

Alternatives to the Indwelling Urinary Catheter



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Learning Objectives

- Identify alternatives to the indwelling urinary catheter that can be used in various patient care settings
- Describe strategies to implement catheter alternatives
- Discuss methods to increase health care personnel awareness of when to consider alternatives to the indwelling urinary catheter



Tiers of Interventions to Prevent CAUTI*

Tier 1 Standardize Supplies, Procedures and Process

(complete all interventions: review and audit compliance with Tier 1 measures prior to moving to Tier 2)

Place indwelling urinary catheter only for appropriate reasons	Encourage use of alternatives to indwelling urinary catheters	Ensure proper aseptic insertion technique and maintenance procedures	Optimize prompt removal of unneeded catheters	Urine culture stewardship: culture only if symptoms of UTI are present
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(If CAUTI rates remain elevated, start with CAUTI Guide to Patient Safety (GPS) and Target Assessment for Prevention (TAP) Strategy and then proceed with additional interventions)

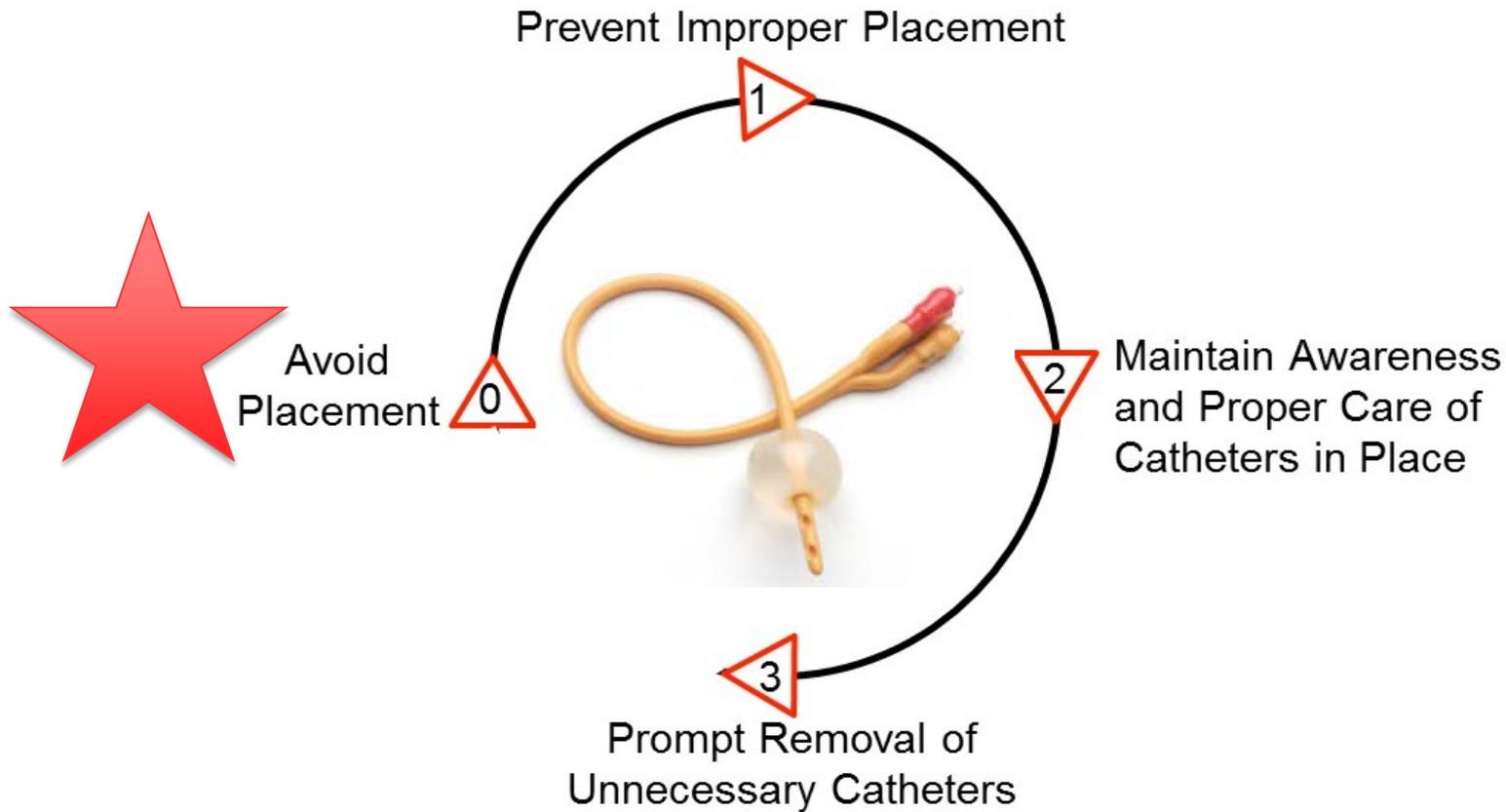
Perform needs assessment with CAUTI GPS and TAP Strategy

