



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



URINARY TRACT INFECTION (UTI)

(Last updated March 2009)

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). NOTE: There is no minimum period of time that the catheter must be in place in order for the UTI to be considered catheter-associated. NOTE: SUTI 1b and 2b and other UTI (OUTI) cannot be 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.

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.

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.

EXCEPTION: 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 transfers 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.
- 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.

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, e.g., not used for irrigation also called a Foley catheter; does not include straight in-and-out catheters.



URINARY TRACT INFECTION (UTI)

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, 2009)*

- Patient has an indwelling urinary catheter in place at the time of specimen collection

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

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
- ☐ 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



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❑ **Criterion 1b:** *(Last updated January 1, 2009)*

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

❑ **Criterion 2a:** *(Last updated January 1, 2009)*

- Patient has an indwelling urinary catheter in place at the time of specimen collection

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 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]/mm³ or ≥ 3 WBC/high power field of unspun 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

~~OR~~



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- Patient has an indwelling urinary catheter removed within the 48 hours prior to specimen collection

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 a positive urinalysis demonstrated by 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]/mm³ or ≥ 3 WBC/high power field of unspun 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

□ Criterion 2b: *(Last updated January 1, 2009)*

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

AND

- Patient has had 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



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- A positive urinalysis demonstrated by 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]/mm³ of unspun urine or ≥ 3 WBC/high power field of spun urine)
 - Δ microorganisms seen on Gram stain of unspun urine

AND

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

□ Criterion 3: *(Last updated January 1, 2009)*

- 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

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

□ Criterion 4: *(Last updated January 1, 2009)*

- 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



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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 ≥ 10 white blood cells [WBC]/mm³ or ≥ 3 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

ABUTI – Asymptomatic Bacteremic Urinary Tract Infection
(Last updated January 1, 2009)

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

□ Criterion 1:

- Patient with or without an indwelling urinary catheter has no symptoms (i.e., no fever [$>38^{\circ}\text{C}$] for patients ≤ 65 years of age*; and for age of any patient no 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 $\geq 10^5$ CFU/ml with no more than 2 species of uropathogen microorganisms**
- AND**
- Patient has a positive blood culture with at least 1 matching uropathogen microorganism to the urine culture.

* Fever is not diagnostic for UTI in the elderly (>65 years of age) and therefore fever in this age group does not disqualify from meeting the criteria of an ABUTI

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

COMMENTS: (Last updated January 1, 2009)

- 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.



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- 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 *Corynebacterium* (urease positive) as either *Corynebacterium* species unspecified (COS) or, as *C. urealyticum* (CORUR) if so speciated.

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: (Definition last updated January 1, 2009)

- Patient has microorganisms isolated from **ONE** ☐ of the following:
 - ☐ culture of fluid (other than urine)
 - ☐ tissue from affected site

☐ Criterion 2: (Definition last updated January 1, 2009)

- 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: (Definition last updated January 1, 2009)

- Patient has at least **TWO** ☐ of the following signs or symptoms with no other recognized cause:
 - ☐ fever (>38°C)



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- △ 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])

□ Criterion 4: *(Definition last updated January 1, 2009)*

- 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])

