APPROPRIATE URINARY CATHETER PLACEMENT IN THE EMERGENCY DEPARTMENT

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Program Summary

Why must we improve the appropriateness of urinary catheter utilization in the emergency department? What are the goals of the program?

Urinary tract infection (UTI) accounts for more than one-third of all hospital-acquired infections with catheter-associated UTI (CAUTI) representing the majority of these cases. One of the most important ways to prevent CAUTI is to limit the use of indwelling urinary catheters, thereby reducing the size of the population at risk. Optimal prevention is not placing a urinary catheter if not indicated or, if placed, removing it as soon as it is no longer needed. Avoiding placement of unnecessary urinary catheters in the emergency department (ED) may significantly affect utilization during the time of hospitalization. Since more than half of hospital admissions come through the ED, it is important that the ED be viewed as the "point of entry" where efforts to reduce unnecessary urinary catheter utilization should be directed.

The goals of the program are to:

- Promote appropriate placement and utilization of urinary catheters in the ED. This is achieved by preventing the placement of unnecessary urinary catheters and following proper insertion technique for those that are appropriately indicated.
- Reduce the risk of hospital-acquired urinary tract infections (secondary to a reduction in unnecessary urinary catheter use and compliance with aseptic insertion).
- Educate healthcare workers about the appropriate management and insertion of urinary catheters, including indications for placement and continued use of urinary catheters.

Expected immediate results include:

- A reduction in indwelling urinary catheter utilization, reflected in a reduction in urinary catheter placement in the ED and prevalence hospital-wide
- Increased awareness of appropriate indications for urinary catheter use
- Improved healthcare worker compliance with proper insertion technique

Expected longer term results:

- Reduction in bacteriuria
- Reduction in symptomatic urinary tract infection

How do we promote appropriate utilization of urinary catheters in the ED?

Both physicians and nurses need to be cognizant of the appropriate indications for urinary catheterization. This process includes establishing guidelines for urinary catheter utilization and adoption of the guidelines by the ED physicians and ED nurses. Key elements of the guidelines are appropriate indications for indwelling urinary catheter use. Currently, the recommended indications for urinary catheter use, based on the 2009 Healthcare Infection Control Practices Advisory Committee (HICPAC) guidelines, are:

- Acute urinary retention or bladder outlet obstruction
- Accurate measurements of urinary output in critically ill patients
- Perioperative use in selected surgeries
- Assist healing of perineal and sacral wounds in incontinent patients
- End-of-life comfort needs
- Required immobilization in cases of trauma or fractures

What is proper insertion technique?

Urinary catheter insertion includes following certain procedural steps, such as using the smallest catheter possible to avoid urethral trauma, as well as compliance with aseptic insertion technique. Aseptic insertion of indwelling urinary catheters reduces the risk for introducing microorganisms into the urinary bladder during the procedure. Factors that promote compliance with proper insertion technique include the operator's knowledge of the procedural steps, availability of the necessary components for placing the catheter, and a method to audit compliance with the procedural steps.

How is the program implemented?

The process begins by obtaining data on urinary catheter placement in the ED, followed by program implementation and assessment of the impact on urinary catheter placement. Program sustainability is assessed and promoted through periodic evaluation of the urinary catheters utilization.

- Baseline: urinary catheter initial placement rate with evaluation for appropriate indications
- Pre-implementation: (*preparing to implement the program*) the pre-implementation period includes "spreading the word about the program" and getting the healthcare workers ready for the implementation. You may distribute educational materials and provide formal presentations for physicians and nurses. No data are collected during this period.
- Implementation: nursing and physician staff education, promoting the avoidance of urinary catheter placement for those that do not fit appropriate indications (may use institutional guidelines). Educate on proper (aseptic) insertion technique. Collect urinary catheter initial placement rate with evaluation for indications.

- Sustainability: Collect urinary catheter initial placement rate with evaluation for indications.

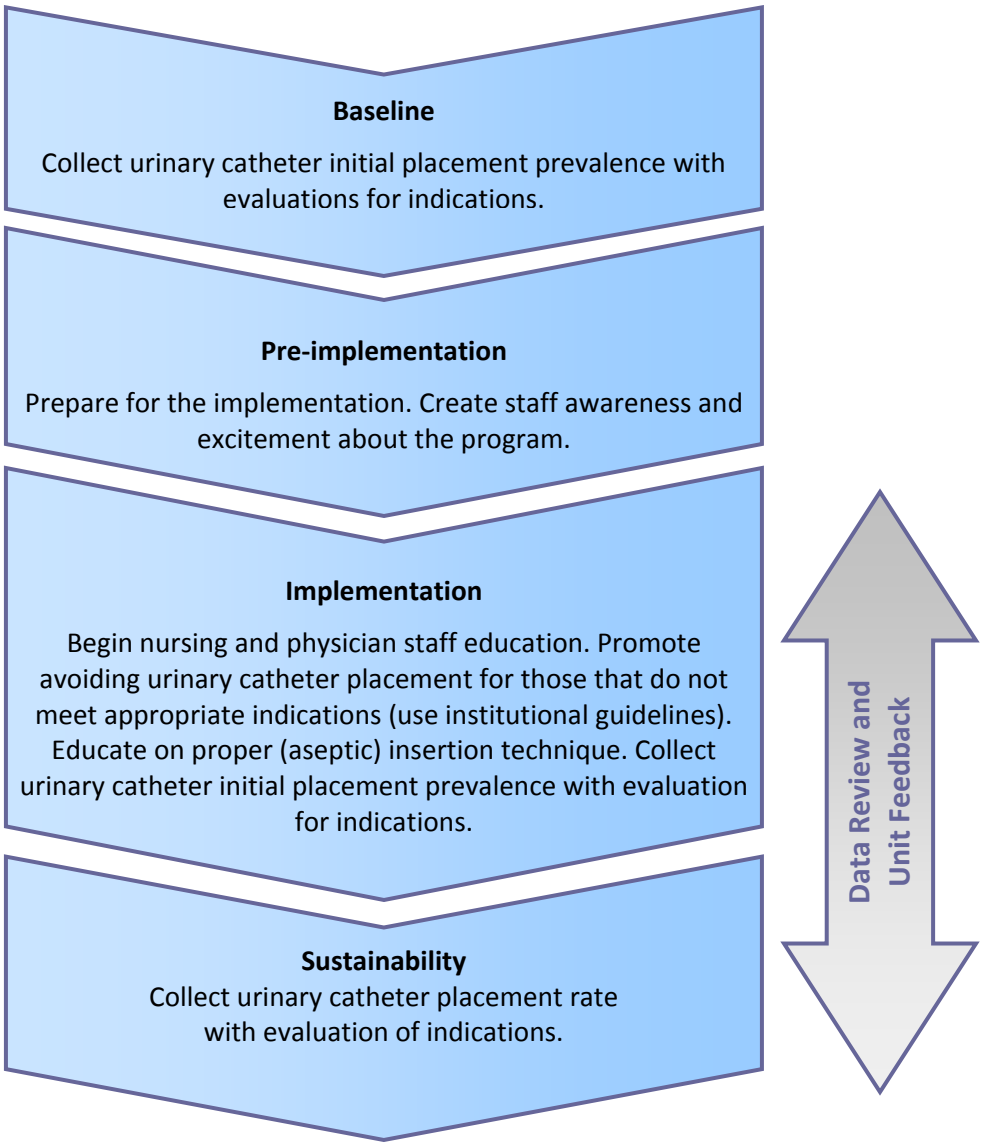
How do we sustain the results?

Sustaining the effect of the program requires having an ED-based champion, who continues to encourage appropriate urinary catheter use and placement technique. Periodic monitoring with feedback and reeducation of staff may also be necessary.

B. Appropriate Urinary Catheter Placement in the Emergency Department Program At-a-Glance

APPROPRIATE URINARY CATHETER PLACEMENT IN THE EMERGENCY DEPARTMENT

PROGRAM AT-A-GLANCE



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Appropriate Urinary Catheter Placement in the Emergency Department:

How to Implement the Program

The following section describes the different steps to implement the program in the emergency department (ED). It also describes appropriate indications for urinary catheter placement, data collection tools, and how to evaluate the program's success.

Outline

1. Program Preparation
    a. HICPAC Guidelines
2. Start the Program
    a. Baseline
    b. Pre-implementation
    c. Implementation (physicians and nurses)
    d. Sustainability
3. Data Collection
4. Proper Insertion Technique
5. Program Evaluation

Prepare for the Program

Before starting the program, we recommend obtaining leadership support. Leadership may include administrators, nurses, and physicians. Identify both nurse and physician leaders to be the point people for the program in the ED. A potential good choice for a nurse leader is the ED nursing director, or a very effective nurse manager/charge nurse. In addition, identify an ED physician who is willing to champion the appropriate use of urinary catheters with his/her peers. We also suggest having a project manager, whose role is to facilitate the implementation of the program.

Hospital administrative leadership will ensure that nurse and physician leaders know the program is a priority for the hospital. Nursing leadership will relate program information to nurse managers and nurses. Physician leadership will inform physicians about the planned program and encourage their support. We suggest a collaboration or partnership with nursing, case management, infection prevention, and ED physicians.

Next, we evaluate the ED placement rate of unnecessary (inappropriate) urinary catheters by calculating a one-day urinary catheter placement rate in the ED. We define the rate as:

- One-day placement rate = (Number of urinary catheters placed/Number of patients admitted during 24 hours) x 100

For example, look at ED patients admitted to the hospital for 24 hours and calculate how many had a urinary catheter placed and whether the indication for placement complies with the 2009 Healthcare Infection Control Advisory Committee (HICPAC) indications (see next page).

Example	# of Urinary Catheters Placed	# of Urinary Catheters without Appropriate Indication	# of Patients Admitted	Placement Rate	% of Urinary Catheters without Appropriate Indication
Day XX	10	4	56	(10/56) x 100 = 18%	(4/10) x 100= 40%

If the percentage of urinary catheters placed without appropriate indications is low, the intervention may not be needed at the current time. A reasonable threshold for intervening is an inappropriate placement rate greater than 20%. If the inappropriate placement rate is less than 20%, it may still be helpful to provide an educational component and reinforce the importance of adhering to the appropriate indications for urinary catheter placement and the proper insertion technique.

Establish the proper indications for urinary catheter placement in the ED. The indications are based on the HICPAC guidelines. However, it is acceptable to develop or use institutional guidelines (or additional indications that the institution has deemed acceptable) for urinary catheter placement in the ED.

ED physicians' support for the institutional guidelines is crucial. An ED physician champion should promote the use of the acceptable indications among fellow physicians. In addition, nursing involvement through an ED nurse leader(s) in the process of establishing the guidelines is very important. We suggest obtaining support from all ED nursing leadership for the institutional guidelines, and identifying a nurse champion to promote appropriate use among all the ED nurses.

