

CIC Study Group

Week 10



HAI Prevention Program

Agenda

Review

- Chapter 64 Ophthalmology Services
- Chapter 68 Respiratory Care Services
- Chapter 69 Surgical Services
- Chapter 62 Long Term Care

Chapter 64

Ophthalmology Services

Background

Ocular healthcare professionals and patients are at potential risk and exposure to several bloodborne pathogens and other infectious agents. These include:

- ❖ Human immunodeficiency virus (HIV)
- ❖ Hepatitis A virus (HAV)
- ❖ Hepatitis B virus (HBV)
- ❖ Hepatitis C virus (HCV)
- ❖ Adenovirus
- ❖ Coxsackievirus
- ❖ Enterovirus
- ❖ Herpes Simplex virus (HSV)

Adherence to basic infection prevention principles is required to protect patients and healthcare personnel from healthcare-associated ocular infections.

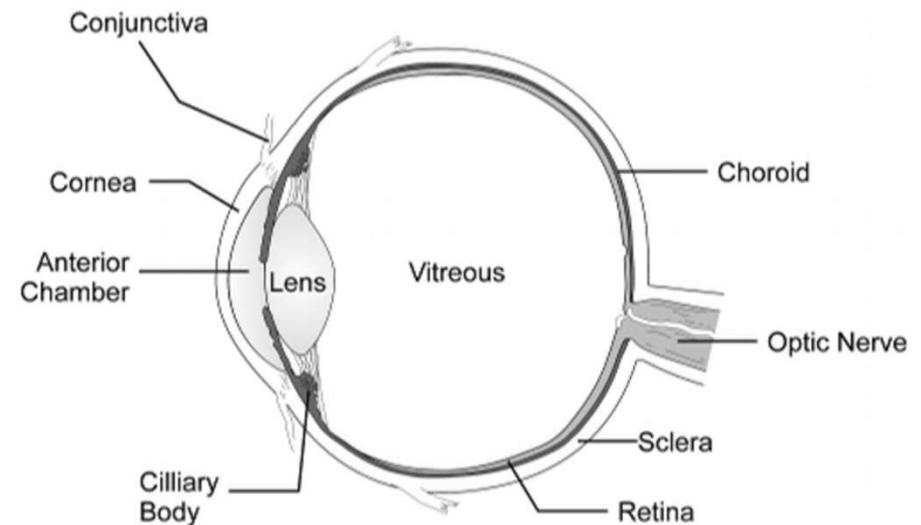


Background, Cont.

Only a **few organisms can penetrate the intact epithelium** of the conjunctiva or cornea.

- ❖ *Neisseria gonorrhoeae*
- ❖ *Neisseria meningitidis*
- ❖ *Streptococcus pneumoniae*
- ❖ *Listeria monocytogenes*
- ❖ *Corynebacterium diphtheriae*

Figure 64-1. Anatomy of the eye



To gain entrance and cause disease, **organisms that cannot penetrate the intact epithelium require a breach in the protective epithelial barrier or mucous membranes**, whether by trauma or insertion/removal of contact lenses.

Ocular Healthcare-Associated Infections (HAIs)

Blepharitis: Inflammation and/or infection of the eyelids.

Conjunctivitis: Inflammation and/or infection of the conjunctiva-mucous membrane.

Endophthalmitis: Inflammation and/or infection of the intraocular fluids (anterior and vitreous) and tissues.

Keratoconjunctivitis: Inflammation and/or infection of the ocular external surfaces (conjunctiva and cornea epithelia).

Keratitis: Inflammation and/or infection of the surface or connective tissues of the cornea (window of the eye).

Sterile endophthalmitis: Noninfectious inflammation of the vitreous and/or anterior chamber following intravitreal injections and/or surgery.

Toxic anterior segment syndrome (TASS): Acute, sterile inflammation following anterior segment surgery.

Epidemic Keratoconjunctivitis (EKC)

Causative Agent(s) Adenovirus, Enterovirus, Coxsackie A virus

Reservoir(s): Hands of HCP, medical equipment, ophthalmic wash solutions, topical anesthetics

Infection Prevention Strategies:

- ❖ Adherence to hand hygiene practices before and after every patient encounter.
- ❖ Disinfection of medical equipment with an EPA-registered disinfectant effective against Adenoviruses.
 - ❖ Disinfection of tonometer tips; soaking for 5-10 minutes in 3% hydrogen peroxide.
- ❖ Follow standard precautions; don disposable gloves and protective eyewear prior to conducting ocular examinations where exposure to tears or excretions is likely.

Toxic Anterior Segment Syndrome (TASS)

Causative Agent(s): N/A

Reservoir(s): Surgical instruments; ophthalmic wash solutions; intraocular lenses; medications; gloves

Infection Prevention Strategies:

- ❖ Use of appropriate protocols for cleaning and sterilizing surgical equipment.
- ❖ Careful consideration and attention to all solutions, medications, and ophthalmic devices used during anterior segment surgery.

Disinfection and Sterilization Protocols for Prevention of Ocular HAI

- ❖ **All ophthalmic surgical instruments must be cleaned, disinfected, and/or sterilized in accordance with manufacturers' instructions for use (MIFU).**
- ❖ **Tonometers and ophthalmoscopes** can be adequately disinfected by **immersion for 10 minutes or more in 3% Hydrogen Peroxide**, 5,000 ppm Bleach solution, and 70 % isopropyl alcohol and/or 70% ethanol.
- ❖ **Non-critical patient care devices and environmental surfaces** can be disinfected with an Environmental Protection Agency **(EPA) approved hospital disinfectant and/or sterilant.**

Chapter 68

Respiratory Care Services

Background

Specific respiratory care services **involve proper equipment handling, cleaning, disinfection, and storage of equipment**, as well as use of evidence-based practices that reduce the risk of infection to patients, healthcare personnel, and visitors.

Respiratory therapy activities may include:

- ❖ Cardiopulmonary diagnostics; emergency resuscitation; administration of medical gases and aerosolized medications; bronchial hygiene therapies; airway management procedures; lung expansion therapies; mechanical ventilation; blood gas sampling and analysis.

As an infection preventionist you must have a thorough understanding of:

- A) The different equipment and devices used in the delivery of respiratory therapy care
- B) The non-invasive and invasive modalities available for respiratory therapy care
- C) The correct cleaning and disinfection protocol for equipment being used in respiratory therapy care
- D) The technology to provide efficient respiratory support

Risk Factors for Infection

Patients undergoing respiratory therapy may have multiple risk factors for developing infection due to:

- ❖ Impaired cough or gag reflex
- ❖ Swallowing disorders
- ❖ Severe underlying disease
- ❖ Immune suppression
- ❖ Enteral feeding or malnourishment
- ❖ Invasive and non-invasive ventilatory support
- ❖ Impaired respiratory function

Routes of transmission of pathogens most associated with respiratory care:

- ❖ Inhalation of aerosols; droplets or droplet nuclei; direct contact with contaminated fluids, hands, and equipment.

Aerosol Generating Procedure (AGP)

An aerosol Generating Procedure (AGP) is any medical procedure that can induce the production of aerosols of various sizes, including droplet nuclei. Commonly performed aerosol generating procedures include :

- ❖ Endotracheal intubation
- ❖ Cardiopulmonary resuscitation
- ❖ Non-invasive ventilation
- ❖ Bronchoscopy
- ❖ Sputum induction
- ❖ Airway suctioning
- ❖ Administration of respiratory medications via nebulizer or inhaler.

