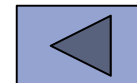


# Catheter Associated Urinary Tract Infection (CAUTI) Prevention

System CAUTI Prevention Team

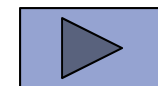
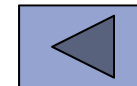
SHARP®



# Objectives

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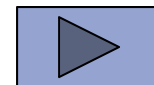
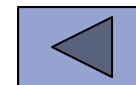
- At the end of this module, the participant will be able to:
  - Identify risk factors for CAUTI
  - Explain the relationship between catheter duration and CAUTI risk
  - List the appropriate indications for urinary catheter insertion and continued use
  - Implement evidence-based nursing practice to decrease the risk and incidence of CAUTI



# The Problem

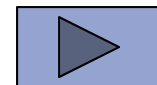
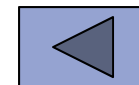
- ***All patients*** with an indwelling urinary catheter are at risk for developing a CAUTI.
- CAUTI ***increases*** pain and suffering, morbidity & mortality, length of stay, and healthcare costs.

*Appropriate indwelling catheter use can  
prevent about 400,000 infections and  
9,000 deaths every year!*



# 2012 National Patient Safety Goal

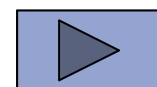
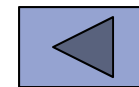
- Implement evidence-based practices to prevent indwelling catheter associated urinary tract infections (CAUTI)
- Insert indwelling urinary catheters according to evidence-based guidelines
  - Limit catheter use and duration
  - Use aseptic technique for site preparation, equipment, and supplies



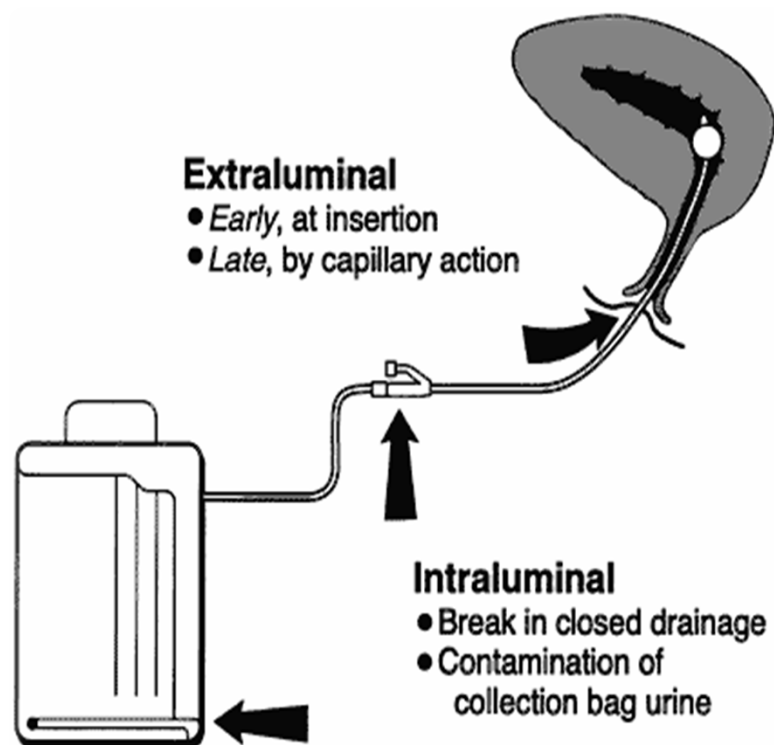
# 2012 National Patient Safety Goal

- Manage indwelling urinary catheters according to evidence-based guidelines
  - Secure catheters for unobstructed urine flow and drainage
  - Maintain the sterility of the urine collection system
  - Replace the urine collection system when required
  - Collect urine samples using aseptic technique

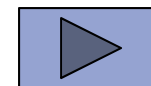
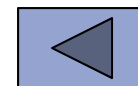
(TJC, 2011)



# Sources of CAUTI Microorganisms

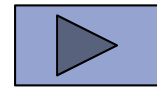
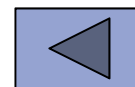


- Endogenous
  - Meatal, rectal, or vaginal colonization
- Exogenous
  - From contaminated hands of healthcare personnel during catheter insertion or manipulation of the collecting system

