

## Bloodborne pathogens

# Blunting sharps injuries in the OR continues to be a work in progress

A sharps injury strikes fear in every member of the surgical team. Regulations from the Occupational Safety and Health Administration (OSHA) requiring organizations to reduce employees' risk of injuries from sharps carry fines for those who don't follow them (sidebar, p 10). Specialty associations such as the American College of Surgeons (ACS) and the AORN have recommendations of their own.

Despite all this effort, a significant reduction in surgical sharps injuries has proved elusive.

"ORs are lagging behind as other areas of the hospital have implemented safety devices and seen their needlestick rates go down," says Jane Perry, MA, associate director for the International Healthcare Worker Safety Center at the University of Virginia, Charlottesville. The Center is home of the Exposure Prevention Information Network (EPINet), a standardized surveillance system for tracking percutaneous needlestick injuries and blood and body fluid exposures.

In the Center's study of injuries before and after passage of the Needlestick Safety and Prevention Act of 2000, nonsurgical sharps injuries dropped 31.6% after the act, but surgical injuries increased by 6.5%.

"This was an actual increase in

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**Blunt-tip suture needles have improved.**  
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rate, not a proportional change," says Perry, who adds that most injuries in surgical settings are caused by suture needles and scalpels. The study has been submitted for publication.

Why is it so hard to put OR sharps injury prevention programs into place?

### Multiple barriers

Barriers to adoption include "the culture of acceptance of risk, which occurs among surgeons but also among nurses and technician personnel," says Ramon Berguer, MD, FACS, chief of surgery at Contra Costa Regional Medical Center (CCRMC) in Martinez, California, consultant for the ACS Committee on Perioperative Care and advocate for prevention of sharps injuries.

Other barriers are a lack of knowledge about sharps injury rates, underreporting of injuries, which Dr Berguer partially blames on "burdensome and impractical" reporting, and lack of adequate sharps safety devices, although he

says recent products have reduced that problem.

Creating an effective sharps safety program is key to protect staff and avoid OSHA fines. One OR director, who asked to remain anonymous, experienced OSHA's scrutiny in a visit that stemmed from an employee complaint. The hospital was fined \$2,450 for an "unacceptably high" sharps injury rate and not doing enough to educate the staff on how to reduce injuries. The OR had 18 to 20 reported injuries for 2008. The inspector couldn't tell the director what an "acceptable" rate is.

Certainly, the goal is zero injuries. While that might not be possible, a multipronged program will help keep injuries low. Four ACS-recommended tactics are a good place to start: blunt-tip suture needles, devices such as safety scalpels, hands-free passing, engineered sharps injury prevention devices, and double gloving.

### Blunt-tip suture needles

"The number one cause of injury in the OR is suture needles, but surgeons aren't using blunt suture needles," says Perry. Blunt-tip suture needles have been proven to reduce sharps injuries by nearly a third at a cost Perry says is comparable to traditional suture needles.

Perry prefers the term "safety suture needles" because they can

### Sharps injury data

Some findings from the 2009 EPINet report on percutaneous injury (PI) rates in 29 hospitals:

- The total number of cases was 951.
- The overall PI rate was 27.97 per 100 occupied beds.
- Average rate for teaching hospitals was 33.49 PIs per 100 occupied beds compared to 16.16 for nonteaching hospitals.
- In 24% of cases, the original purpose of the sharp device was for suturing.
- Proportionally, more PIs occur in the OR than any other location.
- Nurses are the most likely to be injured, followed by residents, then attending or staff physicians.
- Injury occurred most commonly when the device was in use (47.5%), followed by between steps of a multistep procedure (14.1%).

The report notes that it is best to track injuries within your institution instead of trying to compare your organization with other facilities.

Source: Perry J, Parker G, Jagger J. EPINet Report: 2007 Percutaneous Injury Rates. International Healthcare Worker Safety Center. August 2009; 1-4.

penetrate internal tissue such as fascia while not being sharp enough to penetrate skin. She adds that manufacturers have not only improved the needles but also now provide a wider range of suture/needle combinations.

"Only in the past year have we been able to get a full catalog of



A white towel, a simple solution for hands-free passing of sharps, was developed by surgical technologists. Surgeons lay sharps on the towel.

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**A hands-free zone is recommended.**  
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blunt needles in,” agrees Dr Berguer, noting use at his facility is low so far because it is optional.

#### Hands-free passing zone

With scalpels, about a third of injuries occur while passing the device, and many injuries are sustained by the person on the receiving end of the pass.

