



TENNESSEE DEPARTMENT OF HEALTH
HEALTHCARE-ASSOCIATED INFECTIONS AND ANTIMICROBIAL RESISTANCE PROGRAM



Surveillance Definitions
URINARY TRACT INFECTION (UTI)

(Last updated April 1, 2012)

Urinary tract infections (UTI) are defined using symptomatic urinary tract infecting (SUTI) criteria or Asymptomatic Bacteremic UTI (ABUTI). Report UTIs that are catheter-associated (i.e., patient had an indwelling urinary catheter at the time of or within 48 hours before onset of the event).

NOTES:

1. There is no minimum period of time that the catheter must be in place in order for the UTI to be considered catheter-associated. EXAMPLE: patient has a Foley catheter in place on an inpatient unit. It is discontinued, and 4 days later patient meets the criteria for a UTI. This is not reported as a CAUTI because the time since Foley discontinuation exceeds 48 hours.
2. SUTI 1b and 2b and other UTI (OUTI) cannot be catheter-associated.

Primary vs. secondary attribution: Because a fever is a non-specific sign of infection, it is possible that an individual may run a fever due to more than one infection at a time. It would be impossible to determine which infection (if not both) was the cause of the fever. Therefore, if all other criteria besides fever are met, both infections would be reported if surveillance for both of these events were being performed.

Source: NHSN September 2011 Newsletter

URL: www.cdc.gov/nhsn/PDFs/Newsletters/newsletter-Sept-2011.pdf

NOTE: Although CDC provided interpretive guidance related to primary vs. secondary attribution in the September NHSN Newsletter, TDH has asked that IPs apply this interpretive guidance starting January 2011 to ensure a full calendar year of comparable data.

Location of Attribution: the location where the patient was assigned on the date of the UTI event, which is further defined as the date when the first clinical evidence appeared or the date the specimen used to meet the criterion was collected, whichever came first.

EXAMPLE: Patient, who had no clinical signs or symptoms of UTI upon arrival to Emergency Department, has a Foley catheter inserted there before being admitted to the MICU. Within 24 hours of admission to the MICU, patient meets criteria for UTI. This is reported to the NHSN as a CAUTI for the MICU because the Emergency Department is not an inpatient location and no denominator data are collected there.

EXCEPTION:

Transfer Rule: If a CAUTI develops within 48 hours of transfer from one inpatient location to another in the same facility, or a new facility, the infection is attributed to the transferring location. This is called the Transfer Rule and examples are shown below.

- Patient with a Foley catheter in place in the SICU is transferred to the surgical ward. Thirty six (36) hours later, the patient meets the criteria for UTI. This is reported to NHSN as a CAUTI for the SICU.
- Patient is transferred to the medical ward from the MSICU after having the Foley catheter removed. Within 24 hours, patient meets criteria for UTI. This is reported to NHSN as a CAUTI for the MSICU.



TENNESSEE DEPARTMENT OF HEALTH
HEALTHCARE-ASSOCIATED INFECTIONS AND ANTIMICROBIAL RESISTANCE PROGRAM



Surveillance Definitions
URINARY TRACT INFECTION (UTI)

- Patient with a Foley catheter in place is transferred from the medical ward to the coronary care ICU (CCU). After 4 days in the CCU, the patient meets the criteria for UTI. This is reported to NHSN as a CAUTI for the CCU.
- EXAMPLE: patient on the urology ward of Hospital A had the Foley catheter removed and is discharged home a few hours later. The ICP from Hospital B calls the next day to report that this patient has been admitted to Hospital B with a UTI. This CAUTI should be reported to NHSN for Hospital A and attributed to the urology ward.

Indwelling catheter: a drainage tube that is inserted into the urinary bladder through the urethra is left in place, and is connected to a closed collection system, does not include straight in-and-out catheters.

