WELCOME TO CODING ROUND TABLE WEBINAR 137: Pneumonia The webinar will begin shortly

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Coding Round Table 137 Pneumonia

September 14th, 2021

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Agenda

- Aspiration Pneumonia
- Pneumonia due to Infection
- Infectious Diseases Society of America/American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults

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Pneumonia

Aspiration Pneumonia

Types of Pneumonia Aspiration Pneumonia

- Pneumonia (lung inflammation/infection) that develops after foreign items(food, vomitus, etc.) are accidentally inhaled into the lungs
- Microorganisms (bacterial, viral, anaerobic oral flora, colonization, hospital acquired, community acquired) may also be aspirated during or after the episode and contribute to the inflammation as a superimposed bacterial or viral pneumonia.
- Noninfectious aspirates include, but are not limited to: vomitus, food, saliva, nasal secretions, gastric contents (acid/peptic/solid particulate matter), barium, water (near drowning), mineral/vegetable oil (laxative oils), activated charcoal (in the treatment of overdose), pill fragments, blood, and foreign objects

Signs and Symptoms of Aspiration Pneumonia

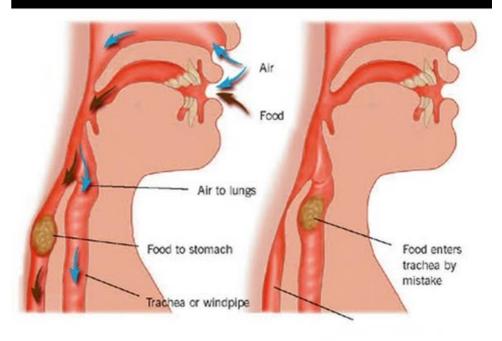
- Fever
- Hypothermia
- Tachypnea
- Tachycardia
- Decreased breath sounds
- Rales
- Pleural friction rub
- Altered mental status
- Hypoxemia
- Hypotension (in septic shock)
- Chest Pain
- Shortness of breath
- Respiratory distress
- Coughing
- Wheezing

Related Codes Aspiration Pneumonia

Code	Description	Code	Description
J68.0-*	Bronchitis and pneumonitis due to chemicals, gases, fumes and vapors	074.0	Aspiration pneumonitis due to anesthesia complicating labor and delivery
J69.0**	Pneumonitis due to inhalation of food and vomit	029	Aspiration pneumonitis due to anesthesia complicating pregnancy
J69.1**	Pneumonitis due to inhalation of oils and essences	089.01	Aspiration pneumonitis due to anesthesia during the puerperium
J69.8**	Pneumonitis due to inhalation of other solids and liquids	P24.01	Meconium aspiration with respiratory symptoms (neonatal)**
J70.5	Respiratory conditions due to smoke inhalation	P24.11	Neonatal aspiration of (clear) amniotic fluid and mucous with respiratory symptoms**
J70.8	Respiratory conditions due to other specified external agents	P24.21	Neonatal aspiration of blood with respiratory symptoms**
J70.9	Respiratory conditions due to other specified external agents	P24.31	Neonatal aspiration of milk/regurgitated food with respiratory symptoms**
J95.4*	Postprocedural pneumonitis	P24.81	Other neonatal aspiration with respiratory symptoms**
J95.5*	Chemical pneumonitis due to anesthesia		

Types of Pneumonia Aspiration Pneumonia

- > Inflammation of lungs/bronchial tubes occurring after inhaling foreign matter
- Patients who have difficulty swallowing (i.e caused by stroke, ALS, Parkinsons, Multiple Sclerosis, Head Injury, Cerebral Palsy) may accidentally inhale foreign matter into the trachea



Types of Pneumonia Chemical Aspiration Pneumonia

> Chemical Pneumonitis

Lung irritation caused by poisons or toxins

- Liquids gases, dust, fumes can cause chemical pneumonitis; some chemicals can harm the lungs but also other organs and may result in serious organ damage or death
- Develops due to the acidity of the aspirate
- Also can be caused bs acid pulmonary syndrome or Mendelsen syndrome(Chemical pneumonitis due to anesthesia)
 - Will have the radiological appearance of pulmonary edema
- Microorganism can also be aspirated during the event and contribute to the inflammation with superimposed bacterial or viral pneumonia

Signs and Symptoms of chemical aspiration pneumonia

Chemical Pneumonitis

- Acute onset of symptoms within a few minutes to two hours of the aspiration
- Respiratory distress
- Audible wheezing
- Coughing
- Tachypnea
- Tachycardia
- Fever
- Rales
- Cyanosis
- Chest Pain
- Shortness of breath

Types of Pneumonia Bacterial Aspiration Pneumonia

- Bacterial (causative organisms)
- Bacterial lung infection causing inflammation in the alveoli, which fill with fluid
- Most common bacterial cause is Streptococcus pneumoniae

Signs and Symptoms of bacterial aspiration pneumonia

- Purulent sputum with cough
- Chills
- Fever
- Myalgia
- Malaise
- Possible rigors
- Shortness of breath
- Dyspnea on exertion
- Pleuritic chest pain
- Foul smelling expectoration (indicates anaerobic bacterial pna)

Risk factors

Aspiration Pneumonia

> Patients (most) who have aspiration pneumonia will have at least one, if not more, of the following predisposing conditions:

- Conditions associated with reduced/altered consciousness (includes a gag reflex reduction and inability to maintain an airway)
 - ✓ Alcoholism
 - Drug overdose
 - Stroke
 - Seizures
 - Head trauma
 - General anesthesia
 - Intracranial mass lesion
 - 🗸 Coma
 - ✓ Near Drowning

✓ Esophageal/Swallowing Dysfunction:

- o Dysphagia
- o Gastroesophageal reflux disease (GERD) or esophagitis
- Tracheoesophageal fistula
- Diverticula, esophageal
- Neoplasm, esophagus
- Stricture/Stenosis/Obstruction of esophagus
- o Achalasia
- Neurological disorders relating to aspiration pneumonia:
 - o Pseudobulbar palsy
 - Myasthenia gravis
 - Parkinsonism
 - o Dementia
 - Multiple sclerosis
 - o Quadriplegia

- Mechanical conditions associated with aspiration pneumonia:
 - o Bronchoscopy
 - o Tracheostomy
 - Endotracheal intubation
 - Nasogastric tube
 - EsophagoGastroDuodenoscopy (EGD)
 - o Gastrostomy
 - Postpyloric feeding tubes
- ✓ Other conditions associated with aspiration pneumonia:
 - o Critical illness
 - o Debilitation
 - o Deconditioning
 - Lying in a reclining position for a lengthy time period
 - o Extended vomiting
 - Bed Confinement
 - o Pregnancy