The **HICPAC appropriate indications** for urinary catheter placement are:

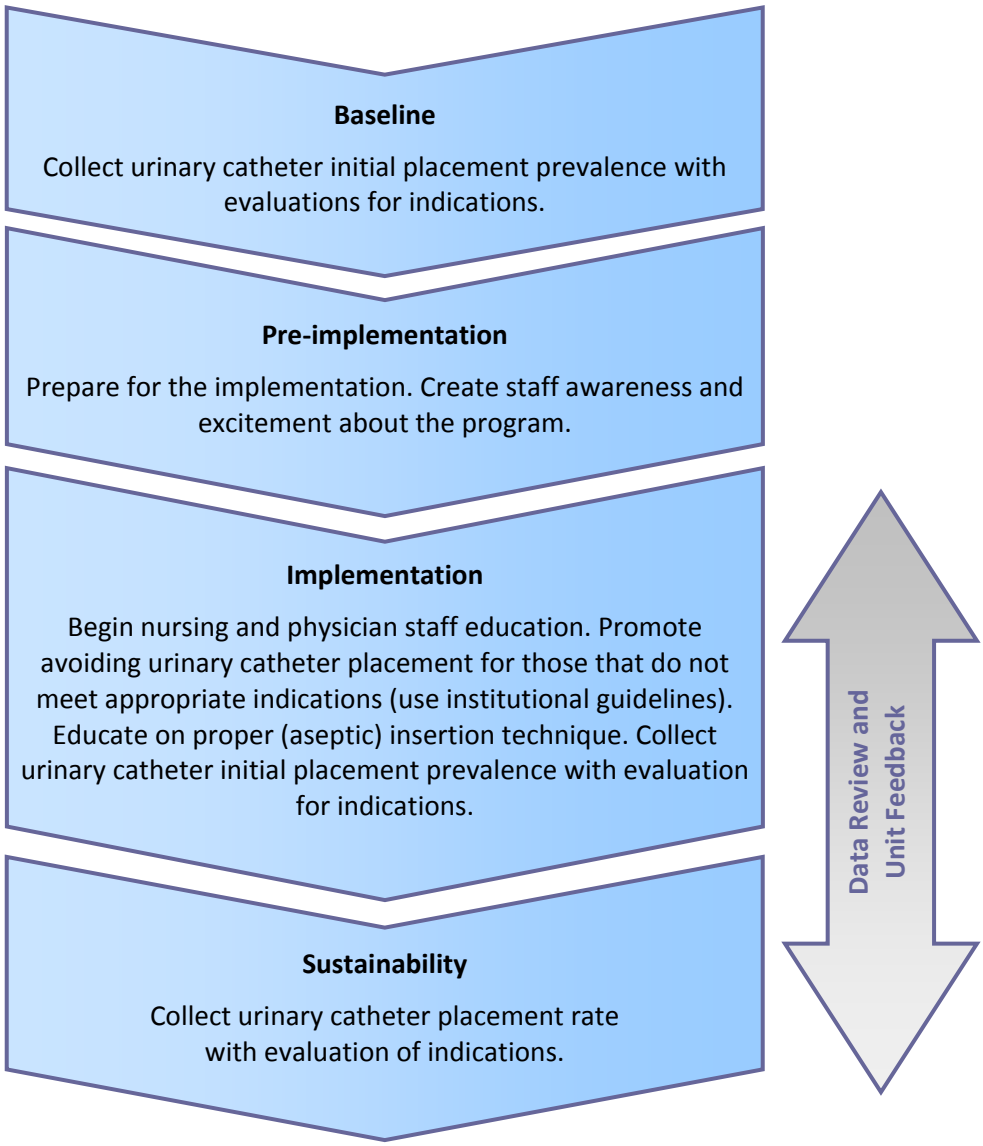
1. Acute urinary retention or obstruction: this includes outflow obstruction. Examples include prostatic hypertrophy with obstruction, urethral obstruction related to severe anasarca, and urinary blood clots with obstruction. Acute urinary retention may be medication-induced, medical (neurogenic bladder) or related to trauma to the spinal cord.
2. Perioperative use in selected surgeries: urologic surgery or other surgery on contiguous structures of the genitourinary tract represents an appropriate indication. In addition, anticipated prolonged duration of surgery, large volume of infusions during surgery, or need for intraoperative urinary output monitoring is also acceptable. Spinal or epidural anesthesia may lead to urinary retention (prompt discontinuation of this type of anesthesia should prevent need for urinary catheter placement).
3. Assist healing of perineal and sacral wounds in incontinent patients: This is an indication when there is concern that urinary incontinence is leading to worsening skin integrity in areas where there is skin breakdown.
4. Hospice/comfort/palliative care: this addresses patient comfort at end-of-life.
5. Required immobilization for trauma or surgery: Examples include an unstable thoracic or lumbar spine, multiple traumatic injuries, such as pelvic fractures, and acute hip fracture with risk of displacement with movement.
6. Accurate measurement of urinary output in the critically ill patients: this applies to patients that are critically ill and expected to be admitted to intensive care.

Other reasons for placement:

1. Each institution may have additional reasons for urinary catheter placement in the ED. Additional indications should be clearly identified during program preparation. Physicians and nurses should be advised that these will be acceptable indications in addition to the HICPAC appropriate indications.
2. Chronic indwelling urinary catheter (defined as present for more than 30 days): Frequently, patients are admitted from extended care facilities with chronic urinary catheters and the reason for their initial placement is unknown. We suggest that these patients represent a special category and may need a different assessment for catheter appropriateness. Thus, we consider them to have an acceptable indication for urinary catheter use.

Start the Program

The program plan includes four periods: baseline, pre-implementation, implementation, and sustainability. The baseline period involves an assessment of a urinary catheter initial placement rate with an evaluation for appropriate indications. The pre-implementation period helps you to prepare for the implementation. This includes "spreading the word about the program" and getting the healthcare workers ready for the implementation. You may also distribute educational materials and provide formal presentations to physicians and nurses. No data are collected during the pre-implementation period. The implementation period is when the detailed nursing and physician staff education occurs, promoting the avoidance of urinary catheter placement for patients without an appropriate indication. Assessment of proper insertion technique also occurs in the implementation phase. Calculation of a urinary catheter initial placement rate and an evaluation for appropriate indications is done during this period. Finally, the sustainability period serves to make sure that the effect of the program persists. During the sustainability period, urinary catheter initial placement rate is monitored periodically and the use of appropriate indications reinforced.



Detailed description of the four periods:

**Please note that we do not suggest the duration for each period, nor did we suggest the number of days for data collection. This may be decided by the groups that are leading the initiative. The sustainability period, however, will be less of a data collection burden.*

Baseline period: For baseline data, collect the urinary catheter placement rate. We suggest you count all patients admitted through the ED, check if they had a urinary catheter placed, and list the reason for placement.

Pre-implementation: During this period, we suggest preparing for the implementation and arranging for both physician and nurse education. Make sure that all healthcare workers are aware of the program, and get them ready for the implementation. By this period, your institutional guidelines (other than HICPAC guidelines) should have been developed and approved. We suggest devising a plan to disseminate the information to all ED staff physicians, physicians-in-training, and mid-level providers (physician assistants and nurse practitioners). You may start with distributing the educational material.

Implementation: The implementation addresses both physicians and nurses. Both groups will be educated regarding the appropriate indications for urinary catheter placement, the proper insertion techniques, and alternatives to the indwelling urinary catheter. Formal lectures or presentations to both groups related to the appropriate indications for urinary catheter placement may be given. Potential educational tools include pocket cards, posters, lectures, and algorithms describing the appropriate indications for urinary catheter placement. For implementation, collect urinary catheter placement rate. Include all patients admitted through the ED, if they had a urinary catheter placed, and the reason for placement.

Physicians:

The physicians are educated about the guidelines for urinary catheter placement in the ED (this may be started during pre-implementation). The physician champion will play an important role in encouraging physicians to comply with the institutional guidelines. Physicians are informed about the appropriate indications for urinary catheter placement based on institutional and HICPAC guidelines. If other criteria for placement are agreed upon per institutional guidelines, they are clearly documented. Physicians rarely place urinary catheters in the ED. If they are involved in placement of urinary catheters, then formal education regarding compliance with proper insertion procedures, including aseptic insertion technique, is recommended. Alternatives to indwelling urinary catheterization are described. These include using bladder scanners to evaluate patients where urinary retention is suspected. Institutions may consider having bladder scanners available in the ED. Another alternative to the indwelling catheter is the condom catheter for men that require fluid monitoring. The condom catheter may be used to reduce the risk of urethral trauma (compared to an indwelling urinary catheter). Condom catheters are not used in cases of urinary retention. Finally, intermittent catheterization may be considered in patients with non-obstructive urinary retention. Examples include patients with

neurogenic bladder.

Nurses:

The established guidelines for urinary catheter placement are shared with the ED nurses. Feedback on the institutional guidelines for urinary catheter placement is encouraged. ED nursing leadership support for the institutional guidelines is also important. The nurse champion's role is to promote the use of appropriate indications for placement and proper insertion technique. The goals of the program and the potential benefits to patients are discussed with nurses. Nursing staff are educated about the appropriate indications for urinary catheter placement and insertion procedures. Printed educational materials, lectures, posters, and pocket cards are useful tools. The importance of obtaining a physician order before placing the catheter is emphasized.

The three main areas of focus for the nurses include: education about the appropriate indications, proper insertion technique, and alternatives to catheterization. Nurses are informed about the appropriate indications for urinary catheter placement. Placement of urinary catheters for inappropriate reasons is discouraged. Alternatives to indwelling urinary catheterization are promoted. Emphasize avoiding unnecessary urinary catheterization. For example, a bladder scanner may be used in cases where urinary retention is suspected, or to evaluate if the patient has any urine volume in the bladder. Condom catheters may be considered in men that require fluid monitoring, which reduces the risk of urethral trauma (compared to an indwelling urinary catheter). Condom catheters are not used in cases of urinary retention. Finally, intermittent catheterization may be considered in patients with non-obstructive urinary retention. Examples include patients with neurogenic bladder. For patients who have an appropriate indication for urinary catheterization, the proper insertion technique should be followed.

Sustainability: Feedback to the ED regarding urinary catheter placement rate and appropriateness of utilization is important. To evaluate whether the program led to sustainable results, obtain urinary catheter placement data and appropriateness periodically. The results are then shared with the ED. If no improvement is seen, then the unit is evaluated for barriers to implementation. Re-education or re-implementation of the program may be needed.

