

10 Appendix D - CDC Definitions

10.1 UTI: Catheter associated urinary tract infection

Definition

Catheter-associated urinary tract infection must meet one of the following criterion:

Criterion 1: *Patient has had an indwelling urinary catheter within 7 days before the culture*

and

Patient has a positive urine culture, that is, $\geq 10^5$ microorganisms/ml of urine with no more than two species of microorganisms

and

Patient has no fever ($>38^\circ$ C), urgency, frequency, dysuria, or suprapubic tenderness.

Criterion 2: *Patient has had an indwelling urinary catheter within 7 days before the culture*

and

at least one of the following:

- a. one urine culture $\geq 10^5$ microorganisms/ml of urine with no more than two species of microorganisms
- b. one positive urine culture with no more than two species identified and 10wbc/hpf
- c. one positive urine culture with $\leq 10^5$ colonies/ml of a single uropathogen in a patient currently on effective antibiotic treatment.
- d. Physician diagnosis of hospital acquired UTI

Comments

A positive culture of a urinary catheter tip is not an acceptable laboratory test to diagnose a UTI. Urine cultures must be obtained using appropriate technique, such as midstream specimen, clean catch collection or catheterisation

10.2 UTI: Asymptomatic urinary tract infection - not catheter associated

Definition

An asymptomatic bacteriuria not catheter associated must meet at least one of the following criterion:

Criterion: *Patient has not had an indwelling urinary catheter within 7 days before the first positive culture*

and

Patient has had at least two positive cultures, that is $\geq 10^5$ microorganisms/ml of urine with repeated isolation of the same microorganisms and no more than two species of microorganisms

and

patient has no fever ($>38^\circ\text{C}$), urgency, frequency, dysuria, or suprapubic tenderness.

Comments

A positive culture of a urinary catheter tip is not an acceptable laboratory test to diagnose a UTI. Urine cultures must be obtained using appropriate technique, such as midstream specimen, clean catch collection or catheterisation.

10.3 UTI: Symptomatic urinary tract infection - not catheter associated

Definition

A **symptomatic urinary tract infection** must meet at least one of the following criteria:

Criterion 1: Patient has at least one of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), urgency, frequency, dysuria or suprapubic tenderness

and

patient has a positive urine culture, that is, $\geq 10^5$ microorganisms/ml of urine with no more than two species of microorganisms.

Criterion 2: Patient has at least two of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), urgency, frequency, dysuria, or suprapubic tenderness

and

at least one of the following:

- a. positive dipstick for leukocyte esterase and/or nitrate
- b. pyuria (urine specimen with ≥ 10 wbc/ml or ≥ 3 wbc/high power field of unspun urine)
- c. organisms seen on Gram stain of unspun urine
- d. at least two urine cultures with repeated isolation of the same uropathogen (gram-negative bacteria or *S. saprophyticus*) with $\geq 10^2$ microorganisms/ml in non-voided specimens
- e. $\leq 10^5$ microorganisms/ml of a single uropathogen (gram-negative bacteria or *S. saprophyticus*) in a patient being treated with an effective antimicrobial agent for a urinary infection
- f. physician diagnosis of a urinary tract infection
- g. physician institutes appropriate therapy for a urinary tract infection.

Comments

A positive culture of a urinary catheter tip is not an acceptable laboratory test to diagnose a UTI

Urine cultures must be obtained using appropriate technique, such as midstream specimen, clean catch collection or catheterisation

10.4 UTI: Other infections of the urinary tract (kidney, ureter, bladder, urethra, or tissue surrounding the retroperitoneal or perinephric spaces)

Definition

Other infections of the urinary tract must meet at least one of the following criteria:

Criterion 1: *Patient has organisms isolated from culture of fluid (other than urine) or tissue from affected site.*

Criterion 2: *Patient has an abscess or other evidence of infection seen on direct examination, during a surgical operation, or during a histopathological examination.*

Criterion 3: *Patient has at least two of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), localised pain, or localised tenderness at the involved site*

and

at least one of the following:

- a. purulent drainage from affected site
- b. organisms cultured from blood that are compatible with suspected site of infection
- c. radiographic evidence of infection, e.g., abnormal ultrasound, CT scan, magnetic resonance imaging (MRI), or radiolabel scan (gallium, technetium)
- d. physician diagnosis of infection of the kidney, ureter, bladder, urethra, or tissues surrounding the retroperitoneal or perinephric space
- e. physician institutes appropriate therapy for an infection of the kidney, ureter, bladder, urethra, or tissue surrounding the retroperitoneal or perinephric space

10.5 ENT: Conjunctivitis

Definition

Conjunctivitis must meet at least one of the following criteria:

Criterion 1: *Patient has pathogens cultured from purulent exudate obtained from the conjunctiva or contiguous tissues, such as eyelid, cornea, meibomian glands or lacrimal glands.*

Criterion 2: *Patient has pain or redness of conjunctiva or around eye*

and

at least one of the following:

- a. WBCs and organisms seen on Gram stain of exudate
- b. Purulent exudate
- c. Positive antigen test on exudate or conjunctival scraping
- d. Multinucleated giant cells seen on microscopic examination of conjunctival exudate or scrapings
- e. Positive viral culture
- f. Diagnostic single antibody titre (IgM) or fourfold increase in paired sera (IgG) for pathogen.