SUTI – Symptomatic Urinary Tract Infection

DEFINITION: A symptomatic urinary tract infection must meet at least **ONE** ☐ of the following criteria:

☐ **Criterion 1a:** (Last updated January 1, 2012)

- Patient has an indwelling urinary catheter in place at the time of specimen collection or onset of signs or symptoms
AND
 - Patient has at least **ONE** ☐ of the following signs or symptoms with no other recognized cause:
 - ☐ fever ($>38^{\circ}\text{C}$)
 - ☐ suprapubic tenderness
 - ☐ costovertebral angle pain or tenderness**AND**
 - Patient has a positive urine culture of $\geq 10^5$ colony-forming units (CFU)/ml with no more than 2 species of microorganisms (See comment section below)
-
- OR**
-
- Patient has an indwelling urinary catheter removed within the 48 hours prior to specimen collection or onset of signs or symptoms
AND
 - Patient has at least **ONE** ☐ of the following signs or symptoms with no other recognized cause:
 - ☐ fever ($>38^{\circ}\text{C}$)
 - ☐ urgency
 - ☐ frequency
 - ☐ dysuria



TENNESSEE DEPARTMENT OF HEALTH
HEALTHCARE-ASSOCIATED INFECTIONS AND ANTIMICROBIAL RESISTANCE PROGRAM



Surveillance Definitions
URINARY TRACT INFECTION (UTI)

- △ suprapubic tenderness
- △ costovertebral angle pain or tenderness

AND

- Patient has a positive urine culture of $\geq 10^5$ CFU/ml with no more than 2 species of microorganisms (see comments section below)

□ Criterion 1b: *(Last updated January 1, 2012)*

- Patient does not have an indwelling urinary catheter in place at the time of, or within 48 hours prior to, specimen collection or onset of signs or symptoms

AND

- Patient has at least **ONE** △ of the following signs or symptoms with no other recognized cause:

- △ fever ($>38^{\circ}\text{C}$) in a patient that is ≤ 65 years of age
- △ urgency
- △ frequency
- △ dysuria
- △ suprapubic tenderness
- △ costovertebral angle pain or tenderness

AND

- Patient has a positive urine culture of $\geq 10^5$ CFU/ml with no more than 2 species of microorganisms (see comments section below)

□ Criterion 2a: *(Last updated April 1, 2012)*

- Patient had an indwelling urinary catheter in place at the time of specimen collection or onset of signs or symptoms

AND

- Patient has at least **ONE** △ of the following signs or symptoms with no other recognized cause:

- △ fever ($>38^{\circ}\text{C}$)
- △ suprapubic tenderness
- △ costovertebral angle pain or tenderness

AND



TENNESSEE DEPARTMENT OF HEALTH
HEALTHCARE-ASSOCIATED INFECTIONS AND ANTIMICROBIAL RESISTANCE PROGRAM



Surveillance Definitions
URINARY TRACT INFECTION (UTI)

- Patient has at least **ONE** Δ of the following findings:
 - Δ positive dipstick for leukocyte esterase and/or nitrite
 - Δ pyuria (urine specimen with $\geq 10^3$ white blood cells [WBC]/mm³ of unspun urine or >5 WBC/high power field of spun urine)
 - Δ microorganisms seen on Gram stain of unspun urine

AND

- Patient has a positive urine culture of $\geq 10^3$ and $< 10^5$ CFU/ml with no more than 2 species of microorganisms (see comments section below)

OR

- Patient has an indwelling urinary catheter removed within the 48 hours prior to specimen collection or onset of signs or symptoms

AND

- Patient has at least **ONE** Δ of the following signs or symptoms with no other recognized cause:

- Δ fever ($>38^\circ\text{C}$)
- Δ urgency
- Δ frequency
- Δ dysuria
- Δ suprapubic tenderness
- Δ costovertebral angle pain or tenderness

AND

- Patient has at least **ONE** Δ of the following findings:
 - Δ positive dipstick for leukocyte esterase and/or nitrite
 - Δ pyuria (urine specimen with $\geq 10^3$ white blood cells [WBC]/mm³ of unspun urine or >5 WBC/high power field of spun urine)
 - Δ microorganisms seen on Gram stain of unspun urine

AND

- Patient has a positive urine culture of $\geq 10^3$ and $< 10^5$ CFU/ml with no more than 2 species of microorganisms (see comments section below)

□ Criterion 2b: (Last updated April 1, 2012)

- Patient does not have an indwelling urinary catheter in place at the time of, or within 48 hours prior to, specimen collection or onset of signs or symptoms

AND



TENNESSEE DEPARTMENT OF HEALTH
HEALTHCARE-ASSOCIATED INFECTIONS AND ANTIMICROBIAL RESISTANCE PROGRAM



Surveillance Definitions
URINARY TRACT INFECTION (UTI)

- Patient has at least **ONE** Δ of the following signs or symptoms with no other recognized cause:

- Δ fever ($>38^{\circ}\text{C}$) in a patient that is ≤ 65 years of age
- Δ urgency
- Δ frequency
- Δ dysuria
- Δ suprapubic tenderness
- Δ costovertebral angle pain or tenderness