Data Collection in the Emergency Department

During both the baseline and implementation periods, the ED will complete designated forms when the decision is made to admit a patient to any hospital unit (i.e., regular wards or intensive care units). The baseline form (see Figure 1) will not distinguish appropriate from inappropriate reasons on the data collection tool, as doing so may have an impact on urinary catheter placement. The implementation form (see Figure 2), in contrast, will assist RNs in identifying inappropriate urinary catheters. The transferring ED nurse documents on both forms whether the patient has a urinary catheter. The number of sheets collected per day should equal the number of patients admitted to the hospital (one form per patient). An example of a data collection forms are shown below:

Figure 1

ED Urinary Catheter Baseline Collection Tool for Patients **Admitted to the Hospital**:

Patient #_____ Date:_____

Urinary (Foley) catheter placed in ED: ☐ Yes ☐ No

If yes, physician order present: ☐ Yes ☐ No

If placed in ED, select only one reason:

Reason for Urinary Catheter Placement (***please select only one option*****).**
☐ Urinary flow obstruction or retention (e.g., prostatic hypertrophy, hematuria with clots, urethral stricture, trauma to urethra, neurogenic bladder, including paraplegia/quadriplegia if unable to straight catheterize).
☐ Perioperative use in selected surgeries (e.g., urologic procedures, surgeries contiguous to genitourinary tract, emergency surgery with anticipated large fluid resuscitation or extended duration, or if needed for intraoperative urine output monitoring).
☐ Need for immobilization because of trauma with multiple fractures (e.g., pelvic fractures, hip fractures with risk of displacement) or unstable spine.
☐ Incontinence
☐ Morbid obesity
☐ Immobility not related to trauma
☐ Dementia/chronic confusion
☐ Debility (very frail patients)
☐ Monitoring fluids in critically ill patients
☐ Assist healing of sacral and perineal wounds in those with incontinence
☐ Monitoring fluids in non-critically ill patients
☐ Urine specimen collection
☐ Patient request
☐ To improve comfort for end of life care (e.g., hospice, palliative care, comfort care)
☐ If other, please state:

Figure 2

ED Urinary Catheter Implementation Collection Tool for Patients **Admitted to the Hospital**:

Patient #_____ Date:_____

Urinary (Foley) catheter placed in ED: ☐ Yes ☐ No

If yes, physician order present: ☐ Yes ☐ No

If placed in ED, select only one reason:

Appropriate Indication	**Inappropriate Reasons for Placement**
☐ Urinary flow obstruction or retention (e.g., prostatic hypertrophy, hematuria with clots, urethral stricture, trauma to urethra, neurogenic bladder, including paraplegia/quadriplegia if unable to straight catheterize). ☐ Perioperative use in selected surgeries (e.g., urologic procedures, surgeries contiguous to genitourinary tract, emergency surgery with anticipated large fluid resuscitation or extended duration, or if needed for intraoperative urine output monitoring). ☐ Need for immobilization because of trauma with multiple fractures (e.g., pelvic fractures, hip fractures with risk of displacement) or unstable spine. ☐ Monitoring fluids in critically ill patients ☐ Assist healing of sacral and perineal wounds in those with incontinence ☐ To improve comfort for end of life care (e.g., hospice, palliative care, comfort care) ☐ Acceptable conditions per institutional guidelines:	☐ Incontinence ☐ Morbid obesity ☐ Immobility not related to trauma ☐ Dementia/chronic confusion ☐ Debility (very frail patients) ☐ Monitoring fluids in non-critically ill patients ☐ Urine specimen collection ☐ Patient request ☐ If other, please state reason: **If selected reason is inappropriate, was the urinary catheter removed?** ❑ Yes ❑ No

Data Collection in the Emergency Department: Advantages and Disadvantages

The advantages of collecting the data in the ED include having prospective data collected on indications and documentation of physician order. In addition, only one unit/department is involved in the data collection (the ED). Feedback on utilization will be more accepted because it is collected by the ED staff. On the other hand, the disadvantages include multiple people collecting data, which may lead to inconsistencies. **It is important to ensure that data collection is accurate**.

Proper Insertion Technique

Nurses commonly place urinary catheters in the ED. It is important to reinforce proper insertion practice. Some EDs utilize nurse aides or emergency medical technicians to place the urinary catheters under nurses' supervision. It is essential to include this group in the educational efforts, and to have appropriate delegation and oversight of this procedure by nurses. Proper insertion technique includes compliance with aseptic insertion in addition to using the smallest catheter possible, thus reducing the risk of trauma. Suggestions to improve compliance with proper insertion procedures include:

1. Establishing a policy for proper insertion technique,
2. Ensuring the necessary components for insertion are available in the placement kit; and
3. Periodically assessing compliance with aseptic insertion technique.

An example of a "Simplified Insertion Technique Checklist" is included below:

Components of Checklist	Compliant	
	Yes	Yes, after correction
Hand hygiene before and after procedure		
Sterile gloves, drapes, sponges, aseptic sterile solution for cleaning, and single use packet lubricant used		
Aseptic insertion technique (no contamination during placement)		
Proper securement of urinary catheter post-procedure		
Closed drainage system and bag below patient post-procedure		

Program Evaluation

For the baseline and implementation periods, both the rate of urinary catheters placed for admitted patients in addition to the rate of those who had a urinary catheter placed with an inappropriate reason are calculated. The baseline will provide a good assessment of the proportion of those urinary catheters placed that are based on the HICPAC guidelines, those that fit the additional institutional guidelines, and those that are considered inappropriately placed. With implementation, you will be able to assess whether the placement of urinary catheters has dropped, and whether the proportion of urinary catheters placed inappropriately has been reduced. During the sustainability period, a continued or sustained reduction in placement rate will reflect whether the program effect persists.

What Measurements to Use?

Urinary catheter placement rate is the simplest measurement to calculate for evaluating the effect of the implementation. Other measurements include inappropriate placement rate and physician order presence. The inappropriate placement rate depends on the institutional guidelines for placement and may not accurately show the effect of your intervention. Calculating physician order presence may be helpful to review if suboptimal improvement occurred during implementation to differentiate whether it was a physician or nurse issue. Below is a list of the calculations for all 3 measurements.

Measurement	Calculation
Urinary catheter placement rate	Number of urinary catheters placed x100 Total number of patients admitted
Inappropriately placed urinary catheters %	Number of inappropriately placed urinary catheters x100 Total number of urinary catheters placed
Rate of physician order present %	Number of urinary catheters placed with order x100 Total number of urinary catheters placed

Outcome Measurements

We suggest using a population-based CAUTI rate to measure outcomes. The population-based rate is defined as symptomatic catheter-associated urinary tract infections (CAUTI) per 10,000 patient days. It is easy to capture, looking at all CAUTIs over one period of time and comparing them to CAUTIs over another time period (i.e., before and after implementation). Use patient days as the denominator (available via hospital administrative data). This evaluation may bypass the process measures which are proxy measures for the outcome (CAUTI). The population CAUTI rate takes into consideration the NHSN CAUTI rate and the catheter utilization ratio. Population CAUTI rate can also be calculated as “NHSN CAUTI Rate x Catheter Utilization Ratio x 10.”

D. ENGAGING PHYSICIANS AND NURSES

1. Physician Component
2. Nursing Component

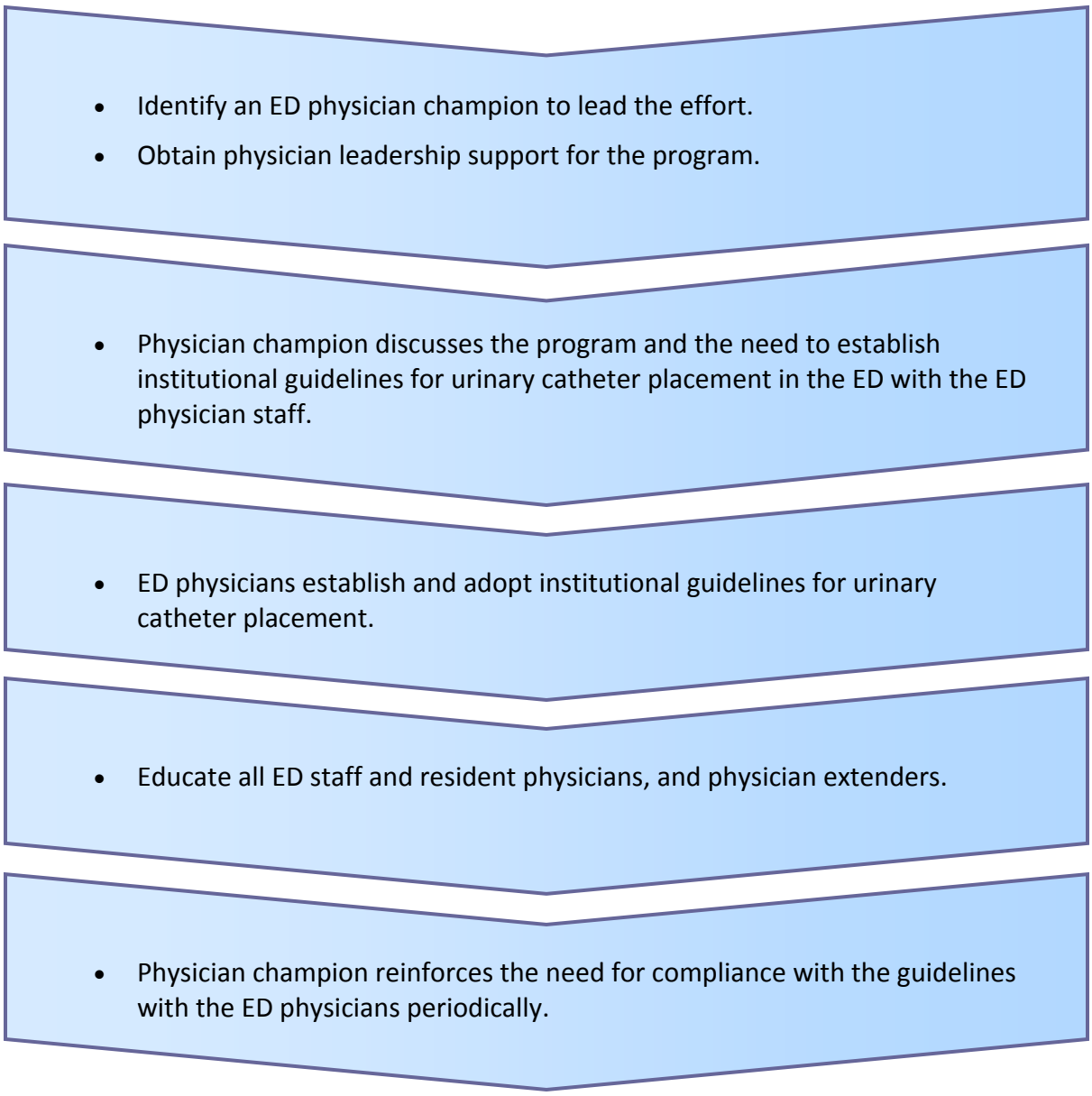
Engaging Physicians in the Emergency Department

Emergency department (ED) physicians are essential to the program's implementation. Every patient with a urinary catheter placed in the ED should have a physician order. To improve the compliance with appropriate urinary catheter placement in the ED, physicians need to be informed of the acceptable indications for utilization and agree to adopt them.

Before starting the program, identify a physician champion to lead the effort with physicians. The physician champion will initially present the case to the other ED physicians regarding the importance of placing urinary catheters *only* based on appropriate indications. A discussion of the guidelines and their implementation in the ED is encouraged with all the emergency department staff. The appropriate indications are based on the Healthcare Infection Control Advisory Committee (HICPAC) 2009 guidelines. After review of the HICPAC guidelines, the ED may consider some local factors and develop its own institutional guidelines. It is encouraged, however, that the ED adheres to the HICPAC guidelines. If other criteria—in addition to HICPAC-appropriate indications—for placement are agreed upon per institutional guidelines, they should be clearly documented.

After establishing the institutional guidelines, all ED physicians are expected to adopt them. Education of ED physician staff, resident physicians, physician assistants and nurse practitioners is performed. Educational materials include posters, pocket cards, and algorithms that describe appropriate indications for urinary catheter placement. The physician champion may also provide formal education (e.g., lectures) to the staff and resident physicians, and physician extenders. The education includes the appropriate indications for urinary catheter placement, common situations where the urinary catheter is placed without appropriate reason, and tools to avoid unnecessary placement of the urinary catheter. Alternatives to urinary catheter use include the use of a bladder scanner to evaluate for urinary retention and the use of condom catheters if there is a need for fluid monitoring.