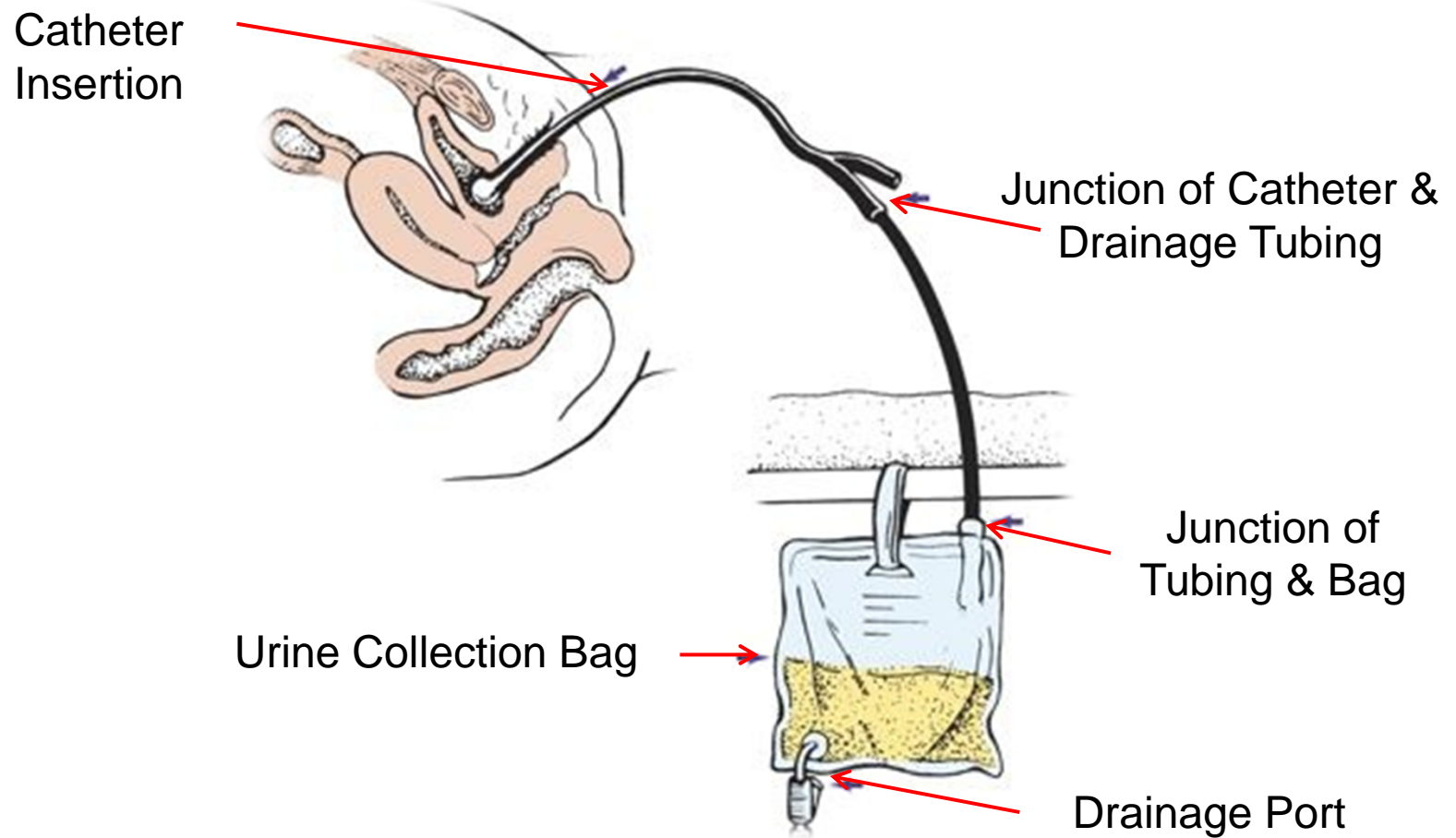


# Sources of CAUTI

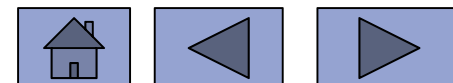
- Contamination
  - During catheter insertion
  - Of the junction between catheter and drainage tube
  - Of the drainage port when emptying urine from the collection bag
  - During specimen collection
- Migration of microorganisms along the external surface of catheter
- Reflux of urine from contaminated drainage tubing or collection bag into bladder



# Sites of Contamination



(Perry & Potter, 2009)





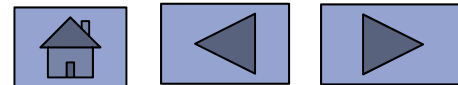
# Risk Factors for CAUTI

## Catheter and Patient Related Factors

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- Catheter-Related Factors
  - Insertion technique
  - Catheter care
  - Duration of catheterization
- Patient-Related Factors
  - Compromised Immune System
  - Diabetes Mellitus
  - Renal Dysfunction
  - Fecal Incontinence
  - Female gender
  - Elderly age

(APIC, 2008; Gould et al, 2009)



# CAUTI Risk and Duration of Catheterization

- *The risk of CAUTI is directly related to the duration of catheterization!*

Every day that the urinary catheter is in place increases the patient's risk of CAUTI up to 7% per day!