Clear lungs

Right lung dense consolidation (new)



Clinical and Diagnostic Evaluation and Treatment Aspiration Pneumonia

Clinical and Diagnostic Evaluation

- Presentation will be acute and develop within several hours of the event
- Location of the infiltrate or consolidation will be related to the position of the individual during the event
 - Right middle and lower lobes are the most common
 - Standing: bilateral basal segments of lower lobes
 - Left lateral decubitus lie: left lobe
 - Prone: right upper lobe
 - Supine: Posterior segments upper lobes and apical segments lower lobes
- Note: Dehydration can delay seeing the infiltrate on x-ray
- Vital Signs
 - Temperature
 - Blood pressure
 - Respiratory Rate
 - ✓ Heart Rate
- ABG analysis
- Lab
 - Basic Metabolic Panel
 - CBC
- Sputum gram stain
- Culture
- Pulse Oximetry
- Bronchoscopy
 ØAL
- Swallowing evaluation
- CT scan

Therapeutic Treatment

- Antibiotics
 - ✓ Oral
 - ✓ Intravenous (ampicillin- sulbactam (Unasyn), clindamycin (PCN allergy)
- IV fluids
- Bronchodilators/Nebulizers
- Tracheal Suctioning
- Supplemental Oxygen
- Speech Therapy training for swallowing/feeding
- Gastrostomy/NG tube for enteral feeding
- Corticosteroids
- Thoracentesis
- Mechanical Ventilation
- Chest tube insertion
- Bronchoscopy
 - ✓ Removal of foreign body

Aspiration Pneumonia Coding Tips

- Aspiration pneumonia is a form of chemical pneumonitis
- Patients can have community acquired pneumonia (CAP) and aspiration pneumonia during the same encounter
- The term "aspiration" should NOT be interpreted to mean "aspiration pneumonia"
 - A query should be submitted for location and nature of the aspiration
 - A code from T17 Foreign Body of respiratory tract, with the specified site when the aspirate is not causing bronchitis or pneumonia
- When a superimposed bacterial/viral pneumonia develops, it is coded as an additional diagnosis
- Hypoxemia/hemoptysis are not integral to pneumonia and can reported as an additional code(s)
- When aspiration pneumonia is present with acute respiratory failure sequencing will need to be determined based on Official Guidelines for Coding and Reporting. In some cases, chapter specific coding guidelines (such as obstetrics, poisoning, HIV, newborn) that provide sequencing direction may take precedence
- Sepsis indicates infection and the body's response to it. Aspiration pneumonia may be just from the direct effect of inhaled material, such as a chemical effect, or it may involve infection; however, for sepsis to result, it would need to involve an infectious pneumonia. Therefore, when aspiration pneumonia is associated with sepsis, an additional code should, J18.9, should be coded. Codes J18.9 and J69.0 are both needed to show the presence of a localized infection (pneumonia and unspecified organism) as well as pneumonia due to aspiration. When sepsis and aspiration pneumonia are related (i.e., sepsis due to aspiration pneumonia or sepsis related to aspiration pneumonia) and present on admission, sepsis should be sequenced as the principal diagnosis
- Patients who have chronic health problems as noted on the risk factor slide can be at higher risk of developing aspriation pneumonia. A query may be
 warranted if there is an indication that the patient may have aspiration pneumonia

Query Example

Dear Physician/PA/NP: ______ or other responsible provider:

When responding to this query, please exercise your independent professional judgment. The fact that a question is asked does not imply that any particular answer is desired or expected. Please complete, sign, date, and time the query. Thank you for your assistance with clarification of this issue.

Please clarify the following documentation or clinical data noted in the medical record:

Pt has history of CVA with dysphagia was admitted with diagnosis of pneumonia. Chest radiology report revealed right upper lobe opacities consistent with aspiration pneumonia. Patient was treated with IV Zosyn.

CDI Analyst/Coder:	Date:	Time:
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MD/PA/NP Response (Check any that apply.)

Based on your medical judgment and review of the clinical indicators above, please clarify the diagnosis to specify the type of pneumonia you are treating.

Physicia	an/PA/NP Signature:	Date:	Time:
Physicia	an/PA/NP Printed Name:		
	Other	-	
	Unable to determine		
	Pneumonia due to unknown organism		
	Pneumonia due to (specific organism)		
	Health-care-acquired pneumonia,		
	Gram negative pneumonia		
	Aspiration pneumonia		
	Community-acquired pneumonia		