Steps to implement the process with emergency department (ED) physicians



Engaging Nurses in the Emergency Department

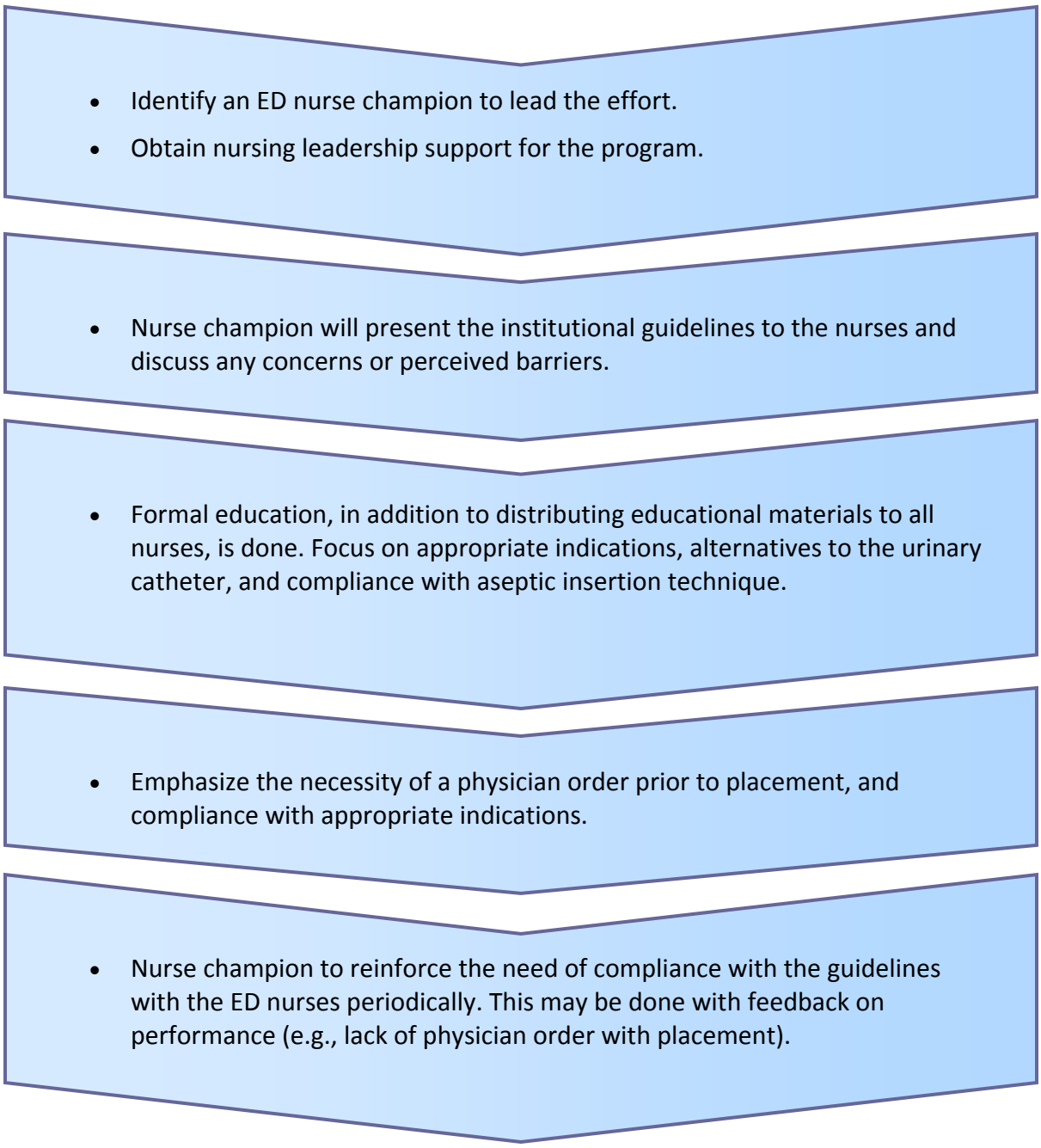
Emergency department (ED) nurses also play an important role in the program's implementation. Many of the urinary catheters placed in the ED *do not have* a physician order. In order to improve the compliance with appropriate urinary catheter placement in the ED, nurses need to be informed of the acceptable indications for utilization and agree to adopt them. In addition, a urinary catheter should only be placed with a physician order.

Before starting the program, identify a nurse champion to lead the effort with nurses. The nurse champion will also be initially involved in the discussions with the ED staff regarding the establishment of institutional guidelines. Nursing leadership support is also essential prior to starting the program.

After establishing the institutional guidelines, the nurse champion will share with the nurses the guidelines for urinary catheter placement in the ED. Nurses are encouraged to provide feedback regarding the institutional guidelines for urinary catheter placement. Concerns and perceived barriers to implementation are addressed. Placement of urinary catheters for unacceptable (inappropriate) reasons is discouraged. Education of ED nursing staff, and if applicable, nurse aides, and emergency medical technicians is performed. Educational materials include posters, pocket cards, and algorithms describing appropriate indications for urinary catheter placement. The nurse champion may also provide formal education (e.g., lectures [*example included in the "Nursing Education Module" in the "Care and Removal Bundle"*]). The education incorporates the appropriate indications for urinary catheter placement, common situations where the urinary catheter is placed without appropriate reason, and tools to avoid placement of the urinary catheter. Alternatives to urinary catheter use include the use of a bladder scanner to evaluate for urinary retention, programmed toileting for incontinence, and the use of condom catheters if there is a need for fluid monitoring.

In addition to focusing on placing a urinary catheter only when based on an appropriate indication, compliance with proper (aseptic) insertion technique is emphasized and training is provided if needed.

Steps to implement the process with emergency department (ED) nurses:



E. DATA COLLECTION AND MEASUREMENTS

1. Process and Outcome Measures
2. Description of the Data Collection Process
3. Baseline Data Collection Tool
4. Implementation/Sustainability Data Collection Tool

Process and Outcome Measures

The following process and outcome measures may be calculated with the program implementation in the emergency department (ED).

Process measures:

Process measures will evaluate whether the program has led to a process improvement, assuming that an improvement in the process may result in an improvement in the outcome.

1. Urinary catheter placement rate = (Number of urinary catheters placed/Total number of patients admitted) x 100

2. Inappropriately placed urinary catheter % = (Number of inappropriately placed urinary catheters/Total number of urinary catheters placed) x 100

3. Rate of physician order present = (Number of patients with urinary catheter placed with order/Total number of patients with urinary catheter placed) x 100

Outcome Measures:

Outcome measures will evaluate whether the program has led to an improvement in the final outcome, which includes symptomatic urinary tract infections. We use *patient* days as a denominator. Patient days may better reflect interventions that focus on prevention of urinary catheter placement. The population-based CAUTI[1] rate accounts for both the NHSN[2] CAUTI rate and the catheter utilization ratio. The population-based measure is easier to calculate than the NHSN measure and requires identification of the number of symptomatic CAUTIs and the number of patient days during the same period (available via hospital administrative data).

Symptomatic population-based CAUTI rate (using patient days)
= (Number of symptomatic catheter-associated urinary tract infections/Number of patient days) x 10,000
= NHSN CAUTI rate x Catheter utilization ratio x 10

[1] CAUTI: Catheter-associated urinary tract infection

[2] NHSN: National Healthcare Safety Network

Data Collection in the Emergency Department

The program-related data is captured in the emergency department (ED) before the patient is admitted to the hospital. This entails evaluating all patients before transfer to different hospital units for urinary catheter presence and placement reason.

In order to collect the data, a mechanism where there is notification from the emergency department to the different hospital units of the admission needs to be in place. The evaluation of the presence or absence of the urinary catheter is done at the time of notifying the accepting unit of the admission.

1. During baseline and implementation, ED nurses document whether a urinary catheter was placed in the emergency department, and, if so, the reason for placement using the appropriate form (see Baseline and Implementation Data Collection Tools at the end of this section).
2. The forms are completed on all patients, regardless of urinary catheter presence. The nurse who is calling in report is responsible for completing the form.
3. The number of sheets collected per day should equal the number of patients admitted to the hospital.
4. The forms are used to document whether the urinary catheter was placed, a physician order present, and reasons for placement.
    a. For baseline collection, the form will *not* differentiate appropriate versus inappropriate indications, as doing so may impact the baseline rate.
    b. The implementation form, however, will include a list of the HICPAC appropriate indications, the accepted indications based on the institutional guidelines, and the common reasons where placement is unacceptable.[*]

Data Collection in the Emergency Department: Advantages

1. Data collection on indications is prospective and documentation of physician orders is maintained.
2. Only one unit/department is involved in data collection: the emergency department.
3. The data collected will reflect the impact of the ED on the whole hospital, without the need to collect the data on every unit in the hospital.
4. Feedback on utilization is more accepted because it is collected by the ED staff.

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[*] Note: An additional component may be added when the nurse calls report and evaluates the reason for catheter placement. If there is no appropriate indication for placement, the nurse may trigger the process of discontinuation of the catheter with a physician order. This step can be added starting from the implementation period.

Data Collection in the Emergency Department: Disadvantages

1. Multiple people are collecting data, which could negatively affect its accuracy.
2. Ensuring the data is collected prospectively may be challenging. This may be offset, however, by the beneficial effects of concurrent evaluations for urinary catheter presence and need.

Process to collect the data in the emergency department (ED):

- The patient is evaluated in the ED and the ED Staff decides to admit.

- During treatment in the ED, the patient may or may not have a urinary catheter placed.

- The patient is ready to be admitted to a hospital unit.

- At the time of transfer to a hospital unit, the ED nurse communicates with the receiving hospital unit nurse, evaluating whether the patient has a urinary catheter or not.

- For all patients admitted to the hospital, the ED nurse documents on a form whether a urinary catheter was placed, a physician order was present (optional), and reason for placement.
- For implementation and sustainability periods, the assessment form showing an inappropriate reason for placement will trigger an evaluation for removal.

- Patients presenting to the ED with a chronic urinary catheter are considered patients who *did not* have a urinary catheter initially placed in the ED, even if the urinary catheter was changed in the ED.

ED Urinary Catheter Baseline Collection Tool for Patients **Admitted to the Hospital**:

Patient #_____ Date:_____

Urinary (Foley) catheter placed in ED*: ☐ Yes ☐ No

If yes, physician order present: ☐ Yes ☐ No

If placed in ED, reason:

Reason for Urinary Catheter Placement (***please select only one option*****).**
☐ Urinary flow obstruction or retention (e.g., prostatic hypertrophy, hematuria with clots, urethral stricture, trauma to urethra, neurogenic bladder, including paraplegia/quadriplegia if unable to straight catheterize).
☐ Perioperative use in selected surgeries (e.g., urologic procedures, surgeries contiguous to genitourinary tract, emergency surgery with anticipated large fluid resuscitation or extended duration, or if needed for intraoperative urine output monitoring).
☐ Need for immobilization because of trauma with multiple fractures (e.g., pelvic fractures, hip fractures with risk of displacement) or unstable spine.
☐ Incontinence
☐ Morbid obesity
☐ Immobility not related to trauma
☐ Dementia/chronic confusion
☐ Debility (very frail patients)
☐ Monitoring fluids in critically ill patients
☐ Assist healing of sacral and perineal wounds in those with incontinence
☐ Monitoring fluids in non-critically ill patients
☐ Urine specimen collection
☐ Patient request
☐ To improve comfort for end of life care (e.g., hospice, palliative care, comfort care)
☐ If other, please state:

* A chronic indwelling urinary catheter present on admission to the ED will not be counted as "placed in the ED" (even if the catheter is changed there).