Creating a hands-free or “neutral” zone is commonly recommended to reduce injury risk. This zone can be as simple as placing a white towel on the Mayo stand where surgeons can place instruments (photo).

Dr Berguer says CCRMC has adopted hands-free passing. “As in all implementations, it takes time,

effort, and education,” he says. “I would say we’re using it about 75% of the time.”

#### Three hands-free options

Tammy Ralls, RN, BSN, CNOR, administrative director for surgical services at Centennial Medical Center in Nashville, Tennessee, gives the staff 3 options for the hands-free zone: a commercial product, an emesis or square basin, or a magnetic pad. During the time-out before surgery, the scrub person tells the surgical team which method will be used.

Tennessee OSHA has been particularly aggressive on sharps safety.

Ralls explains how the hands-off procedure works when the surgeon cannot look up from where he or she is working: “The surgeon puts down the sharp and says ‘sharp down.’ The scrub person picks it up and when giving it back, says ‘sharp passing.’” Exceptions include craniotomy, open heart surgery, and microscopic surgery.

Dr Berguer adds it is important

## Safer sharps resources

### American College of Surgeons Statement on Sharps Safety (ST-58)

—[www.facs.org/fellows\\_info/statements/st-58.html](http://www.facs.org/fellows_info/statements/st-58.html)

### AORN

Guidance Statement: Sharps Injury Prevention in the Perioperative Setting. Perioperative Standards and Recommended Practices, 2009.

—[www.aorn.org](http://www.aorn.org)

### International Healthcare Worker Safety Center

- EPINet reports: Data on injury rates.
- Safety device list and other resources.

—[www.healthsystem.virginia.edu/Internet/epinet/](http://www.healthsystem.virginia.edu/Internet/epinet/)

### National Institute for Occupational Safety and Health (NIOSH)

- Bulletin: Use of Blunt-Tip Suture

Needles to Decrease Percutaneous Injuries to Surgical Personnel. SHIB 03-23-2007.

- Information for Employers: Complying with OSHA's Bloodborne Pathogens Standard. DHHS (NIOSH) Pub No. 2009-111.

—[www.cdc.gov/niosh/](http://www.cdc.gov/niosh/)

### OSHA bloodborne pathogens and needlestick prevention

—[www.osha.gov/SLTC/bloodbornepathogens/](http://www.osha.gov/SLTC/bloodbornepathogens/)

### Safety in Surgery website

- Training video on hands-free transfer and links to resources for reducing injury risks.

—<http://healthsystem.virginia.edu/internet/safetycenter/internetsafetycenterwebpages/SafetyinSurgery/SafetyinSurgery.cfm>

to include passing of local anesthetic syringes and needles in the policy because these are commonly used in the OR.

### Engineering solutions

"The only engineered sharps safety device of any consequence that is on the market (for the OR) is the sheathed scalpel," says Dr Berguer, who adds these products have improved to the point where they are now in regular use at CCRMC, with rare exceptions.

Safety scalpels cost more than their conventional counterparts. But, as Perry points out, "When we required air bags in cars, it made them more expensive. According to OSHA, cost isn't a justification for not implementing safety-engineered device measures."

**The biggest risk is to the staff.**

Lehigh Valley Health Network, based in Allentown, Pennsylvania, implemented safety scalpels about 3 years ago for most procedures in its 40 ORs, a step that has been difficult for many ORs. OSHA has had a special emphasis program on bloodborne pathogens in Pennsylvania for several years.

Safety scalpels are provided for all procedures, with specific excep-

tions, such as plastic surgery, certain vascular cases, and arthroscopy with deep punctures, notes Brian Leader, vice president for perioperative services and the orthopedic service line.

Though conversion was tough in the beginning, Leader says, "When you have a regulatory body involved, it helps to take the emotion out of it."

The exceptions were developed by the Surgical Executive Committee after product trials and input from surgeons. Exceptions are based on actual experiences where physicians found safety-scalpel features, such as retractable sheaths, interfered with the operation.

Leader says the cost difference for the safety scalpels "was substantial." He noted that the incidence of scalpel-related injuries was not great, "but the safety devices provide extra protection."

### Double gloves

Data from EPINet shows wearing double gloves reduces needle penetration of the skin from 69% with single gloves to 19%. Unfortunately, many surgeons don't wear double gloves because they dislike the "feel" of them.

Use of an "underglove" that provides a more natural feel can help improve acceptance of double-gloving among surgeons, says Dr Berguer. "I think most surgeons find after a week or two, they get used to double gloving."

