RESPONDING TO UROLOGICAL EMERGENCIES

LEARNING OBJECTIVES
1. Discuss reasons why urology carts are available in many healthcare facilities
2. Review the most common types of urological emergencies
3. Describe the contents of a well-stocked urology cart
4. Explain procedures to manage urology carts after use

Instrument Continuing Education (ICE) lessons provide members with ongoing education in the complex and ever-changing area of surgical instrument care and handling. These lessons are designed for CIS technicians, but can be of value to any CRCST technician who works with surgical instrumentation.

Earn Continuing Education Credits:
Online: You can use these lessons as an in-service with your staff, or visit www.iahcsmm.org for online grading at a nominal fee.

By mail: For written grading of individual lessons, send completed 15-question quiz and $15 to: PEC Business Office, Purdue University, Stewart Center Room 110, 128 Memorial Mall, West Lafayette, IN 47907-2034.

Scoring: Each 15 question online quiz with a passing score of 70% or higher is worth two points (2 contact hours) toward your CIS re-certification or CRCST re-certification (12 points).

More information: Direct any questions about online grading to IAHCSMM at 131.440.0078. Questions about written grading are answered by Purdue University at 800.830.0269.

WHY UROLOGY CARTS?
A centrally-located and well-stocked urology cart can save time, money and patient suffering. The cart’s contents should be planned with input from the facility’s Urologists to best ensure that adequate instruments and supplies are readily available for their use. A large facility with a large urological department may keep the emergency cart in the Urology Unit, while other facilities may keep this cart in the CS department. However, everyone needs to know where it is kept within the specific facility, so it can quickly be transported to the Urologist caring for the patient in need.

Care should be taken to record the location to which the cart is dispensed, so it can be retrieved should the user fail to return it. A simple clipboard with sign-out sheet is adequate for this purpose. Larger facilities may use electronic tracking, but the purpose is the same: to ensure the location of the cart is known so it can be quickly retrieved when necessary.

TYPES OF UROLOGICAL EMERGENCIES
Urological emergencies can arise from a number of situations. The most common in locations with large populations of men age 60 and older is bladder outlet obstruction, which occurs when the prostate gland becomes enlarged. This condition is often caused by prostate cancer or benign prostatic hypertrophy (BPH: also called benign enlargement of the prostate because it involves an increase in the size of the gland). In both situations, the patient is in an extremely uncomfortable condition, and immediate intervention is required.

Medication side effects can cause difficulty in voiding, with resulting urinary retention, and can prevent the adequate emptying of the bladder in males and females. Opiate pain medications are a common cause of urinary difficulties for post-operative patients. Some medications used to alleviate “over-active bladder” can actually work too well and result in urinary retention.
Trauma to the external genitalia for males and females can also result in an inability to empty the bladder. For example, bicycle injuries, straddle falls and childbirth can create trauma that can cause urinary retention. Note: patients with genital trauma will generally be attended by the Urologist.

The manufacture of urine in the kidneys does not stop just because the person can no longer pass urine. A bladder filled beyond its normal capacity is very painful. The resulting increase in pressure and pain causes the urine to back up into the kidneys themselves which creates hydronephrosis (fluid on the kidney). This condition is also very painful and can cause permanent kidney damage. Therefore, these patients require immediate intervention.

Once it is determined that mechanical drainage of the bladder is needed, a registered nurse or specially trained technician can assess the patient and, after a doctor’s order is granted, a regular Foley catheter (a soft, plastic or rubber tube) can be inserted into the bladder to drain the urine. The attending physician may also attempt to place a regular Foley or a special Coude catheter (one with a curvature and tip that enables passing the prostate gland). If these attempts are unsuccessful, the intervention of a Urologist will be required.

Bladder outlet obstruction or urethral stricture (an abnormal narrowing of the urethra) in males may require the use of male urethral sounds (see photo 1). Note: urethral strictures may be caused from previous surgical scarring, chronic bladder infection, or sexually-transmitted diseases. Along with some pain medication for the patient and a topical anesthetic placed in the urethra, the Urologist will attempt to stretch the urethral opening with urethral sounds large enough to place a temporary catheter.