AND

- Patient has at least **ONE** Δ of the following findings:

- Δ positive dipstick for leukocyte esterase and/or nitrite
- Δ pyuria (urine specimen with ≥ 10 white blood cells [WBC]/ mm^3 of unspun urine or >5 WBC/high power field of spun urine)
- Δ microorganisms seen on Gram stain of unspun urine

AND

- Patient has a positive urine culture of $\geq 10^3$ and $< 10^5$ CFU/ml with no more than 2 species of microorganisms (see comments section below)

Criterion 3: *(Last updated January 1, 2012)*

- Patient ≤ 1 year of age with* or without an indwelling urinary catheter has at least **ONE** Δ of the following signs or symptoms with no other recognized cause:

- Δ fever ($>38^{\circ}\text{C}$ core)
- Δ hypothermia ($<36^{\circ}\text{C}$ core)
- Δ apnea
- Δ bradycardia
- Δ dysuria
- Δ lethargy
- Δ vomiting

AND

- Patient has a positive urine culture of $\geq 10^5$ CFU/ml with no more than 2 species of microorganisms (see comments section below)



TENNESSEE DEPARTMENT OF HEALTH
HEALTHCARE-ASSOCIATED INFECTIONS AND ANTIMICROBIAL RESISTANCE PROGRAM
Surveillance Definitions
URINARY TRACT INFECTION (UTI)



Criterion 4: *(Last updated April 1, 2012)*

- Patient ≤ 1 year of age with* or without an indwelling urinary catheter has at least **ONE** Δ of the following signs or symptoms with no other recognized cause:
 - Δ fever ($>38^{\circ}\text{C}$ core)
 - Δ hypothermia ($<36^{\circ}\text{C}$ core)
 - Δ apnea
 - Δ bradycardia
 - Δ dysuria
 - Δ lethargy
 - Δ vomiting

AND
- Patient has at least **ONE** Δ of the following findings:
 - Δ positive dipstick for leukocyte esterase and/or nitrite
 - Δ pyuria (urine specimen with ≥ 10 white blood cells $[\text{WBC}]/\text{mm}^3$ of unspun urine or >5 WBC/high power field of spun urine)
 - Δ microorganisms seen on Gram stain of unspun urine

AND
- Patient has a positive urine culture of $\geq 10^5$ CFU/ml with no more than 2 species of microorganisms (see comments section below)

*The indwelling urinary catheter was in place within 48 hours prior to specimen collection or onset of signs and symptoms.

ABUTI – Asymptomatic Bacteremic Urinary Tract Infection

DEFINITION: Asymptomatic bacteremic urinary tract infection must meet the following criteria:

Criterion 1: *(Last updated January 1, 2012)*

- Patient with* or without an indwelling urinary catheter has no symptoms (i.e., for any age patient, no fever [$>38^{\circ}\text{C}$], urgency, frequency, dysuria, suprapubic tenderness, or costovertebral angle pain or tenderness, OR for a patient ≤ 1 year of age, no fever [$>38^{\circ}\text{C}$ core], hypothermia [$<36^{\circ}\text{C}$ core], apnea, bradycardia, dysuria, lethargy, or vomiting)
- AND**
- Patient has a positive urine culture of $>10^5$ CFU/ml with no more than 2 species of uropathogen microorganisms** (see comments section below)
- AND**



TENNESSEE DEPARTMENT OF HEALTH
HEALTHCARE-ASSOCIATED INFECTIONS AND ANTIMICROBIAL RESISTANCE PROGRAM



Surveillance Definitions
URINARY TRACT INFECTION (UTI)

- Patient has a positive blood culture with at least 1 matching uropathogen microorganism to the urine culture, or at least 2 matching blood cultures drawn on separate occasions if the matching pathogen is a common skin commensal.

*The indwelling urinary catheter was in place within 48 hours prior to specimen collection.

** Uropathogen microorganisms are: Gram-negative bacilli, *Staphylococcus* spp., yeasts, beta-hemolytic *Streptococcus* spp., *Enterococcus* spp., *G. vaginalis*, *Aerococcus urinae*, and *Corynebacterium* (urease positive) +.

+ Report *Corynebacterium* (urease positive) as either *Corynebacterium* species unspecified (COS) or as *C. Urealyticum* (CORUR) if so specified.