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Pneumonia

Infectious Pneumonia

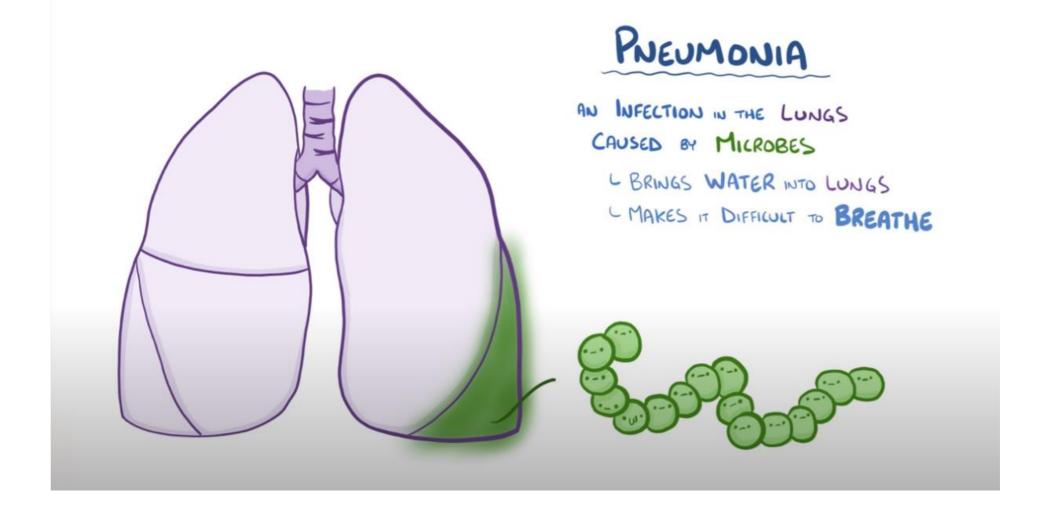
Types of Pneumonia Bacterial Pneumonia

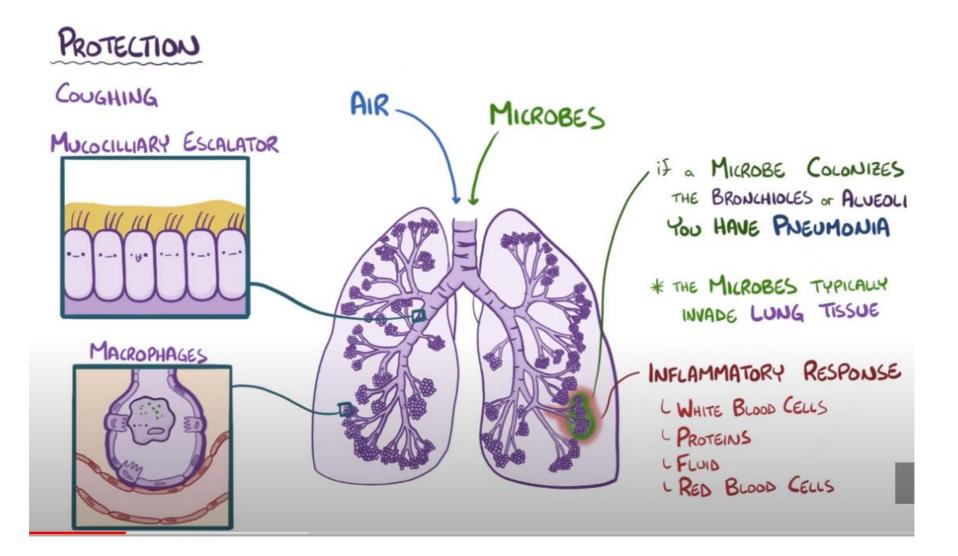
- This type is caused by various bacteria. It usually occurs when the body is weakened in some way, such as by illness, poor nutrition, old age, or impaired immunity, and the bacteria are able to work their way into the lungs. Bacterial pneumonia can affect all ages, but you are at greater risk if you abuse alcohol, smoke cigarettes, are debilitated, have recently had surgery, have a respiratory disease or viral infection, or have a weakened immune system.
- The most common bacterial causes of CAP are Streptococcus pneumoniae, Haemophilus influenzae, Mycoplasma pneumoniae, Staphylococcus aureus, Legionella species, Chlamydia pneumoniae, and Moraxella catarrhalis

Signs and Symptoms of Bacterial Pneumonia

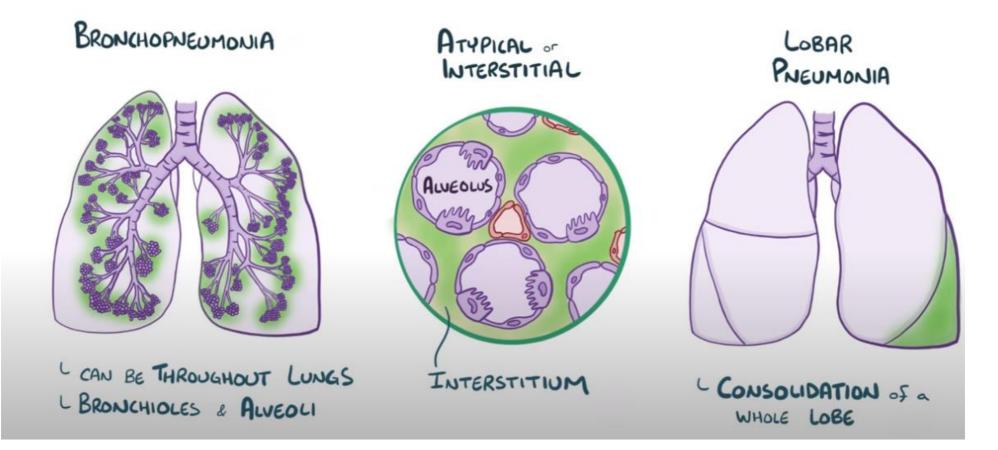
- •Bluish color to lips and fingernails
- •Confused mental state or delirium, especially in older people
- •Cough that produces green, yellow, or bloody mucus
- High Fever
- Heavy sweating
- Loss of appetite
- •Low energy and extreme tiredness
- •Rapid breathing
- •Rapid pulse
- •Shaking chills
- •Sharp or stabbing chest pain that's worse with deep breathing or coughing
- •Shortness of breath that gets worse with activity

Mycoplasma pneumonia has somewhat different symptoms, which include a severe cough that may produce mucus.





PNEUMONIA CATEGORIES



PNEUMONIA CATEGORIES

COMMUNITY A CQUIRED PNEUMONIA

* PERSON GETS ILL OUTSIDE of a HOSPITAL or HEALTHCARE SETTING



HOSPITAL ACQUIRED PNEUMONIA (NOSOCOMIAL)

- * PERSON ALREADY SICK IN HOSPITAL
- * SERIOUS
 - L SICK PATIENTS HAVE WEAKENED IMMUNE SYSTEMS
 - L MICROBES IN HOSPITALS ARE MORE RESISTANT TO ANTIBIOTICS