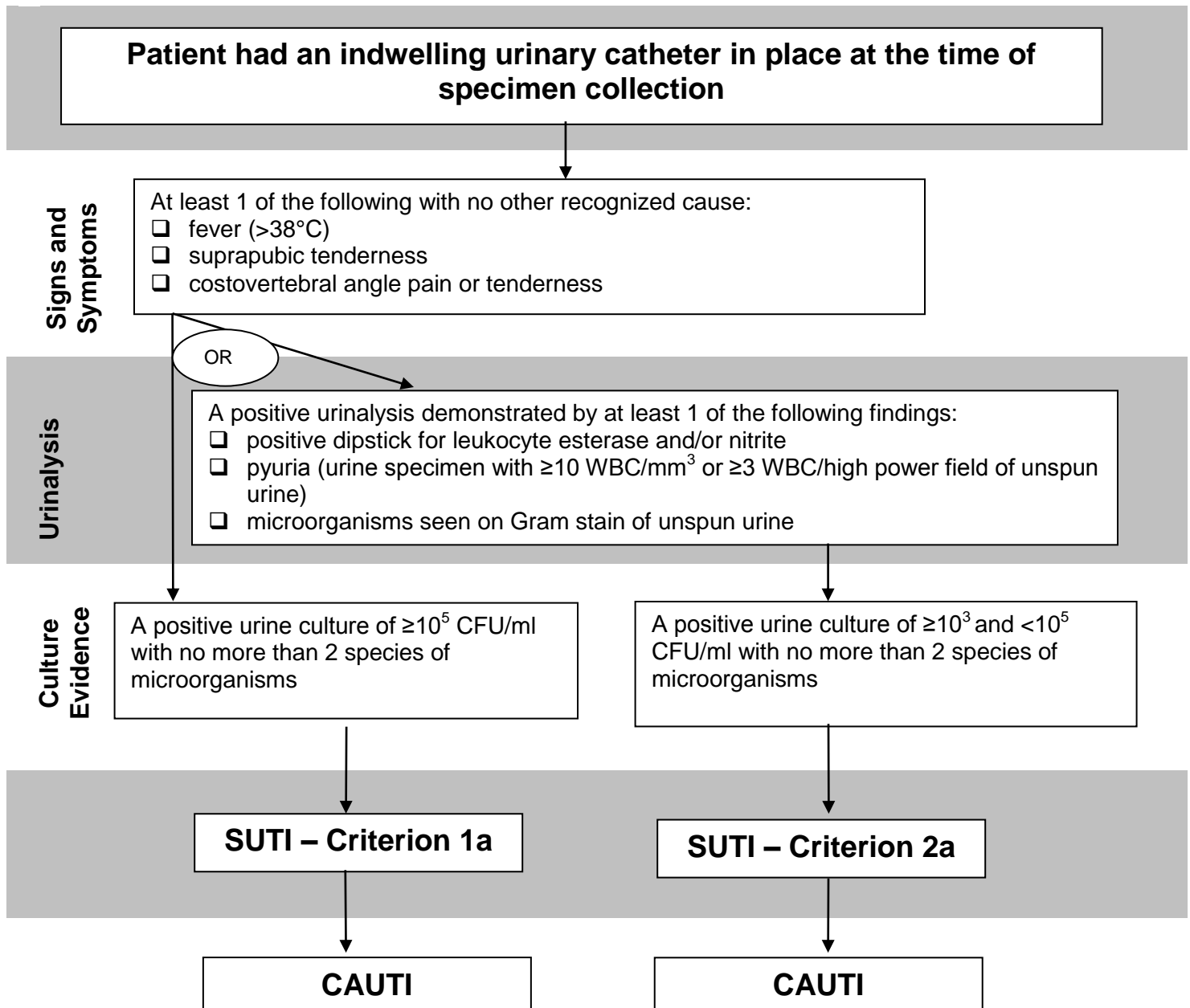
COMMENTS: *(Last updated June, 2008)*

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

URINARY TRACT INFECTION (UTI)