ED Urinary Catheter Implementation/Sustainability Collection Tool for All Patients **Admitted to the Hospital**:

Patient #_____ Date:_____

Urinary (Foley) catheter placed in ED*: ☐ Yes ☐ No

If yes, physician order present: ☐ Yes ☐ No

If placed in ED, reason:

Appropriate Indications	Unacceptable Reasons for Placement
☐ Urinary flow obstruction or retention (e.g., prostatic hypertrophy, hematuria with clots, urethral stricture, trauma to urethra, neurogenic bladder including paraplegia/ quadriplegia if unable to straight catheterize)	☐ Incontinence ☐ Morbid obesity ☐ Immobility not related to trauma ☐ Dementia/chronic confusion ☐ Debility (very frail patients)
☐ Perioperative use in selected surgeries (e.g., urologic procedures, surgeries contiguous to genitourinary tract, emergency surgery with anticipated large fluid resuscitation or duration or if need for intraoperative urine output monitoring)	☐ Monitoring fluids in non-critically ill patients ☐ Urine specimen collection ☐ Patient request
☐ Need for immobilization because of trauma with multiple fractures (e.g., pelvic fractures, hip fracture with risk of displacement) or unstable spine	☐ If other, please state:
☐ Monitoring fluids in critically ill patients ☐ Assist healing of sacral and perineal wounds in those with incontinence ☐ To improve comfort for end of life care (e.g., hospice, palliative care, comfort care) ☐ Acceptable conditions per institutional guidelines:	**If selected reason is inappropriate, was the urinary catheter removed?** ❑ Yes ❑ No

* A chronic indwelling urinary catheter present on admission to the ED will not be counted as "placed in the ED" (even if the catheter is changed there).

F. PROPER INSERTION TECHNIQUE OF URINARY CATHETERS

1. Promoting Compliance with Aseptic Insertion
2. Procedural Steps for Insertion
3. Simplified Urinary Catheter Insertion Checklist for Audits

Promoting Compliance with Aseptic Insertion

Proper insertion technique includes compliance with aseptic insertion, in addition to using the smallest catheter possible to reduce the risk of trauma to the patient. Promoting compliance with aseptic insertion of indwelling urinary catheters should reduce the risk for introducing microorganisms into the urinary bladder during the procedure. We suggest three actions to optimize the compliance with the aseptic insertion of the urinary catheter.

1. Check if a written hospital policy exists that describes the steps for indwelling urinary catheter placement. If none available, establish a policy. Work with advanced practice nurses, educators, and nurse clinicians to create/revise the catheter insertion policy so that the steps for placement are clear and useful in your organization. If a policy exists, ensure that it includes the steps listed in the detailed checklists for females and males (see example checklists provided).

2. Check if all necessary components needed for placement are present in the urinary catheter placement kit. We recommend that hospitals consider investing in an all-inclusive urinary catheter insertion kit, if not already available. Make sure that all the components needed to perform the procedure and comply with the aseptic technique are easily accessible.

3. Periodically assess compliance with placing the urinary catheter using aseptic technique (may use the simplified checklist). Include aseptic insertion technique as part of nurses' annual competency requirements.

Procedural Steps	
Determine if indwelling catheter insertion is appropriate: ☐ Yes ☐ No	
Supply preparation -	Gather supplies – use as small a size of catheter as possible. Inspect the sterile catheterization kit and remove it from its outer packaging. Open the inner paper wrapping to form a sterile field. Form sterile field on bedside table or other flat surface but not patient bed.
Patient preparation -	Explain procedure. Place patient in supine position.
Provider preparation -	Wash hands. Don sterile gloves. Organize contents of tray on sterile field. Pour antiseptic solution over preparation swabs in tray compartment. Squeeze some sterile catheter lubricant onto tray to lubricate catheter tip. Test balloon prior to insertion. Lubricate distal end of catheter with sterile jelly. Use sterile drapes as desired.
Catheter Insertion – Male - Fully retract foreskin on uncircumcised male patient. - Inject 10 – 15 ml. of viscous lidocaine into urethral meatus with needle-less syringe. - Grasp penile shaft using non-dominant hand, holding penis taut and perpendicular to the plane of patient's body. - Cleanse the glans penis in a circular motion, using cotton balls soaked in antiseptic. - Slowly advance catheter through the urethra into the bladder. - If substantial resistance is met, do not forcefully advance catheter. - The catheter is advanced to the level of the balloon inflation port. - Foreskin is reduced to its anatomical position in uncircumcised males.	Catheter Insertion - Female - Using gloved non-dominant hand, identify the urethra by spreading labia majora & minora. - Use prepared swabs to clean. - Holding the catheter in the dominant hand, gently introduce the catheter tip into meatus. - Slowly advance catheter through the urethra into the bladder. - If catheter is accidentally contaminated, it is discarded, and a new sterile catheter is obtained. - If catheter is accidentally inserted into the vagina, leave in place until a new sterile catheter is obtained and inserted correctly. - Once urine is observed in tubing, the catheter is advanced another 3 – 5 cm.
Catheter insertion, common steps- - Balloon is inflated with entire contents of 10cc syringe of sterile water only after urine is observed in tubing. With balloon completely inflated, pull gently on catheter. - Secure catheter to medial thigh. - Place drainage bag below level of bladder.	

Indwelling trans-urethral catheter insertion:

- Perform hand hygiene immediately before and after insertion.
- Use sterile gloves, drapes, sponges, and appropriate antiseptic or sterile solution for periurethral cleaning, and a single-use packet of lubricant jelly for insertion.

Indwelling trans-urethral catheter management:

- Nursing staff to discontinue the indwelling catheter when primary indications for insertion are resolved.
- If breaks in aseptic technique, disconnection, or leakage occur, replace the catheter and collecting system using aseptic technique and sterile equipment.
- Maintain unobstructed urine flow.
- Keep the collecting bag below the level of the bladder at all times.
- Do not rest the bag on the floor.
- Properly secure indwelling catheters after insertion to prevent movement or urethral traction.
- Routine hygiene with soap and water is appropriate.
- Do not flush indwelling catheters unless physician ordered.
- Obtain urine samples aseptically.
    - If a small volume of fresh urine is needed for examination, aspirate the urine from the needleless sampling port with a sterile syringe/cannula adapter after cleaning the port with a disinfectant.
    - Obtain large volumes of urine for special analyses aseptically from the drainage bag.

Please use the correct **INSERTION TECHNIQUE CHECKLIST** and check “yes” or “no” or “NA” in each box:

Procedural Steps for Female Patients	Yes	No	NA
Place patient in supine position.			
Inspect the sterile catheterization kit and remove it from its outer packaging.			
Open the inner paper wrapping to form a sterile field.			
Form sterile field on bedside table or other flat surface but not patient bed.			
With washed hands, carefully retrieve the absorbent pad from the top of the kit.			
Place absorbent pad beneath patient’s buttocks, with plastic side down.			
Don sterile gloves.			
Cover patient’s abdomen and superior pubic region with fenestrated drape.			
Organize contents of the tray on the sterile field.			
Pour antiseptic solution over the preparation swabs in the tray compartment.			
Squeeze some sterile catheter lubricant onto the tray to lubricate the catheter tip.			
* Test balloon prior to insertion.			
Using gloved non-dominant hand, identify the urethra by spreading labia majora & minora.			
Use the thumb and index finger to spread the inner labia with gentle traction and pulling upward towards patient’s head.			
Non-dominant hand is not removed from this position.			
Use an expanding circular motion to clean the opening with remaining swabs.			
Lubricate distal end of the catheter with the sterile jelly.			
Holding the catheter in the dominant hand, gently introduce the catheter tip into meatus.			
Slowly advance catheter through the urethra into the bladder.			
If catheter is accidentally contaminated, it is discarded, and a new sterile catheter is obtained.			
* If catheter is accidentally inserted into the vagina, it is left in place until a new sterile catheter is obtained and inserted correctly.			
Once urine is observed in tubing, the catheter is advanced another 3 – 5 cm.			
Balloon is inflated with entire contents of 10cc syringe of sterile water only after urine is observed in tubing.			
With balloon completely inflated, pull gently on catheter.			
Secure catheter to medial thigh.			
Place drainage bag below level of bladder.			
* Health care provider never turns his/her back on the sterile field.			

INSERTION TECHNIQUE CHECKLIST for Male Patients

Procedural Steps for Male Patients	Yes	No	NA
Place patient in supine position.			
Fully retract foreskin on uncircumcised male patient.			
Inject 10 – 15 ml. of viscous lidocaine into urethral meatus with needle-less syringe.			
Pinch tip of penis for several minutes to retain lidocaine in urethra.			
Inspect the sterile catheterization kit and remove it from its outer packaging.			
Open the inner paper wrapping to form a sterile field.			
Form sterile field on bedside table or other flat surface but not patient bed.			
Don sterile gloves.			
Organize contents of the tray on the sterile field.			
Pour antiseptic solution over the preparation swabs in the tray compartment.			
Squeeze some sterile catheter lubricant onto the tray before insertion into the urethra.			
* Test balloon prior to insertion.			
Drape pubic region and proximal thighs.			
Grasp penile shaft using non-dominant hand, holding penis taut and perpendicular to the plane of patient's body.			
Cleanse the glans penis in a circular motion, using cotton balls soaked in antiseptic.			
Lubricate the tip of the catheter with sterile jelly or viscous lidocaine before inserting it.			
If a coudé catheter is used, point the tip of the catheter upward, in the 12 o'clock position .			
Slowly advance catheter through the urethra into the bladder.			
If substantial resistance is met, do not forcefully advance catheter.			
The catheter is advanced to the level of the balloon inflation port.			
Balloon is inflated only after urine is observed in tubing. If no urine is observed, flush the catheter with saline. Free return of saline and/or urine signifies that catheter is in place.			
Balloon is inflated with entire contents of 10cc. syringe of sterile water.			
With balloon completely inflated, pull gently on catheter.			
Foreskin is reduced to its anatomical position in uncircumcised males.			
Secure catheter to medial thigh.			
Place drainage bag below level of bladder.			

Urinary Catheter Insertion Checklist

Components of checklist	Compliant	
	Yes	Yes, with correction
Hand hygiene before and after procedure		
Sterile gloves, drapes, sponges, aseptic sterile solution for cleaning, and single use packet lubricant used		
Aseptic insertion technique (no contamination during placement)		
Proper securement of urinary catheter post-procedure		
Closed drainage system and bag below patient post-procedure		

G. EDUCATIONAL MATERIAL FOR IMPLEMENTATION

1. “How to Implement the Program” Presentation
2. Urinary Catheter Algorithm for Placement
3. Urinary Catheter Placement Fact Sheet
4. Urinary Catheter Placement Fact Sheet, Option 2
5. Urinary Catheter Pocket Card
6. Urinary Catheter Poster
7. Urinary Catheter Poster, Option 2

Appropriate Urinary Catheter Placement in the Emergency Department:

How to Implement the Program

1

This Presentation

- This presentation is for the main champions promoting the program at your facility. These include the emergency department (ED) nurse and physician leaders that support the program, in addition to the healthcare worker champion that will be educating the nurses during the implementation.