COMMENTS: (Last updated January 1, 2012)

- Laboratory cultures reported as “mixed flora” represent at least 2 species of organisms. Therefore an additional organism recovered from the same culture would represent >2 species of microorganisms. Such a specimen cannot be used to meet the UTI criteria.
- Urinary catheter tips should not be cultured and are not acceptable for the diagnosis of a urinary tract infection.
- Urine cultures must be obtained using appropriate technique, such as clean catch collection or catheterization. Specimens from indwelling catheters should be aspirated through the disinfected sampling ports.
- In infants, urine cultures should be obtained by bladder catheterization or suprapubic aspiration; positive urine cultures from bag specimens are unreliable and should be confirmed by specimens aseptically obtained by catheterization or suprapubic aspiration.
- Urine specimens for culture should be processed as soon as possible, preferably within 1 to 2 hours. If urine specimens cannot be processed within 30 minutes of collection, they should be refrigerated, or inoculated into primary isolation medium before transport, or transported in an appropriate urine preservative. Refrigerated specimens should be cultured within 24 hours.
- Urine specimen labels should indicate whether or not the patient is symptomatic.
- Report secondary bloodstream infection = “Yes” for all cases of Asymptomatic Bacteremic Urinary Tract Infection (ABUTI).
- Report only pathogens in both blood and urine specimens for ABUTI.
- Report *Corynebacterium* (urease positive) as either *Corynebacterium* species unspecified (COS) or, as *C. urealyticum* (CORUR) if so speciated.



URINARY TRACT INFECTION (UTI)



**OUTI – Other Infections of the Urinary Tract
(Kidney, Ureter, Bladder, Urethra, or Tissue Surrounding
the Retroperitoneal or Perinephric Space)**

DEFINITION: Other infections of the urinary tract must meet at least **ONE** ☐ of the following criteria:

☐ Criterion 1: *(Last updated January 1, 2012)*

- ☐ Patient has microorganisms isolated from **ONE** ☐ of the following:

- ☐ culture of fluid (other than urine)
- ☐ tissue from affected site

☐ Criterion 2: *(Last updated January 1, 2012)*

- ☐ Patient has **ONE** ☐ of the following:

- ☐ an abscess seen during **ONE** ☐ of the following:

- ☐ direct examination
- ☐ surgical operation
- ☐ histopathologic examination

- ☐ other evidence of infection seen during **ONE** ☐ of the following:

- ☐ direct examination
- ☐ surgical operation
- ☐ histopathologic examination

☐ Criterion 3: *(Last updated January 1, 2012)*

- ☐ Patient has at least **TWO** ☐ of the following signs or symptoms with no other recognized cause:

- ☐ fever (>38°C)
- ☐ localized pain
- ☐ localized tenderness at the involved site

AND

- ☐ Patient has at least **ONE** ☐ of the following:

- ☐ purulent drainage from affected site
- ☐ microorganisms cultured from blood that are compatible with suspected site of infection
- ☐ radiographic evidence of infection (e.g., abnormal ultrasound, CT scan, magnetic resonance imaging [MRI], or radiolabel scan [gallium, technetium])



TENNESSEE DEPARTMENT OF HEALTH
HEALTHCARE-ASSOCIATED INFECTIONS AND ANTIMICROBIAL RESISTANCE PROGRAM
Surveillance Definitions
URINARY TRACT INFECTION (UTI)