***The application of standard precautions should be based on the anticipated risk of exposure to infectious droplets, droplet nuclei, or airborne particles unless otherwise specified by Transmission-based Precautions.**

Spaulding Classification System

Spaulding Classification	Definition	Cleaning Method	Device Examples	Cleaning Product(s)
Non-critical devices	Patient care items that come in contact with intact skin but not mucous membranes.	Low-level disinfection (LLD) Destroys vegetative bacteria, some fungi and viruses, but not mycobacteria or spores.	Bedpans Blood Pressure Cuffs Stethoscopes	EPA-registered disinfectant without a label claim for tuberculocidal activity.
	Patient care items that may come in contact with nonintact skin for a brief period of time.	Intermediate-level disinfection (ILD) Destroys vegetative bacteria, mycobacteria, most viruses, most fungi, but not bacterial spores.	Thermometers Hydrotherapy tanks	EPA-registered disinfectant with a label claim for tuberculocidal activity
Semi-critical devices	Patient care items that come in contact with mucous membranes or nonintact skin.	High-level disinfection (HLD) Destroys all microorganisms except for high numbers of bacterial spores.	Laryngoscopes Endotracheal tubes Anesthesia Equipment Flexible endoscopes	EPA-registered chemical liquid disinfectant; Products containing Glutaraldehyde, Hydrogen Peroxide, Ortho-phthalaldehyde, Peracetic acid with Hydrogen Peroxide.
Critical devices	Patient care items that enter sterile tissues or the vascular system.	Sterilization Destroys all microorganisms, including bacterial spores.	Surgical instruments Cardiac and urinary catheters Medical Implants Ultrasound Probes used in sterile body cavities.	Items should be purchased as sterile or be sterilized with steam if possible; Heat-sensitive objects can be treated with hydrogen peroxide gas plasma, or by liquid chemical sterilants.

Infection Prevention Measures for Common Respiratory Therapy Procedures

The Care of Patients with Tracheostomies

- ❖ Tracheostomies should be performed under sterile conditions.
- ❖ When changing a tracheostomy tube, wear PPE that includes a gown, gloves, and facial protection.
- ❖ Use aseptic technique and replace the tube with one that has been sterilized or undergone High-level disinfection (HLD).

Suctioning of Respiratory Tract Secretions

- ❖ Use either a multiuse closed-system catheter or a single-use open-system catheter for prevention of pneumonia.
- ❖ If the open-system suction is used, use a sterile, single-use catheter each time.
- ❖ Appropriate PPE that includes gloves must be utilized. As part of standard precautions, healthcare personnel should wear facial protection if there is a risk of potential contact with splashes or sprays from respiratory secretions.

Manipulation of Artificial Airways

- ❖ Select critically ill patients for tracheostomies if long-term intubation is likely.
- ❖ Keep head of bed elevated 30-40 degrees, unless medically contraindicated.
- ❖ Oral intubation may be preferred to nasal intubation, as the latter is associated with sinusitis.

Blood Sampling and Transcutaneous Monitoring

- ❖ Use sterile single-patient syringes equipped with safety needles.
- ❖ Wear exam gloves and, if indicated, mask and goggles or a mask with an attached face shield.
- ❖ Perform the procedure using aseptic technique.

VAE, VAP, and NVHAP

Ventilator Associated Event (VAE): a broad range of conditions and complications occurring in mechanically ventilated adult patients that includes a combination of objective criteria such as the deterioration in respiratory status after a period of stability or improvement on a ventilator, evidence of infection or inflammation, and laboratory evidence of respiratory infection.

Ventilator Associated Pneumonia (VAP): a pneumonia where the patient is on mechanical ventilation for > 2 consecutive calendar days on the date of event, with day of ventilator placement being Day 1, AND the ventilator was in place on the date of event or the day before.

Non-ventilator healthcare acquired pneumonia (NVHAP): sustained deterioration in oxygenation for two or more days in a patient who was not ventilated concurrent with abnormal temperature or white blood cell count, performance of chest imaging, and three or more days of new antibiotics.

National Healthcare Safety Network (NHSN)

Patient Safety Component Manual

The **Patient Safety Component** (PSC) includes modules that focus on events associated with medical devices, surgical procedures, antimicrobial agents used during healthcare, multidrug resistant organisms, and hospital Coronavirus Disease (COVID) data. Device-associated Modules:

- Bloodstream Infection (CLABSI – Central line-associated Bloodstream infection)
- Central Line Insertion Practices (CLIP) adherence
- Urinary Tract Infection (CAUTI – Catheter-associated urinary tract infection)
- Pediatric Ventilator-associated Events (PedVAE) (NICU and pediatric locations only)
- Ventilator-associated Events (VAE) (adult locations only)
- Pneumonia (VAP – Ventilator-associated Pneumonia) - in pediatric locations (in-plan* or off-plan*), or NICU and adult locations (off-plan* only)

Procedure-associated Module:

- Surgical Site Infection (SSI)

Antimicrobial Use and Resistance Module (AUR)

Multidrug-Resistant Organism and *Clostridioides difficile* Infection (MDRO/CDI) Module

Hospital Coronavirus Disease (COVID) Data Module

National Healthcare Safety Network (NHSN)

Patient Safety Component Manual

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Positive End-Expiratory Pressure (PEEP): “A technique used in respiratory therapy in which airway pressure greater than atmospheric pressure is achieved at the end of exhalation by the introduction of a mechanical impedance to exhalation” [19]. In patients on mechanical ventilation, PEEP is one of the key parameters that can be adjusted depending on the patient’s oxygenation needs and is typically in the range of 0 to 15 cmH₂O. A sustained increase in the daily minimum PEEP of ≥ 3 cmH₂O following a period of stability or improvement on the ventilator is one of two criteria that can be used in meeting the VAC definition. For the purposes of VAE surveillance, PEEP values from 0 to 5 cmH₂O are considered equivalent.

Fraction of Inspired Oxygen (FiO₂): The fraction of oxygen in inspired gas. For example, the FiO₂ of ambient air is 0.21; the oxygen concentration of ambient air is 21%. In patients on mechanical ventilation, the FiO₂ is one of the key parameters that can be adjusted depending on the patient’s oxygenation needs and is typically in the range of 0.30 (oxygen concentration of 30%) to 1.0 (oxygen concentration of 100%). A sustained increase in the daily minimum FiO₂ of ≥ 0.20 (20 points) following a period of stability or improvement on the ventilator is one of the two criteria that can be used in meeting the VAC definition.

Daily Minimum PEEP: The lowest value of PEEP during a calendar day that is set on the ventilator and *maintained for > 1 hour*. This requirement that the daily minimum PEEP be the lowest setting maintained for > 1 hour will ensure that units monitoring and recording PEEP settings hourly or more frequently than once per hour are able to apply the VAE surveillance PEEP criterion in a standardized way.

Date of Event: The date of onset of worsening oxygenation. This is defined as the first calendar day in which the daily minimum PEEP or FiO₂ increases above the thresholds outlined in the VAE definition algorithm (specifically day 1 of the required ≥ 2 -day period of worsening oxygenation following a ≥ 2 -day period of stability or improvement on the ventilator).