DIAGNOSIS

* WORKING HARD TO BREATHE * BREATHING QUICKLY

BRONCHOPNEUMONIA



- PATCHY AREAS - SPREAD THROUGHOUT



L FLUID LOCALIZED TO A SINGLE LOBE

ATYPICAL PNEUMONIA



CONCENTRATED IN THE PERIHILAR REGION

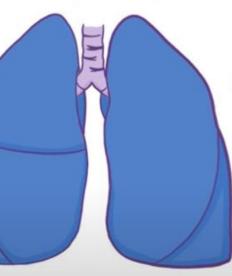
Summary

PNEUMONIA

- * INFECTION of THE LUNGS
- * AIR SALS FILL WITH FLUID

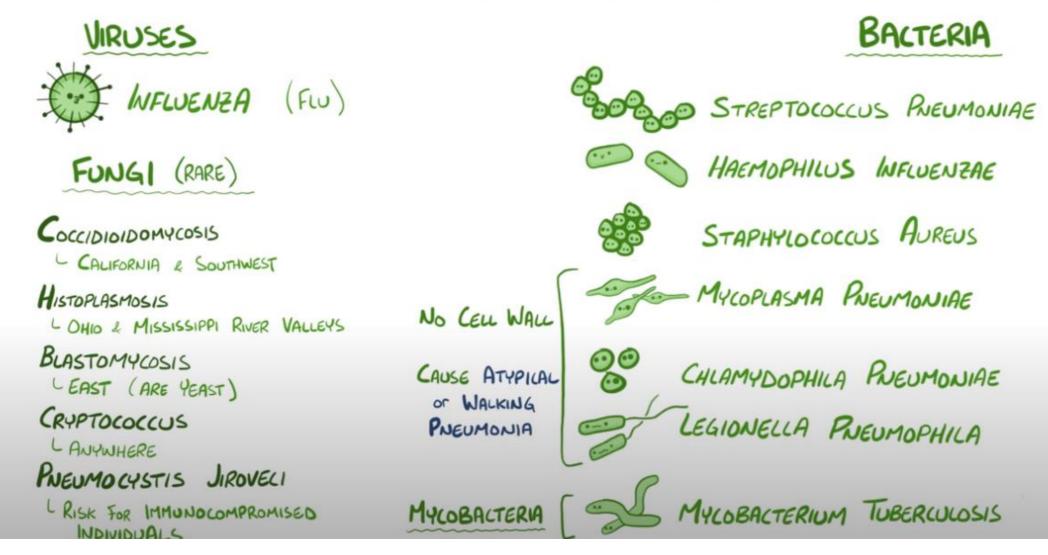
CLASSIFIED AS

- COMMUNITY ACQUIRED
- HOSPITAL ACQUIRED
- VENTILATOR ASSOCIATED
- ASPIRATION



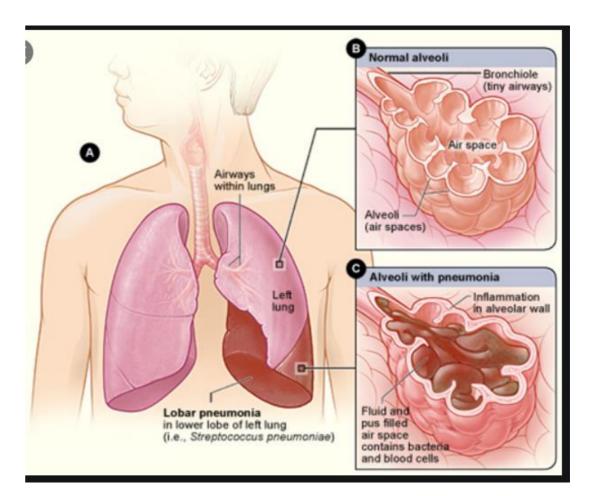
BRONCHOPNEUMONIA CAN BE THROUGHOUT LUNGS ATYPICAL LINTERSTITIUM LOBAR LA SINGLE LOBE

PNEUMONIA-CAUSING MICROBES



Risk factors Bacterial Pneumonia

- Adults ages 65 and older
- Children younger than age 2
- People with certain medical conditions (asthma, diabetes, heart disease)
- People that smoke
- Immunocompromised (organ transplant, HIV, cancer, CKD)
- Viral Pneumonia
- Alcoholism



Clinical and Diagnostic Evaluation and Treatment Bacterial Pneumonia

Clinical and Diagnostic Evaluation

- Chest X-ray
- > Note: Dehydration can delay seeing the infiltrate on x-ray
- Vital Signs
 - ✓ Temperature
 - Blood pressure
 - Respiratory Rate
 - Heart Rate
- ABG analysis
- Lab
 - Basic Metabolic Panel
 - CBC
- Sputum gram stain
- Blood Culture
- Pulse Oximetry
- Bronchoscopy
 BAL
- CT scan
- Thoracentesis for culture

Therapeutic Treatment

- Antibiotics
 - 🗸 Oral
 - ✓ Intravenous
- IV fluids
- Bronchodilators/Nebulizers
- Tracheal Suctioning
- Supplemental Oxygen
- Thoracentesis
- Mechanical Ventilation
- Chest tube insertion
- Bronchoscopy
 - ✓ Removal of foreign body
- Pain Medicine
- Fever Control
- Cough Medicine
- Rest

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Types of Pneumonia Viral Pneumonia

- This type is caused by various viruses, including the flu (influenza), and is responsible for about one-third of all pneumonia cases. You may be more likely to get bacterial pneumonia if you have viral pneumonia
- COVID-19 pneumonia is also a type of viral pneumonia.

Signs and Symptoms of Viral Pneumonia

Same as bacterial pneumonia but may have early symptoms of Headache, SOB, muscle pain, cough, and weakness

- Infiltrate on x-ray
- •Bluish color to lips and fingernails

Confused mental state or delirium, especially in older people
Cough that produces green, yellow, or bloody mucus

- •Fever
- Heavy sweating
- •Loss of appetite
- •Low energy and extreme tiredness
- •Rapid breathing
- •Rapid pulse
- •Shaking chills
- •Sharp or stabbing chest pain that's worse with deep breathing or coughing
- •Shortness of breath that gets worse with activity

Complications of Pneumonia

- > ARDS/Respiratory Failure/Hypoxia/Respiratory Distress
- > Lung Abscess
- > Sepsis
- > Hemoptysis
- > Pleural Effusions
- > Empyema
- > Pericarditis

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Treatment of Pneumonia

Infectious Diseases Society of America/American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults

Unspecified Pneumonia Validation

New Guidelines have been published for CAP in 2019

- These guidelines state that healthcare-associated pneumonia is no longer a risk factor for multiple drug resistant bacteria.
- Therefore, based on the updated guidelines, admissions from skilled nursing facilities, nursing homes, dialysis units, home health receiving wound care, etc. are not by themselves sufficient criteria to clinically support a diagnosis of gramnegative pneumonia in the absence of bacteriological confirmation of a specific organism.
- Under the new guidelines, increased emphasis will be placed on the review of previous encounters prior to the current admission to delineate if there has been hospitalization and parenteral antibiotic usage within the past 90 days. Additionally, previous infection with gram-negative rods or MRSA in the last year should also be scrutinized

Based on 2007 Guidelines

Gram-negative pneumonia in the absence of confirmatory cultures

Clinical criteria consistent with gram-negative bacterial pneumonia (ICD-9-CM code 482.83, excluding *H. influenzae*) include the following:

» High-risk host with a serious underlying disease, which results in failure to combat gram-negative bacterial pneumonia:

- Chronic obstructive pulmonary disease (e.g., bronchiectasis and emphysema)
- Diabetes mellitus
- Immunosuppression (e.g., malignancy, prednisone therapy and chemotherapy)
- Chronic malnutrition
- Advanced age
- Chronic alcoholism
- Chronic renal disease
- Chronic liver disease
- Congestive heart failure
- Sputum gram stain showing predominance of gram-negative bacterial rods:
- Invalid sputum culture due to outpatient antibiotic therapy, and the inability to produce an adequate sputum sample

- » High-risk setting for colonization with gram-negative bacteria:
 - Hospitalization within one year
- Nursing home patient
- Recent antibiotic use
- » Appropriate antibiotic therapy for gram-negative bacterial pneumonia:
- Third/fourth-generation cephalosporin, including Fortaz, Claforan, Cefobid, Rocephin, and Maxipime
- Aminoglycosides, including Tobramycin, Gentamycin, and Amikacin
- Extended Spectrum Penicillins, including Timentin, Unasyn, Ticarcillin, and Piperacillin
- Quinolones, including Cipro, Lévaquin, and Tequin
- Other, including Primaxin, and Azactam
- » Prolonged length of hospital stay with increased hospital resources used

Source: William E. Haik, MD, DRG Review, Inc., Fort Walton Beach, FL.