Identification and Categorization of SUTI with Indwelling Catheter

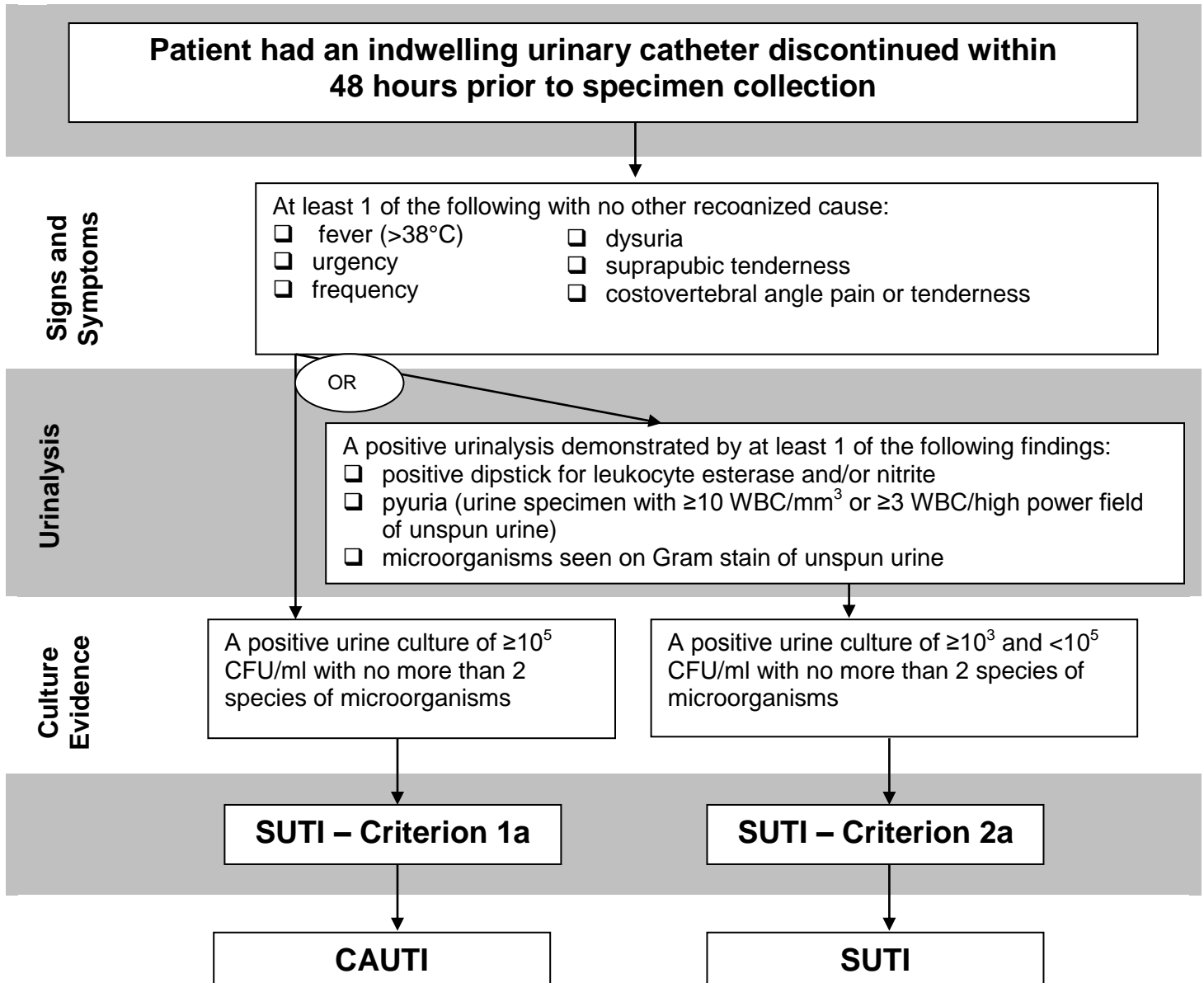
(Last updated January 1, 2009)



URINARY TRACT INFECTION (UTI)