Baseline Period: The baseline period of stability or improvement on the ventilator is defined as the 2 calendar days immediately preceding the first day of increased daily minimum PEEP or FiO₂, and must be characterized by ≥ 2 calendar days of stable or decreasing daily minimum FiO₂ or PEEP values (specifically the daily minimum PEEP or FiO₂ on the second day of the baseline period of stability or improvement must be equal to or less than the daily minimum PEEP or FiO₂ on the first day of the baseline period of stability or improvement). Note that the minimum daily PEEP or FiO₂ used for VAE surveillance is the lowest setting during a calendar day that was maintained for > 1 hour (see daily minimum PEEP and FiO₂ definitions for exception to 1 hour requirement).

Period of Worsening Oxygenation: The period of worsening oxygenation is defined as an increase in the daily minimum FiO₂ of at least 0.20 (20 points) over the daily minimum FiO₂ of the first day in the baseline period or an increase in the daily minimum PEEP values of at least 3 cmH₂O over the daily minimum PEEP of the first day in the baseline period, that immediately follows the baseline period and is sustained for at least 2 or more calendar days.

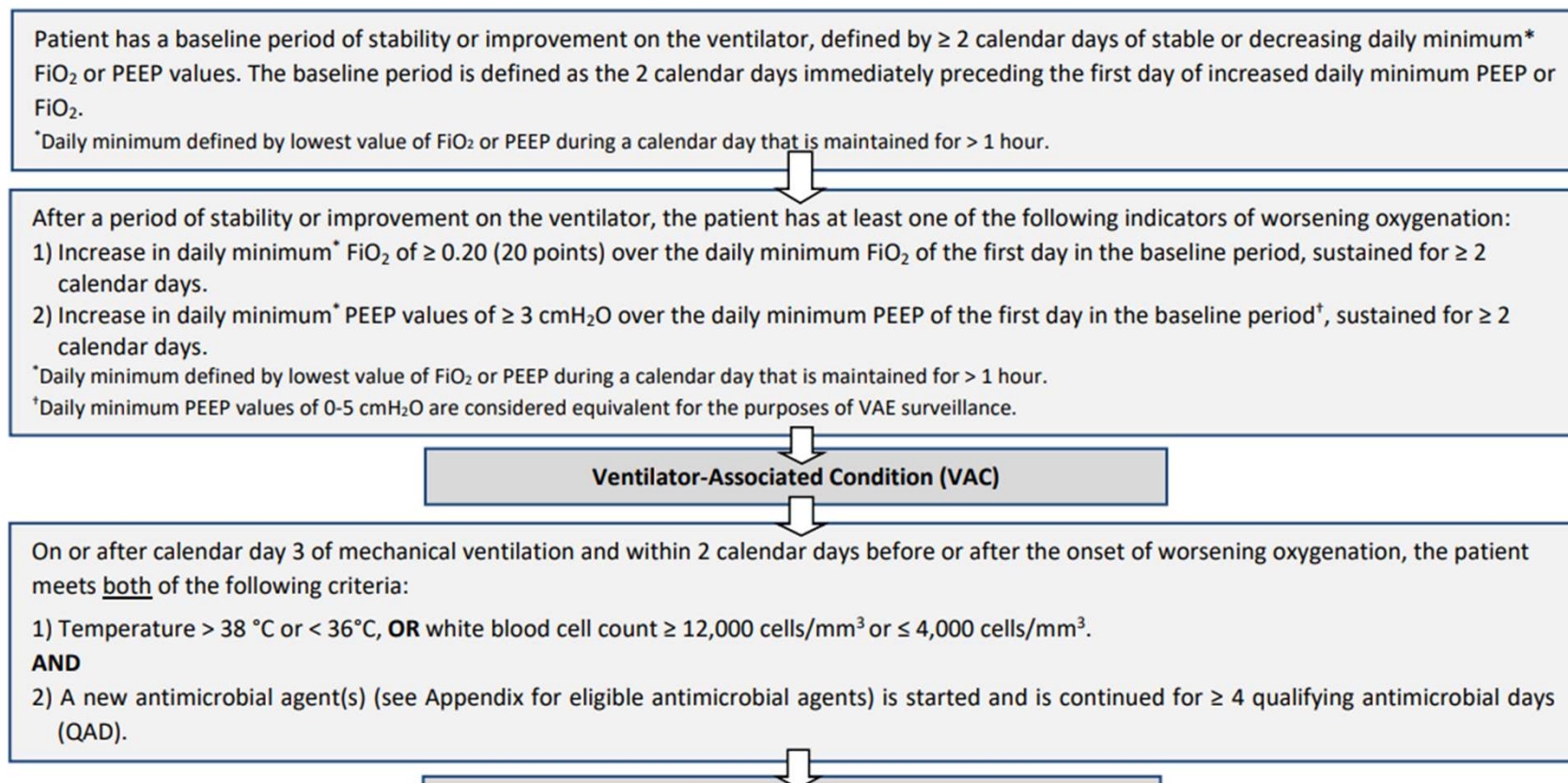
VAE Window Period: This is the period of days around the date of event (specifically the day of onset of worsening oxygenation) within which other VAE criteria must be met. It is usually a 5-day period and includes the 2 days before, the day of, and the 2 days after the VAE date of event. There is an exception, however, in which the VAE Window Period is only 3 or 4 days, as follows:

In cases where the VAE date of event corresponds to mechanical ventilation (MV) day 3 or day 4, the window period described above may only be a 3-day or a 4-day window, because it can NOT include any days before the third day of MV. For example, if the VAE date of event is MV day 3, then the window period includes only the VAE date of event and the 2 days after the VAE date of event (because the 2 days before the VAE date of event are before the third day of MV).

14-day Event Period: VAEs are defined by a 14-day period, starting on the day of onset of worsening oxygenation (the date of event, day 1). While patients may have multiple VAEs during a single hospitalization, a new VAE cannot be identified or reported until this 14-day period has elapsed. VAE criteria met during the 14-day period are attributed to the current VAE.



Figure 1: Ventilator-Associated Events (VAE) Surveillance Algorithm



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Infection-related Ventilator-Associated Complication (IVAC)

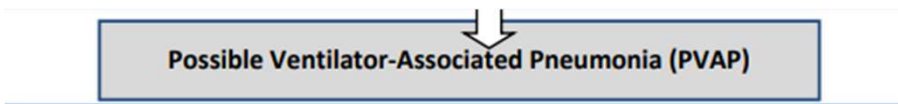
On or after calendar day 3 of mechanical ventilation and within 2 calendar days before or after the onset of worsening oxygenation, ONE of the following criteria is met (**taking into account organism exclusions specified in the protocol**):

