather than charging a fee to include a safety device in a kit, and calling it "custom."** The medical device industry should be held accountable for such blatant exclusions that put health care workers at risk. The users of the kits must reject the products until safety engineered devices are routinely provided without extra fees.

**Using the safest technology.** The Massachusetts study also revealed that devices with engineered safety devices aren't always being used, even though they are available. More than half of reported injuries involved devices without engineered sharps injury prevention features. For example, hypodermic needles/syringes lacked engineered sharps injury prevention features in 27 percent of injuries associated with these devices, even though hypodermic needles/syringes with engineered safety features had been available on the market for more than a decade.

**Handling the sharp device after use.** More safety precautions and procedures must be put in place for handling the sharp device after it has been used. The Massachusetts study revealed that more injuries occurred after use of the device (1,543, or 49 percent, compared to 1,355, or 43 percent). Of injuries that occurred after use, 38 percent were before disposal and 11 percent were during or after disposal.

**Involving frontline healthcare workers.** By law, non-managerial health care workers who are involved in direct patient care must be solicited for input on the identification, evaluation and selection of the safest devices. This is not always occurring in health care settings. A lack of documentation showing employee input on the analysis of engineering and work practice controls is one of the common reasons for an OSHA citation for violation of the Bloodborne Pathogens standard. And in a 2008 ANA national survey of nurses on workplace safety and needlestick injuries, 66 percent said they do not have the opportunity to influence the selection of sharps safety devices in their workplace.

**Improving compliance in outpatient and community settings,** such as home health enterprises, nursing care facilities, and private clinics. In one recent year, OSHA issued 36 percent of its bloodborne pathogens violation citations to skilled nursing homes, 21 percent to physician offices and clinics, and 14 percent to general medical and surgical hospitals. The 2008 ANA national survey of nurses on workplace safety and needlestick injuries...
revealed that nurses who work in outpatient settings had less access to safer devices. Since there are more health care workers practicing in non-hospital than in-hospital settings, data collection must be improved in these community-based and outpatient settings.

**Tracking actual incidence rates** to gauge improvement and identify problems that must be addressed. The 2008 ANA national survey of nurses on workplace safety and needlestick injuries found that 64 percent of nurses had been accidentally stuck by a needle while working.

**Perry:** The one exception to the overall success in reducing needlestick injuries among hospital healthcare workers has been the surgical setting: there has been almost no change in sharps injury rates for OR settings since EPINet data collection began. We think more focused attention by OSHA on enforcement and compliance in this clinical setting is warranted and needed.

I think [another] critical area that needs attention is the non-hospital setting. It just is an area where we don't have much data in terms of surveillance data on needlesticks and studies that look at the risk to healthcare workers in those settings. And really that's where healthcare is heading in terms of where the majority of care is going to take place.

In addition, many hospitals and facilities have exemption lists for safety devices – that is, specific types of devices or procedures for which no safety alternative is available or what is available is not deemed satisfactory by the clinician. These exemption lists should be reviewed every year and emerging technology tracked to see if safety alternatives have become available. This is what should happen – but I'm not sure if it necessarily is.

Conceivably these lists could just go on from year to year being approved. I think there needs to be ongoing attention paid to what's coming out in terms of technology and whether safety alternatives have been developed and continued contact between the facilities and manufacturers about what is needed.

**Pugliese:** We are still seeing slower adoption of sharps injury prevention devices in the non-acute settings and still some sharps that lack engineering features to prevent sharps injuries, (e.g. spinal needles, biopsy needles).

**Kassler-Taub:** The message of the benefits of using safety products hasn’t penetrated as well to the non-hospital setting, such as doctor’s offices, nursing homes and outpatient surgical centers.

There are also exposures to sharps and blood that are not related to needles and venous access which I think need improvement – such as in the operating room. How do you protect people against suture needlesticks, accidents with blades and other sharp instruments? It still remains a big issue, there isn’t adequate technology. In the short term, we will have to adapt our workflow in the OR to reduce the potential for inadvertent contact, while the technology is developed to further reduce the risk. Interestingly, it is believed that over three quarters of the sharps injuries in the OR do not occur to the primary user of the device (usually the surgeon).

This statistic also should remind us of the downstream risks for people handling the waste. If sharps end up in the wrong container and an injury occurs because a sharp poked through a trash bag, or punctured the container. Then this means an injury is to someone who never had contact with the patient. It speaks to having those folks who are still part of
the chain of contact be involved in upfront discussions and decision-making along with the healthcare workers, and also receive appropriate education and training.

What does a "culture of safety" for needlestick prevention entail – and how can nurses and other healthcare workers help foster such a culture in their facilities?

Hughes: A culture of safety entails commitment by healthcare leadership to provide a safe workplace. For needlestick injury prevention, this means complying with OSHA regulations, including involving frontline workers in safe device selection, reviewing devices regularly to provide the safest devices and technology available, providing for evaluation and treatment of injuries and addressing work injury trends to reduce and/or eliminate sharps injuries.

A culture of safety also involves providing adequate training so health care workers know how to use sharps devices properly and how to incorporate the safest procedures into their work practices.

Nurses can help foster a culture of safety in their work environment by educating their peers on the safest practices and discouraging their colleagues from cutting corners on safety measures, even if it adds time or inconvenience to a procedure. For example, one study showed that establishing a safe neutral zone for the passing of sharp devices can significantly reduce injuries.

Nurses also can become involved in their employers’ safety committees that evaluate the safety of medical devices on the market for purchase.

Groah: The important factor is the team as an entity working together for a safe environment and protecting each other, that really is part of the safety culture. The team is so important to the success of any kind of rollout such as this.