Tier 2 Enhanced Practices

Conduct catheter rounds with targeted education to optimize appropriate use	Feed back infection and catheter use to frontline staff in “real time”	Observe and document competency of catheter insertion: education and observed behavior	Perform root-cause analysis or focused review of infections
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Where to Start



(Meddings J, Saint S. Disrupting the life cycle of the urinary catheter. Clin Infect Dis. 2011;52(11):1291-3. PMID: 21596672.)



Anywhere Hospital's Emergency Department (ED)

- More than 50% of patients had urinary catheters inserted in the ED
- Providers indicated that accurate hourly intake and output (I and O) was the most frequent justification for insertion of the urinary catheter
- Most providers were unaware of alternatives



Barriers to Alternatives

- Time
- Perception that patient needs a urinary catheter for accurate intake and output
- Nursing reluctance
- Lack of physician support
- Lack of available or appropriate supplies
- Lack of knowledge related to infectious and non-infectious complications of urinary catheter use



Strategies to Overcome Barriers

- Provide education on available alternatives
- Work with the multidisciplinary team to implement and evaluate alternatives to the urinary catheter
- Ensure that alternate strategies are implemented correctly
- Develop champions to coach and mentor health care workers
- Consider more than one champion on a unit



Medical Mindfulness: A Critical Element of Evidence-based Practice

Mindful Evidence-based Model	Example: Urinary Catheter Placement Decisions
Careful consideration of therapeutic and behavioral options and alternatives	Possible consequences, alternatives and catheter placement decisions
Synthesis of patient-specific conditions and context	Infection risk, skin risk, availability of staff
Consideration of essential patient factors	Disease process, incontinence, mobility
Consideration of evidence-based recommendations	Appropriate catheter indications
Professional skills and knowledge	Benefits and risks of indwelling catheter placement
Individual values and experience	Perceptions related to urinary catheter placement



Indications for Use of External Catheters

- Stage III or IV or unstageable pressure ulcers
- Incontinence-associated dermatitis
- Daily measurement of urine volume
- Single 24-hour or random urine sample
- Reduction in acute, severe pain
- Patient request for external catheter
- Comfort in dying patient



Alternatives to Indwelling Urinary Catheters: External Catheters

- Both male and female external catheters
 - Male external catheters often called Condom Catheters
- Evaluate products
- One size does not fit all (correct sizing is important)
- Get patient feedback when possible
- Have health care workers demonstrate ability to apply and remove the catheter correctly
- Avoid use in restless or combative patients



Female External Catheter

- Challenges in development of a usable external female catheter due to female anatomy
- More recent development of an external catheter consisting of an elongated tube wrapped in wicking material
- Vacuum pulls urine through the wick



Female External Catheter Barriers and Solutions

Barriers

- Excessive movement or side-lying may dislodge the wick
- Difficulties with rapid large volume removal of urine (i.e., diuretics), which may exceed container
- Requires application skill and expertise of caregiver
- Initially may be time intensive while developing expertise

