



Safety in Urine Sampling

By Ron Stoker

People enter a hospital with the expectation, or at least the hope, of feeling better when they leave—to be healed of their afflictions while they are in the hospital. And yet often many of them come home from the hospital sicker than when they went in, having contracted a healthcare-associated or nosocomial infection. Each year more people die from hospital-acquired or nosocomial infections than from automobile crashes, drowning, falls, burns, and poisonings combined. A hospital-acquired infection is usually one that first appears three days after a patient is admitted to a hospital or other healthcare facility.

It has been estimated that as many as 1% of all patients with a nosocomial infection die as a direct result of the infection and that nosocomial infections contribute to the death of 2.7% of patients admitted to hospitals. CDC records show that about 2.1 million patients each year, or 6%, of all hospital patients will contract a hospital-acquired infection. This accounted for more than 103,000 deaths in 2000.

Of the 2.1 million patients acquiring nosocomial infections, more than 40% or 840,000 patients will acquire urinary tract infections (UTIs), many of whom have had a Foley catheter placed in the urinary tract.

Although various devices have been used to drain urinary bladders since antiquity, modern urinary catheters have only been used since 1934 when they were first marketed by C.R. Bard and Company, at the time a 9-year-old medical device company.

The use of urinary catheters has been a great blessing for patients with urinary retention and those recovering from surgical procedures. As with most medical devices, the use of urinary catheters has the potential of some serious risks. Urinary tract infections are one of these risks. Urinary catheters are associated with almost 80% of nosocomial UTIs. Many hospitalized patients require

the placement of indwelling urinary catheters for days or even weeks at a time. Infection control personnel routinely talk about minimizing the infection risks associated with urinary catheters. The opening of a pre-connected urinary catheter system can contaminate the sterile system. This contamination can allow bacteria to grow and make its way through the catheter and into the bladder. Bacterial colonization of the system can also occur during urine drainage from the collection bag or through the disconnection of the urine sampling device.

These infections are not inexpensive. One study found an average increase of 3.8 days in the hospital and an average excess cost of \$3,803 . Fortunately, many hospitals are now using silver alloy/hydrogel coated catheters to reduce the incidence of UTIs and bacteremia, which is likely to produce cost savings compared to standard Foley catheters.

It is important to protect the patient from catheter associated urinary tract infections while at the same time protecting healthcare workers from becoming involuntary recipients for a urine-contaminated needlestick. Since urine sampling is frequently the first step in testing for UTIs, manufacturers have developed nurse-friendly products and methods to withdraw urine samples. Many manufacturers have a port where a needle is inserted through a septum to aspirate urine. In order to do this the clinician must hold the bag to expose the port septum. Typically this is done by cupping the port in the non-dominant hand and inserting the needle into the septum. In some products there is a port to insert a blunt cannula or needle to obtain a urine sample. However, hospitals that do not stock blunt needles end up using standard needles in these ports.

Urine accounts for 5% of the body fluids involved in needlestick exposure. With the number of needlestick injuries in the United States between 600,000 and one million

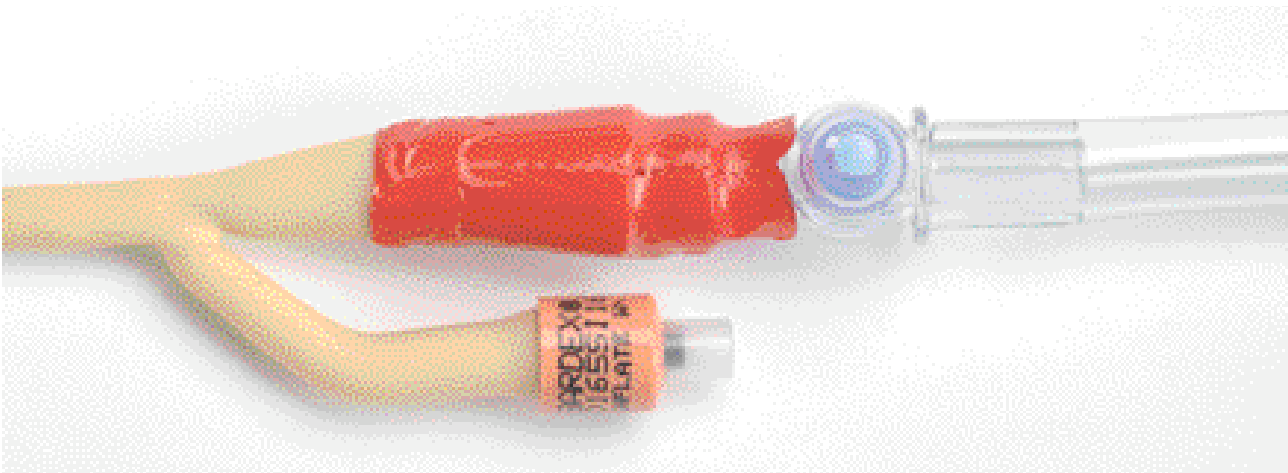
Urinary catheters are associated with almost 80% of nosocomial UTIs. Many hospitalized patients require the placement of indwelling urinary catheters for days or even weeks at a time.