- 1) Criterion 1: Positive culture of one of the following specimens, meeting quantitative or semi-quantitative thresholds[†] as outlined in protocol, without requirement for purulent respiratory secretions:
 - Endotracheal aspirate, $\geq 10^5$ CFU/ml or corresponding semi-quantitative result
 - Bronchoalveolar lavage, $\geq 10^4$ CFU/ml or corresponding semi-quantitative result
 - Lung tissue, $\geq 10^4$ CFU/g or corresponding semi-quantitative result
 - Protected specimen brush, $\geq 10^3$ CFU/ml or corresponding semi-quantitative result
- 2) Criterion 2: Purulent respiratory secretions (defined as secretions from the lungs, bronchi, or trachea that contain ≥ 25 neutrophils and ≤ 10 squamous epithelial cells per low power field [lpf, x100])[†] **PLUS** organism identified from one of the following specimens (to include qualitative culture, or quantitative/semi-quantitative culture without sufficient growth to meet Criterion #1):
 - Sputum
 - Endotracheal aspirate
 - Bronchoalveolar lavage
 - Lung tissue
 - Protected specimen brush
- 3) Criterion 3: One of the following positive tests:
 - Organism identified from pleural fluid (where specimen was obtained during thoracentesis or within 24 hours of chest tube placement; pleural fluid specimens collected after a chest tube is repositioned or from a chest tube in place > 24 hours are not eligible for PVAP)
 - Lung histopathology, defined as: 1) abscess formation or foci of consolidation with intense neutrophil accumulation in bronchioles and alveoli; 2) evidence of lung parenchyma invasion by fungi (hyphae, pseudohyphae, or yeast forms); 3) evidence of infection with the viral pathogens listed below based on results of immunohistochemical assays, cytology, or microscopy performed on lung tissue
 - Diagnostic test for *Legionella* species
 - Diagnostic test on respiratory secretions for influenza virus, respiratory syncytial virus, adenovirus, parainfluenza virus, rhinovirus, human metapneumovirus, coronavirus

[†] If the laboratory reports semi-quantitative results, those results must correspond to the quantitative thresholds. Refer to Table 2 and 3.

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Possible Ventilator-Associated Pneumonia (PVAP)

There are three criteria that can be used to meet the PVAP definition ([Figure 1](#)):

- a. Criterion 1: Positive culture meeting specific quantitative or semi-quantitative threshold ([Table 3](#));
- b. Criterion 2: Purulent respiratory secretions AND identification of organisms NOT meeting the quantitative or semi-quantitative thresholds specified in [Table 3](#);
- c. Criterion 3: (one of the following)
 - i. Organisms identified from pleural fluid specimen (where specimen was obtained during thoracentesis or within 24 hours of chest tube placement; pleural fluid specimens collected after a chest tube is repositioned or from a chest tube in place > 24 hours are not eligible for PVAP)
 - ii. Positive lung histopathology
 - iii. Lower respiratory specimen cytology findings suggestive of infection
 - iv. Positive diagnostic test for *Legionella* species or selected respiratory viruses

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Pneumonia (PNEU) is identified by using a combination of imaging, clinical, and laboratory criteria.

Ventilator-associated pneumonia (VAP): A pneumonia where the patient is on mechanical ventilation for > 2 consecutive calendar days on the date of event, with day of ventilator placement being Day 1*

AND

the ventilator was in place on the date of event or the day before.

The date of event (DOE) is the date the first element used to meet an NHSN site-specific infection criterion occurs for the first time within the seven-day infection window period

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Table 1: Specific Site Algorithms for Clinically Defined Pneumonia (PNU1)

Imaging Test Evidence	Signs/Symptoms
Two or more serial chest imaging test results with at least <u>one</u> of the following (1,2,13): New and persistent or Progressive and persistent • Infiltrate • Consolidation • Cavitation • Pneumatoceles, in infants ≤1 year old Note: In patients <i>without</i> underlying pulmonary or cardiac disease (such as respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), at least <u>one</u> definitive imaging test result is acceptable. (1)	For ANY PATIENT, at least <u>one</u> of the following: • Fever (> 38.0°C or > 100.4°F) • Leukopenia (≤ 4000 WBC/mm ³) or leukocytosis (≥ 12,000 WBC/mm ³) • For adults ≥ 70 years old, altered mental status with no other recognized cause And at least <u>two</u> of the following (from separate bullets): • New onset of purulent sputum (3) or change in character of sputum (4), or increased respiratory secretions, or increased suctioning requirements • Dyspnea, or tachypnea (5), or new onset or worsening cough • Rales (6) or bronchial breath sounds • Worsening gas exchange (for example, O ₂ desaturations [for example, PaO ₂ /FiO ₂ ≤ 240] (7), increased oxygen requirements, or increased ventilator demand) ALTERNATE CRITERIA, for infants ≤ 1 year old: Worsening gas exchange (for example, O ₂ desaturations [for example, pulse oximetry < 94%], increased oxygen requirements, or increased ventilator demand) And at least <u>three</u> of the following (from separate bullets): • Temperature instability • Leukopenia (≤ 4000 WBC/mm ³) or leukocytosis (≥ 15,000 WBC/mm ³) and left shift (≥ 10% band forms) • New onset of purulent sputum (3) or change in character of sputum (4), or increased respiratory secretions, or increased suctioning requirements • Apnea, tachypnea (5), nasal flaring with retraction of chest wall, or nasal flaring with grunting • Wheezing, rales (6), or rhonchi • Cough • Bradycardia (< 100 beats/min) or tachycardia (> 170 beats/min) ALTERNATE CRITERIA, for child > 1 year old or ≤ 12 years old, at least <u>three</u> of the following (from separate bullets): • Fever (> 38.0°C or > 100.4°F) or hypothermia (< 36.0°C or < 96.8°F) • Leukopenia (≤ 4000 WBC/mm ³) or leukocytosis (≥ 15,000 WBC/mm ³) • New onset of purulent sputum (3) or change in character of sputum (4), or increased respiratory secretions, or increased suctioning requirements • Dyspnea, or apnea, or tachypnea (5), or new onset or worsening cough • Rales (6) or bronchial breath sounds • Worsening gas exchange (for example, O ₂ desaturations [for example, pulse oximetry < 94%], increased oxygen requirements, or increased ventilator demand)

Table 2: Specific Site Algorithm for Pneumonia with Common Bacterial or Filamentous Fungal Pathogens and Specific Laboratory Findings (PNU2)

Imaging Test Evidence	Signs/Symptoms	Laboratory
Two or more serial chest imaging test results with at least <u>one</u> of the following (1,2,13): New and persistent or Progressive and persistent • Infiltrate • Consolidation • Cavitation • Pneumatoceles, in infants ≤1 year old Note: In patients <i>without</i> underlying pulmonary or cardiac disease (such as respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), at least <u>one</u> definitive chest imaging test result is acceptable. (1)	At least <u>one</u> of the following: • Fever (> 38.0°C or > 100.4°F) • Leukopenia (≤ 4000 WBC/mm ³) or leukocytosis (≥ 12,000 WBC/mm ³) • For adults ≥ 70 years old, altered mental status with no other recognized cause And at least <u>one</u> of the following: • New onset of purulent sputum (3) or change in character of sputum (4), or increased respiratory secretions, or increased suctioning requirements • Dyspnea, or tachypnea (5), or new onset or worsening cough • Rales (6) or bronchial breath sounds • Worsening gas exchange (for example, O ₂ desaturations [for example, PaO ₂ /FiO ₂ ≤ 240] (7), increased oxygen requirements, or increased ventilator demand)	At least <u>one</u> of the following: • Organism identified from blood (8,12) • Organism identified from pleural fluid (9,12) • Positive quantitative culture or corresponding semi-quantitative culture result (9) from minimally contaminated LRT specimen (specifically, BAL, protected specimen brushing, or endotracheal aspirate) • ≥ 5% BAL-obtained cells contain intracellular bacteria on direct microscopic exam (for example, Gram's stain) • Positive quantitative culture or corresponding semi-quantitative culture result (9) of lung tissue • Histopathologic exam shows at least <u>one</u> of the following evidences of pneumonia: ○ Abscess formation or foci of consolidation with intense PMN accumulation in bronchioles and alveoli ○ Evidence of lung parenchyma invasion by fungal hyphae or pseudohyphae