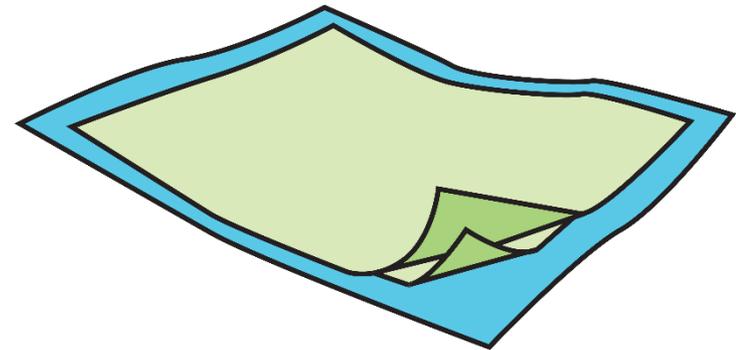
Solutions

- Provider education
- 1-on-1 demonstration and repeat demonstration
- Identify patients who may be most likely to benefit
- Avoid patients who have anticipated rapid large volume diuresis
- Feedback and studies important



Alternatives to Indwelling Urinary Catheters: Incontinence Products

- Use the one that is right for your patient
- Test the quality of incontinence pads and products
- If the patient requires regular intake and output monitoring, pads can be weighed



Weighing Pads



$$\text{Wet Pad} - \text{Dry Pad} = \text{Output}$$

Method:

1. Weigh the dry pad; record the weight
2. Place dry pad under the patient
3. Once wet, weigh the wet pad (in grams)
4. Subtract the weight of the dry pad from the wet pad (see above)
5. Convert the resulting weight from grams to milliliter to measure volume of output (1 gram = 1 milliliter of urine)



Alternatives to Indwelling Urinary Catheters: Urinals

- Non-catheter option in patients who do not require hourly output
- Use in cooperative patients without urological problem requiring a urinary catheter



Female Urinal

- Different types and brands on the market
- An acceptable alternative for specific conditions
- Trial and test different brands

TIPS:

- Present the device to the patient; explain that it is a device to collect urine
- Assist the patient in placing the urinal flat side down, handle up between the patient's legs flush to the perineum
- Adjust patient's head to an upright position for comfort



Intake and Output—Other Strategies

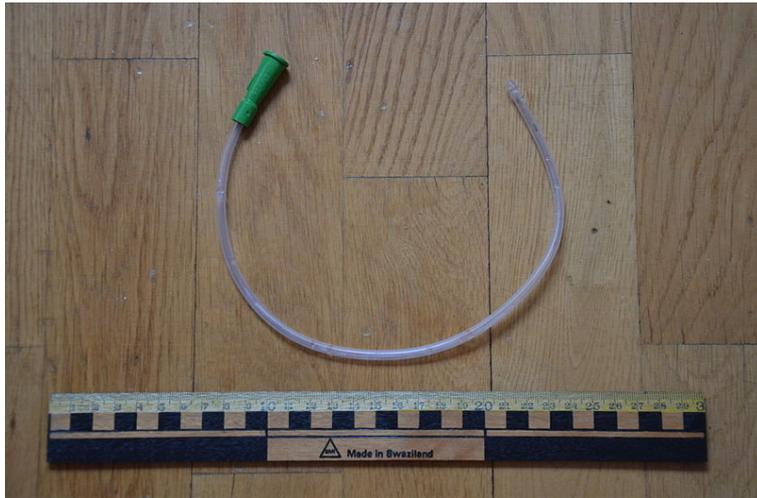
- Bedpans and commodes
- Daily weights (must ensure accuracy)