□ Criterion 4: *(Last updated January 1, 2012)*

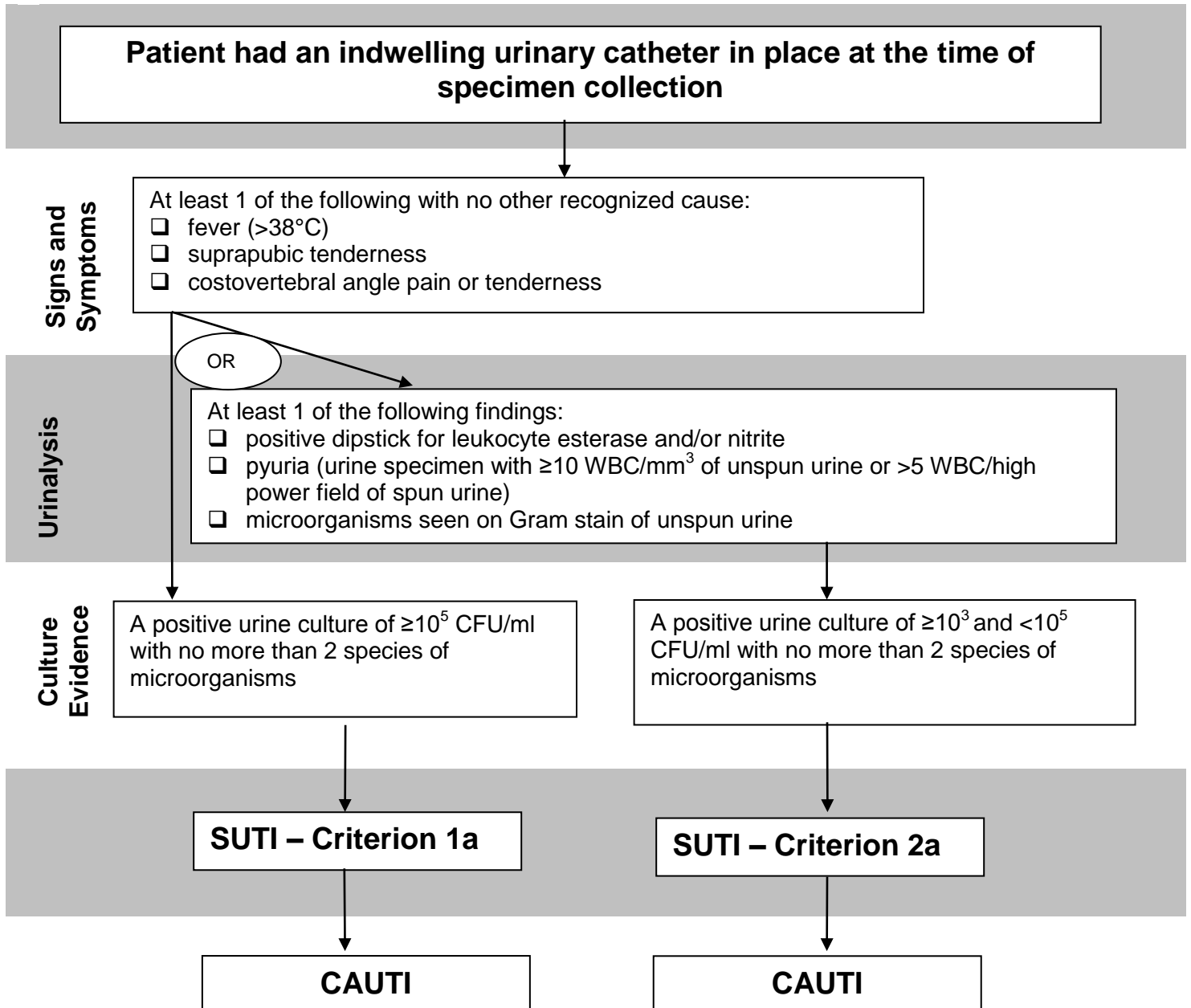
- Patient ≤1 year of age has at least **ONE** **△** of the following signs or symptoms with no other recognized cause:
 - △** fever (>38°C core)
 - △** hypothermia (<36°C core)
 - △** apnea
 - △** bradycardia
 - △** lethargy
 - △** vomiting
- AND**
- Patient has at least **ONE** **△** of the following:
 - △** purulent drainage from affected site
 - △** microorganisms cultured from blood that are compatible with suspected site of infection
 - △** radiographic evidence of infection (e.g. abnormal ultrasound, CT scan, magnetic resonance imaging [MRI], or radiolabel scan [gallium, technetium])

COMMENTS: *(Last updated June, 2008)*

- Report infections following circumcision in newborns as SST-CIRC.

Identification and Categorization of SUTI with Indwelling Catheter

(Last updated January 1, 2012)



URINARY TRACT INFECTION (UTI)



Identification and Categorization of SUTI Indwelling Catheter Discontinued in Prior 48 Hours

(Last updated April 1, 2012)

Patient had an indwelling urinary catheter discontinued within 48 hours prior to specimen collection or onset of signs or symptoms

**Signs and
Symptoms**

At least 1 of the following with no other recognized cause:

- ☐ fever ($>38^{\circ}\text{C}$)
- ☐ dysuria
- ☐ urgency
- ☐ suprapubic tenderness
- ☐ frequency
- ☐ costovertebral angle pain or tenderness

OR

Laboratory Evidence

A positive urinalysis demonstrated by at least 1 of the following findings:

- ☐ positive dipstick for leukocyte esterase and/or nitrite
- ☐ pyuria (urine specimen with ≥ 10 WBC/ mm^3 or >5 WBC/high power field of spun urine)
- ☐ microorganisms seen on Gram stain of unspun urine

A positive urine culture of $\geq 10^5$ CFU/ml with no more than 2 species of microorganisms

A positive urine culture of $\geq 10^3$ and $<10^5$ CFU/ml with no more than 2 species of microorganisms

SUTI – Criterion 1a

SUTI – Criterion 2a

Was an Indwelling urinary catheter in place within 48 hours prior to specimen collection or onset of signs or symptoms?