Reporting Instructions

Do not report conjunctivitis that occurs as part of a more widely disseminated viral illness

10.6 ENT: Eye infection other than conjunctivitis

Definition

An infection of the eye, other than conjunctivitis, must meet at least one of the following criteria:

Criterion 1: *Patient has organisms cultured from anterior or posterior chamber or vitreous fluid.*

Criterion 2: *Patient has at least two of the following signs or symptoms with no other recognized cause: eye pain, visual disturbance, or hypopyon*

and

at least one of the following:

- a. physician's diagnosis of an eye infection
- b. positive antigen test on blood
- c. organisms cultured from blood.

10.7 ENT: Oral cavity (mouth, tongue, or gums)

Definition

Oral cavity infections must meet at least one of the following criteria:

Criterion 1: *Patient has organisms cultured from purulent material from tissues of oral cavity.*

Criterion 2: *Patient has an abscess or other evidence of oral cavity infection seen on direct examination, during a surgical operation, or during a histopathological examination.*

Criterion 3: *Patient has at least one of the following signs or symptoms with no other recognised cause: abscess, ulceration, or raised white patches on inflamed mucosa, or plaques on oral mucosa*

and

at least one of the following:

- a. organisms seen on Gram stain
- b. positive KOH (potassium hydroxide) stain
- c. multinucleated giant cells seen on microscopic examination of mucosal scrapings
- d. positive antigen test on oral secretions
- e. diagnostic single antibody titre (IgM) or fourfold increase in paired sera (IgG) for pathogen
- f. physician diagnosis of infection and treatment with topical or oral antifungal therapy.

10.8 ENT: Sinusitis

Definition

Sinusitis must meet at least one of the following criteria:

Criterion 1: *Patient has organisms cultured from purulent material obtained from sinus cavity.*

Criterion 2: *Patient has at least one of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), pain or tenderness over the involved sinus, headache, purulent exudate, or nasal obstruction*

and

at least one of the following:

- a. positive transillumination
- b. positive radiographic examination (including CT scan).

10.9 ENT: Otitis externa

Definition

Otitis externa must meet at least one of the following criteria:

Criterion 1: *Patient has pathogens cultured from purulent drainage from ear canal.*

Criterion 2: *Patient has at least one of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), pain, redness, or drainage from ear canal*

and

organisms seen on Gram stain of purulent drainage.

10.10 ENT: Otitis media

Definition

Otitis media must meet at least one of the following criteria:

Criterion 1: *Patient has organisms cultured from fluid from middle ear obtained by tympanocentesis or at surgical operation.*

Criterion 2: *Patient has at least two of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), pain in the eardrum, inflammation, retraction or decreased mobility of eardrum, or fluid behind eardrum.*

10.11 ENT: Otitis interna

Definition

Otitis interna must meet at least one of the following criteria:

Criterion 1: *Patient has organisms cultured from fluid from inner ear obtained at surgical operation.*

Criterion 2: *Patient has a physician's diagnosis of inner ear infection.*

10.12 ENT: Mastoiditis

Definition

Mastoiditis must meet at least one of the following criteria:

Criterion 1: *Patient has organisms cultured from purulent drainage from mastoid.*

Criterion 2: *Patient has at least two of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), pain, tenderness, erythema, headache, or facial paralysis*

and

at least one of the following:

- a. organisms seen on Gram stain of purulent material from mastoid
- b. positive antigen test on blood.

10.13 ENT: Upper respiratory tract, pharyngitis, laryngitis, epiglottitis

Definition

Upper respiratory tract infections must meet at least one of the following criteria:

Criterion 1: *Patient has at least two of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), erythema of pharynx, sore throat, cough, hoarseness, or purulent exudate in throat*

and

at least one of the following:

- a. organisms cultured from the specific site
- b. organisms cultured from blood
- c. positive antigen test on blood or respiratory secretions
- d. diagnostic single antibody titre (IgM) or fourfold increase in paired sera (IgG) for pathogen
- e. physician's diagnosis of an upper respiratory infection

Criterion 2: *Patient has an abscess seen on direct examination, during a surgical operation, or during a histopathological examination.*

10.14 PNEU: Pneumonia

Definition

Pneumonia must meet at least one of the following criteria:

Criterion 1: *Patient has rales or dullness to percussion on physical examination of the chest*

and

at least one of the following:

- a. new onset of purulent sputum or change in character of sputum
- b. organisms cultured from blood
- c. isolation of an etiologic agent from a specimen obtained by transtracheal aspirate, bronchial brushing or biopsy.