It’s very important that leadership follows through and has a method whereby [needlestick injuries] can be reported quickly, and [the healthcare worker] can be seen quickly, whether it’s going to the emergency department or employee health. So that it’s not seen as a time waster, but that it is expedited and they’re taken care of immediately.

If sharps injuries continue to occur, the leadership of the hospital needs to absolutely take the responsibility and accountability if surgeons do not change their technique. They need to take some aggressive action and a root cause analysis should be done on every needlestick or sharp injury that occurs and there must be some ramification for the surgeon not using appropriate safety precautions.

Considering the relatively low adoption of sharps safety products and techniques in the OR environment – such as blunt suture needles, safety scalpels, double gloving and no-hands passing zones – what obstacles must be overcome in order to get surgeons to trial and adopt sharps safety products?
Ken Noseworthy, vice president, sales, Southmedic: Surgeons have several objections to using "Safety Products" like safety scalpels so to increase compliance, the devices proposed must overcome the following concerns.

- They want to retain the weight & feel of the metal handle that "I've used for years and I'm used to".
- Safety Scalpels are bulky and the safety sheath blocks or impairs my field of vision of the surgical sight.
- Safety Scalpels are not equipped with premium sharp blades so they consider them "dull".
- Staff get complacent when they use safety devices raising the risk of injury because they're not as careful when handling the units.

Jennifer Barber, marketing, communications specialist, Sandel Medical: Surprisingly, one of the primary obstacles for surgeons has been the lack of clinically acceptable safety engineered devices. There has been a misconception that a safety device, designed to meet surgeons' needs, simply does not exist. Historically, safety scalpels have generally been unfavorable amongst the surgical community due to the inadequate performance of older model safety scalpels. Surgeons often claim that the weight, feel, puncture-ability and visibility of previous safety scalpels significantly differs from a standard handle and therefore alters their technique. New devices now overcome these criticisms.

The lack of an acceptable safety device has been compounded by the lack of enforcement and mandated compliance with existing regulations. As everyone is aware, OSHA requires facilities to review, trial, select and "USE" the devices available on the market to prevent sharps injuries. AORN and The American College of Surgeons have recommended the use of safety engineered devices and compliance with the Neutral Zone/Hands Free Technique (ST-58). Despite these guidelines and regulations, adoption rates remain low and facilities continue to be fined for not fully implementing the required safety devices.

Groah: Some of the objections when [blunt suture needles] first came out were that they were too limited in the size of the needle as well as the size of the suture. They're manufacturing more sizes now. But definitely there is a technique change and the IHI has indicated that it can take 17 years to make a change in the healthcare industry. I think there are some people who are going to make sure they take that full 17 years.

There is change in technique, so one of the things that is particularly important is that teaching institutions for new residents include this in their repertoire of skills, learning to suture with blunt needles, number one, and also learning to do surgery with double gloves. Surgeons that have gotten used to it have said it’s just a matter of getting used to the change, that it really doesn’t impact their ability to do surgery and can function as well as they did with single gloves.

Kassler-Taub: It may take years of education, and maybe a new crop of surgeons who will need to be trained to adopt procedures that take prevention of needlestick and sharps injuries into consideration. It’s going to take influence from a variety of sources to change the situation, including the healthcare workers around the surgeon, OR and hospital administrators, and even the surgical professional organizations that establish practice guidelines to ensure that their members use the proper technique and adopt the devices that are available.
Can you provide any tips for engaging surgeons in sharps safety initiatives? For example, what can an OR nurse do to help encourage surgeons to follow sharps safety procedures and use safety engineered devices?

Noseworthy: OR nurses, supervisors, department heads must adopt the same philosophy or mandate and remain diligent and persistent that all staff comply to the guidelines.

- Education from safety officers or manufacturers so all remain on the same page and mandate.
- Device Posters on Safety Products as every day reminders.
- Remove non-safety, non-compliant devices.
- Make Safety Products mandatory.

Barber: When it comes to encouraging surgeons to follow sharps safety procedures, be sure to present them with devices that have a high chance of acceptance. A new generation of devices has been designed to meet needs of the entire surgical team. With these new devices, there are few excuses as to why they cannot be implemented. Once a trial has been conducted and a device is selected, a hospital-wide roll-out should be implemented requiring the use of this particular device.

All facilities need to present a "win-win scenario" for the entire surgical team. For example, it is important to verbalize the limitations of safety scalpel handles / safety scalpels in a variety of surgical procedures. On the other hand, this does not negate the relevance of implementing a Neutral Zone or Hands Free Technique for those procedures.

Perry: In the OR, surgeon attitudes towards sharps safety are starting to change, but not as quickly as we'd like. AORN is developing a new sharps safety initiative to work on this, and the American College of Surgeons has been paying a lot more attention to sharps safety in the past few years as well. It needs to be a joint effort of all the relevant surgical professional groups.

Groah: Story telling has become very effective and that's what we're looking at potentially for the streaming videos [in the sharps safety toolkit] is both people who have converted and are using the technique, and those who actually got stuck with needles and the ramifications of the injury. And it's not only for the healthcare worker but also for the patient because if I get stuck some of my blood is going to become mingled with the patient's blood. So it really is both patient safety as well as employee safety. It's always good to tell stories, what happened and how the individual responded, and the long term lasting impact of the experience.

Eighty percent [of needlestick injuries in the OR are sustained by] nurses and surgical technologists. The ramifications and impact of not [implementing safe sharps practices] is above and beyond the sole responsibility and decision of the surgeon; it is the responsibility of all team members. HPN