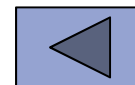
# Alternatives to Urinary Catheter Insertion

- Apply external condom catheters for male patients without urinary retention or bladder outlet obstruction
- Assess urine volume with bladder ultrasound
- Perform intermittent catheterization

***The most effective strategy  
to prevent CAUTI is not to insert an  
Indwelling Urinary Catheter!***



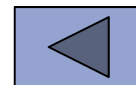
(APIC, 2008; Gould et al, 2009)



# Primary CAUTI Prevention Strategies

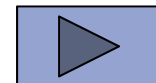
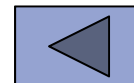
- There are 2 primary CAUTI prevention strategies for patients requiring indwelling urinary catheters
  - Insert **ONLY** for appropriate evidence-based indications
  - Limit the ***duration of catheterization***
    - Leave catheters in place only as long as needed
    - Remove catheters ASAP unless there is an appropriate indication for continued use

(APIC, 2008; Gould et al, 2009)



# Order for Insertion

- A provider order for “Foley Catheter Insertion” is **required** to insert the catheter
  - Order must include the appropriate indication for catheter insertion
- *An order for “Foley Catheter Care” does not replace an order for catheter insertion*



# Appropriate Indications for Insertion

**Table 2. A. Examples of Appropriate Indications for Indwelling Urethral Catheter Use** <sup>1-4</sup>

Patient has acute urinary retention or bladder outlet obstruction

Need for accurate measurements of urinary output in critically ill patients

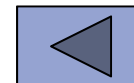
Perioperative use for selected surgical procedures:

- 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)

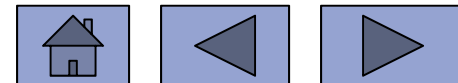
To improve comfort for end of life care if needed



# Urinary Output Monitoring in the Critically Ill Patient

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Patient is hemodynamically unstable and requires accurate urinary output monitoring every 1-2 hours



# Documentation of Appropriate Indication for Insertion

- Indwelling/Continuous 1...	
Activity	To gravity ...
Interventions	Skin asses...
Indication for Insertion	Indication for Insertion <span style="float: right;">X</span>
Indication - Continued Use	<input type="checkbox"/> Acute urinary retention or obstruction
Start Date	<input type="checkbox"/> Epidural anesthesia/analgesia
Today's Date	<input type="checkbox"/> Open sacral/perineal wounds in incontinent patient
Days In	<input type="checkbox"/> Perioperative use for selected surgical procedure
End Date	<input type="checkbox"/> Prolonged immobilization (spinal precautions/trauma)
	<input type="checkbox"/> To improve comfort at end of life
	<input type="checkbox"/> Urinary output monitoring in critically ill patient (ICU)
	<input type="checkbox"/> <del>None of the above</del>

Document Indication for Insertion  
at the time of insertion



Comment -

Urinary Cath Indication for Insertion: **None of the above**

Comment

If the patient does not have an appropriate indication for Urinary Catheter Insertion and the Provider orders Insertion:

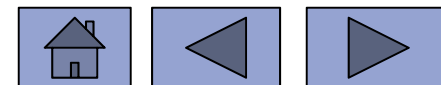
- Right click and Add Comment
- Document
  - Urinary Catheter Indication reviewed with Provider (name) and Indication for Insertion is (document Indication stated by Provider)

OK Cancel

Urinary Catheter Insertio...

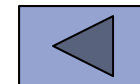
Indwelling/Continuous 1...

Activity	Insertion	To gravity ...	To gravity ...
Procedure Response	◇		
Interventions		Skin asses...	Skin asses...
Indication for Insertion	None of th...		
Indication - Continued Use		Urinary out...	Urinary out...
Start Date		11/16/2011	11/16/2011
Today's Date		11/17/2011	11/16/2011
Days In	day	1	0
End Date			



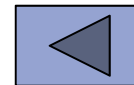
# Do Not Insert Catheters....