Alternatives to Indwelling Urinary Catheters: Bladder Scanner



Alternatives to Indwelling Urinary Catheters: Intermittent Straight Catheters



Indications for Intermittent Straight Catheter Use

- Acute urinary retention without bladder outlet obstruction
- Chronic urinary retention with or without bladder outlet obstruction
- Stage III or IV or unstageable pressure ulcer if intermittent straight catheterization is adequate to manage the type of incontinence
- Urinary incontinence that is treated and can be managed by intermittent straight catheterization
- Urine volume measurements
- Random urine sample collection
- Management of urination in patients with strict temporary immobility



Summary Strategies to Overcome Barriers

Need for Accurate Intake and Output

- In males, consider a urinal or condom catheter if the patient is not restless or combative
- In females, consider a bedpan, female urinal or external female catheter
- For the incontinent patient, consider absorbent pads

Lack of Available or Appropriate Supplies

- Involve the Supply Chain/Materials Management
- Collaborate with product representatives
- Ask for staff to provide feedback on products
- Involve the frontline staff



Strategies to Promote Use of Alternatives

- Seek understanding of why staff are reluctant to use alternatives
- Educate and train staff on when and how to correctly use alternatives
 - Concentrate efforts where catheters are most often placed (e.g. ED, OR)
- Involve staff in the selection and evaluation of high quality alternatives
- Ensure availability of alternatives on every unit where catheters are placed
- Recognize staff who routinely use alternatives effectively
- Share patient stories



Lessons Learned

- Create a “shared mental model” by implementing multidisciplinary catheter rounding
- Stop and think critically about whether the patient needs a urinary catheter or if there are alternatives that may be appropriate
- Accurate intake and output can be achieved without the use of a urinary catheter
- Educate staff on the use of alternatives and include staff in the trialing and selection process of alternatives



References

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Speaker Notes



Speaker Notes: Slide 1

Welcome to the third module of the Catheter-Associated Urinary Tract Infection (CAUTI) Prevention Course. This module, titled “Alternatives to the Indwelling Urinary Catheter,” will discuss the use of alternative devices to limit urinary catheter use while still obtaining accurate intake and output in most hospitalized patients.



Speaker Notes: Slide 2

This module was developed by national infection prevention experts devoted to improving patient safety and infection prevention efforts.



Speaker Notes: Slide 3

After completing the module you will be able to:

- Identify alternatives to the indwelling urinary catheter that can be used in various patient care settings;
- Describe strategies to implement catheter alternatives; and
- Discuss methods to increase health care personnel awareness of when to consider alternatives to the indwelling urinary catheter.



Speaker Notes: Slide 4

This graphic, which you may recall from the other CAUTI prevention modules, depicts the tiered interventions to reduce CAUTI.

Encouraging the use of alternatives to indwelling urinary catheters to reduce catheter use is a Tier 1 intervention



Speaker Notes: Slide 5

To further discuss alternatives to indwelling urinary catheters, consider the example of Anywhere Hospital USA, a fictitious hospital which illustrates issues actually occurring in acute care and long-term acute care hospitals throughout the United States. Anywhere Hospital continues to have a high CAUTI standardized infection ratio, or SIR and high CAUTI rates. The hospital Chief Executive Officer (CEO) is concerned from several perspectives—he wants to ensure safe care, but is also concerned about cost, length of stay and a potential penalty. But where and how should Anywhere Hospital begin to tackle their CAUTI problem?



Speaker Notes: Slide 5 Continued

One approach is to think about the indwelling urinary catheter as having a life cycle: one should know at which points along that life cycle it makes sense to intervene to prevent problems. The first step in the catheter life cycle, as shown on the slide, is to avoid indwelling urinary catheter placement when possible. Patients cannot develop a CAUTI if they don't have an indwelling urinary catheter. Assessing the hospital's urinary catheter device utilization ratio or standardized utilization ratio, or SUR in the National Healthcare Safety Network, or NHSN, database, can highlight if Anywhere Hospital has high indwelling urinary catheter use compared to other like hospitals.



Speaker Notes: Slide 5 Continued

If the device use is high, a good place to start might be to identify where and why the majority of urinary catheters are inserted and if indwelling urinary catheters alternatives could be used instead. Additionally, Anywhere Hospital needs to assess why alternatives are not used in instances where they are appropriate but an indwelling urinary catheter is used.