DRG IMPLICATIONS

Validation of Type of Pneumonia can result in DRG Impact or Reassignment based on pneumonia specificity

Gram Negative Pneumonia/Complex Pneumonia	Simple Pneumonia
DRG 177 RESPIRATORY INFECTIONS AND	DRG 193 SIMPLE PNEUMONIA AND PLEURISY WITH
INFLAMMATIONS WITH MCC	MCC
DRG 178 RESPIRATORY INFECTIONS AND INFLAMMATIONS WITH CC	DRG 194 SIMPLE PNEUMONIA AND PLEURISY WITH CC
DRG 179 RESPIRATORY INFECTIONS AND	DRG 195 SIMPLE PNEUMONIA AND PLEURISY
INFLAMMATIONS WITHOUT CC/MCC	WITHOUT CC/MCC

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Unspecified Pneumonia Validation

Gram Negative Pneumonia/Complex Pneumonia Examples		Simple Pneumonia Examples	
A0222 A150 B59 E840 J150 J151 J1520 J15211 J15212 J1529 J155 J156 J158 J17 J690 J691 J698 U071	Salmonella pneumonia Tuberculosis of lung Pneumocystosis Cystic fibrosis with pulmonary manifestations Pneumonia due to Klebsiella pneumoniae Pneumonia due to Klebsiella pneumoniae Pneumonia due to Pseudomonas Pneumonia due to staphylococcus, unspecified Pneumonia due to Methicillin susceptible Staphylococcus aureus Pneumonia due to Methicillin resistant Staphylococcus aureus Pneumonia due to other staphylococcus Pneumonia due to other staphylococcus Pneumonia due to other staphylococcus Pneumonia due to escherichia coli Pneumonia due to other Gram-negative bacteria Pneumonia due to other specified bacteria Pneumonia in diseases classified elsewhere Pneumonitis due to inhalation of food and vomit Pneumonitis due to inhalation of oils and essences Pneumonitis due to inhalation of other solids and liquids COVID-19	J120Adenoviral pneumoniaJ121Respiratory syncytial virus pneumoniaJ122Parainfluenza virus pneumoniaJ123Human metapneumovirus pneumoniaJ123Human metapneumovirus pneumoniaJ129Other viral pneumoniaJ129Viral pneumonia, unspecifiedJ13Pneumonia due to Streptococcus pneumoniaeJ14Pneumonia due to Hemophilus influenzaeJ153Pneumonia due to streptococcus, group BJ154Pneumonia due to other streptococciJ157Pneumonia due to Mycoplasma pneumoniaeJ160Chlamydial pneumoniaJ168Pneumonia due to other specified infectious organismsJ180Bronchopneumonia, unspecified organismJ181Lobar pneumonia, unspecified organismJ189Pneumonia, unspecified organism	zae o B oniae stious organisms ism n

Infectious Diseases Society of America/American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults

alic	lated definition includes either one major criterion or three or more minor criteria
Mi	nor criteria
F	Respiratory rate ≥ 30 breaths/min
F	Pa _{O2} /Fi _{O2} ratio ≤ 250
I	Multilobar infiltrates
(Confusion/disorientation
ι	Uremia (blood urea nitrogen level≥20 mg/dl)
l	Leukopenia <u>*</u> (white blood cell count < 4,000 cells/µl)
	Thrombocytopenia (platelet count < 100,000/μl)
ł	Hypothermia (core temperature < 36°C)
ł	Hypotension requiring aggressive fluid resuscitation
Ma	ajor criteria
9	Septic shock with need for vasopressors
F	Respiratory failure requiring mechanical ventilation

Treatment Guideline updates

Table 2. Differences between the 2019 and 2007 American Thoracic Society/Infectious Diseases Society of America Community-acquired Pneumonia Guidelines

Recommendation	2007 ATS/IDSA Guideline	2019 ATS/IDSA Guideline
Sputum culture	Primarily recommended in patients with severe disease	Now recommended in patients with severe disease as well as in all inpatients empirically treated for MRSA or <i>Pseudomonas aeruginosa</i>
Blood culture	Primarily recommended in patients with severe disease	Now recommended in patients with severe disease as well as in all inpatients empirically treated for MRSA or <i>P. aeruginosa</i>
Macrolide monotherapy	Strong recommendation for outpatients	Conditional recommendation for outpatients based on resistance levels
Use of procalcitonin	Not covered	Not recommended to determine need for initial antibacterial therapy
Use of corticosteroids	Not covered	Recommended not to use. May be considered in patients with refractory septic shock
Use of healthcare- associated pneumonia category	Accepted as introduced in the 2005 ATS/IDSA hospital- acquired and ventilator- associated pneumonia guidelines	Recommend abandoning this categorization. Emphasis on local epidemiology and validated risk factors to determine need for MRSA or <i>P. aeruginosa</i> coverage. Increased emphasis on deescalation of treatment if cultures are negative
Standard empiric therapy for severe CAP	β-Lactam/macrolide and β- lactam/fluoroquinolone combinations given equal weighting	Both accepted but stronger evidence in favor of β -lactam/macrolide combination
Routine use of follow-up chest imaging	Not addressed	Recommended not to obtain. Patients may be eligible for lung cancer screening, which should be performed as clinically indicated

Definition of abbreviations: ATS = American Thoracic Society; CAP = community-acquired pneumonia; IDSA = Infectious Diseases Society of America; MRSA = methicillin-resistant *Staphylococcus aureus*.