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

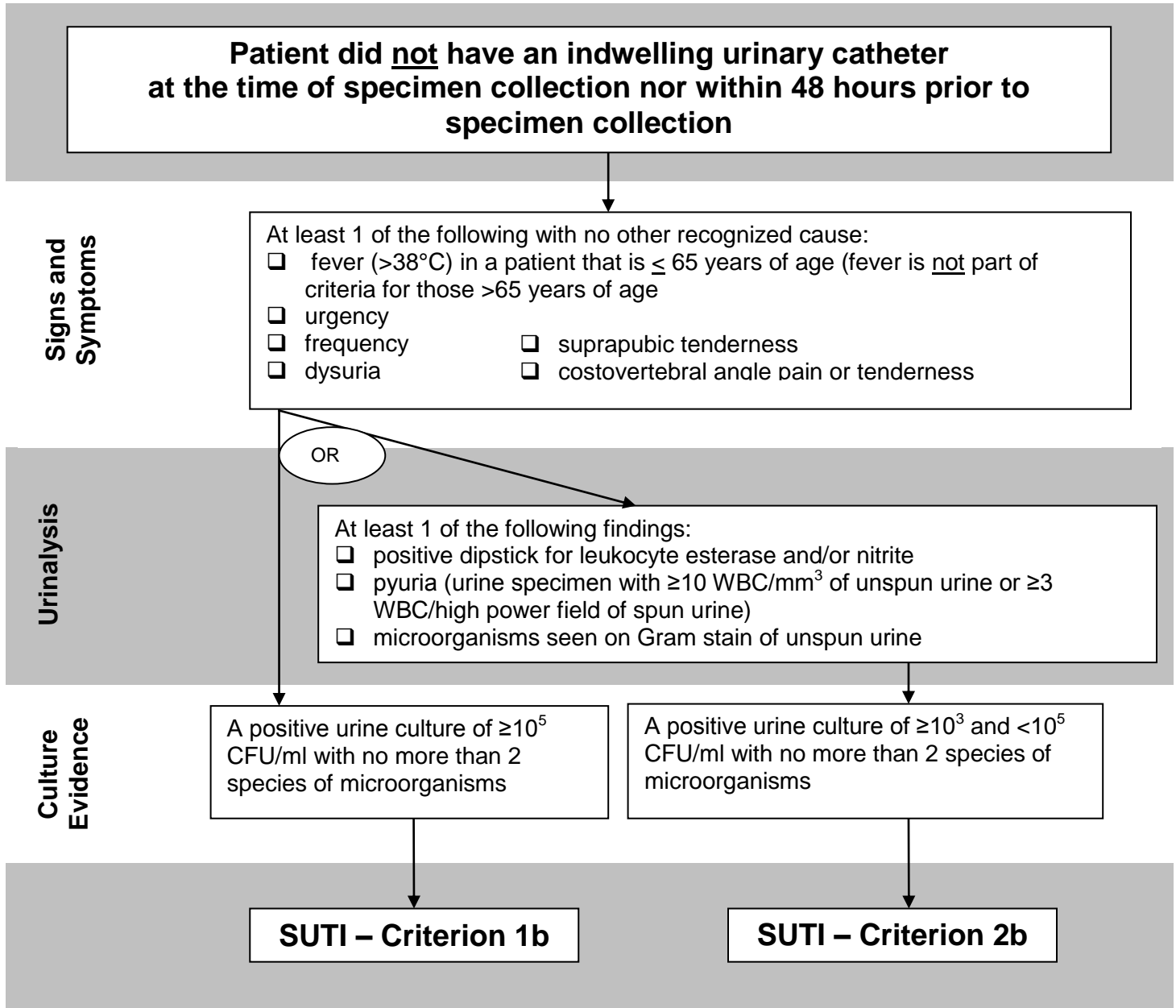
(Last updated January 1, 2009)



URINARY TRACT INFECTION (UTI)

Identification and Categorization of SUTI Without Indwelling Catheter at Time or Within 48 Hours Prior to Specimen Collection