Table 3: Specific Site Algorithm for Viral, Legionella, and other Bacterial Pneumonias with Definitive Laboratory Findings (PNU2)

Imaging Test Evidence	Signs/Symptoms	Laboratory
Two or more serial chest imaging test results with at least <u>one</u> of the following (1,2,13): New and persistent or Progressive and persistent • Infiltrate • Consolidation • Cavitation • Pneumatoceles, in infants ≤1 year old Note: In patients <i>without</i> underlying pulmonary or cardiac disease (such as respiratory distress syndrome, bronchopulmonary dysplasia, pulmonary edema, or chronic obstructive pulmonary disease), at least <u>one</u> definitive chest imaging test result is acceptable. (1)	At least <u>one</u> of the following: • Fever (> 38.0°C or > 100.4°F) • Leukopenia (≤ 4000 WBC/mm ³) or leukocytosis (≥ 12,000 WBC/mm ³) • For adults ≥ 70 years old, altered mental status with no other recognized cause And at least <u>one</u> of the following: • New onset of purulent sputum (3) or change in character of sputum (4), or increased respiratory secretions, or increased suctioning requirements • Dyspnea, or tachypnea (5), or new onset or worsening cough • Rales (6) or bronchial breath sounds • Worsening gas exchange (for example, O ₂ desaturations [for example, PaO ₂ /FiO ₂ ≤ 240] (7), increased oxygen requirements, or increased ventilator demand)	At least <u>one</u> of the following: • Virus, <i>Bordetella</i> , <i>Legionella</i> , <i>Chlamydia</i> , or <i>Mycoplasma</i> identified from respiratory secretions or tissue by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing (ASC/AST)) • Fourfold rise in paired sera (IgG) for pathogen (for example, influenza viruses, <i>Chlamydia</i>) • Fourfold rise in <i>Legionella pneumophila</i> serogroup 1 antibody titer to ≥ 1:128 in paired acute and convalescent sera by indirect IFA • Detection of <i>Legionella pneumophila</i> serogroup 1 antigens in urine by RIA or EIA

Chapter 69

Surgical Services

Background

Surgical site infections (SSIs) are one of the most common type of healthcare-associated infections and may affect the **incision, deep soft tissues, or the organ space** of the site operated.

- ❖ Strict adherence to aseptic and surgical techniques and ongoing vigilance to prevent SSIs should be applied to all surgery patients, including patients undergoing ambulatory surgeries, patients admitted for same-day emergent surgery, and patients having minimally invasive surgery using robotic techniques.

Surgical Hand Antisepsis

Surgical hand antisepsis is referred to an antiseptic handwash or antiseptic hand rub performed preoperatively by surgical personnel to eliminate transient hand flora and reduce resident hand flora.

Product Selection

- ❖ Either an antimicrobial soap or an alcohol-based surgical hand rub with persistent activity may be used.
 - ❖ Alcohol-based formulations are the most effective at immediately lowering bacterial counts. The next most effective agents are Chlorhexidine gluconate (CHG), Iodophors, and plain soap.
 - ❖ Persistent antimicrobial activity is another important characteristic for a surgical scrub, and the most effective scrubs contain either 2% or 4% CHG.

Surgical Hand Antisepsis

Surgical hand antisepsis is referred to an antiseptic handwash or antiseptic hand rub performed preoperatively by surgical personnel to eliminate transient hand flora and reduce resident hand flora.

Technique

- ❖ Artificial fingernails are not to be worn by personnel in operating rooms.
- ❖ Whether using an antimicrobial soap and water or an alcohol-based surgical hand rub product for surgical hand antisepsis, hand and arm jewelry should be removed before the surgical scrub.
- ❖ Hands should be washed, including removal of debris from underneath fingernails using a nail cleaner under running water, prior to the first scrub of the day.
 - ❖ Hands and arms should be thoroughly dried after the handwash before beginning alcohol-based surgical hand preparation. Either type of product should be used according to manufacturer's instructions for use (MIFU), and hands and arms should be thoroughly dry before donning sterile gloves.

Environmental Controls in the Operating Room (OR)

Air Quality and Ventilation

- ❖ The OR ventilation system should always be functioning, as the cleanliness of the OR is compromised when the ventilation system is shut down.
- ❖ ORs should be continuously maintained at a positive pressure with respect to adjacent areas and corridors.
 - ❖ Ventilation systems are recommended to produce a minimum of 20 air changes per hour of filtered air and with at least 20% filtered fresh air.
- ❖ Routine monitoring and documentation of OR ventilation system compliance should be performed, and compliance policies and procedures should be updated as needed to follow established standards.
- ❖ Regular preventive maintenance to inspect and clean ductwork, lumens, seams, coils, condensate pans, wet filters, and interior fiberglass lining is recommended
- ❖ General guidelines for relative humidity levels in restricted areas such as the OR are currently set between 20-60%.
- ❖ OR temperature range should be maintained between 68°-75°F.

Environmental Controls in the Operating Room (OR)

Environmental Cleaning

- ❖ Before and after each use of an OR, clean microfiber cloths and an EPA-approved hospital disinfectant or detergent should be used to clean the surgical lights and all horizontal surfaces of furniture and equipment.
- ❖ The floor of the operating room should be cleaned with an EPA-registered hospital disinfectant or detergent according to manufacturer's instructions for use (MIFU).
 - ❖ When the floor is visibly soiled, the preferred methods to apply cleaning solutions are wet vacuuming and/or using a clean microfiber mop head.
 - ❖ Prepare cleaning solutions daily and use fresh solution between case occurrences.
 - ❖ Use clean mop heads between cases.
 - ❖ Change mop heads and solutions frequently according to facility policies and procedures.
- ❖ Cleaning between patient cases must always include all high-touch and contaminated surfaces and objects used during surgery.
- ❖ At the end of each day's operating schedule, a complete terminal cleaning of every OR, scrub room, and service room must be done.
 - ❖ The decontamination process in terminal cleaning starts with the ceiling and operating room lights and moves downward, with the floor being cleaned last.

Environmental Controls in the Operating Room (OR)

Surgical Supplies

- ❖ Clean and sterile supplies or instruments taken to the operating room from a reprocessing or supply area outside of the department must be covered during transport.
- ❖ Dust coverings over supply carts should be removed when the cart enters the surgical suite.
- ❖ If self-contained case carts are used, they do not need to be covered.
- ❖ Supplies must be removed from their outside containers before they are brought into the operating room.
- ❖ Soiled items should be covered during transport from the individual OR suite, through the semi-restricted zone, to a decontamination area for temporary storage until they are transported for reprocessing.
- ❖ Soiled items must not be contained or stored in the same area with clean or sterile items.