Criterion 2: *Patient has a chest radiographic examination that shows new or progressive infiltrate, consolidation, cavitation, or pleural effusion*

and

at least one of the following:

- a. new onset of purulent sputum or change in character of sputum
- b. organisms cultured from blood
- c. isolation of an etiologic agent from a specimen obtained by transtracheal aspirate, bronchial brushing, or biopsy
- d. isolation of virus from or detection of viral antigen in respiratory secretions
- e. diagnostic single antibody titer (IgM) or fourfold increase in paired sera (IgG) for pathogen
- f. histopathologic evidence of pneumonia

10.15 LRI: Tracheobronchial (bronchitis, tracheobronchitis, bronchiolitis, tracheitis, without evidence of pneumonia)

Definition

Tracheobronchial infections must meet the following criterion:

Patient has no clinical or radiographic evidence of pneumonia

and

Patient has at least two of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), cough, new or increased sputum production, rhonchi, wheezing

and

at least one of the following:

- a. positive culture obtained by deep tracheal aspirate or bronchoscopy
- b. positive antigen test on respiratory secretions.

Reporting Instruction

Do not report chronic bronchitis in a patient with chronic lung disease as an infection unless there is evidence of an acute secondary infection manifested by a change in organism.

10.16 LRI: Other infections of the lower respiratory tract (LRT)

Definition

Other infections of the lower respiratory tract must meet at least one of following criteria:

Criterion 1: *Patient has organisms seen on smear or cultured from lung tissue or fluid, including pleural fluid.*

Criterion 2: *Patient has a lung abscess or empyema seen during a surgical operation or histopathologic examination*

Criterion 3: *Patient has an abscess cavity seen on radiographic examination of lung.*

Reporting Instructions

Report concurrent LRT infection and pneumonia with the same organisms as pneumonia.

10.17 BSI: Laboratory-confirmed bloodstream infection

Definition

Laboratory-confirmed bloodstream infection must meet at least one of the following criteria:

Criterion 1: *Patient has a recognised pathogen cultured from one or more blood cultures*

and

Organism cultured from a blood is not related to an infection at another site

Criterion 2: *Patient has at least one of the following signs or symptoms: fever (>38°C), chills, or hypotension*

and

signs and symptoms and positive laboratory results are not related to an infection at another site

and

at least one of the following:

- a. common skin contaminant (e.g., diphtheroids, *Bacillus* sp., *Propionibacterium* sp., coagulase-negative staphylococci, or micrococci) is cultured from two or more blood cultures drawn on separate occasions
- b. common skin contaminant (e.g., diphtheroids, *Bacillus* sp., *Propionibacterium* sp., coagulase-negative staphylococci, or micrococci) is cultured from at least one blood culture from a patient with an intravascular line, and the physician institutes appropriate antimicrobial therapy
- c. positive antigen test on blood

Reporting Instructions

Report purulent phlebitis confirmed with a positive semi-quantitative culture of a catheter tip, but with either negative or no blood culture as *vascular infection*

10.18 BSI: Clinical sepsis

Definition

Clinical sepsis must meet the following criterion:

Patient has at least one of the following clinical signs and symptoms with no other recognised cause:

fever ($>38^{\circ}\text{C}$), hypotension (systolic pressure ≤ 90 mm), or oliguria (<20 ml/hr)

and

blood culture not done or no organisms or antigen detected in the blood

and

no apparent infection at another site

and

physician institutes treatment for sepsis.

Reporting Instructions

Report culture-positive infections of the bloodstream as laboratory-confirmed bloodstream infection

10.19 GI: Gastroenteritis

Defintion

Gastroenteritis must meet at least one of the following criteria:

Criterion 1: *Patient has an acute onset of diarrhoea (liquid stools for more than 12 hours) with or without vomiting or fever ($>38^{\circ}\text{C}$) and no likely non-infectious cause (e.g., diagnostic tests, therapeutic regimen other than antimicrobial agents, acute exacerbation of a chronic condition, or psychological stress).*

Criterion 2: *Patient has at least two of the following signs or symptoms with no other recognised cause: nausea, vomiting, abdominal pain, fever ($>38^{\circ}\text{C}$) or headache*

and

at least one of the following:

- a. an enteric pathogen is cultured from stool or rectal swab
- b. an enteric pathogen is detected by routine or electron microscopy
- c. an enteric pathogen is detected by antigen or antibody assay on blood or faeces
- d. evidence of an enteric pathogen is detected by cytopathic changes in tissue culture (toxin assay)
- e. diagnostic single antibody titre (IgM) or fourfold increase impaired sera (IgG) for pathogen.