2

Outline

1. Prepare for the program
2. Start the program
    a. Appropriate indications
    b. Inappropriate indications
3. Obtain baseline data
    a. Calculations
4. Pre-implementation
    a. Getting everything ready
    b. Providing educational materials to physicians and nurses
5. Implement the program
    a. Implementation process: physicians
    b. Implementation process: nurses
6. Sustain the program
    a. Collect data
7. How to collect the data
8. Evaluate the program

Prepare for the Program

Prepare for the Program

- Obtain leadership support:
  1. Administration
  2. Nursing
  3. Physician
- Identify both nurse and physician leaders to be the point people for the program in the ED.
- Nursing: Potential candidates include the ED nursing director, or a very effective nurse manager/charge nurse.
- Physician: Identify an ED physician champion.
- Project manager: Identify a point person to facilitate implementation of the program.

5

Prepare for the Program

- Hospital leadership will ensure that nurse and physician leaders know the program is a priority for the hospital.
- Nursing leadership will relate information about the planned program to nurse managers and nurses.
- Physician leadership will inform physicians about the planned program and encourage their full support.

6

Prepare for the Program

- Partner with nursing, case management, infection prevention, and ED physicians.
- Identify whether the ED is a site for urinary catheter placement without appropriate indications.
  - Assessing urinary catheter placement rate in the ED may help to determine whether the ED is a good venue for your program.

7

Deciding Whether the Emergency Department is a Good Target for the Program

- Evaluate whether the ED has a high placement rate of unnecessary (inappropriate) urinary catheters.
- Calculate a one-day urinary catheter placement rate in the ED.
- One day placement rate = (Number of urinary catheters placed/Number of patients admitted during 24 hours) x 100

8

Placement Rate: Example

- Look at ED patients admitted to the hospital for 24 hours and calculate how many had a urinary catheter placed and whether the indication for placement complies with the 2009 Healthcare Infection Control Advisory Committee (HICPAC) indications.

Example	# of Urinary Catheters Placed	# of Urinary Catheters without Appropriate Indication	# of Patients Admitted	Placement Rate	% of Urinary Catheters without Appropriate Indication
Day XX	10	4	56	(10/56) x 100 = 18%	(4/10) x 100 = 40%

9

Threshold to Undergo Intervention

- Determination of the need to undergo intervention can depend on the inappropriate placement rate.
- A reasonable threshold for intervening is >20%.

10

Threshold to Undergo Intervention

- If the inappropriate placement rate is <20%, it may still be helpful to provide education regarding the appropriate indications and the proper insertion technique.

11

Establishing Institutional Guidelines

- The proper indications for urinary catheter placement in the ED are established based on the HICPAC guidelines. It is acceptable to consider having institutional guidelines (or acceptable indications) for urinary catheter placement for the ED.
- Obtain support from ED physicians for the institutional guidelines. Identify an ED physician champion to promote the use of the acceptable indications among the ED physicians.

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Establishing Institutional Guidelines

- Involve the ED nurse leader(s) in the process of establishing the guidelines.
- Obtain support from all ED nursing leadership for the institutional guidelines.
- Identify a nurse champion to promote guideline use among all the ED nurses.

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Starting the Program

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Program Plan

- Baseline: Collect urinary catheter initial placement rate with evaluation for indications.
- Pre-implementation: get ready for the implementation. Build excitement regarding the program and may start distributing educational material.
- Implementation: Educate nursing and physician staff, promote the avoidance of urinary catheter placement for patients without an appropriate indication (use institutional guidelines). Begin education and assessment of proper insertion technique. Collect urinary catheter initial placement rate with evaluation for indications.
- Sustainability: Collect urinary catheter placement rate with evaluation for indications.

15

Variables Collected

- Urinary catheter placed in the ED
- Physician order present
- Urinary catheter indicated reasons for placement (data collection form will not differentiate appropriate versus inappropriate reasons for baseline period)
- Appropriate indications versus inappropriate uses for urinary catheters, based on the 2009 HICPAC guidelines (implementation and sustainability periods)

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2009 Prevention of CAUTI HICPAC Guidelines

(Gould et al, Infect Control Hosp Epidemiol 2010; 31: 319-326)

Table 2. **A. Examples of Appropriate Indications for Indwelling Urethral Catheter Use** [1-4]
Patient has acute urinary retention or bladder outlet obstruction
Need for accurate measurements of urinary output in critically ill patients
Perioperative use for selected surgical procedures: • Patients undergoing urologic surgery or other surgery on contiguous structures of the genitourinary tract • Anticipated prolonged duration of surgery (catheters inserted for this reason should be removed in PACU) • Patients anticipated to receive large-volume infusions or diuretics during surgery • Need for intraoperative monitoring of urinary output
To assist in healing of open sacral or perineal wounds in incontinent patients
Patient requires prolonged immobilization (e.g., potentially unstable thoracic or lumbar spine, multiple traumatic injuries such as pelvic fractures)
To improve comfort for end of life care if needed
B. Examples of *Inappropriate* Uses of Indwelling Catheters
As a substitute for nursing care of the patient or resident with incontinence
As a means of obtaining urine for culture or other diagnostic tests when the patient can voluntarily void
For prolonged postoperative duration without appropriate indications (e.g., structural repair of urethra or contiguous structures, prolonged effect of epidural anaesthesia, etc.)

Note: These indications are based primarily on expert consensus.

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Issues to Clarify

- Chronic indwelling urinary catheter (defined as present for >30 days):
  - It is not infrequent to see patients admitted from extended care facilities with a chronic urinary catheter without being able to find the reason for initial placement when assessed. We suggest that these patients represent a special category and may need a different assessment for the appropriateness of catheterization. Thus, we consider them to have an acceptable indication for urinary catheter use.

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Issues to Clarify

- A chronic indwelling urinary catheter present on admission to the ED would not be counted as placed in the ED (even if the catheter is changed there).
- There are other conditions where patients have a urinary catheter on admission prior to presentation to the ED (for example, obstructive uropathy). Again, these are appropriate indications for utilization, but would not be counted as originally placed in the ED.

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Issues to Clarify

- Patients who have urinary catheters placed in the ED that are removed prior to admission to different hospital units and those discharged without admission **are not included** in our evaluation.
- We expect, however, that the implementation of the program will improve the compliance with appropriate placement and proper insertion technique for the majority of patients cared for in the ED.

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Label Variables: Acceptable Indications for Urinary Catheter Placement

- Acute urinary retention or obstruction
- Perioperative use in selected surgeries
- Assist healing of perineal and sacral wounds in incontinent patients
- Hospice/comfort/palliative care
- Required immobilization for trauma or surgery
- Accurate measurement of urinary output in the critically ill patients

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Acute Urinary Retention or Obstruction

- Outflow obstruction: examples include prostatic hypertrophy with obstruction, urethral obstruction related to severe anasarca, urinary blood clots with obstruction
- Acute urinary retention: may be medication-induced, medical (neurogenic bladder), or related to trauma to spinal cord

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Perioperative Use in Selected Surgeries

- Anticipated prolonged duration of surgery, large volume infusions during surgery, or need for intraoperative urinary output monitoring
- Urologic surgery or other surgery on contiguous structures of the genitourinary tract
- Spinal or epidural anesthesia may lead to urinary retention (prompt discontinuation of this type of anesthesia should prevent need for urinary catheter placement)

23

Assist Healing of Perineal and Sacral Wounds in Incontinent Patients

- This is an indication when there is concern that urinary incontinence is leading to worsening skin integrity in areas where there is skin breakdown.

24

Hospice/Comfort Care/Palliative Care

- Patient comfort at end-of-life

25

Required Immobilization for Trauma or Surgery

- Including:
  1. Unstable thoracic or lumbar spine
  2. Multiple traumatic injuries, such as pelvic fractures
  3. Acute hip fracture with risk of displacement with movement

26

Accurate Measurement of Urinary Output in the Critically Ill Patients

- Applies to patients that are critically ill and expected to be admitted to the intensive care setting

27

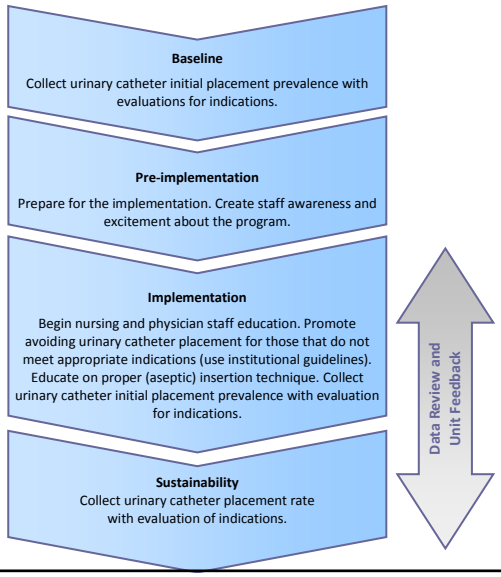
Other Reasons for Placement

- Acceptable per ED institutional guidelines (not included in the 2009 HICPAC guidelines)
- Not acceptable (inappropriate) reasons for placement (any other reasons)

28

APPROPRIATE URINARY CATHETER PLACEMENT IN THE EMERGENCY DEPARTMENT

PROGRAM AT-A-GLANCE



Baseline Data

30

Baseline

- For baseline data, ED nurses will complete a Baseline Data Collection Tool for all patients admitted to the hospital.
- They will indicate on the form if the patient has a urinary catheter.
- Collect urinary catheter placement rate.
- The reason for placement will be indicated on the form (see Baseline Data Collection Tool in the Data Collection section).

31

Calculations

- Urinary catheter placement rate =

$$\frac{\text{Number of urinary catheters placed}}{\text{Total number of patients admitted}} \times 100$$

- Inappropriately placed urinary catheters % =

$$\frac{\text{Number of inappropriately placed urinary catheters}}{\text{Total number of urinary catheters placed}} \times 100$$

- Rate of physician order present =

$$\frac{\text{Number of patients with urinary catheter placed with order}}{\text{Total number of patients with urinary catheter placed}} \times 100$$

32

Pre-implementation

- Arrange for both physician and nurse education.
- Consider giving lectures/presentations to both groups related to the appropriate indications for urinary catheter placement.
- Get ready for the implementation!

33

Implementation

- Physician component
- Nurse component

34

Implementation: Physicians

35

Implementation: Physicians

- Educate physicians on the guidelines for urinary catheter placement in the ED (this may be started during pre-implementation).
- The physician champion will play an important role in encouraging physicians to comply with the institutional guidelines.

36

Implementation: Physicians

- Three main areas of focus:
  1. Appropriate indications
  2. Alternatives to catheterization
  3. Proper insertion technique

37

Appropriate Indications

- Physicians are informed about the appropriate indications for urinary catheter placement based on HICPAC guidelines and institutional guidelines.
- If other criteria for placement are agreed on per institutional guidelines, clearly state what they are.

38

Alternatives to Indwelling Urinary Catheterization

- Bladder scanner: may be used in cases where urinary retention is suspected, or when the patient did not have any witnessed urine output and the clinician needs to evaluate for obstruction. Consider having bladder scanners available in the ED.
- Condom catheters: may be considered in men that require fluid monitoring. Their use reduces the risk of urethral trauma (compared to indwelling urinary catheter). Condom catheters are not used in cases of urinary retention.