Ralls estimates that at Centennial, about 90% of scrub personnel and surgeons wear double gloves.

### Cost considerations

Some safety products cost more, but "some come in even, and one had a very slight reduction," says Ralls. Safety products are often similar in price. If a particular product is not, Ralls meets with the vendor before the trial to "get the

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### **OSHA enforcement is uneven**

Occupational Safety and Health Administration (OSHA) inspections of hospitals are uneven across the country, and citations for bloodborne pathogens violations are spotty.

In 2008-2009, 399 hospitals had OSHA inspections, down from the decade's peak of 448 in 2000-2001, according to the agency's enforcement database. That's about 8% of the approximately 5,200 general hospitals in the US.

It's been 19 years since OSHA issued the original bloodborne pathogens regulation (29 CFR 1910.1030). The standard was revised in 2001 in response to the Needlestick Safety and Prevention Act. The revised standard focuses on the need for employers to select safer devices, involve employees in the selection, and keep a log of injuries from contaminated sharps.

#### **Fines are not high**

Inspections are far more prevalent in some states than others. States with the most hospital inspections from October 1, 2008, through September 30, 2009, were California, Oregon, Tennessee, Michigan, New York, and Pennsylvania (chart). All but Pennsylvania have their own state OSHA plans.

For 13 states, no hospital inspections were recorded for that period: Delaware, Idaho, Kansas,

Louisiana, Montana, Nebraska, New Hampshire, North Dakota, Ohio, Rhode Island, South Dakota, Vermont, and Wyoming.

When OSHA does inspect and find bloodborne pathogens violations, fines are not high.

California, with the most hospital inspections, had a total of \$3,675 in fines for bloodborne pathogens recorded for that time.

Tennessee had by far the most reported bloodborne pathogens violations, at 52, and the highest total related fines (\$86,850). (Not all inspections and fines may be recorded in the OSHA base, and numbers may change as investigations conclude.)

#### **Tennessee targets sharps**

Tennessee OSHA launched a 5-year targeted initiative on sharps injury prevention in 2006, including training and outreach to hospitals and ambulatory care centers, says Jan Cothron, the agency's manager of health compliance.

Over 3 years, the state has inspected 126 of the state's 161 hospitals and 158 surgery centers (39%) and levied over \$350,000 in bloodborne pathogens-related fines. Over that period, she says sharps injury logs, which facilities are required to submit to the state, have shown an 11.8% reduction in reported injuries compared with baseline data collected in 2005. The actual number of injuries is unknown because sharps injuries are

known to be underreported.

#### **Positive changes**

Cothron says the agency has "seen a number of positive changes," compared with earlier years when inspectors often saw such dangerous practices as recapping of needles, blades removed from handles by hand, and washing of sharp instruments with bare hands.

Among improvements are:

- better understanding of the need for hands-free passing of sharps and not using hands, forceps, or needleholders to remove blades from handles
  - more thorough evaluation of safer alternatives to sharps
  - better justification and documentation when safer sharps devices aren't available or are contraindicated
  - less overfilling of sharps disposal containers
  - more correct follow-up treatment for injured employees.
- Surgical packs are one area Cothron says still needs attention.

"We have seen a problem with surgical kits that have nonsafe devices. We've been requiring hospitals to take those out and substitute safer items as part of their abatement."

She encouraged OR managers and staff to insist that sharps safety devices be provided under their pack contracts.

price in line." If an agreement can't be reached, the product isn't included in the evaluation.

Ralls says the biggest cost of Centennial's recent sharps initiative was switching to the safety scalpel. She justified the increase by citing OSHA requirements and the need to protect staff.

#### **Putting the program in place**

Several steps can help you get a successful surgical sharps injury prevention program up and running.

#### **Form the right team**

"Bring together thought leaders and get support from your pri-

mary surgeons," says Gina Pugliese, vice president of the Premier Safety Institute. "It's important to have a physician champion," adds Dr Berguer.