- As a substitute for nursing care for management of incontinence
- To obtain urine for culture or other diagnostic tests when the patient can voluntarily void



# Limit the Duration of Catheterization

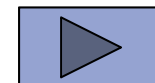
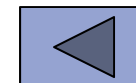
- Collaborate with the Provider daily to review the indication for the catheter
  - Document indication for “Continued Use” every shift and PRN
- Remove the catheter as soon as possible
  - Desired removal outcomes
    - Surgical Patients: POD 1 or 2
    - Medical Patients: 24 hours



# Documentation of Appropriate Indication for Continued Use

- Indwelling/Continuous 1...	
Activity	To gravity ...
Interventions	Skin asses...
Indication for Insertion	
Indication - Continued Use	Indication - Continued Use <span>X</span>
Start Date	<input type="checkbox"/> Acute urinary retention or obstruction
Today's Date	<input type="checkbox"/> Epidural anesthesia/analgesia
Days In	<input type="checkbox"/> Open sacral/perineal wounds in incontinent patient
End Date	<input type="checkbox"/> Perioperative use for selected surgical procedure
	<input type="checkbox"/> Prolonged immobilization (spinal precautions/trauma)
	<input type="checkbox"/> To improve comfort at end of life
	<input type="checkbox"/> Urinary output monitoring in critically ill patient (ICU)
	<input type="checkbox"/> None of the above; Discussed removal with Provider

Document Indication for Continued Use Every Shift and PRN



**Comment**

Urinary Cath Indication - Continued Use: **None of the above; Discussed removal with Provider**

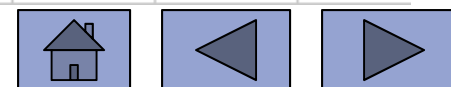
Comment

If the patient does not have an appropriate indication for Continued Use and the Provider states that the catheter is to remain:

- Right click and Add Comment
- Document
  - Urinary Catheter Indication reviewed with Provider (name) and Indication for Continued Use is (document Indication stated by Provider)


OK Cancel

- Urinary Catheter Insertio...			
- Indwelling/Continuous 1...			
Activity		To gravity ...	To gravity ...
Interventions		Skin asses...	Skin asses...
Indication for Insertion			
Indication - Continued Use	None of th...	Urinary out...	Urinary out...
Start Date		11/16/2011	11/16/2011
Today's Date		11/18/2011	11/17/2011
Days In	day	2	1
End Date			



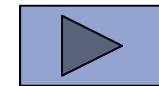
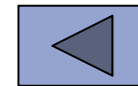
# Postoperative Patients

- Postoperative orders include an order to remove the catheter on postoperative day (POD) #2 at 0600


Patient Care	
<input checked="" type="checkbox"/> 	Urinary Catheter Removal Ordered 10/31/11 10:07:00 PDT, Indwelling, in AM POD #2 at 0600

- A provider order is required for continued use of the catheter after POD #2 at 0600
  - The Order must include the indication for Continued Use of the catheter

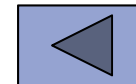
# Evidence-Based Nursing Practice to Prevent CAUTI



# Nursing Practice to Prevent CAUTI

- Perform hand hygiene immediately before and after insertion or any manipulation of the urinary catheter or drainage system
-  ■ Perform perineal care prior to catheter insertion
- Disinfect urethral meatus using antiseptic solution prior to catheter insertion
- Insert urinary catheter using aseptic technique, sterile equipment and supplies

(APIC, 2008; Gould et al, 2009)





# Nursing Practice to Prevent CAUTI

- Maintain sterility of urinary catheter during insertion of indwelling urinary catheter
  - Use one catheter for one insertion attempt
  - If the catheter becomes contaminated during insertion, obtain a *new* catheter insertion kit
  - Ask for assistance if the patient is unable to maintain position for catheter insertion



# Nursing Practice to Prevent CAUTI

- If the patient may require accurate urinary output monitoring



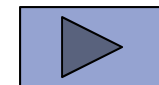
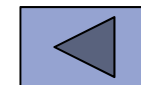
- Select an insertion kit with a *meter*
- This will prevent the need to disconnect the catheter from the drainage tubing to change the collecting bag and maintain sterility of the closed drainage system