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Alternatives to Indwelling Urinary Catheterization

- Intermittent catheterization may be considered in patients with non-obstructive urinary retention (e.g., patients with neurogenic bladder).

40

Proper Insertion Technique

- Physicians rarely place urinary catheters in the ED. If they are involved in placement of urinary catheters, then formal education regarding compliance with proper insertion procedures including aseptic insertion technique is recommended.

41

Implementation: Physicians

- Potential tools to use include pocket cards, posters, lectures, and algorithms describing the appropriate indications for urinary catheter placement.
- Devise a plan to disseminate the information to all ED staff physicians, physicians-in-training, and mid-level providers (i.e., physician assistants and nurse practitioners).

42

Implementation: Nurses

43

Implementation: Nurses

- Share with the nurses the established guidelines for urinary catheter placement in the ED based on the HICPAC guidelines.
- Obtain feedback on the institutional guidelines for urinary catheter placement for the ED.
- Obtain support from ED nursing leadership for the institutional guidelines. The nurse champion will promote compliance with guidelines among nurses.

44

Implementation: Nurses

- Three main areas of focus:
  1. Appropriate indications
  2. Alternatives to catheterization
  3. Proper insertion technique

45

Appropriate Indications

- Nurses are informed about the appropriate indications for urinary catheter placement based on HICPAC guidelines and institutional guidelines.
- Other criteria for placement based on institutional guidelines are clearly presented.
- Inappropriate reasons for placing a urinary catheter are discouraged.

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Alternatives to Indwelling Urinary Catheterization

- Bladder scanner: may be used in cases where urinary retention is suspected, or when the patient did not have any witnessed urine output and the clinician needs to evaluate for obstruction. Consider having bladder scanners available in the ED.
- Condom catheters: may be considered in men that require fluid monitoring. Their use reduces the risk of urethral trauma (compared to indwelling urinary catheter). Condom catheters are not used in cases of urinary retention.

47

Alternatives to Indwelling Urinary Catheterization

- Intermittent catheterization may be considered in patients with non-obstructive urinary retention. Examples include patients with neurogenic bladder.

48

Proper Insertion Technique

- Nurses commonly place urinary catheters in the ED. Reinforcement of proper insertion practice is important and includes focusing on the importance of compliance with aseptic insertion technique (see Proper Insertion Technique section).
- Some EDs utilize nurse aides or emergency medical technicians to place the urinary catheters under nurses' supervision. It is essential to include this group in the educational efforts, and to have appropriate delegation and oversight of this procedure by nurses.

49

Proper Insertion Technique

- Proper insertion technique includes compliance with aseptic insertion in addition to using the smallest catheter needed to reduce the risk of trauma to the patient.
- Suggestions to improve compliance with proper insertion procedures include:
  1. Establishing a policy for proper insertion technique.
  2. Ensuring the necessary components for insertion are available in the placement kit.
  3. Periodically assessing compliance with placing the urinary catheter using aseptic technique.

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Example of a Simplified Insertion Technique Checklist

Components of checklist	Compliant	
	Yes	Yes, after correction
Hand hygiene before and after procedure		
Sterile gloves, drapes, sponges, aseptic sterile solution for cleaning, and single use packet lubricant used		
Aseptic insertion technique (no contamination during placement)		
Proper securement of urinary catheter post-procedure		
Closed drainage system and bag below patient post-procedure		

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Implementation: Nurses

- Nurse champion promotes use of appropriate indications and proper insertion technique by all ED nurses.
- The goals of the program and the potential benefits to patients are discussed with nurses.
- Nursing staff are educated about the appropriate indications for urinary catheter placement and insertion procedures.
- Printed educational material, lectures, posters, and pocket cards may be useful tools.

52

Implementation: Nurses

- Emphasize the importance of obtaining a physician order for placement if they believe the patient requires urinary catheterization.
- Use other strategies to reduce the need for indwelling urinary catheterization (see alternatives to the urinary catheter).

53

Implementation

- The physician champion will educate all the physicians on the institutional guidelines for the ED.
- The nurse champion will educate all the nurses on the institutional guidelines for the ED.
- May use the “Appropriate Urinary Catheter Use and Management” module in the Care and Removal Bundle and the “Proper Insertion Technique” module.

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Implementation

- For implementation, collect urinary catheter placement rate using the designated form, which will distinguish appropriate indications versus inappropriate indications.
- Check if patients admitted through the ED had a urinary catheter placed.
- Determine the reason for placement.
- If the reason for placement does not represent an appropriate indication, the ED nurse will contact the ED physician to discontinue the urinary catheter.

55

Sustainability

- It is important to provide feedback to the ED regarding urinary catheter placement rate and appropriateness of utilization.
- Collect periodic urinary catheter placement rates and appropriateness.
- Provide feedback and current results to the ED.
- If no improvement is seen, then evaluate the unit for barriers to implementation; consider re-education or re-implementation of the program.

56

Data Collection in the Emergency Department

- A form is completed by ED when the decision is made to admit the patient to any hospital unit (i.e., regular wards or intensive care units).
- The nurse transferring the patient to the hospital unit documents on the form whether the patient has or does not have a urinary catheter.
- The number of sheets collected per day should equal the number of patients admitted to the hospital (one form per patient, see Baseline and Implementation/Sustainability Data Collection Tools).

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Data Collection in the Emergency Department: Advantages

- Prospective data collection on indications and documentation of physician order
- Only one unit/department is involved in data collection: the ED.
- Feedback on utilization is more accepted because it is collected by the ED staff.

58

Data Collection in the Emergency Department: Disadvantages

- Multiple people are obtaining data. Ensure that data collection is accurate!
- Prospective data collection may challenging. However, the data collection may have significant benefits with the evaluations of urinary catheter presence and need.

59

Baseline Data Collection Tool

ED Urinary Catheter Baseline Collection Tool for Patients **Admitted to the Hospital**:

Patient #_____ Date:_____

Urinary (Foley) catheter placed in ED*: ☐ Yes ☐ No

If yes, physician order present: ☐ Yes ☐ No

If placed in ED, reason:

Reason for Urinary Catheter Placement (*please select only one option*).
☐ Urinary flow obstruction or retention (e.g., prostatic hypertrophy, hematuria with clots, urethral stricture, trauma to urethra, neurogenic bladder, including paraplegia/quadriplegia if unable to straight catheterize).
☐ Perioperative use in selected surgeries (e.g., urologic procedures, surgeries contiguous to genitourinary tract, emergency surgery with anticipated large fluid resuscitation or extended duration, or if needed for intraoperative urine output monitoring).
☐ Need for immobilization because of trauma with multiple fractures (e.g., pelvic fractures, hip fractures with risk of displacement) or unstable spine.
☐ Incontinence
☐ Morbid obesity
☐ Immobility not related to trauma
☐ Dementia/chronic confusion
☐ Debility (very frail patients)
☐ Monitoring fluids in critically ill patients
☐ Assist healing of sacral and perineal wounds in those with incontinence
☐ Monitoring fluids in non-critically ill patients
☐ Urine specimen collection
☐ Patient request
☐ To improve comfort for end of life care (e.g., hospice, palliative care, comfort care)
☐ If other, please state:

* A chronic indwelling urinary catheter present on admission to the ED will not be counted as "placed in the ED" (even if the catheter is changed there).

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Implementation/Sustainability Data Collection Tool

ED Urinary Catheter Implementation/Sustainability Collection Tool for All Patients **Admitted to the Hospital**:

Patient #_____ Date:_____

Urinary (Foley) catheter placed in ED*: ☐ Yes ☐ No

If yes, physician order present: ☐ Yes ☐ No

If placed in ED, reason:

Appropriate Indications	Unacceptable Reasons for Placement
☐ Urinary flow obstruction or retention (e.g., prostatic hypertrophy, hematuria with clots, urethral stricture, trauma to urethra, neurogenic bladder including paraplegia/ quadriplegia if unable to straight catheterize)	☐ Incontinence ☐ Morbid obesity ☐ Immobility not related to trauma ☐ Dementia/chronic confusion ☐ Debility (very frail patients)
☐ Perioperative use in selected surgeries (e.g., urologic procedures, surgeries contiguous to genitourinary tract, emergency surgery with anticipated large fluid resuscitation or duration or if need for intraoperative urine output monitoring)	☐ Monitoring fluids in non-critically ill patients ☐ Urine specimen collection ☐ Patient request
☐ Need for immobilization because of trauma with multiple fractures (e.g., pelvic fractures, hip fracture with risk of displacement) or unstable spine	☐ If other, please state:
☐ Monitoring fluids in critically ill patients	**If selected reason is inappropriate, was the urinary catheter removed?** ❑ Yes ❑ No
☐ Assist healing of sacral and perineal wounds in those with incontinence	
☐ To improve comfort for end of life care (e.g., hospice, palliative care, comfort care)	
☐ Acceptable conditions per institutional guidelines:	

* A chronic indwelling urinary catheter present on admission to the ED will not be counted as "placed in the ED" (even if the catheter is changed there).

Data Collection Tools: Differences

1. The baseline data collection tool will not distinguish appropriate versus inappropriate indications, as doing so may impact the urinary catheter placement.
2. The intervention/sustainability tool will include a trigger for a nurse to contact the physician for an order to discontinue if an inappropriate reason is identified.

How to Evaluate the Program

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Evaluating the Results

- You will be able to calculate both the rate of urinary catheters placed for admitted patients in addition to the rate of those who had a urinary catheter placed with an inappropriate reason.

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Evaluating the Results

- The baseline will provide a good assessment on the proportion of those urinary catheters placed that are based on the HICPAC guidelines and those that are considered inappropriately placed.
- From the baseline data, you will be able to evaluate the magnitude of the problem.

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Evaluating the Results

- With implementation, you will be able to assess whether the placement of urinary catheters has dropped, and whether the proportion of urinary catheters placed inappropriately has been reduced.
- During the sustainability period, a continued reduction in placement rate will reflect whether the program effect persists.

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What Measures to Use?

- Urinary catheter placement rate is the most simple measure to calculate to evaluate the effect of the implementation.
- Other measures:
  1. Inappropriate placement rate: depends on the institutional guidelines for placement and may not accurately show the effect of your intervention.
  2. Physician order presence: may be helpful to review if suboptimal improvement occurred during implementation to differentiate whether it was a physician or nurse issue.

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Outcome Measure

- The population-based rate: symptomatic catheter-associated urinary tract infections (CAUTI) per 10,000 patient days in hospital (may look at non-intensive care units).

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Population CAUTI Rate

- Advantages: easier to capture looking at all CAUTIs over one period of time and comparing them to CAUTIs over another period (i.e., before and after implementation). Use patient days as the denominator for each period (this will be obtained from hospital administrative data).