Speaker Notes: Slide 6

Upon further analysis of their SUR data, Anywhere Hospital found they had high levels of indwelling catheter use. Additionally, their assessment identified that 50 percent of their indwelling urinary catheters are inserted in the emergency department (ED). Providers indicated that accurate intake and output was the number one justification for insertion of the urinary catheter. In discussing this, most providers and nurses were either unaware of alternatives or resistant to using them.



Speaker Notes: Slide 7

Anywhere Hospital has identified that their high device use ratio may be contributing to their high CAUTI rate. One strategy to reduce the use of indwelling urinary catheters is to ensure that alternatives to urinary catheters are considered and implemented when appropriate.

The CAUTI team at Anywhere Hospital discusses alternatives and has identified a variety of barriers to providing alternative options to urinary catheters throughout the hospital. With competing priorities and time constraints, health care providers do not prioritize assessing the need for indwelling urinary catheters.



Speaker Notes: Slide 7 Continued

There is also a perception that the patient must have a urinary catheter for accurate intake and output; not understanding good alternatives available to provide bladder management and output measurement have contributed to this practice. Bedside nurses are ultimately managing urinary catheters, which is perceived to be advantageous because it reduces the amount of time they must spend managing the bladders of patients and keeping a patient's skin dry. Thus, they are often reluctant to consider alternatives. Physicians, on the other hand, may not always perceive the risk of a urinary catheter or may not always believe that accurate intake and output can be achieved by other means. Adequate supplies were another perceived barrier to use. Next, this module explores identifying some strategies to overcome these barriers.



Speaker Notes: Slide 8

After careful discussion, the team decides to identify some strategies to overcome these barriers. Strategies include:

- Providing education on alternatives;
- Working with the multidisciplinary team to evaluate and implement effective alternatives;
- Ensuring that alternatives are implemented correctly; and
- Developing and mentoring champions. They're also considering having more than one champion on a unit.



Speaker Notes: Slide 9

Another strategy to overcome barriers is a very thoughtful approach called “medical mindfulness.” While the concept of evidence-based practice inherently implies medical mindfulness, take a moment to explicitly consider this very important aspect of evidence-based practice. This approach includes mindfulness around care decisions, including careful consideration of therapeutic and behavioral options, synthesis of patient conditions, awareness of the issues, evaluation of risk versus benefit for an intervention, and other important factors. This concept can be applied to catheter insertion. Simply stated, when we think of catheter insertion, we need to be thoughtful rather than reflexive. You’ll note on the very top right that examples of the decision to place a urinary catheter includes a thoughtful and deliberate approach that considers consequences and alternatives.



Speaker Notes: Slide 10

As the team at Anywhere Hospital determined, providing education on indwelling urinary catheter alternatives is an important part of ensuring they are used and used correctly. The next few slides review the common alternatives to the urinary catheter, beginning with external catheters:

Although you might think of the condom catheter first, external catheters are available for both males and females, and indications are the same.

Acceptable uses include:

- Stage III or IV or unstageable pressure ulcers
- Incontinence-associated dermatitis
- Daily measurement of urine volume
- Single 24-hour or random urine samples
- Reduction in acute, severe pain
- Patient request for external catheter, and
- Comfort in dying patient.



Speaker Notes: Slide 11

As noted in the previous slide, external catheters are now available for both males and females. External catheters for anatomically male patients have been used for many years. This picture shows condom catheters, which work well for many patients provided they are not restless or combative.

External catheters need to be applied correctly. When patients are restless or combative, the external catheter can fall off and the adhesive use to secure it can cause skin damage. When using external catheters it is important to note that one size does not fit all and correct sizing is important for proper application of the condom catheter. It's important to trial products and get feedback from patients who use it if you are able to. Frontline staff should also be able to demonstrate how to apply and remove the catheter correctly. And remember that you want to avoid using condom catheters in restless or combative patients.