~

Inpatient Treatment Pneumonia

	Standard Regimen	Prior Respiratory Isolation of MRSA	Prior Respiratory Isolation of Pseudomonas aeruginosa	Recent Hospitalization and Parenteral Antibiotics and Locally Validated Risk Factors for MRSA	Recent Hospitalization and Parenteral Antibiotics and Locally Validated Risk Factors for <i>P.</i> <i>aeruginosa</i>
Nonsevere inpatient pneumonia <u>*</u>	β-Lactam + macrolide ¹ or respiratory fluroquinolone ¹	Add MRSA coverage [§] and obtain cultures/nasal PCR to allow deescalation or confirmation of need for continued therapy	Add coverage for <i>P.</i> <i>aeruginosa</i> ll. and obtain cultures to allow deescalation or confirmation of need for continued therapy	Obtain cultures but withhold MRSA coverage unless culture results are positive. If rapid nasal PCR is available, withhold additional empiric therapy against MRSA if rapid testing is negative or add coverage if PCR is positive and obtain cultures	Obtain cultures but initiate coverage for <i>P.</i> <i>aeruginosa</i> only if culture results are positive
Severe inpatient pneumonia <u>*</u>	β-Lactam + macrolide [±] or β-lactam + fluroquinolone [±]	Add MRSA coverage [§] and obtain cultures/nasal PCR to allow deescalation or confirmation of need for continued therapy	Add coverage for <i>P.</i> <i>aeruginosa</i> l.l. and obtain cultures to allow deescalation or confirmation of need for continued therapy	Add MRSA coverage ⁵ and obtain nasal PCR and cultures to allow deescalation or confirmation of need for continued therapy	Add coverage for P. aeruginosal.I. and obtain cultures to allow deescalation or confirmation of need for continued therapy

Definition of abbreviations: ATS = American Thoracic Society; CAP = community-acquired pneumonia; HAP = hospitalacquired pneumonia; IDSA = Infectious Diseases Society of America; MRSA = methicillin-resistant Staphylococcus aureus; VAP = ventilator-associated pneumonia.

*As defined by 2007 ATS/IDSA CAP severity criteria guidelines (see Table 1).

[†]Ampicillin + sulbactam 1.5–3 g every 6 hours, cefotaxime 1–2 g every 8 hours, ceftriaxone 1–2 g daily, or ceftaroline 600 mg every 12 hours AND azithromycin 500 mg daily or clarithromycin 500 mg twice daily.

[‡]Levofloxacin 750 mg daily or moxifloxacin 400 mg daily.

⁵Per the 2016 ATS/IDSA HAP/VAP guidelines: vancomycin (15 mg/kg every 12 h, adjust based on levels) or linezolid (600 mg every 12 h).

l IPer the 2016 ATS/IDSA HAP/VAP guidelines: piperacillin-tazobactam (4.5 g every 6 h), cefepime (2 g every 8 h), ceftazidime (2 g every 8 h), imipenem (500 mg every 6 h), meropenem (1 g every 8 h), or aztreonam (2 g every 8 h). Does not include coverage for extended-spectrum β-lactamase-producing Enterobacteriaceae, which should be considered only on the basis of patient or local microbiological data.

The empiric antibiotic coverage recommendations for patients hospitalized with CAP remain aligned to cover the most likely pathogens causing CAP

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Outpatient Treatment Pneumonia

Patients with CAP should be treated for a minimum of 5 days, with antibiotic therapy continued until the patient achieves clinical stability

Table 3. Initial Treatment Strategies for Outpatients with Community-acquired Pneumonia **Standard Regimen** No comorbidities or risk factors for MRSA or Pseudomonas Amoxicillin or aeruginosa* doxycycline or macrolide (if local pneumococcal resistance is <25%)[±] With comorbidities[±] Combination therapy with amoxicillin/clavulanate or cephalosporin AND macrolide or doxycycline§ OR monotherapy with respiratory fluoroquinolone

Definition of abbreviations: ER = extended release; MRSA = methicillin-resistant Staphylococcus aureus.

*Risk factors include prior respiratory isolation of MRSA or *P. aeruginosa* or recent hospitalization AND receipt of parenteral antibiotics (in the last 90 d).

[†]Amoxicillin 1 g three times daily, doxycycline 100 mg twice daily, azithromycin 500 mg on first day then 250 mg daily, clarithromycin 500 mg twice daily, or clarithromycin ER 1,000 mg daily.

[‡]Comorbidities include chronic heart, lung, liver, or renal disease; diabetes mellitus; alcoholism; malignancy; or asplenia.

[§]Amoxicillin/clavulanate 500 mg/125 mg three times daily, amoxicillin/clavulanate 875 mg/125 mg twice daily, 2,000 mg/125 mg twice daily, cefpodoxime 200 mg twice daily, or cefuroxime 500 mg twice daily; AND azithromycin 500 mg on first day then 250 mg daily, clarithromycin 500 mg twice daily, clarithromycin ER 1,000 mg daily, or doxycycline 100 mg twice daily.

Evofloxacin 750 mg daily, moxifloxacin 400 mg daily, or gemifloxacin 320 mg daily.

Gram Negative Pneumonia Risk Factors

Risk factors for gram-negative bacterial pneumonia must contain one of the following:

- Known pseudomonas colonization or infection in the prior 12 months
- Detection of gram-negative rods on a quality sputum gram stain
- Patient hospitalized **and** received parenteral antibiotics, whether during the hospitalization or not, within the last 90 days
- Structural lung disease such as:
 - o Bronchiectasis
 - Cystic fibrosis
 - o Chronic lung disease
 - Major airway obstruction (post-obstructive pneumonia)
- Immunosuppression/immunocompromised such as:
 - \circ HIV with reduced CD4 count
 - o Autoimmune disorders
 - Cancer (advanced stage, visceral, hematological, or metastatic)
 - Myeloproliferative and myelodysplastic disorders
 - Drug induced neutropenia
 - o Immunosuppressive drugs (chronic prednisone use, chemotherapy)
 - o Solid organ or bone marrow transplant recipients on chronic immunosuppression
 - o Diabetes
 - Chronic malnutrition

Chronic kidney disease

- o Cirrhosis
- o Alcoholism
- o Asplenia
- o Congestive heart failure

One of the previous risk factors must be present in conjunction with appropriate antibiotic coverage. This means at least one of the following antibiotics must be taken for a minimum of five days (unless cultures allow for de-escalation of treatment):

- Piperacillin-tazobactam (Zosyn)
- Cefepime (Maxipime)
- Ceftazidime (Fortaz)
- Aztreonam (Azactam)
- Imipenem/meropenem
- Aminoglycosides (i.e. Tobramycin)
- Quinolones (dependent on clinical scenario) (Cipro, Levaquin, Avelox)

Pneumonia

Indication	Blood culture	Sputum culture	Legionella UAT	Pneumococcal UAT	Other
Intensive care unit admission	х	Х	Х	х	Xa
Failure of outpatient antibiotic therapy		х	Х	х	
Cavitary infiltrates	х	х			Xp
Leukopenia	х			х	
Active alcohol abuse	х	х	х	х	
Chronic severe liver disease	х			х	
Severe obstructive/structural lung disease		Х			
Asplenia (anatomic or functional)	х			х	
Recent travel (within past 2 weeks)			х		Xc
Positive Legionella UAT result		Xd	NA		
Positive pneumococcal UAT result	х	Х		NA	
Pleural effusion	х	х	х	x	Xe

Table 5. Clinical indications for more extensive diagnostic testing.

NOTE. NA, not applicable; UAT, urinary antigen test.