10.20 GI: Gastro intestinal tract infection (oesophagus, stomach, small and large bowel and rectum excluding gastroenteritis and appendicitis)

Definition

Gastrointestinal tract infections, excluding gastroenteritis and appendicitis, must meet at least one of the following criteria:

Criterion 1: *Patient has an abscess or other evidence of infection seen during a surgical operation or histopathologic examination.*

Criterion 2: *Patient has at least two of the following signs or symptoms with no other recognised cause and compatible with infection of the organ or tissue involved: fever ($>38^{\circ}\text{C}$), nausea, vomiting, abdominal pain, or tenderness*

and

at least one of the following:

- a. organisms cultured from drainage or tissue obtained during a surgical operation or endoscopy, or from a surgically placed drain
- b. organisms seen on Gram or KOH stain or multinucleated giant cells seen on microscopic examination of drainage or tissue obtained during a surgical operation or endoscopy or from a surgically placed drain
- c. organisms cultured from blood
- d. evidence of pathologic findings on radiographic examination
- e. evidence of pathologic findings on endoscopic examination

10.21 GI: Intraabdominal infection including gallbladder, bile ducts, liver (excluding viral hepatitis), spleen, pancreas, peritoneum, subphrenic or subdiaphragmatic space or other intraabdominal tissue or area not specified elsewhere

Definition

Intra-abdominal infections must meet at least one of the following criteria:

Criterion 1: Patient has organisms cultured from purulent material from intraabdominal space obtained during a surgical operation or needle aspiration.

Criterion 2: Patient has abscess or other evidence of intraabdominal infection seen during a surgical operation or histopathologic examination.

Criterion 3: Patient has at least two of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), nausea, vomiting, abdominal pain or jaundice

and

at least one of the following:

- a. organisms cultured from drainage from surgically placed drain (e.g. closed suction drainage system, open drain, T-tube drain)
- b. organisms seen on Gram stain of drainage or tissue obtained during surgical operation or needle aspiration
- c. organisms cultured from blood and radiographic evidence of infection, e.g. abnormal findings on ultrasound, CT scan, magnetic resonance imaging (MRI), or radiolabel scans (gallium, technetium, etc) or on abdominal x-ray.

Reporting Instructions

Do not report pancreatitis unless it is determined to be infectious in origin

10.22 GI: Viral hepatitis

Definition

Hepatitis must meet the following criterion:

Patient has at least two of the following signs or symptoms with no other recognised cause: fever (38°C), anorexia, nausea, vomiting, abdominal pain, jaundice, or history of transfusion within the previous 3 months

and

at least one of the following:

- a. positive antigen or antibody test for hepatitis A, hepatitis B, hepatitis C, or delta hepatitis
- b. abnormal liver function tests (e.g., elevated ALT/AST, bilirubin)
- c. Cytomegalovirus (CMV) detected in urine or oropharyngeal secretions.

Reporting Instructions

Do not report hepatitis or jaundice of non-infectious or toxic origin (alcohol or other hepatotoxin) or as a result of biliary obstruction.

10.23 SST: Skin infection

Definiton

Skin infections must meet at least one of the following criteria:

Criterion 1: *Patient has purulent drainage, pustules, vesicles, or boils.*

Criterion 2: *Patient has at least two of the following signs or symptoms with no other recognised cause: pain or tenderness, localised swelling, redness, or heat*

and

at least one of the following:

- a. organisms cultured from aspirate or drainage from affected site; if organisms are normal skin flora (e.g., coagulase negative staphylococci, micrococci, diphtheroids) they must be a pure culture
- b. organisms cultured from blood
- c. positive antigen test performed on infected tissue or blood
- d. multinucleated giant cells seen on microscopic examination of affected tissue
- e. diagnostic single antibody titre (IgM) or fourfold increase in paired sera (IgG) for pathogen.

Reporting Instructions

Report infected *decubitus ulcers, burns, breast abscess or mastitis* separately and specifically and not as skin infections.

10.24 SST: Soft tissue infection (necrotising fasciitis, infectious gangrene, necrotising cellulitis, infectious myositis, lymphadenitis, or lymphangitis)

Definition

Soft tissue infections must meet at least one of the following criteria:

Criterion 1: *Patient has organisms cultured from tissue or drainage from affected site.*

Criterion 2: *Patient has purulent drainage at affected site.*

Criterion 3: *Patient has an abscess or other evidence of infection seen during a surgical operation or histopathologic examination.*

Criterion 4: *Patient has at least two of the following signs or symptoms at the affected site with no other recognised cause: localised pain or tenderness, redness, swelling, or heat*

and

at least one of the following:

- a. organisms cultured from blood
- b. positive antigen test performed on blood or urine
- c. diagnostic single antibody titre (IgM) or fourfold increase in paired sera (IgG) for pathogen.