Urethral sounds can be metal or disposable and come in a set of graduated sizes, from 10 French to a 32 French diameter (the French scale-size gradients for these instruments and catheters are measured in millimeter graduations). Male urethral sounds are curved at one end to assist in maneuvering past the prostate gland. Female urethral sounds are straight and have the same graduated sizes as their male counterparts (See photo 2). It is important that a complete set of urethral sounds be provided; there should be no missing sizes. Stretching the urethra is delicate and attempting to dilate too rapidly can cause further damage and scarring to the urethra. A complete set will include each size: 10fr, 12fr, 14fr, 16fr, etc., in 2mm increments through 32fr (see photo 3 depicting a sample of some of the graduated sizes in female urethral sounds).

The Urologist first uses the smallest-size sound and then stretches the urethra by passing gradually larger sounds. When the smallest sound cannot be passed through the urethra a different set of instruments is required. Based on patient information, age and health history, the Urologist may choose to utilize a dilation set commonly called filliforms...
and followers (see Photo 4, which shows a sample of available sizes; the complete set contains about 18 pieces in different sizes). These are available in disposable or reusable sets with very small gradient sizes and alternate shaped tips. Note: photo 5 shows the point where the filliforms and followers connect (screw together) for use on the patient.

If the Urologist is still not successful in adequately stretching the urethra, a suprapubic catheter may be needed. The Urologist injects a local anesthetic (lidocaine) in the lower abdomen and then makes a small incision over the bladder to place the catheter into the bladder through the abdominal wall. The catheter may be sutured into place and will require a sterile dressing. If a catheter cannot be successfully placed, a more extensive surgical procedure will be required with the patient under anesthesia, and it is generally performed in the Operating Room.

Once an indwelling catheter can be placed to relieve the distended bladder, the patient will be much more comfortable. Care of the patient can then change to planning corrective actions for the cause of the bladder outlet obstruction or other related causes of the urinary retention.

CONTENTS OF UROLOGY CARTS
A urology cart that is well-stocked with a variety of reusable instruments and disposable supplies waiting at the patient’s bedside helps to provide faster relief. It is important to label the cart and supplies in a way that the nurse or technician can easily identify disposable items and those which must be returned to the CS department for processing after use.

For example, a cart supply list (with pictures, if possible) should be available on the cart, and it can include a note indicating whether each item is reusable or disposable. Metal instruments almost always come back to the CS department, but this is not always the case with filliforms and followers. A common reason is that the filliforms and followers appear to be made of a plastic material with small metal connecting tips, and they are often...
unintentionally discarded by the personnel assisting the Urologist. Education is key, and a flag on the package and on the cart checklist reminding users to return these items to the CS department can be helpful.

Contents of the cart may include basic supplies, such as sterile surgical gloves, sterile fluid-resistant gowns, patient prep sets, urethral sound sets, and sterile water, to inflate the catheter balloon.

Catheter-related items may include catheter guides, regular Foley catheter insertion kits, and Coude catheters. Other items include a variety of sizes and styles of urethral catheters (commonly made of latex because they are stiffer and, therefore, more difficult for the urethra to compress), and three-way irrigating catheters because continuous bladder irrigation may be required. Depending on the ages of patients served, pediatric catheters may also be included. Also, percutaneous urinary catheter kits may also be included on the cart for those situations where draining the bladder is not possible any other way except by inserting the percutaneous catheter through the patient's abdomen.

Other commonly-provided supplies that may be stored on urology carts include:
- syringes (5, 10 and 30 ml sizes) to inflate the balloon of the catheter once inserted
- sterile water vial (50 ml) to inflate the balloon on the end of the catheter that keeps the catheter from sliding out of position;
- bedside drainage bags to connect to the catheter for urine collection;
- topical lidocaine jelly provided in a special urology delivery syringe. Note; if this item is not stored on the cart, a memo to alert the nurses to obtain it from the pharmacy will help save time.
- Sterile lubricating jelly;
- Sterile irrigation fluids in 3000 ml size for continuous bladder irrigation after the catheter insertion is accomplished for trauma or post-operative bleeding.