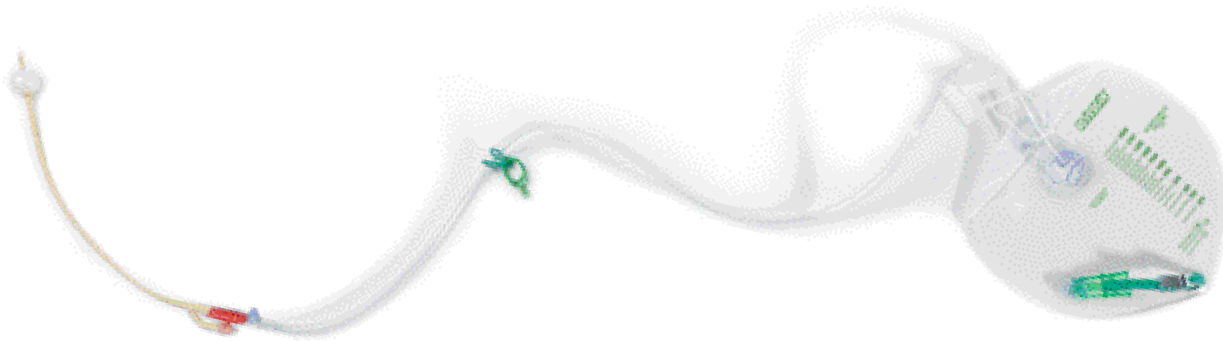
each year, which would mean that urine sampling could place 30,000 to 50,000 healthcare professionals at risk for needlestick injuries.

To meet the requirements of the Needlestick Safety and Prevention Act, OSHA issued a set of safety standards for healthcare professionals to reduce the risk of needlesticks in the workplace. One way of doing this is to eliminate the need for needles. The OSHA enforcement procedure document states, “Ideally, the most effective way of removing the hazard of a contaminated needle is to eliminate the needle completely by converting to needleless systems.”

Safer Products

A new urine sampling product is now available for urine sampling that does exactly that: eliminate the need for a needle or blunt needle. Bard Medical recently launched the Bard EZ-Lok™ Sampling Port designed to eliminate the risk of needlestick injury. This product was designed in response to the safety needs of healthcare workers and OSHA standards





and CDC guidelines. Needlestick injuries resulting from urine sampling can account for up to \$90 million in healthcare costs annually. This new sampling port is used when a urine sample is required for routine urinalysis, cultures and other diagnostic tests. Using only a luer-lock or slip tip syringe, the Bard EZ-Lok Sampling Port is completely needleless, self-sealing, leak-proof and latex-free.

One satisfied user of the Bard EZ-Lok Sampling port is Michelle Roberts, RN, CIC, of Jefferson Regional Medical Center from Pine Bluff, Ark. “We had a needlestick injury just before being introduced to the EZ Lok system. The nurse was bending over to withdraw the sample and was not very stable on her feet. After inserting the needle into the port and aspirating the urine sample, she withdrew the needle and accidentally stuck herself,” recalls Roberts. “It was an easy decision to change to the Bard EZ Lok system two months ago – we have had a flawless conversion, and of course, no needlesticks!”

So how is this product used? Simply follow these steps to obtain a urine sample without a risk of needlestick injuries: Occlude drainage tubing a minimum of 3 inches below the sampling port by kinking the tubing until urine is visible under the access site.

- ▶ Swab surface of the Bard EZ-Lok Sampling Port with antiseptic wipe.
- ▶ Using aseptic technique, position the syringe in the center of the sampling port. The syringe should be held perpendicular to the surface of the sampling port.
- ▶ Press the syringe firmly and twist gently to access the sampling port.
- ▶ Slowly aspirate urine sample into syringe and remove syringe from sample port
- ▶ Unkink tubing and transfer urine specimen into specimen cup or follow hospital protocol. Discard syringe according to hospital protocol.
- ▶ Follow established hospital protocol for specimen labeling and transport to lab.

With the number of needlestick injuries in the United States between 600,000 and one million each year, that would mean that urine sampling could place 30,000 to 50,000 healthcare professionals at risk for needlestick injuries.

As the number of empty nursing positions increase, the workload for nurses continues to intensify with nurses working long hours under difficult circumstances. One way of taking care and keeping nursing staff is to show them that you are concerned about their safety. This can be done by following the requirements of the law and replacing traditional needles with sharps injury prevention products such as safety urine sampling products. †

References

1. Garcia-Martin M, Lardelli-Claret P, Jimenez-Moleon J, et al. Proportion of hospital deaths potentially attributable to nosocomial infection. *Infect Control Hosp Epidemiol*. 2001;22:708-714.
2. Jain P, Parada JP, David A, Smith LG. Overuse of the indwelling urinary tract catheter in hospitalized medical patients. *Arch Intern Med* 1995;155:1425-1429
3. Classen D. Assessing the effect of adverse hospital events on the cost of hospitalization and other patient outcomes. University of Utah, 1993.
4. Saint S. Clinical and economic consequences of nosocomial catheter-related bacteriuria. *Am J Infect Control* 2000;28:68-75

Ron Stoker, a frequent contributor to Managing Infection Control magazine, is the Executive Director of ISIPS, the International Sharps Injury Prevention Society. He is a frequent speaker on sharps safety and occupational blood exposure at national and international events. For more information about ISIPS and sharps safety products, visit www.isips.org, or email Mr. Stoker at ron@isips.org.

For more information on the Bard EZ-Lok Sampling Port, contact Bard Medical Division, 800-526-4455, or visit <http://www.bardmedical.com/>.