10.25 SST: Infected burn

Definition

Burn infections must meet one of the following criteria:

Criterion 1: *Patient has a change in burn wound appearance or character, such as rapid eschar separation, or dark brown, black, or violaceous discoloration of the eschar, or oedema at wound margin*

and

histologic examination of burn biopsy shows invasion of organisms into adjacent viable tissue.

Criterion 2: *Patient has a change in burn wound appearance or character, such as rapid eschar separation, or dark brown, black, or violaceous discoloration of the eschar, or oedema at wound margin*

and

at least one of the following:

- a. organisms cultured from blood in the absence of other identifiable infection
- b. isolation of herpes simplex virus, histologic identification of inclusions by light or electron microscopy, or visualisation of viral particles by electron microscopy in biopsies or lesion scrapings.

Criterion 3: *Patient with a burn has at least two of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$) or hypothermia ($<36^{\circ}\text{C}$), hypotension, oliguria*

($<20\text{ ml/hr}$), hyperglycaemia at previously tolerated level of dietary carbohydrate, or mental confusion

and

at least one of the following:

- a. histologic examination of burn biopsy shows invasion of organisms into adjacent viable tissue
- b. organisms cultured from blood
- c. isolation of herpes simplex virus, histologic identification of inclusions by light or electron microscopy, or visualisation of viral particles by electron microscopy in biopsies or lesion scrapings.

Comment

Purulence alone at the burn site is not adequate for the diagnosis of burn infection.

Fever alone is not adequate for the diagnosis of a burn infection.

Burn infections include infections of: burn wound site, burn graft site, burn donor site, burn donor site-cadaver.

10.26 SST: Decubitus ulcer including both superficial and deep infections

Definition

Decubitus ulcer infections must meet the following criterion:

Patient has at least two of the following signs or symptoms with no other recognised cause: redness, tenderness, or swelling of decubitus wound edges

and

at least one of the following:

- a. organisms cultured from properly collected fluid or tissue (see below)
- b. organisms cultured from blood.

Comment

Purulent drainage alone is not sufficient evidence of an infection. Organisms cultured from the surface of a decubitus ulcer is not sufficient evidence that the ulcer is infected. A properly collected specimen from a decubitus ulcer involves needle aspiration of fluid or biopsy of tissue from the ulcer margin.

10.27 SST: Breast abscess or mastitis

Definition

A breast abscess or mastitis must meet at least one of the following criteria:

Criterion 1: *Patient has a positive culture of affected breast tissue or fluid obtained by incision and drainage or needle aspiration.*

Criterion 2: *Patient has a breast abscess or other evidence of infection seen during a surgical operation or histopathologic examination*

Criterion 3: *Patient has fever (>38°C) and local inflammation of the breast*

and

physician's diagnosis of breast abscess

Reporting Instruction

Breast abscess that occur within seven days after childbirth should be considered nosocomial.

10.28 BJ: Bone infection - osteomyelitis

Definition

Osteomyelitis must meet at least one of the following criteria:

Criterion 1: *Patient has organisms cultured from bone*

Criterion 2: *Patient has evidence of osteomyelitis on direct examination of the bone during a surgical operation or histopathologic examination*

Criterion 3: *Patient has at least two of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), localised swelling, tenderness, heat or drainage at suspected site of bone infection*

and

at least one of the following:

- a. organisms cultured from blood
- b. positive blood antigen test
- c. radiographic evidence of infection

10.29 BJ: Joint or bursa infection

Definition

Joint or bursa infection must meet at least one of the following criteria:

Criterion 1: *patient has organisms cultured from joint fluid or synovial biopsy*

Criterion 2: *patient has evidence of joint or bursa infection seen during a surgical operation or histopathologic examination.*

Criterion 3: *patient has at least two of the following signs or symptoms with no other recognised cause: joint pain, swelling, tenderness, heat, evidence of effusion or limitation of motion*

and

at least one of the following:

- a. organisms and white blood cells seen on Gram stain of joint fluid
- b. positive antigen test on blood, urine or joint fluid
- c. cellular profile and chemistries of joint fluid compatible with infection and **not** explained by an underlying rheumatologic disorder
- d. radiographic evidence of infection e.g. abnormal findings on X-ray, CT scan, MRI or radiolabel scan.