Speaker Notes: Slide 12

Clearly, the female anatomy makes creating an external catheter for females more challenging. There have been attempts at producing a workable external female catheter, but until recently many of these attempts have failed in achieving their goal. However, there is now a flexible, contoured external catheter for females with an elongated tube attached to a vacuum and wrapped in wicking material. The wick is placed between the labia and gluteus muscles external to the body and a slight vacuum pulls urine through the wick. Urine continues quickly through vinyl tubing until it reaches the collection container.



Speaker Notes: Slide 13

One of the problems with the newer external female catheter is dislodging the wick due to excessive movement. There may be certain patient populations or conditions that are not suited for this catheter. There is also concern about large volume diuresis, which may potentially exceed the capacity of the urine container. Although the urine container has a shut off valve to prevent overflow, there may be difficulties with rapid large volume removal of urine. Health care workers do report that there is skill, expertise and a time commitment in learning how to apply this correctly.



Speaker Notes: Slide 13 Continued

One of the best ways to overcome barriers to the external female catheter is to ensure appropriate education and training. This often requires one-on-one training and demonstrated competency. In addition, it is important to identify patients who are best suited for the external female catheter and to avoid patients that have anticipated rapid large volume diuresis that may exceed urine container volume. It's important to further evaluate and study this type of device in more detail and to share strategies for successful use.



Speaker Notes: Slide 14

One issue that arose at Anywhere Hospital is the incontinent patient. Although health care workers and family members may worry about possible skin breakdown, urinary incontinence is not an appropriate indication for a catheter, especially when nurses can turn and provide adequate skin care. Therefore, products such as absorbent pads and briefs should be considered to manage incontinence. Additional planning and personnel resources may be required to ensure that patients are regularly prompted and assisted with voiding and assessed for incontinence. And lifting teams or electronic lifts can help with transferring larger patients.



Speaker Notes: Slide 15

If the patient does not require hourly intake and output, weighing pads may be an acceptable alternative. This method is used extensively in newborn nurseries and can be adapted easily to the adult population. The dry pad weight is subtracted from the wet pad weight and the resulting difference, which is expressed in grams, equates to the volume of urine leaked into the pad in milliliters. A detailed description of the process is on this slide. Compared to the system of documenting the number of incontinent episodes, this improved measurement of urine output can prevent the need for a urinary catheter or can facilitate the removal of indwelling urethral catheters as soon as possible.



Speaker Notes: Slide 16

When thinking of alternatives to the urinary catheter, it is important to remember the urinal. Sometimes, it seems intuitive to think of a urinary catheter when a patient is given diuretics and urine volume needs to be measured. However, it is important to remember that unless hourly urine output is required, a urinal is an acceptable device, especially in cooperative patients. Although the male urinal has been used for a long time, it is important to remember that a female urinal is also an option that we will discuss next.



Speaker Notes: Slide 17

The female urinal may be appropriate for immobile alert patients. The staff at Anywhere Hospital found that it's important to evaluate different types and brands. Specific patient tips include presenting the urinal to the patient and explaining that it is used to collect urine. Then, assisting the patient with placing the urinal flat side down with the handle up between the patient's legs, flush to the perineum. And help the patient get comfortable by adjusting the patient's head to an upright position.



Speaker Notes: Slide 18

In addition to the external catheter and urinal, bedpans, commodes and daily weights can be important alternatives when measuring intake and output. One barrier to daily weights, identified by the Anywhere Hospital team, was inconsistency from day to day. It is important to ensure that patients are weighed the same way every day. For example, if a bed weight is obtained, the patient must be weighed with the same amount of linen each day. Once providers are confident in the reliability of the weights, they will be less reluctant to use urinary catheter alternatives.