Environmental Controls in the Operating Room (OR)

Surgical Attire

- ❖ Special surgical clothing is required for personnel within the operating room suite.
- ❖ Surgical scrub attire should be laundered by an institution-approved laundry service
- ❖ Fleece attire is not acceptable in the operating room.
- ❖ To prevent hair from falling on clean scrub clothing, personnel should don hair coverings first.
 - ❖ Hair coverings should cover and contain all hair; hoods or specially designed beard masks should be used to cover facial hair.
- ❖ Institutionally laundered surgical scrub attire that covers as much of the body as possible should be worn by surgical personnel to reduce contamination via shedding.
- ❖ Surgical attire should be changed when soiled, contaminated, or penetrated by blood or other potentially infectious materials as well as at the end of the shift before leaving the facility.
- ❖ Individuals directly involved with the surgical field must don sterile, impervious surgical gowns and sterile gloves over their surgical scrubs.
- ❖ Don sterile gowns and sterile gloves away from the main instrument table to prevent contamination of instruments.
- ❖ A fluid-resistant mask is required to be worn in the restricted zones of the operating suite.
- ❖ Personnel should wear gloves whenever there is potential for contact with blood or other bodily fluids, mucous membranes, and nonintact skin.
- ❖ Scrubbed personnel must remove all jewelry before scrubbing to eliminate the risk of harboring organisms.
- ❖ OR personnel should not wear artificial fingernails.

Environmental Controls in the Operating Room (OR)

Traffic Control

- ❖ Segregate clean and sterile supplies from contaminated materials, and ensure that only authorized personnel in appropriate attire enter the operating room
- ❖ Physical and mechanical controls on traffic patterns must be monitored and strictly enforced.
- ❖ Healthcare personnel traffic should be minimized in the operating room.
- ❖ Operating room doors should remain closed, except as needed for passage of equipment, personnel, and the patient.

Spaulding Classification System

Spaulding Classification	Definition	Cleaning Method	Device Examples	Cleaning Product(s)
Non-critical devices	Patient care items that come in contact with intact skin but not mucous membranes.	Low-level disinfection (LLD) Destroys vegetative bacteria, some fungi and viruses, but not mycobacteria or spores.	Bedpans Blood Pressure Cuffs Stethoscopes	EPA-registered disinfectant without a label claim for tuberculocidal activity.
	Patient care items that may come in contact with nonintact skin for a brief period of time.	Intermediate-level disinfection (ILD) Destroys vegetative bacteria, mycobacteria, most viruses, most fungi, but not bacterial spores.	Thermometers Hydrotherapy tanks	EPA-registered disinfectant with a label claim for tuberculocidal activity
Semi-critical devices	Patient care items that come in contact with mucous membranes or nonintact skin.	High-level disinfection (HLD) Destroys all microorganisms except for high numbers of bacterial spores.	Laryngoscopes Endotracheal tubes Anesthesia Equipment Flexible endoscopes	EPA-registered chemical liquid disinfectant; Products containing Glutaraldehyde, Hydrogen Peroxide, Ortho-phthalaldehyde, Peracetic acid with Hydrogen Peroxide.
Critical devices	Patient care items that enter sterile tissues or the vascular system.	Sterilization Destroys all microorganisms, including bacterial spores.	Surgical instruments Cardiac and urinary catheters Medical Implants Ultrasound Probes used in sterile body cavities.	Items should be purchased as sterile or be sterilized with steam if possible; Heat-sensitive objects can be treated with hydrogen peroxide gas plasma, or by liquid chemical sterilants.

***The Spaulding Classification System will be reviewed again in Chapter 31: Cleaning, Disinfection, and Sterilization.**

Immediate Use Steam Sterilization (IUSS)

A steam sterilization cycle that does not use full sterilization exposure cycles and dry times; previously referred to as “flash sterilization.”

- ❖ IUSS should be used only when there is an urgent need for the items that precludes following the cycle parameters for terminal sterilization recommended by the manufacturer’s instructions for use.
- ❖ Personnel must follow proper procedures for cleaning, decontamination, inspection, and arrangement of instruments in the appropriate containers or trays before using IUSS.
- ❖ IUSS should be done in a space that allows for direct delivery of sterilized items to the point of use; within close proximity of the operating room.
- ❖ Facilities must have written policies and procedures to ensure proper aseptic handling and safety of personnel during the transfer of immediate use sterilized items.
- ❖ Sealed containers approved by the FDA should be used for transferring the items from the sterilizer to the point of use.
- ❖ Policies must also outline measures to protect patients and OR personnel from burns caused by IUSS-processed items, and long-term storage of IUSS-sterilized items must be prohibited.
- ❖ Surgical implants and devices intended for single-use should not be sterilized by IUSS except in a documented emergency when no other option is available.
- ❖ Vendor trays should be available to the facility at least 48 hours before surgery to allow for proper inspection of contents, cleaning, and sterilization before surgery.

Prevention of Surgical Site Infections

Reducing Bacteria at the Surgical Site

- ❖ Cleanse the surgical site prior to patient arrival in the operating room with antiseptic skin scrubs containing povidone-iodine or chlorhexidine gluconate (CHG).
- ❖ Hair removal may be necessary based on the surgical site; Use mechanical clippers as to produce less local trauma at the time of skin preparation in the operating room immediately before skin incision.
 - ❖ This is preferable over the use of a razor.
- ❖ Utilize circular wound protectors or adherent drapes to prevent environmental and internal bacteria from accessing subcutaneous tissue during the surgical procedure.

Delayed Primary/Secondary Closure

- ❖ Delayed primary/secondary closure rather than risk the consequences of potentially invasive infection that results in fascial necrosis and major reconstructive problems when encountering a massive degree of contamination within the surgical site.

Prevention of Surgical Site Infections

Preventative System Antibiotics

- ❖ Preventive antibiotic(s) should be given within the 60-minute window before the surgical incision is made; except for vancomycin or fluoroquinolones where the window is 120 minutes.
- ❖ The selected antibiotic should be consistent with recommendations made by supported surgical organizations.
- ❖ The antibiotics should be discontinued by 24 hours after the completion of the operative procedure.

Patient Optimization Prior to Surgery

- ❖ Utilize supplemental oxygen administration to bolster host defenses in patients undergoing major surgery.
- ❖ Utilize insulating devices to prevent hypothermia as a potential complication during laparotomy and thoracotomy procedures.
- ❖ General and vascular surgery patients benefit from rigorous glucose control.

Wound Classes

Class I wounds: Also known as “clean” wounds; wounds in which no inflammation was encountered. No contaminated spaces (gastrointestinal, respiratory, genitourinary, or genital) were encountered, and the wound was primarily closed and drained if necessary.

Class II wounds: Also known as “clean-contaminated” wounds; wounds in which the respiratory, urinary, gastrointestinal, or genital tracts were entered under controlled conditions and without unusual contamination. A minor break in surgical sterile technique in an otherwise Class I procedure would also fit into this class.

Class III wounds: Also known as “contaminated” wounds; wounds with gross spillage from the gastrointestinal tract. Entry into the genitourinary or biliary tracts in the presence of infected urine or bile or a major break in surgical technique may have occurred. Incisions in which acute, non-purulent inflammation was present are also included in this class.

Class IV wounds: Also known as “dirty and infected” wounds; wounds with retained devitalized tissue, foreign bodies, fecal contamination, or from a dirty source; a perforated viscus may have been encountered. A wound with acute bacterial inflammation with pus encountered during the operation is also included in this class. While many Class IV cases have active infection at the time of the operation, they need to be classified as such using a determination designated as ‘present at time of surgery’.

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Chapter 5: Central Line Insertion Practices (CLIP) Adherence Monitoring
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 Chapter 9: Surgical Site Infection (SSI) Event
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Chapter 16: General Key Terms
Chapter 17: CDC/NHSN Surveillance Definitions for Specific Types of Infections

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SSI Event Details

The infection window period (IWP), present on admission (POA), healthcare-associated infection (HAI), and repeat infection timeframe (RIT) definitions do not apply to the SSI protocol.