10.30 BJ: Disc space

Definition

Vertebral disc space infection must meet at least one of the following criteria:

Criterion 1: *Patient has organisms cultured from vertebral disc space tissue obtained during a surgical operation or needle aspiration.*

Criterion 2: *Patient has evidence of vertebral disc space infection seen during a surgical operation or histopathological examination.*

Criterion 3: *Patient has fever ($>38^{\circ}\text{C}$) with no other recognised cause or pain at the involved vertebral space*

and

Radiographic evidence of infection, e.g., abnormal findings on x-ray, CT-scan, magnetic resonance imaging (MRI), radiolabel scan with gallium or technetium

Criterion 4: *Patient has fever ($>38^{\circ}\text{C}$) with no other recognised cause and pain at the involved vertebral disc space*

and

Positive antigen test on blood or urine

10.31 CNS: Meningitis or Ventriculitis

Definition

Meningitis or ventriculitis must meet at least one of the following criteria:

Criterion 1: Patient has organisms cultured from cerebrospinal fluid (CSF).

Criterion 2: Patient has at least one of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), headache, stiff neck, meningeal signs, cranial nerve signs, or irritability

and

at least one of the following:

- a. increased white cells, elevated protein and/or decreased glucose in CSF
- b. Organisms seen on Gram stain of CSF
- c. Organisms cultured from blood
- d. Positive antigen test of CSF, blood or urine
- e. Diagnostic single antibody titre (IgM) or fourfold increase in paired sera (IgG) for pathogen

and

if diagnosis is made ante mortem, physician institutes appropriate antimicrobial therapy

Reporting Instructions

Report CSF shunt infection as *SSI-meningitis* if it occurs \leq 1 year of placement; if later or after manipulation report as *meningitis*.

Report meningoencephalitis as *meningitis*.

Report spinal abscess with meningitis as *meningitis*.

10.32 CNS: Spinal abscess without meningitis

Definitions

An abscess of the spinal epidural or subdural space, without involvement of the cerebrospinal fluid or adjacent bone structures, must meet at least one of the following criteria:

Criterion 1: *Patient has organism cultured from abscess in the spinal epidural or subdural space*

Criterion 2: *Patient has an abscess in the spinal epidural or subdural space seen during a surgical operation or at autopsy or evidence of an abscess seen during a histopathologic examination*

Criterion 3: *Patient has at least one of the following signs or symptoms with no other recognised cause: fever (>38°C), back pain, focal tenderness, radiculitis, paraparesis, or paraplegia*

and

at least one of the following:

- a. organisms cultured from blood
- b. radiographic evidence of a spinal abscess eg., abnormal findings on myelography, ultrasound, CT scan, magnetic resonance imaging (MRI), or other scans (gallium, technetium etc)

and

if diagnosis is made ante mortem, physician institutes appropriate antimicrobial therapy.

Reporting Instruction

Report spinal abscess with meningitis as *meningitis*.

10.33 CNS: Intracranial infection (brain abscess, subdural or epidural infection encephalitis)

Definitions

Intracranial infection must meet at least one of the following criteria:

Criterion 1: Patient has organisms cultured from brain tissue or dura

Criterion 2: Patient has an abscess or evidence of intracranial infection seen during a surgical operation or histopathologic examination

Criterion 3: Patient has at least two of the following signs or symptoms with no other recognised cause: headache, dizziness, fever ($> 38^{\circ}\text{C}$), localising neurological signs, changing level of consciousness or confusion

and

at least one of the following:

- a. organisms seen on microscopic examination of brain or abscess tissue obtained by needle aspiration or by biopsy during a surgical operation or autopsy
- b. positive antigen test on blood or urine
- c. radiographic evidence of infection, e.g. Abnormal findings on ultrasound, CT scan magnetic resonance imaging (MRI), radionuclide brain scan, or arteriogram
- d. diagnosis single antibody titre (IgM) or fourfold increase in paired sera (IgG) for pathogen

and

if diagnosis is made ante mortem, physician institutes appropriate antimicrobial therapy.

Reporting Instruction

If meningitis and a brain abscess are present together report the infection as *intracranial*.

10.34 CVS: Arterial or venous infection

Definition

Arterial or venous infection must meet the following criteria:

Criterion 1: *patient has organisms cultured from arteries or veins removed during an operation*

and

blood culture not done or no organisms cultured from blood

Criterion 2: *patient has evidence of arterial or venous infection seen during a surgical operation or histopathologic examination*

Criterion 3: *Patient has at least one of the following signs and symptoms with no other recognised cause: fever (>38°C), pain, erythema, or heat at involved vascular site*

and

more than 15 colonies cultured from intravascular catheter tip using semi-quantitative culture method

and

blood culture not done or no organisms culture from blood.

Criterion 4: *patient has a purulent discharge at involved vascular site*

and

blood culture not done or no organisms cultured from blood

Reporting instructions

Report infections of an arteriovenous graft, shunt, or fistula or intravascular cannulation site without organisms cultured from blood as *arterial or venous*.