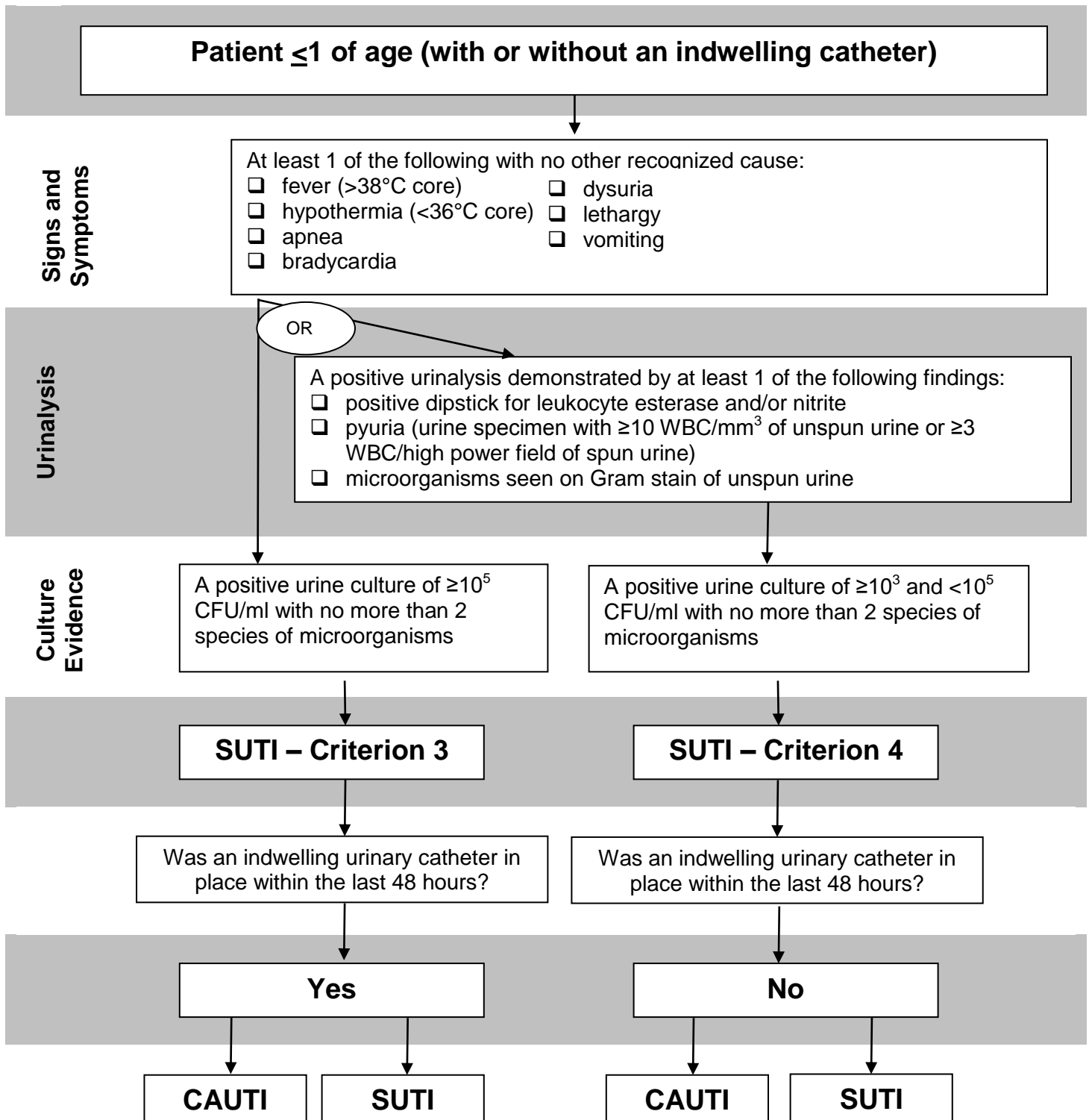
(Last updated January 1, 2009)



URINARY TRACT INFECTION (UTI)