Yes

No

CAUTI

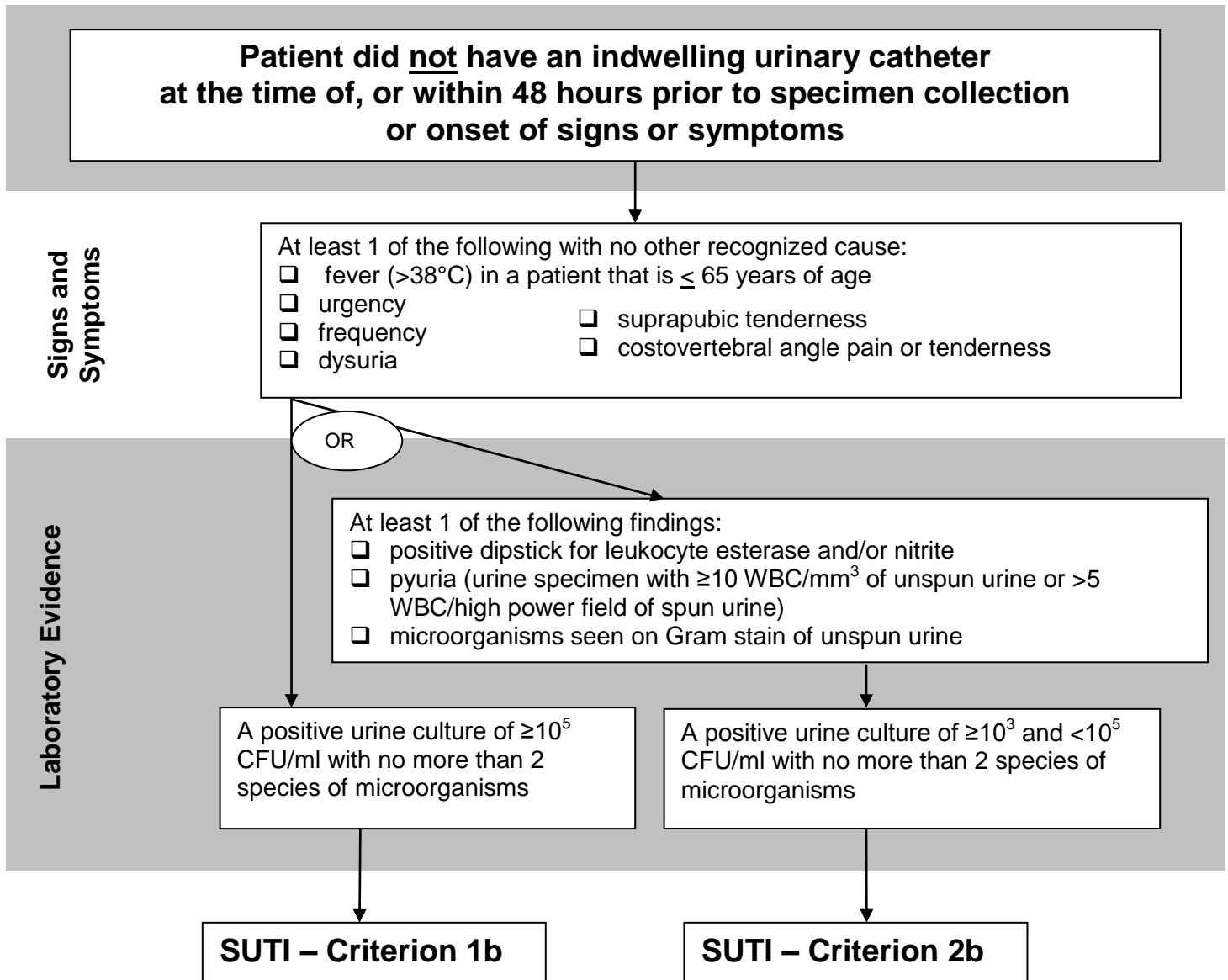
**SUTI
(not catheter-associated)**

URINARY TRACT INFECTION (UTI)