Report intravascular infections with organisms cultured from blood as laboratory-confirmed bloodstream infection

10.35 CVS: Mediastinitis

Definition

Mediastinitis must meet at least one of the following criteria:

Criterion 1: *patient has organisms cultured from mediastinal tissue or fluid obtained during a surgical operation or needle aspiration*

Criterion 2: *patient has evidence of mediastinitis seen during a surgical operation histopathologic examination*

Criterion 3: *patient has at least one of the following signs and symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), chest pain or sternal instability*

and

at least one of the following:

- a. purulent discharge from mediastinal area
- b. organisms cultured from blood or discharge from mediastinal area
- c. mediastinal widening on x-ray

Reporting Instructions

Report mediastinitis following cardiac surgery that is accompanied by osteomyelitis as SSI – mediastinitis rather than SSI- bone.

10.36 CVS: Endocarditis

Definition

Endocarditis of a natural or prosthetic heart valve must meet at least one of the following criteria:

Criterion 1: *patient has organisms cultured from valve or vegetation*

Criterion 2: *patient has two or more of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), new or changing murmur, embolic phenomena, skin manifestations (i.e. petechiae, splinter haemorrhages), congestive heart failure or cardiac conduction abnormality*

and

at least one of the following:

- a. organisms cultured from two or more blood cultures
- b. organisms seen on Gram stain of valve when culture is negative or not done
- c. valvular vegetation seen during a surgical operation or autopsy
- d. positive antigen test on blood or urine
- e. evidence of new vegetation seen on echocardiogram

and

if diagnosis is made antemortem, physician institutes antimicrobial therapy

10.37 CVS: Myocarditis or Pericarditis

Definition

Myocarditis or **Pericarditis** must meet at least one of the following criteria:

Criterion 1: *patient has organisms cultured from pericardial tissue or fluid obtained by needle aspiration or during a surgical operation*

Criterion 2: *patient has at least two of the following signs or symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), chest pain, paradoxical pulse, or increased heart size*

and

at least one of the following:

- a. abnormal ECG consistent with myocarditis or pericarditis
- b. positive antigen test on blood
- c. evidence of myocarditis or pericarditis on histologic examination of heart tissue
- d. fourfold rise in type-specific antibody with or without isolation of virus from pharynx or faeces
- e. pericardial effusion identified by echocardiogram, CT, MRI or angiography

Comment

Most cases of post-cardiac surgery or post-myocardial infarction pericarditis are not infectious.

10.38 RSI: Endometritis

Definition

Endometritis must meet at least one of the following criteria:

Criterion 1: *Patient has organisms cultured from tissue or fluid from endometrium obtained during surgical operation, by needle aspiration, or by brush biopsy.*

Criterion 2: *Patient has at least two of the following signs and symptoms with no other recognised cause: fever ($>38^{\circ}\text{C}$), abdominal pain, uterine tenderness, or purulent drainage from uterus.*

Reporting Instructions

Report postpartum endometritis as HAI unless the amniotic fluid is infected at the time of admission or the patient was admitted 48 hours after the rupture of the membrane.

10.39 RSI: Episiotomy site infection

Definiton

Episiotomy infections must meet at least one of the following criteria:

Criterion 1: *Postvaginal delivery patient has purulent drainage from the episiotomy*

Criterion 2: *Postvaginal delivery patient has an episiotomy abscess*

Reporting Instructions

Episiotomy is not considered an operative procedure in the NNIS system.

10.40 RSI: Vaginal cuff infections

Definition

Vaginal cuff infections must meet at least one of the following criteria:

Criterion 1: *Post hysterectomy patient has purulent drainage from the vaginal cuff*

Criterion 2: *Post hysterectomy patient has an abscess at the vaginal cuff*

Criterion 3: *Post hysterectomy patient has pathogens cultured from fluid or tissue obtained from the vaginal cuff*

10.41 RSI: Other infections of the male or female reproductive tract (epididymis, testes, prostate, vagina, ovaries, uterus, or other deep pelvic tissues, excluding endometritis or vaginal cuff infections)

Definition

Other infections of the male or female reproductive tract must meet at least one of the following criteria:

Criterion 1: *Patient has organisms cultured from tissue or fluid from affected site.*

Criterion 2: *Patient has an abscess or other evidence of infection of affected site seen during a surgical operation or histopathologic examination.*

Criterion 3: *Patient has two of the following signs or symptoms with no other recognised cause: fever (>38°C), nausea, vomiting, pain, tenderness, or dysuria*

and

at least one of the following:

- a. organisms cultured from blood
- b. diagnosis by physician

10.42 *SYS: Disseminated infection*

Definition

Disseminated infection is infection involving multiple organs or systems, without an apparent single site of infection, usually of viral origin, and with signs or symptoms with no other recognised cause and compatible with infectious involvement of multiple organs or systems.