At Centennial, the OR directors, educators, and surgical technologists created policies related to sharps. The policies went to the hos-

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### **OSHA bloodborne pathogens violations:**

**October 1, 2008, through September 30, 2009**

	<b>Facilities inspected</b>	<b>BBP violations</b>	<b>Total BBP fines</b>		<b>Facilities inspected</b>	<b>BBP violations</b>	<b>Total BBP fines</b>
AL	0	0	0	MT	0	0	0
<b>AK</b>	4	3	\$3,000	NE	0	0	0
<b>AZ</b>	5	1	\$375	<b>NV</b>	15	2	\$9,625
AR	1	0	0	NH	0	0	0
<b>CA</b>	60	5	\$3,675	<b>NJ</b>	3	2	\$2,550
CO	1	0	0	<b>NM</b>	2	0	0
<b>CT</b>	1	0	0	<b>NY</b>	24	4	\$3,975
DE	0	0	0	<b>NC</b>	10	1	\$1,348
DC	1	0	0	ND	0	0	\$0
FL	7	2	\$3,506	OH	2	0	\$0
GA	1	0	0	OK	1	4	\$2,500
<b>HI</b>	3	0	0	<b>OR</b>	45	9	\$885
ID	0	0	0	PA	21	17	\$9,186
<b>IL</b>	10	15	\$14,438	RI	0	0	\$0
<b>IN</b>	2	0	0	<b>SC</b>	6	0	\$0
<b>IA</b>	3	0	0	SD	0	0	\$0
KS	0	0	0	<b>TN</b>	34	54	\$86,850
<b>KY</b>	9	0	0	TX	8	0	\$0
LA	0	0	0	<b>UT</b>	1	0	\$0
ME	2	0	0	<b>VT</b>	0	0	\$0
<b>MD</b>	7	1	0	<b>VA</b>	7	0	\$0
MA	5	0	0	<b>WA</b>	20	8	\$2,600
<b>MI</b>	30	0	0	WV	10	5	\$4,890
<b>MN</b>	10	1	\$175	WI	5	0	\$0
MS	2	1	\$3,750	<b>WY</b>	0	0	\$0
MO	4	0	0				

BBP = Bloodborne pathogens.

States in bold have state-approved OSHA plans.

States in bold italics have state-approved plans that cover state and local governments only.

Source: Occupational Safety and Health Administration. [www.osha.gov](http://www.osha.gov)

pital's Surgical Standards Practice Council, which includes surgery, cath lab, radiology, and labor and delivery because those areas use sharps as well. Changes were communicated to the Surgical Advisory Committee, which has a chief from each specialty service line.

Ralls recommends looking at the safety of all sharps in the OR, including injectable needles. At Centennial, the team reviewed all kits, including anesthesia kits, and re-

placed current sharps with comparable safety products whenever possible.

#### ***Give options and gather input***

It can be a challenge to get surgeons to try the newer products, but Pugliese says better products mean "you'll be able to find something that works for you."

Giving surgeons a choice is important too. "If you only come in with one product, it definitely in-

creases your opposition," says Ralls.

The OR directors keep documentation from staff and surgeons about new products trialed. That way, they have a record to refer to if a surgeon who gave the product a positive review later complains about it.

#### ***Educate***

EPINet data show that in 71% of cases when an injury was caused by a needle with a safety design, the

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safety feature wasn't activated. This may be a case of people rushing or a sign more education is needed.

Education takes time. Dr Berguer suggests making products available for trials, putting up posters, and presenting at department meetings.

Perry suggests using positive examples of hospitals that made improvements resulting in a lower injury rate.

Sharps injuries tend to be higher in teaching hospitals because there are more trainees, says Perry. Unfortunately, surgical residents may not receive adequate training in suture technique. Perry reports one hospital instituted a suture training program.

### **State the consequences**

Perry says, "OSHA can cite the surgeons even if they are not em-

ployees of the hospital because by not using safety devices such as blunt suture needles, they create a hazardous environment for those who work around and with them." She adds that in surgical settings, more injuries are sustained by techs and RNs than surgeons themselves.

### **Track your progress**

Tracking helps identify successes that you can pass on to staff and surgeons. Ralls says Centennial's overall program decreased injuries from 4 to 1. The hospital has 25 ORs in its main tower and 12 in the women's facility.

Converting to surgical safety devices still is challenging, even if you follow these steps, says Ralls, adding, "Nobody likes change except wet babies."

### **Choose safety**

Making the choice for OR sharps safety should be easy, says Perry. "A, you run the risk of fines from OSHA, and B, it's a safety issue—the biggest risk is to the staff who work around the surgeon."

Adds Pugliese: "Safety is a challenge that cuts across worker safety, environmental safety, and patient safety. We haven't crossed the finish line."

Perhaps the most succinct reason for changing practice comes from Ralls, "It's the right thing to do."❖

—Cynthia Saver, RN, MS

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### **OR Manager Reprint**

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