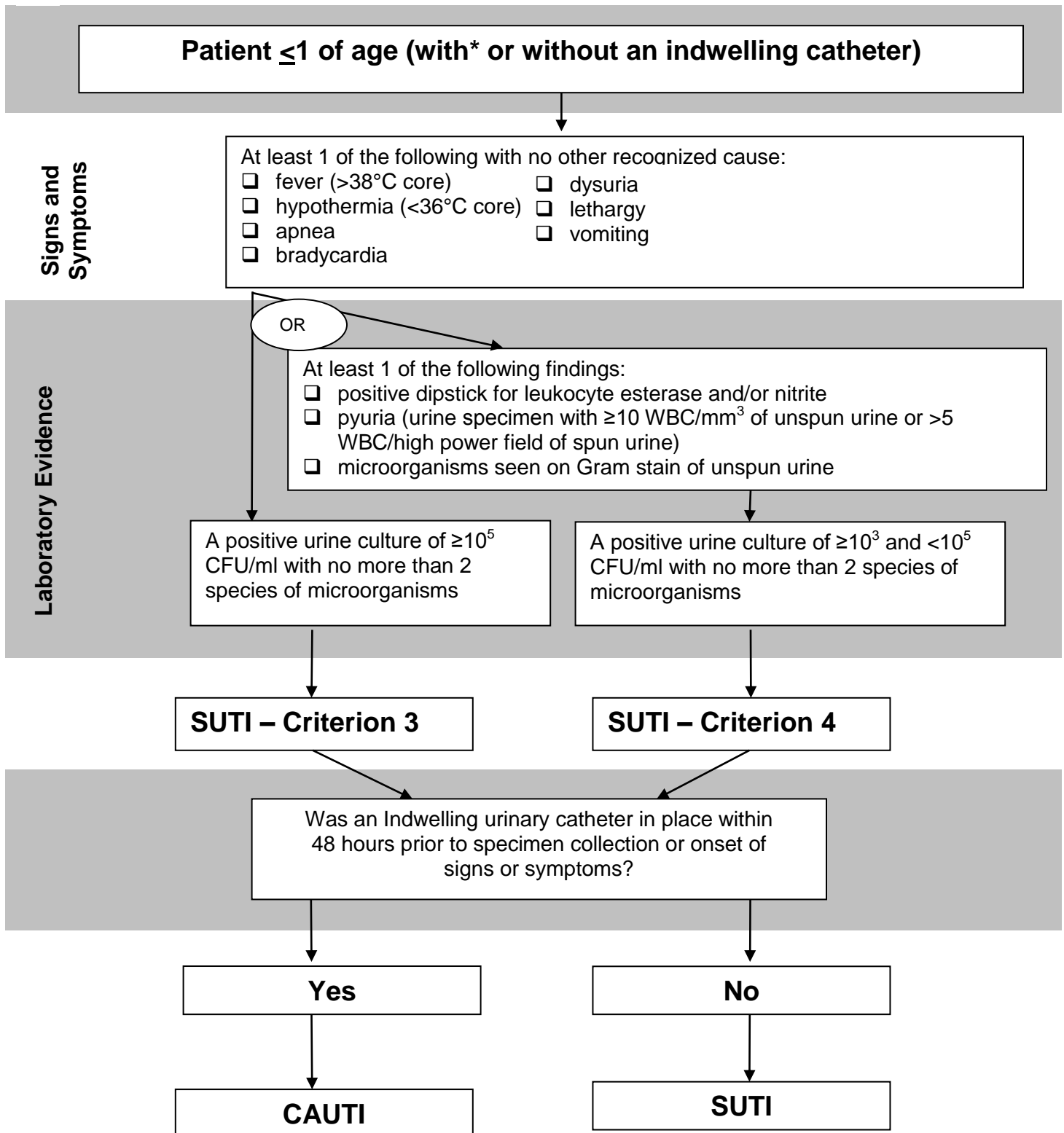
Identification and Categorization of SUTI Without Indwelling Catheter

(Last updated April 1, 2012)