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

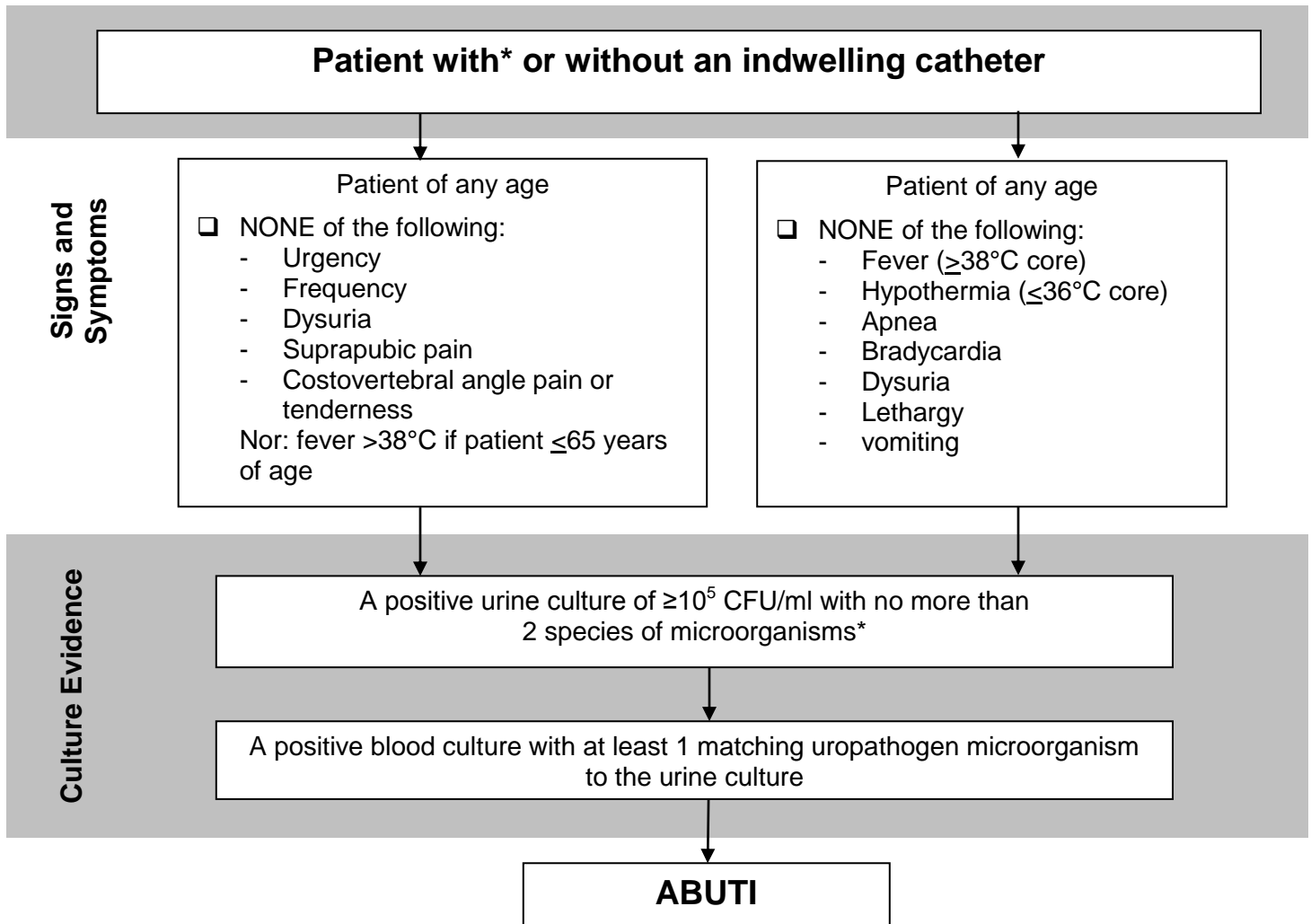
(Last updated January 1, 2009)



URINARY TRACT INFECTION (UTI)

Identification of Asymptomatic Bacteremic Urinary Tract Infection ABUTI

(Last updated January 1, 2009)



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