# Nursing Practice to Prevent CAUTI

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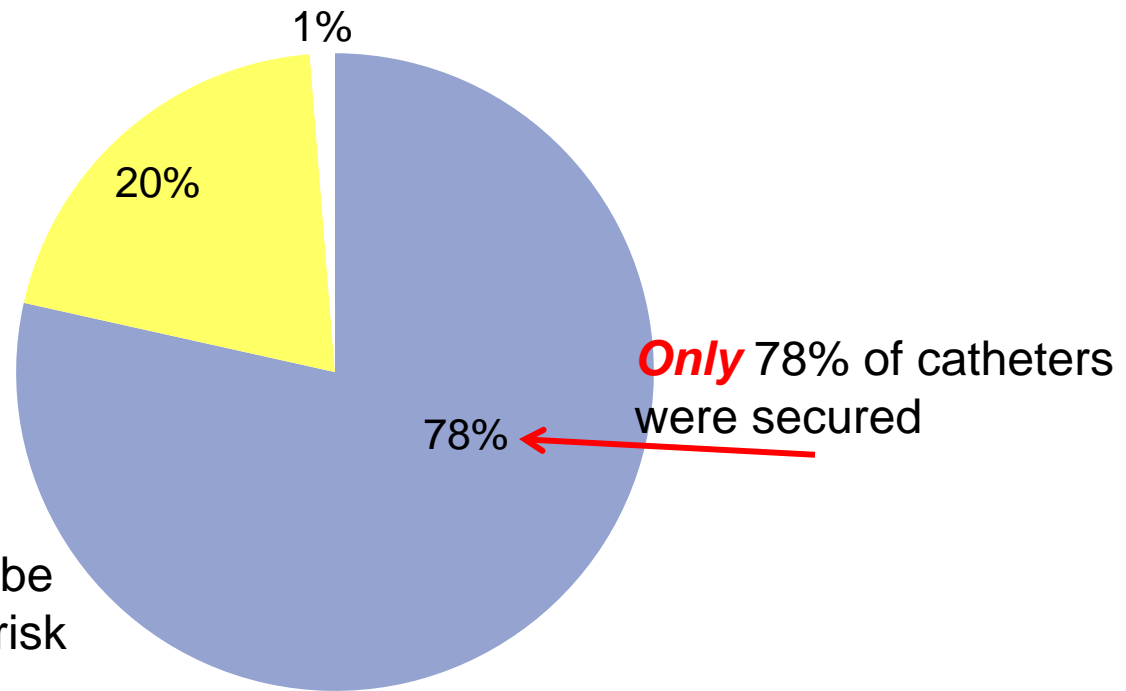
Secure the indwelling catheter after insertion to prevent movement and urethral traction

(APIC, 2008; Gould et al, 2009)



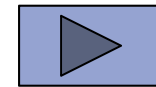
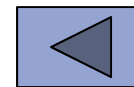
# Sharp HealthCare CAUTI Prevalence Survey #1 (Fall 2011)

Was the Urinary Catheter Secured? (n=158)



**Every** catheter should be secured to prevent the risk of CAUTI

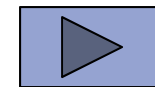
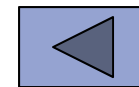
■ Yes ■ No ■ Not Recorded



# Secure the Urinary Catheter



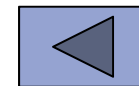
- Cleanse an area larger than the Securement Device with Alcohol Prep and allow to *dry completely*
- Apply Skin Barrier Prep and allow to *dry completely*
  - The device will not stick if it is applied before the area is dry