^a Endotracheal aspirate if intubated, possibly bronchoscopy or nonbronchoscopic bronchoalveolar lavage.

^b Fungal and tuberculosis cultures.

^c See table 8 for details.

^d Special media for Legionella.

^e Thoracentesis and pleural fluid cultures.

MRSA Pneumonia Risk Factors

MRSA pneumonia

Risk factors for MRSA pneumonia must contain one of the following:

- Known MRSA colonization
- MRSA in a respiratory culture in the prior year
- IV antibiotics and hospitalization in the prior 90 days
- Cavitary infiltrate or necrosis
- Gross hemoptysis (not just blood-streaked)
- Concurrent influenza
- Neutropenia
- Erythematous rash
- Skin pustules
- Young previously healthy patient with severe pneumonia
- Severe pneumonia during summer months

One of the previous risk factors must be present in conjunction with appropriate antibiotic coverage. This means at least one of the following antibiotics must be taken for a minimum of five days (unless cultures allow for deescalation of treatment):

- Vancomycin
- Linezolid (zyvox)
- Telavancin (vibativ)

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References



> Diagnosis and Treatment of Adults with Community Acquired Pneumonia: An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America, https://www.etcieuwoole.org/doi/full/10.1164/reserv.201008.15816T

https://www.atsjournals.org/doi/full/10.1164/rccm.201908-1581ST

- <u>https://acdis.org/articles/acdis-tip-pneumonia-documentation</u>
- > https://acdis.org/acdis-podcast/new-guidelines-cap
- > Key risk factors may reveal gram-negative pneumonia , <u>http://www.hcpro.com/content/214081.pdf</u>
- > ICD-10-CM/PCS MS-DRG v38.0 Definitions Manual, <u>https://www.cms.gov/icd10m/version38-fullcode-cms/P0007.html</u>
- > Pneumonia causes, symptoms, diagnosis, treatment, pathology; <u>https://www.youtube.com/watch?v=IAQp2Zuqevc</u>

Aspiration pneumonia and pneumonia due to COVD-19

ICD-10-CM/PCS Coding Clinic, First Quarter ICD-10 2021 Page: 34 Effective with discharges: January 1, 2021

Question:

If a patient has both aspiration pneumonia and pneumonia due to COVID-19, may code J12.89, Other viral pneumonia, be assigned with code J69.0, Pneumonitis due to inhalation of food and vomit? There is an Excludes1 note at category J12, Viral pneumonia, not elsewhere classified, that excludes pneumonia not otherwise specified (J69.0). (4/28/2020; revised 12/11/2020)

Answer:

Yes, both codes may be assigned, as aspiration pneumonia and pneumonia due to COVID-19 are two separate unrelated conditions with different underlying causes. This scenario meets the exception to the Excludes1 guideline as a circumstance when the two conditions are unrelated to each other.

Note that effective January 1, 2021, there is a new code, J12.82, for pneumonia due to coronavirus disease 2019.

Acute hypoxic respiratory failure that progresses to ARDS

ICD-10-CM/PCS Coding Clinic, Fourth Quarter ICD-10 2020 Page: 96,97 Effective with discharges: October 2, 2020

Question:

An elderly female was admitted to the intensive care unit due to acute hypoxemic respiratory failure. During the hospitalization, the patient required high flow nasal cannula and BIPAP; however, despite these aggressive measures her respiratory status continued to decline, requiring intubation and mechanical ventilation. In the final diagnostic statement, the provider listed "Acute respiratory distress syndrome (ARDS)." Is ARDS considered a progression of the respiratory failure or a distinct clinical condition? What ICD-10-CM code and present on admission (POA) indicator should be assigned for a patient who is admitted in acute hypoxic respiratory failure that progresses to ARDS?

Answer:

Assign code J80, Acute respiratory distress syndrome, for acute hypoxic respiratory failure that progresses to ARDS. Per the Excludes 1 note under category J96, only code J80 should be assigned when respiratory failure and ARDS are both documented. Assign the POA indicator "Y" for the ARDS, since the patient experienced deterioration and worsening of her respiratory condition. ARDS is a life-threatening form of respiratory failure and is not an unrelated condition. When acute respiratory failure is documented along with ARDS, only one code is reported to capture the highest level of severity with a POA indicator of "Y."

As previously published in Coding ClinicFourth Quarter 2017, page 23, "Acute respiratory distress syndrome (ARDS) is a life-threatening condition. ARDS is a rapidly progressive disorder that has symptoms of dyspnea, tachypnea, and hypoxemia. Fluid builds up in the alveoli and lowers the amount of oxygen that is circulated through the bloodstream. Low levels of oxygen in the blood threatens organ function. ARDS is often associated with sepsis, pneumonia, trauma and aspiration. The majority of people who develop ARDS are already in the hospital in critical condition from some other health complication. The focus of treatment is getting oxygen to the organs."

Aspiration bronchitis

ICD-10-CM/PCS Coding Clinic, Second Quarter ICD-10 2019 Pages: 31-32 Effective with discharges: June 21, 2019

Question:

There appears to be a discrepancy in the Alphabetic Index for aspiration bronchitis. When referencing "bronchitis" with subentry "aspiration," the Index refers coding professionals to code J68.0, Bronchitis and pneumonitis due to chemicals, gases, fumes and vapors. However, when the term "aspiration" is referenced with the subentry "bronchitis," the Index refers coding professionals to code J69.0, Pneumonitis due to inhalation of food and vomit. What is the appropriate code assignment for aspiration bronchitis, not further specified?

Answer:

According to clinicians, aspiration bronchitis is more commonly caused by aspiration of food rather than aspiration of gases. Therefore, code J69.0, Pneumonitis due to inhalation of food and vomit, is a more appropriate code assignment than code J68.0. The Centers for Disease Control and Prevention, National Center for Health Statistics has agreed to address the inconsistencies in the Index to Diseases through the ICD-10 Coordination and Maintenance process.

Sepsis due to aspiration pneumonia

ICD-10-CM/PCS Coding Clinic, Second Quarter ICD-10 2020 Page: 28 Effective with discharges: May 29, 2020

Question:

When the provider documents "sepsis due to aspiration pneumonia," is a code for the sepsis, or the aspiration pneumonia assigned as the principal diagnosis?

Answer:

Assign code A41.9 Sepsis, unspecified organism, as the principal diagnosis. Codes J18.9, Pneumonia, unspecified organism, and J69.0, Pneumonitis due to inhalation of food and vomit, should be assigned as additional diagnoses. Sepsis indicates infection and the body's response to it. Aspiration pneumonia may be just from the direct effect of inhaled material, such as a chemical effect, or it may involve infection; however, for sepsis to result, it would need to involve an infectious pneumonia. Therefore, codes J18.9 and J69.0 are both needed to show the presence of a localized infection (pneumonia and unspecified organism) as well as pneumonia due to aspiration. When sepsis and aspiration pneumonia are related (i.e., sepsis due to aspiration pneumonia or sepsis related to aspiration pneumonia) and present on admission, sepsis should be sequenced as the principal diagnosis.