Speaker Notes: Slide 19

Determining a post-void residual (PVR) is an integral part of assessing bladder volume in patients with suspected urinary retention. The most acceptable and non-invasive method for determining bladder emptying is the use of a portable, ultrasound instrument known as a bladder scanner. Nurses at the bedside can easily evaluate bladder function without invasive instrumentation, such as catheterization, that may cause infections. This is especially helpful in post-operative surgical patients to determine if there is post-void residual. If the patient continues to have fullness and is unable to void, an intermittent straight catheter may be indicated. And remember, bladder scanner use and indications should be included in your hospital's policies and protocols.



Speaker Notes: Slide 20

Intermittent straight catheters are one-time-use catheters. Unlike the indwelling urinary catheter, an intermittent straight catheter does not have a balloon at the end to hold it in place. An intermittent straight catheter only has a single lumen, because it is used for a one-time emptying of the bladder. Catheter sizes available for intermittent straight catheterization are similar to those available for an indwelling urinary catheter. Catheter diameter is measured in French (Fr or Ch), and sizes range from six to 12 Fr for children and 14 to 22 Fr for adults. The funnel end of the catheter is usually color coded to easily identify Fr size. In the next slide, we will discuss indications for use of intermittent straight catheters.



Speaker Notes: Slide 21

When discussing the use of intermittent straight catheters as an alternative to an indwelling urinary catheter, it is important for staff to be familiar with the indications.

- Acute urinary retention without bladder outlet obstruction,
- Chronic urinary retention with or without bladder outlet obstruction,
- Stage III or IV or unstageable pressure ulcer if intermittent straight catheterization is adequate to manage the type of incontinence,
- Urinary incontinence that is treated and can be managed by intermittent straight catheterization,
- Urine volume measurements,
- Random urine sample collection, and
- Management of urination in patients with strict temporary immobility.



Speaker Notes: Slide 22

This slide summarizes common strategies used to overcome barriers to the use of alternatives.

Need for Accurate Intake and Output:

- In males, consider a urinal or condom catheter if the patient is not restless or combative,
- In females, consider the bedpan, female urinal or external female catheter,
- And for the incontinent patient, consider absorbent pads.
- Lack of available or appropriate supplies may be a problem.
- Involve the Supply Chain or Materials Management Department,
- Collaborate with the product representative,
- Ask for staff to provide feedback on products, and
- Involve the frontline staff.



Speaker Notes: Slide 23

In addition to the information discussed earlier, here are several strategies to promote use of alternatives. Of highest importance is to seek understanding of reasons why alternatives are not being used and address those issues. For example, if nursing staff don't know about what alternatives are available, then education is the key. If they are reluctant to use alternatives because of issues arising from inferior quality of alternatives, then quality needs to be addressed. It is essential to ensure staff are involved in the evaluation and selection of alternatives to promote knowledge and use of such devices. Of note, physicians usually assess urinary catheter alternatives through the eyes of nursing. If the nurses are not happy with them, the physicians are likely to have a poor view of them as well.



Speaker Notes: Slide 23 Continued

Assess staff skills with alternatives. Too often, new supplies are added without adequate training and skill building opportunities. As one example, the appropriate and safe use of condom catheters requires not only training, but experience to get it right, with many different patients. The same applies to bladder scanning technology.

Focusing efforts to educate staff about alternatives in units where the majority of urinary catheters are traditionally placed such as the operating room or emergency department can prevent urinary catheter use early in the patient's stay and set the precedence of catheter avoidance. Lastly, positive reinforcement of using alternatives through recognition and showcasing of patient outcomes is important to address staff needs and reinforce best practice.



Speaker Notes: Slide 24

Once the Anywhere Hospital team was able to decrease their device utilization, CAUTIs also decreased. The CAUTI team and staff members learned valuable lessons including the following:

- Create a “shared mental model” by implementing multidisciplinary catheter rounding,
- Stop and think critically about whether the patient needs a urinary catheter or if there are alternatives that may be appropriate,
- Accurate intake and output can be achieved without the use of a urinary catheter,
- And finally, educate staff on the use of alternatives and include staff in the selection of these alternatives.



Speaker Notes: Slide 25

No notes.