# Nursing Practice to Prevent CAUTI

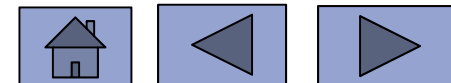
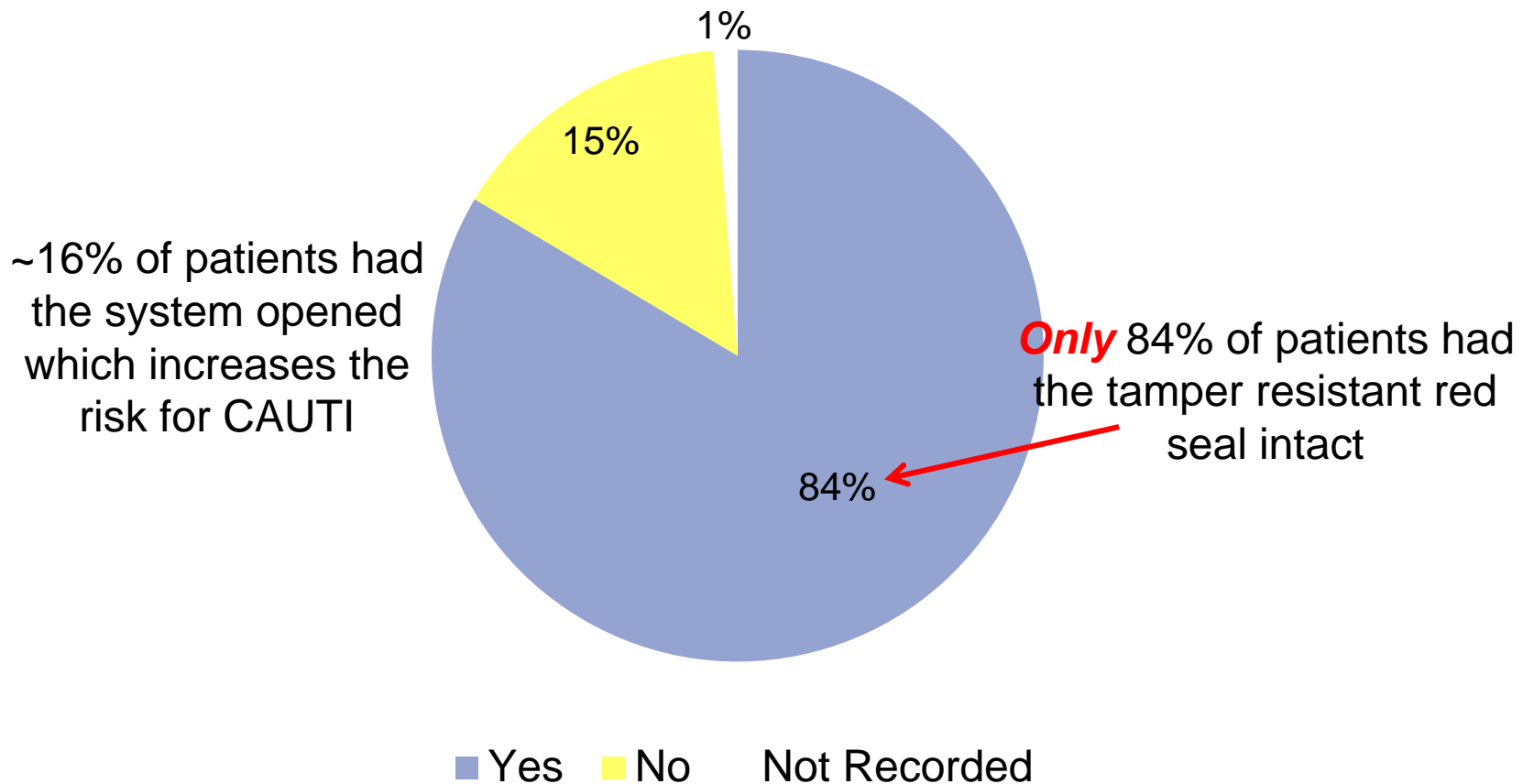
- Maintain a closed, sterile drainage system
  - Replace the catheter and collection system using aseptic technique if:
    - Breaks occur in aseptic technique
    - The catheter is disconnected from the drainage tubing
    - Leakage occurs

(APIC, 2008; CMS, 2011; Gould et al, 2009)



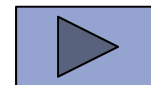
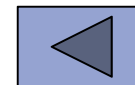
# Sharp HealthCare CAUTI Prevalence Survey #1 (Fall 2011)

Was the Tamper Resistant Red Seal Intact? (n=158)



# Nursing Practice to Prevent CAUTI

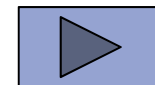
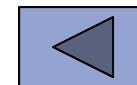
- Obtain urine samples aseptically
- If a small volume of urine is needed for urinalysis or culture
  - Scrub the needleless port with alcohol for 15 seconds
  - Allow to dry
  - Aspirate the urine from the needleless port with a sterile syringe