Identification and Categorization of SUTI in Patients <1 Year of Age

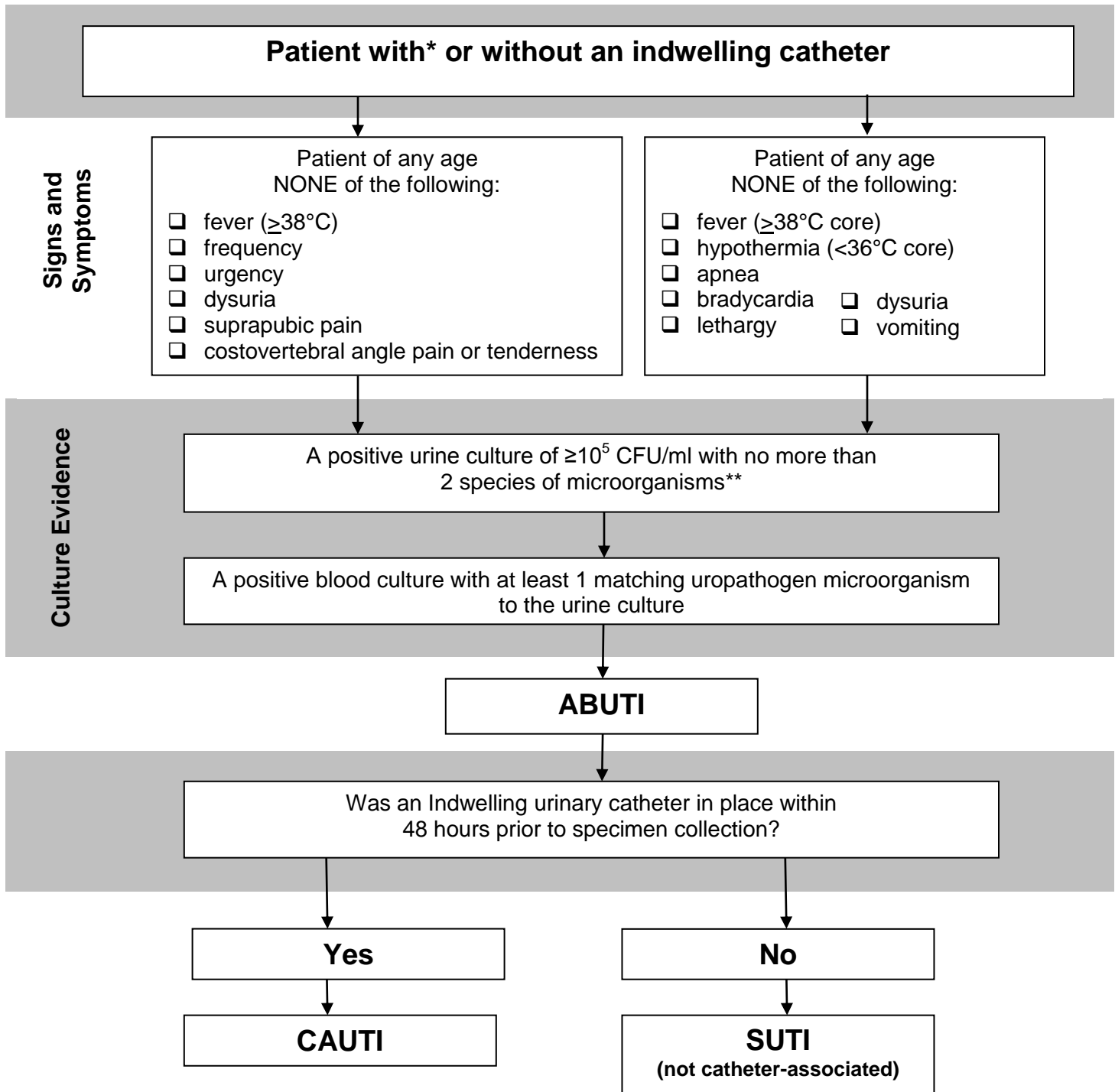
(Last updated April 1, 2012)



*The indwelling urinary catheter was in place within 48 hours prior to specimen collection or onset of signs or symptoms

Identification of Asymptomatic Bacteremic Urinary Tract Infection ABUTI

(Last updated January 1, 2012)



*The indwelling urinary catheter was in place within 48 hours prior to specimen collection.

**Uropathogen microorganisms are: Gram-negative bacilli, *Staphylococcus* spp., yeasts, beta-hemolytic *Streptococcus* spp., *Enterococcus* spp., *G. vaginalis*, *Aerococcus urinae*, and *Corynebacterium* (urease positive) +.

+ Report *Corynebacterium* (urease positive) as either *Corynebacterium* species unspecified (COS) or as *C. Urealyticum* (CORUR) if so specified.