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Population CAUTI Rate

- This evaluation may bypass the process measures which are proxy measures for the outcome (CAUTI).
- The population CAUTI rate takes into consideration the NHSN CAUTI rate and the catheter utilization ratio.
- Population CAUTI Rate = NHSN CAUTI Rate x Catheter Utilization Ratio x 10

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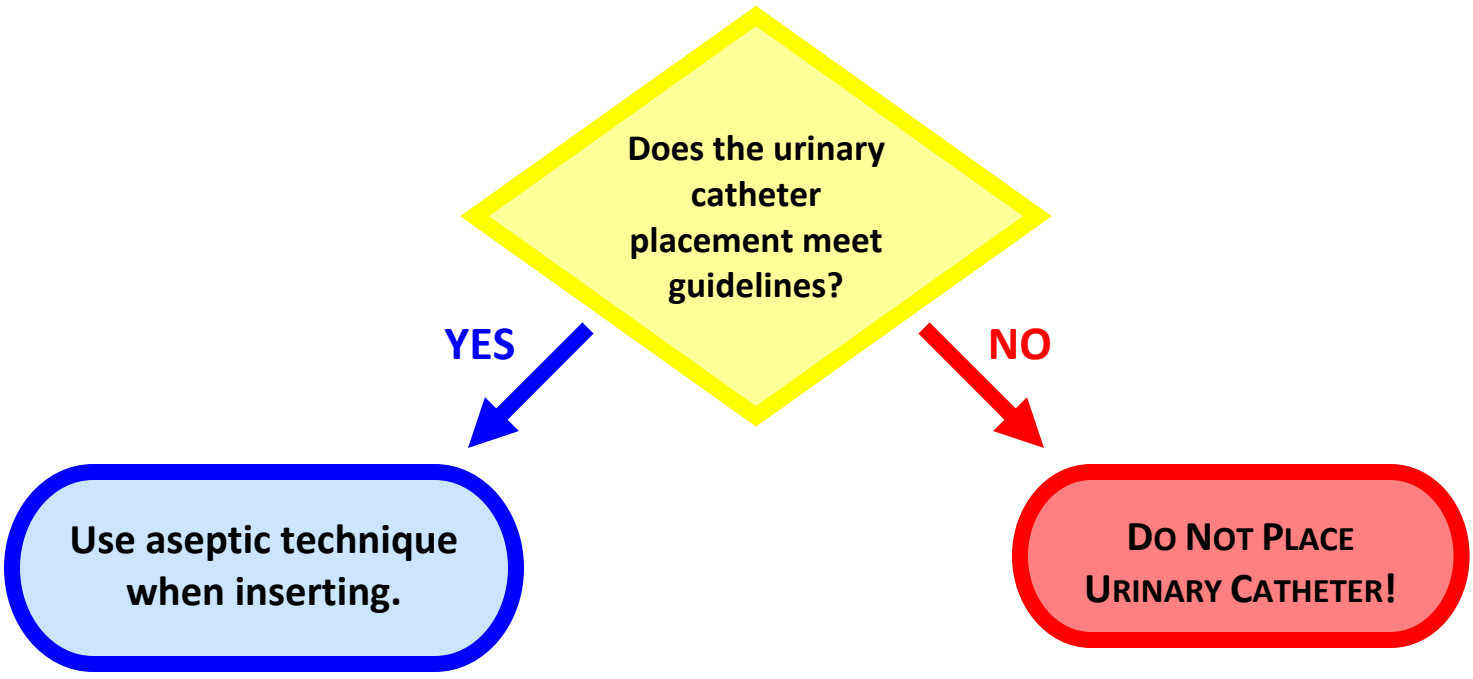
Emergency Department Guidelines for Urinary Catheter Placement

Appropriate Urinary Catheter Indications:

- Acute urinary retention or obstruction
- Perioperative use in selected surgeries
- Assist healing of perineal and sacral wounds in incontinent patients
- Hospice/comfort/palliative care
- Required immobilization for trauma or surgery
- Accurate measurement of urinary output in the critically ill patients

Inappropriate Urinary Catheter Indications:

- Incontinence
- Morbid obesity
- Dementia/ Confusion
- Patient's request
- Nursing convenience
- Urine specimen collection (*may straight catheterize if unable to obtain specimen*)



Questions? [Enter contact information here.]

Urinary Catheter Project

Emergency Department

Goal:

- **Reduce placement of unnecessary urinary catheters**

Background:

- **80% of hospital-acquired UTIs are from a Foley catheter**
- **Half of urinary catheters placed may not have an appropriate indication**
- **Large numbers of urinary catheters are placed in the emergency department**

How to Reduce Unnecessary Urinary Catheter Use:

- **Comply with the acceptable indications for placement**
- **Obtain a physician order prior to placement**

Acceptable Indications for Urinary Catheter Placement:

- **Acute urinary retention or obstruction**
- **Perioperative use in selected surgeries**
- **Assist healing of perineal and sacral wounds in incontinent patients**
- **Hospice/ comfort/ palliative care**
- **Required immobilization for trauma or surgery**
- **Accurate measurement of urinary output in the critically ill patients**
- **[*Insert your additional institutional guidelines here*]**

Examples of Inappropriate Urinary Catheter Uses:

- **Incontinence**
- **Morbid obesity**
- **Dementia or chronic confusion**
- **Patient's request**
- **Nursing convenience**
- **Urine specimen collection (may straight catheterize if unable to obtain specimen)**

Always Use Aseptic Technique when Placing Urinary Catheters!

URINARY CATHETER PROJECT

Avoiding Unnecessary Urinary Catheter Placement in the Emergency Department

Goal:

- **Reduce placement of inappropriate urinary catheters**

Background:

- **80% of hospital-acquired urinary tract infections are related to a urinary catheter**
- **Half of urinary catheters placed may not have an appropriate indication**
- **Large numbers of the urinary catheters are placed in the emergency department**

How to reduce inappropriate urinary catheter use:

- **Comply with the acceptable indications for placement**
- **Obtain a physician order prior to placement**

Acceptable Indications for Urinary Catheter Placement:

- **Acute urinary retention or obstruction**
- **Perioperative use in selected surgeries**
- **Assist healing of perineal and sacral wounds in incontinent patients**
- **Hospice/comfort/palliative care**
- **Required immobilization for trauma or surgery**
- **Accurate measurement of urinary output in the critically ill patients**
- [*Insert your additional institutional guidelines here, if desired*]

Examples of Inappropriate Urinary Catheter Uses:

- **Incontinence**
- **Morbid obesity**
- **Dementia or chronic confusion**
- **Patient's request**
- **Nursing convenience**
- **Urine specimen collection (may straight catheterize if unable to obtain specimen)**

Avoid Placement of Inappropriate Urinary Catheters

Always Use Aseptic Technique when Placing Urinary Catheters!

Questions? [Enter contact information here.]

Sample Pocket Cards for Physicians & Nurses

DO NOT PLACE URINARY CATHETERS UNLESS NEEDED!
Emergency Department-Specific Guidelines

Always obtain physician order before placement of a urinary catheter.

Urinary Catheters are NOT Indicated for:

- **Incontinence**
- **Morbid obesity**
- **Dementia/Confusion**
- **Patient's request**
- **Nursing convenience**
- **Urine specimen collection (may straight catheterize if unable to obtain specimen)**

Urinary catheters can increase:

- **Infections**
- **Length of Stay**
- **Cost**
- **Patient Discomfort**
- **Antibiotic Use**

Urinary Catheters can lead to more immobility, which increases the risk of skin breakdown and deep venous thrombosis.

PREVENTION IS KEY.

Front

Pocket cards measure 5 inches by 4 inches. Actual size is shown.

DO NOT PLACE URINARY CATHETERS UNLESS NEEDED!
Emergency Department-Specific Guidelines

Appropriate Urinary Catheters Indications:

- Acute urinary retention or obstruction
- Perioperative use in selected surgeries
- Assist healing of perineal and sacral wounds in incontinent patients
- Hospice/ comfort/ palliative care
- Required immobilization for trauma or surgery
- Accurate measurement of urinary output in the critically ill patients

Urinary catheters may also be used for:

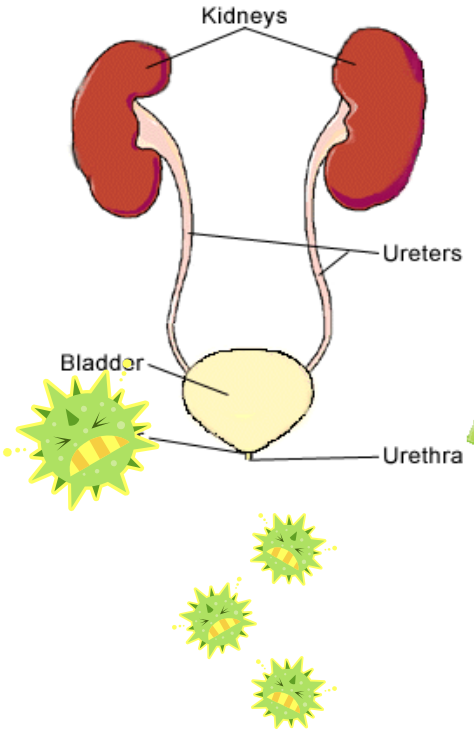
- *Place your additional institutional indications if different from above*

Always obtain a physician order before placement of a urinary catheter.

For questions, please contact
[Enter contact information here].

Back

DO NOT PLACE THAT URINARY CATHETER UNLESS NEEDED!



Urinary Catheters Increase:

- **Likelihood of Infection**
- **Patient Discomfort**
- **Antibiotic Use**
- **Length of Stay**
- **Cost**

** Patients with urinary catheters tend to stay in bed,making them more immobile, and increasing their risk of skin breakdown*

Urinary Catheters ARE Indicated for:

- ☑ Acute urinary retention or obstruction
- ☑ Perioperative use in selected surgeries
- ☑ Assist healing of perineal and sacral wounds in incontinent patients
- ☑ Hospice/comfort care/palliative care
- ☑ Required immobilization for trauma or surgery
- ☑ Chronic indwelling urinary catheter on admission
- ☑ Accurate measurement of urinary output in the critically ill patients (intensive care)

Foley Catheters are *NOT* indicated for:

- ☒ Urine output monitoring OUTSIDE intensive care
- ☒ Incontinence (place on toileting routine, change frequently)
- ☒ Prolonged postoperative use
- ☒ Patients transferred from intensive care to general units
- ☒ Morbid obesity
- ☒ Immobility (turn patient q 2 hours, up in chair)
- ☒ Confusion or dementia
- ☒ Patient request

Questions?

Contact [Insert info]

Does Your Patient *Really* Need a Urinary Catheter?

Indications for Urinary Catheter Use:

- **Acute urinary retention or obstruction**
- **Perioperative use in selected surgeries**
- **Assist healing of perineal and sacral wounds in incontinent patients**
- **Hospice/comfort care/palliative care**
- **Required immobilization for trauma or surgery**
- **Chronic indwelling urinary catheter on admission**
- **Accurate measurement of urinary output in the critically ill patients (intensive care)**
- *Insert additional institutional guidelines if desired*

Questions?

Please call [*insert contact information here*].

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Magnitude of the Problem:

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Useful Websites:

- http://www.catheterout.org: comprehensive site that provides information regarding key prevention strategies for catheter-asociated urinary tract infections, detailed protocols, educational tools, engaging physicians and administrators, and the supporting evidence.
- http://www.cdc.gov/hicpac/cauti/001_cauti.html: the Healthcare Infection Control Practices Advisory Committee (HICPAC) Guideline for Prevention of Catheter-Associated Urinary Tract Infections, 2009.
- http://www.onthecuspstophai.org/Stop-7622.html: AHRQ funded national project to implement comprehensive unit safety program (CUSP) and reduce catheter-associated urinary tract infections.