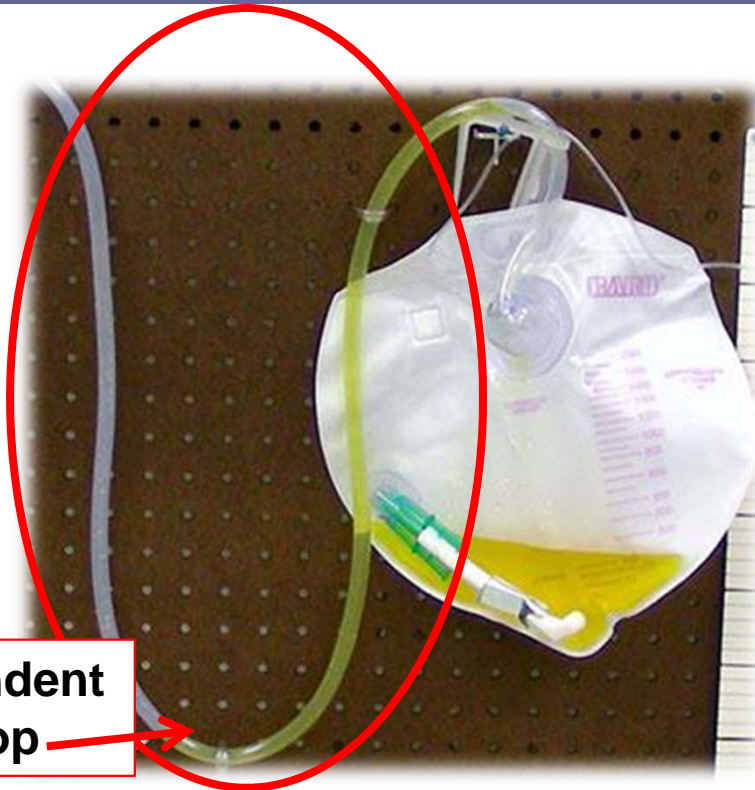


# Nursing Practice to Prevent CAUTI

- Keep the urine collection bag below the level of the bladder at *all* times
  - Includes during
    - Ambulation, transport, procedures, and surgery
- Maintain unobstructed urine flow
  - Keep the catheter and tubing free of kinking and dependent loops

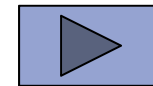
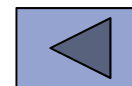


# Maintain Unobstructed Urine Flow and Prevent Dependent Loops



- Dependent loops create back pressure that obstructs urine flow from the bladder

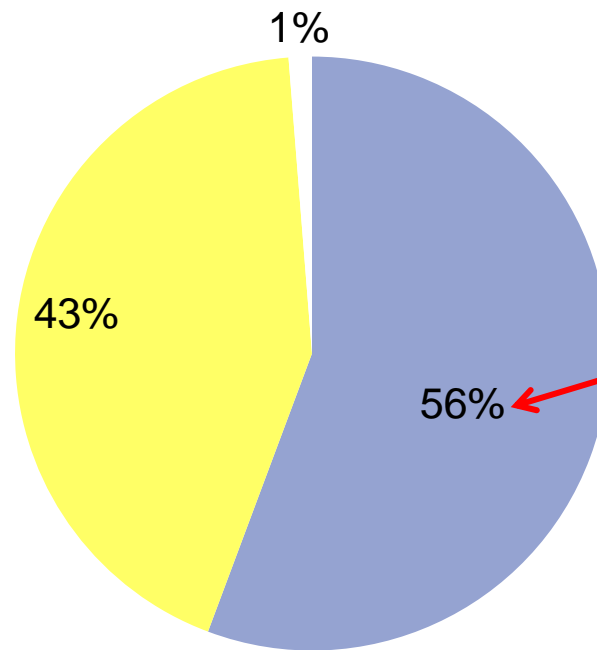
**Dependent Loop**



# Sharp HealthCare CAUTI Prevalence Survey #1 (Fall 2011)

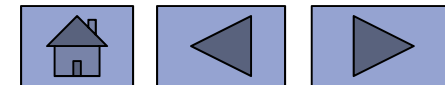
Was the Tubing Straight without Dependent Loops or Kinks?  
(n=158)

~ 43% of patients had obstructed urine flow related to dependent loops or kinks of the drainage tubing