Infection present at time of surgery (PATOS): PATOS is a YES/NO field found on the SSI event form. PATOS denotes there was evidence of infection visualized (seen) during the surgical procedure to which a subsequent SSI is attributed. The evidence of infection must be noted intraoperatively and documented within the narrative portion of the operative note or report of surgery to be eligible for PATOS

- b) Examples of verbiage that is considered evidence of infection include but are not limited to: abscess, infection, purulence/pus, phlegmon, osteomyelitis, or "feculent peritonitis". A ruptured/perforated appendix is evidence of infection at the organ/space level.
- c) Examples of verbiage that is **not** considered evidence of infection include but are not limited to: colon perforation, contamination, necrosis, gangrene, fecal spillage, nicked bowel during procedure, murky fluid, or documentation of inflammation.
- d) The use of the ending "itis" in an operative note/report of surgery does not automatically meet PATOS, as it may only reflect inflammation which is not infectious in nature (for example, diverticulitis, peritonitis, and appendicitis).

30-day Surveillance

Category	Operative Procedure	Category	Operative Procedure
AAA	Abdominal aortic aneurysm repair	LAM	Laminectomy
AMP	Limb amputation	LTP	Liver transplant
APPY	Appendix surgery	NECK	Neck surgery
AVSD	Shunt for dialysis	NEPH	Kidney surgery
BILI	Bile duct, liver or pancreatic surgery	OVRY	Ovarian surgery
CEA	Carotid endarterectomy	PRST	Prostate surgery
CHOL	Gallbladder surgery	REC	Rectal surgery
COLO	Colon surgery	SB	Small bowel surgery
CSEC	Cesarean section	SPLE	Spleen surgery
GAST	Gastric surgery	THOR	Thoracic surgery
HTP	Heart transplant	THYR	Thyroid and/or parathyroid surgery
HYST	Abdominal hysterectomy	VHYS	Vaginal hysterectomy
KTP	Kidney transplant	XLAP	Exploratory laparotomy

90-day Surveillance

Category	Operative Procedure
BRST	Breast surgery
CARD	Cardiac surgery
CBGB	Coronary artery bypass graft with both chest and donor site incisions
CBGC	Coronary artery bypass graft with chest incision only
CRAN	Craniotomy
FUSN	Spinal fusion
FX	Open reduction of fracture
HER	Herniorrhaphy
HPRO	Hip prosthesis
KPRO	Knee prosthesis
PACE	Pacemaker surgery
PVBY	Peripheral vascular bypass surgery
VSHN	Ventricular shunt

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Criterion	Surgical Site Infection (SSI)
	Superficial incisional SSI Must meet the following criteria:
	Date of event occurs within 30 days following the NHSN operative procedure (where day 1 = the procedure date) AND involves only skin and subcutaneous tissue of the incision AND patient has at least <u>one</u> of the following: - purulent drainage from the superficial incision. - organism(s) identified from an aseptically-obtained specimen from the superficial incision or subcutaneous tissue by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing [ASC/AST]) - a superficial incision that is deliberately opened or re-accessed by a surgeon, physician* or physician designee and culture or non-culture based testing of the superficial incision or subcutaneous tissue is not performed AND patient has at least one of the following signs or symptoms: localized pain or tenderness; localized swelling; erythema; or heat - diagnosis of a superficial incisional SSI by a physician* or physician designee * The term physician for the purpose of application of the NHSN SSI criteria may be interpreted to mean a surgeon, infectious disease physician, emergency physician, other physician on the case, or physician's designee (nurse practitioner or physician's assistant).

	Superficial incisional SSI
Comments	There are two specific types of superficial incisional SSIs: 1. Superficial Incisional Primary (SIP) – a superficial incisional SSI that is identified in the primary incision in a patient that has had an operation with one or more incisions (for example, C-section incision or chest incision for CBGB) 2. Superficial Incisional Secondary (SIS) – a superficial incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision (for example, donor site incision for CBGB) Note: Refer to SSI Event Reporting Instruction #7 for NHSN operative procedure categories with secondary incision sites available for SSI attribution.

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	Deep incisional SSI Must meet the following criteria:
	Date of event occurs within 30 or 90 days following the NHSN operative procedure (where day 1 = the procedure date) according to the list in Table 2 AND involves deep soft tissues of the incision (for example, fascial and muscle layers) AND patient has at least <u>one</u> of the following: a. purulent drainage from the deep incision b. a deep incision that is deliberately opened*, re-accessed, or aspirated by a surgeon, physician** or physician designee or spontaneously dehisces AND organism(s) identified from the deep soft tissues of the incision by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing [ASC/AST]) or culture or non-culture based microbiologic testing method is not performed. A culture or non-culture based test from the deep soft tissues of the incision that has a negative finding does not meet this criterion. AND patient has at least <u>one</u> of the following signs or symptoms: fever (>38°C); localized pain or tenderness c. an abscess or other evidence of infection involving the deep incision detected on gross anatomical exam, histopathologic exam, or imaging test <i>*Excludes any known multi-part/multi-phase procedures that occur over more than one operative episode [during the same admission] that is documented in the medical record by a surgeon prior to first phase of the procedure.</i> <i>**The term physician for the purpose of application of the NHSN SSI criteria may be interpreted to mean a surgeon, infectious disease physician, emergency physician, other physician on the case, or physician's designee (nurse practitioner or physician's assistant).</i>

Comments	Deep incisional SSI There are two specific types of deep incisional SSIs: 1. Deep Incisional Primary (DIP) – a deep incisional SSI that is identified in a primary incision in a patient that has had an operation with one or more incisions (for example, C-section incision or chest incision for CBGB) 2. Deep Incisional Secondary (DIS) – a deep incisional SSI that is identified in the secondary incision in a patient that has had an operation with more than one incision (for example, donor site incision for CBGB) Note: Refer to SSI Event Reporting Instruction #7 for NHSN operative procedure categories with secondary incision sites available for SSI attribution.
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Organ/Space SSI Must meet the following criteria:
Date of event occurs within 30 or 90 days following the NHSN operative procedure (where day 1 = the procedure date) according to the list in Table 2 AND involves the organ/space tissues (deeper than the fascia/muscle) AND patient has at least one of the following: - purulent drainage from a drain placed into the organ/space (for example, closed suction drainage system, open drain, T-tube drain, CT-guided drainage) - organism(s) identified from fluid or tissue in the organ/space by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing [ASC/AST]) - an abscess or other evidence of infection involving the organ/space detected on: - gross anatomical exam <u>or</u> - histopathologic exam <u>or</u> - imaging test evidence definitive or equivocal for infection AND meets at least one criterion for a specific organ/space infection site listed in Table 3 . These criteria are found in the Surveillance Definitions for Specific Types of Infections (Chapter 17).