**AFTER-USE CART MANAGEMENT**
The emergency urology cart must be returned to the CS department after use for cleaning, restocking and processing of reusable instruments. It is vital that a specified containment method be developed and consistently used to return reusable instruments. As this is done, contaminated (used) instruments must not be placed back into the cart with sterile items because doing so contaminates the other items that come into contact with those that have been used.

Any method that is convenient and readily accessible has a better chance of success. For example, some facilities include a properly-marked rigid container with the urology cart that can be returned separately to the CS decontamination room or a dedicated soiled utility room equipped with collection bins for this purpose. Other facilities send properly marked decontamination bags with the cart so soiled instruments can be sealed in the bag immediately after use and then placed in the soiled utility room or returned separately to the CS decontamination room. Communication and collaboration are keys to ensuring that the sterile cart supplies are not inadvertently contaminated and that reusable instruments are not inadvertently discarded.

**IN CONCLUSION**
Urological emergencies occur in many patient care areas. Providing a timely and efficient response to the patient's need for pain relief, and for protection of kidney function, are mutual goals of the patient care team and CS personnel. Providing a well-planned and appropriately-stocked urology cart provides the means to care for patients when they are in great need. The patients may never know about all the planning, collaboration and follow-up activities that were required to maintain the emergency urology cart that was utilized in their care. However, they will appreciate the speed and efficiency with which their critical needs are met. This lesson has just provided one more example of how CS is vital to patient care.

IAHCSMM is looking for volunteers to write or contribute information for our CIS Self-Study Lessons. Doing so is a great way to contribute to your own professional development, to your Association, and to your Central Service department peers.

Our Team will provide guidelines and help you with the lesson to assure it will be an enjoyable process. For more information, please contact Elizabeth Berrios (elizabeth@iahcsmm.org).
1. Which is the most common cause of urological emergencies in older men?
   a. Medication side effects
   b. Bladder outlet obstruction
   c. Trauma to the external genitalia
   d. Cessation of the manufacture of urine in the kidneys

2. What happens if the bladder is filled with urine beyond its normal capacity?
   a. The condition creates benign prostatic hypertrophy
   b. Prostate cancer can result
   c. Hydronephrosis (fluid on the kidney) can occur
   d. All of the above depending upon the volume of urine

3. Which is typically used to drain urine from a patient’s bladder?
   a. Urethral sounds
   b. Suprapubic catheter
   c. Filliforms
   d. Foley catheter

4. Which is a cause of urethral strictures?
   a. Chronic bladder infection
   b. Sexually-transmitted diseases
   c. Surgical scaring
   d. All the above

5. Filliforms and followers are available in both disposable and reusable sets.
   a. True
   b. False

6. The use of which of the following requires injection of a local anesthetic in the lower abdomen before it is used?
   a. Foley catheter
   b. Suprapubic catheter
   c. Coude catheter
   d. All the above

7. Which is used when the smallest urethral sound cannot be passed through the urethra?
   a. Filliforms
   b. Followers
   c. Suprapubic catheters
   d. A and B above
   e. All the above

8. Filliforms and followers are often unintentionally discarded because
   a. They are very small and sometimes cannot be seen
   b. They are, most often, disposable
   c. They appear to be made of plastic
   d. All the above

9. How is a catheter balloon inflated?
   a. By manual pump
   b. Air pressure
   c. Sterile water
   d. CO2

10. What is the common material from which urethral catheters are made?
    a. Silicone
    b. Titanium
    c. Stainless steel
    d. Latex

11. Which of the following are commonly-provided supplies on urology carts?
    a. Bed side drainage bags
    b. Topical lidocaine jelly
    c. Sterile lubricating jelly
    d. All the above

12. Sterile irrigation fluids in _______ ml size are typically found on urology carts.
    a. 1,000
    b. 2,000
    c. 3,000
    d. 4,000

13. If a catheter cannot be successfully placed, a more extensive surgical procedure with the patient under anesthesia will be needed.
    a. True
    b. False

14. The smallest size of a urethral sound is:
    a. 10 fr
    b. 12 fr
    c. 14 fr
    d. 16 fr

15. Male and female urethral sounds come in the same graduated sizes.
    a. True
    b. False