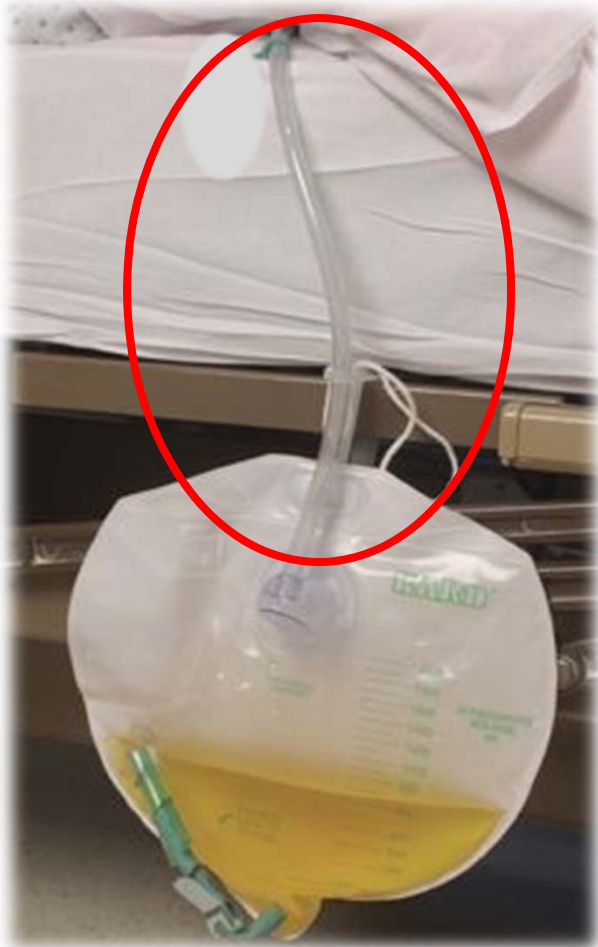


**Only** 56% of patients had the drainage tubing straight without dependent loops or kinks

■ Yes ■ No ■ Not Recorded

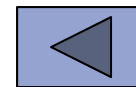


# Maintain Unobstructed Urine Flow



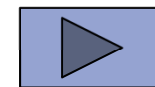
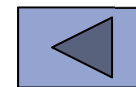
- Hang the bag at the end of the bed
- Secure the tubing to the bottom sheet using the green clip
- Ensure that the tubing is straight and urine drains directly into the bag

(CMS, 2011; Perry & Potter, 2009)



# Nursing Practice to Prevent CAUTI

- Empty the collection bag when the bag is 2/3 full
- Use a separate container for each patient to measure and empty urine
- New** ■ Date and label with patient initials
- New** ■ Obtain a new measuring container every 24hrs
- Empty the urine collection bag using aseptic technique
  - Avoid contact of the drainage port with the nonsterile container



# Nursing Practice to Prevent CAUTI

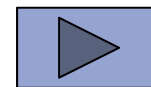
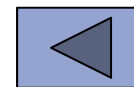
- Perform Catheter Care

- Daily

- PRN per individual patient need

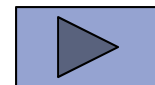
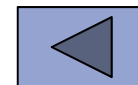
This is the **Only** correct screen to document indwelling urinary catheter care

Hygiene - ADLs						
Bed Bath						Maximum...
Oral Care				Maximum...		Maximum...
Peri Care				Maximum...		Maximum...
Shave						
Shower						
Sitz bath						
Newborn Hygiene						
Indwelling Urinary Catheter Care	Indwelling Urinary Catheter Care	X	Performed			Performed
Elimination Assistance	Performed					
OR/Procedural Preps						

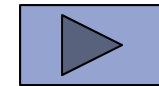
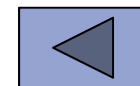


# Nursing Practice to Prevent CAUTI

- Avoid practice that may **increase** CAUTI
  - Irrigating indwelling urinary catheters
  - Disconnecting the catheter from the drainage tubing
  - Replacing catheters routinely unless the catheter is obstructed
  - Using the same urinary catheter for multiple insertion attempts



# Evidence-Based Practice Summary



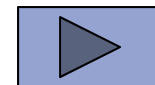
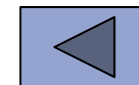


# Evidence-Based Practice Summary

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- Avoid inserting Indwelling Urinary Catheters
- Implement alternatives to insertion
  - Use the Bladder Scanner to evaluate urine volume
  - Apply external condom catheters for male patients
  - Perform intermittent straight catheterization

(APIC, 2008; Gould et al, 2009)

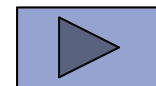
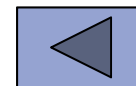


# Evidence-Based Practice Summary

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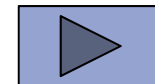
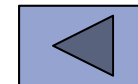
- Insert catheters only for appropriate indications
- Maintain aseptic technique and equipment during catheter insertion
- Perform hand hygiene before insertion and manipulating urinary catheters
- Obtain urine samples using aseptic technique
- Maintain a closed drainage system
- Secure the catheter after insertion

(APIC, 2008; Gould et al, 2009)



# Evidence-Based Practice Summary

- Maintain unobstructed urine flow
- Keep the collection bag below the level of the bladder at all times
- Empty the urine collection bag using aseptic technique
- Limit the duration of catheterization
  - Collaborate with the Provider to review the need and indication for the urinary catheter daily
  - Remove unnecessary urinary catheters promptly



# Contacts

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# References

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