Comments	Examples of gross anatomic evidence of organ/space infection: - An intraabdominal abscess will require an invasive procedure to actually visualize the abscess. - Visualization of pus or purulent drainage (includes from a drain). - Abdominal pain or tenderness post Cesarean section (CSEC) or hysterectomy (HYST or VHYS) is sufficient gross anatomic evidence of infection without an invasive procedure to meet <u>general Organ/Space SSI criterion 'c'</u> when a Chapter 17 Reproductive Tract Infection criteria is met. Allowing the documentation of abdominal pain or tenderness as gross anatomic evidence of infection to meet general Organ/Space SSI criterion 'c' enables the user to report an SSI-OREP, SSI-EMET or SSI-VCUF event. Abdominal pain or tenderness <u>cannot</u> be applied as 'other evidence of infection on gross anatomic exam' to meet Deep Incisional SSI criterion 'c' or to meet any Chapter 17 site-specific criterion (for example, OREP '2').
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Category	Specific Site	Category	Specific Site
BONE	Osteomyelitis	MED	Mediastinitis
BRST	Breast abscess or mastitis	MEN	Meningitis or ventriculitis
CARD	Myocarditis or pericarditis	ORAL	Oral cavity infection (mouth, tongue, or gums)
DISC	Disc space infection	OREP	Deep pelvic tissue infection or other infection of the male or female reproductive tract
EAR	Ear, mastoid infection	PJI	Periprosthetic joint infection
EMET	Endometritis	SA	Spinal abscess/infection
ENDO	Endocarditis	SINU	Sinusitis
GIT	Gastrointestinal (GI) tract infection	UR	Upper respiratory tract, pharyngitis, laryngitis, epiglottitis
IAB	Intraabdominal infection, not specified elsewhere	USI	Urinary System Infection
IC	Intracranial infection	VASC	Arterial or venous infection
JNT	Joint or bursa infection	VCUF	Vaginal cuff infection
LUNG	Other infection of the lower respiratory tract		

Chapter 62

Long-Term Care

Slide 44

CD0 The use of periods at the end of bullets changes in this chapter
Chacreton, Daniel, 2022-04-05T20:41:11.033

CAHO 0 revised for consistency
Corral, Alina H, 2022-04-06T12:34:00.981

Background

Long-term care facility residents are at high risk for developing infections.

- ❖ LTCFs **must comply with federal and state regulations** and may also voluntarily participate with other compliance agencies such as **The Joint Commission (TJC)**.
- ❖ For LTCFs that provide services to residents on Medicare and/or Medicaid, the **Centers for Medicare and Medicaid Services (CMS)** also has regulations to ensure that an infection prevention and control program is in place.
 - ❖ CMS mandates that this program includes items such as **infection surveillance, implementing practices to prevent spread of infection, use of proper isolation measures, appropriate employee health policies, hand hygiene practices, and proper handling, processing, and storing of linens.**

HAIs in the Long-Term Care Setting

Urinary Tract Infections

- ❖ Traditional symptoms of a UTI include fever, flank pain, dysuria, urination urgency, and frequency.
- ❖ Because long-term care residents with indwelling catheters are often colonized with infectious pathogens, it is recommended that residents with asymptomatic bacteriuria not be routinely screened and treated.

Respiratory Infections

- ❖ Common respiratory infections in this population include upper respiratory infections, bronchitis, and pneumonia.
- ❖ Viruses including respiratory syncytial virus (RSV), influenza, and adenoviruses, and bacteria including *Haemophilus influenzae*, staphylococci, and streptococci may cause respiratory tract infections.

Skin and Soft Tissue Infections

- ❖ Skin and soft tissue infections may also include pressure ulcers, pressure ulcer infections, cellulitis and scabies.
- ❖ Osteomyelitis and secondary bacteremia may result from infected deep soft tissue infections.

Gastroenteritis Infections

- ❖ Outbreaks in the long-term care setting have been caused by rotavirus, enterovirus, norovirus, *Clostridium difficile*, *Escherichia coli*, *Campylobacter*, and *Salmonella*.
- ❖ Patients in this setting are at an increased risk of contracting and transmitting infections of this type because of the use of shared bathrooms, common dining and rehabilitation facilities, and increased proximity to others.

Enhanced Barrier Precautions (EBP)

Enhanced Barrier Precautions (EBP) are an infection control intervention designed to reduce transmission of multidrug-resistant organisms (MDROs) in nursing homes.

- ❖ EBP are recommended for **residents known to be colonized or infected with an MDRO** as well as those at increased risk of MDRO acquisition such as **residents with wounds or indwelling medical devices**.
- ❖ EBP **require the use of gown and gloves only for high-contact resident care activities** unless otherwise indicated as part of Standard Precautions.
 - ❖ High-contact resident care activities have been demonstrated to result in transfer of MDROs to hands and clothing of healthcare personnel, even if blood and body fluid exposure is not anticipated.
- ❖ Patients placed on EBP are **not restricted to their rooms and do not require placement in a private room**, allowing them to participate in group activities.
- ❖ EBP are intended to be **in place for the duration of a resident's stay** in the facility or **until resolution of the wound or discontinuation of the indwelling medical device**.
- ❖ Contact Precautions are recommended if the resident has **acute diarrhea, draining wounds, or other sites of secretions or excretions** that are unable to be covered or contained.

Infection Prevention Strategies applied to the Long-Term Care Setting

Outbreak Surveillance and Control

- ❖ An outbreak should be considered when the number of cases exceeds the normal baseline; A low outbreak threshold allows for strategy implementation before the attack rate increases.
- ❖ To facilitate rapid control measures in outbreak situations, it may be helpful to create preexisting case definitions and policies and procedures and to obtain consent for respiratory vaccination at time of patient admission.

MDRO management

- ❖ The management of MDROs present many problems and concerns in this setting; these problems include placement of residents, scarcity of private rooms, and multiple transfers between the long-term and acute-care settings.
- ❖ Private rooms are always preferred for residents with MDROs, especially with active, ongoing infection.

Linen management

- ❖ The process for linen and laundry management in the long-term care facility often involves creating linen and laundry services on-site rather than transporting linens to be processed at a professional, off-site laundry.
- ❖ Regardless of the setting type, a physical barrier should exist between clean, stored linen and contaminated, soiled linen.

National Healthcare Safety Network (NHSN)

Long-Term Care Facility Component Manual

Tracking Healthcare-Associated Infections (HAIs) in Long-term Care Facilities

Section 6. Long-term Care Facility Monthly Reporting Plan

[LTCF Monthly Reporting Plan Data Collection Form \(CDC 57.141\)](#)

[Table 2: Instructions for Completion of the LTCF Monthly Reporting Plan](#)

Section 7. Healthcare-Associated Infection Module for Urinary Tract Infection

[Urinary Tract Infection Protocol](#)

[Urinary Tract Infection Data Collection Event Form \(CDC 57.140\)](#)

[Table 4: Instructions for Completion of the UTI Event Form](#)

Section 8. Laboratory-identified Event Module for Clostridioides difficile and Multidrug Resistant Organisms

[CDI and MDRO LabID Event Protocol](#)

[CDI and MDRO LabID Event Form \(CDC 57.138\)](#)

[Table 4: Instructions for the Completion of the CDI and LabID Event Form](#)

Section 9. Prevention Process Measures: Hand Hygiene, Gloves and Gown Adherence

[Hand Hygiene and Gloves and Gown Use Adherence Protocol](#)

[Prevention Process Measures Monthly Monitoring Form \(CDC 57.143\)](#)

[Table 6. Instructions for Completion of the Prevention Process Measures Monthly Monitoring
Form](#)

Week 11 Assignments

Action Items

Assigned chapter readings

- Chapter 112 Pharmacy Services
- Chapter 115 Waste Management
- Chapter 124 Animals Visiting in Health Care Facilities
- Chapter 34 Urinary Tract Infection