Reporting Instructions

Report viral infections, exanths or rash illness involving multiple organ systems e.g. measles, mumps, rubella, varicella, erythema infectiosum) as disseminated infection. These infections are often identified by clinical criteria alone. For infections with multiple metastatic sites e.g. bacterial endocarditis the primary site should be reported.

10.43 SSI: Superficial incisional SSI

Definition

A superficial SSI must meet the following criterion:

1. Infection occurs within 30 days after the operative procedure
2. And involves only skin and subcutaneous tissue of the incision
3. And patient has at least one of the following:
 - Purulent discharge from the superficial incision
 - Organisms isolated from an aseptically obtained culture of fluid or tissue from the superficial incision
 - At least one of the following signs or symptoms of infection: pain or tenderness, localised swelling, redness, or heat and superficial incision is deliberately opened by surgeon unless incision is culture negative
 - Diagnosis of superficial incisional SSI by a surgeon or trained healthcare worker*

Reporting Instructions

The following are not reported as superficial incisional SSI:

Stitch abscess (minimal inflammation and discharge confined to the points of suture penetration)

Infected burn wound

Incisional SSI that extends into the fascial and muscle layers (deep incisional SSI)

An infection at an episiotomy site which is reported as *episiotomy*

A localised *non-surgical* wound infection which is reported as a skin or soft tissue infection depending on its depth

Classify infection that involves both superficial and deep incision sites as deep incisional SSI.

**Trained healthcare worker is defined as a qualified nurse or doctor who has been trained in the national definitions for SSI*

10.44 SSI: Deep incisional SSI

Definition

A deep incisional SSI must meet the following criterion:

1. Infection occurs within 30 days after the operative procedure if no implant is left in place or within one year if implant is in place and the infection appears to be related to the operative procedure
2. And involves deep soft tissues (e.g. fascial and muscle layers) of the incision
3. And patient has at least one of the following:
 - Purulent discharge from the deep incision but not from the organ/space component of a surgical site
 - A deep incision spontaneously dehisces or is deliberately opened by a surgeon when the patient has at least one of the following signs or symptoms: fever ($>38^{\circ}\text{C}$) or localised pain or tenderness, unless incision is culture negative
 - An abscess or other evidence of infection involving the deep incision is found on direct examination, during re-operation, or by histopathological or radiological examination
 - Diagnosis of a deep incisional SSI by a surgeon or trained healthcare worker

10.45 SSI: Organ/space SSI

An organ/space SSI involves any part of the body, excluding the skin incision, fascia, or muscle layers that is opened or manipulated during the operative procedure. Specific sites are assigned to organ/space SSI to further identify the location of the infection. An example is an appendectomy with subsequent diaphragmatic abscess, which would be reported as an organ/space SSI at the intra-abdominal specific site.

Definition

An organ/space SSI must meet the following criterion:

1. Infection occurs within 30 days after the operative procedure if no implant is left in place or within one year if implant is in place and the infection appears to be related to the operative procedure
2. And infection involves any part of the body, excluding the skin incision, fascia, or muscle layers that is opened or manipulated during the operative procedure.
3. And at least one of the following:
 - Purulent discharge from a drain that is placed through a stab wound into the organ/space
 - Organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space
 - An abscess or other evidence of infection involving the organ/space that is found on direct examination, during re-operation, or by histopathological or radiological examination
 - Diagnosis of an organ/space SSI by a surgeon or trained healthcare worker

Reporting Instructions

Occasionally an organ/space infection drains through the incision. Such an infection generally does not involve re-operation and is considered a complication of the incision. Therefore, it is classified as a deep incisional SSI.

Organ/Space SSI Infection sites

Bone	Osteomyelitis
Breast	Breast abscess or mastitis
Heart	Myocarditis or pericarditis
Disc	Disc space
Ear	Ear or mastoid
Endometrium	Endometritis
Endocardium	Endocarditis
Eye	Eye other than conjunctivitis
GI Tract	GI Tract
Intra-abdominal	Intra-abdominal NEC
Intracranial	Intracranial, brain abscess or dura
Joint	Joint or bursa
Lung	Other infections of LRT
Mediastinum	Mediastinitis
Meninges/Ventric Cavity	Meningitis/ventriculitis
Oral	Oral cavity (mouth, tongue or gum)
Other reproductive site	Other male or female reproductive cavity
Spinal	Spinal abscess without meningitis
Sinus	Sinusitis
Upper Respiratory tract	URT
Vascular	Arterial or venous
Vaginal cuff	Vaginal cuff