Aspiration pneumonia and lung transplant

ICD-10-CM/PCS Coding Clinic, Second Quarter ICD-10 2019 Pages: 6-7 Effective with discharges: June 21, 2019

Question:

A patient with a history of bilateral lung transplant presents with aspiration pneumonia due to emesis with a continuous positive airway pressure (CPAP) mask. The Official Guidelines for Coding and Reporting, Section I.C.19.g.3, seem to suggest that any condition that would affect the function of the transplanted organ should be coded as a complication. What is the correct code assignment for aspiration pneumonia in a patient with a bilateral lung transplant?

Answer:

Assign code T86.818, Other complications of lung transplant, followed by code J69.0, Pneumonitis due to inhalation of food and vomit, for the lung complication and aspiration pneumonia. The aspiration pneumonia has affected the function of the transplanted lung

Sepsis due to gram-negative aspiration pneumonia

ICD-10-CM/PCS Coding Clinic, Second Quarter ICD-10 2020 Pages: 28-29 Effective with discharges: May 29, 2020

Question:

A patient was discharged with the following diagnoses: 1. sepsis secondary to aspiration pneumonia, 2. aspiration pneumonia secondary to probable gramnegative bacteria. Both diagnoses were present on admission. Should this be coded as sepsis due to gram-negative pneumonia?

Answer:

When sepsis and aspiration pneumonia are related and present on admission, the sepsis should be sequenced as the principal diagnosis. Assign code A41.50, Gram-negative sepsis, unspecified, as the principal diagnosis. Codes J15.6, Pneumonia due to other Gramnegative bacteria, and J69.0, Pneumonitis due to inhalation of food and vomit, should be assigned as additional diagnoses. The pneumonia is a gram-negative bacterial aspiration pneumonia and is the localized infection that has led to sepsis. Code J69.0 is assigned to capture aspiration pneumonia.

The coding professional should follow guideline 1.C.1.d.4, Sepsis and severe sepsis with a localized infection, which states, "if the reason for admission is both sepsis or severe sepsis and a localized infection, such as pneumonia or cellulitis, a code(s) for the underlying systemic infection should be assigned first and the code for the localized infection should be assigned as a secondary diagnosis."

Measurement of infection

ICD-10-CM/PCS Coding Clinic, Fourth Quarter ICD-10 2020 Pages: 78-79 Effective with discharges: October 1, 2020

Code XXEBXQ6, Measurement of infection, lower respiratory fluid nucleic acid-base microbial detection, new technology group 6, was created to identify the utilization of the BioFire[®] FilmArray[®] Pneumonia Panel. The pneumonia panel is a new diagnostic technology that simultaneously identifies 33 clinically relevant targets from sputum (including endotracheal aspirate) and bronchoalveolar lavage (including mini-BAL) samples in approximately an hour compared to standard culture methods that often take days. The test includes eight viral targets, eighteen bacterial targets, and seven antimicrobial resistance gene targets. By providing semi-quantitative results for bacterial targets commonly found colonizing the respiratory tract, the test assists in distinguishing between normal colonization and active infection from these organisms that cause pneumonia and other lower respiratory tract infections.

Lobar pneumonia

ICD-10-CM/PCS Coding Clinic, Third Quarter ICD-10 2019 Page: 37 Effective with discharges: October 1, 2019

Coding Clinic, Third Quarter 2018, pages 24-25, advised to assign code J18.1, Lobar pneumonia, unspecified organism, when the provider documents pneumonia of the "right upper lobe" and the causal organism is not documented. After further review by our clinical experts, the Coding Clinic Editorial Advisory Board is rescinding previously published advice about lobar pneumonia. Lobar pneumonia should only be coded when the provider specifically documents "lobar pneumonia" and a causal organism is not specified. Lobar pneumonia is a clinical diagnosis and typically involves consolidation of one or more lobes of the lung, meaning there is consolidation of an entire lobe rather than the presence of infiltrates in a lobe. The various types of pneumonia usually have different patterns on radiological imaging. Therefore, the coding professional cannot assign a code for "lobar pneumonia" based on an imaging report that specifies pneumonia in the right upper lobe or pneumonia in multiple lobes.

Aspiration pneumonia and chronic obstructive pulmonary disease

ICD-10-CM/PCS Coding Clinic, First Quarter ICD-10 2017 Page: 24 Effective with discharges: March 13, 2017

Question:

Does the advice published in Coding Clinic, Third Quarter 2016, pages 15-16, regarding chronic obstructive pulmonary disease (COPD) and pneumonia apply to all pneumonias, including aspiration pneumonia? Is the correct sequencing J44.0 and J69.0, in that order, or would the instructional note not apply to aspiration pneumonia and COPD?

Answer:

No, the instructional note at code J44.0, Chronic obstructive pulmonary disease, with acute lower respiratory infection, stating "Use additional code to identify the infection," does not apply to aspiration pneumonia. The ICD-10-CM code for aspiration pneumonia does not fall in the "respiratory infection" codes. Code J69.0, Pneumonitis due to inhalation of food and vomit, is under the section titled "Lung diseases due to external agents." Aspiration pneumonia is an inflammation of the lungs caused by the inhalation of solid and/or liquid matter.

Assign codes J44.9, Chronic obstructive pulmonary disease, unspecified, and J69.0, Pneumonitis due to inhalation of food and vomit, for a patient with chronic obstructive pulmonary disease and aspiration pneumonia. Sequencing of the two conditions will depend on the circumstances of admission. Please note that effective October 1, 2017, the "use additional code to identify the infection" note at code J44.0, Chronic obstructive pulmonary disease with acute lower respiratory infection, has been revised to "Code also to identify infection." See advice published in *Coding Clinic*, <u>4th Quarter 2017, page 96.</u>

Pneumonia and hemoptysis

ICD-10-CM/PCS Coding Clinic, Fourth Quarter 2013 Page:118 Effective with discharges: October 21, 2013

Question:

"Hemorrhagic" is no longer a non-essential modifier for pneumonia in the ICD-10-CM Index to Diseases. Is a code reported for hemoptysis when it occurs with pneumonia?

Answer:

Sequence the appropriate code for the pneumonia first. Assign code R04.2, Hemoptysis, as an additional code when the condition occurs with pneumonia. Although code R04.2 is a Chapter 18 code, codes for signs and symptoms may be reported in addition to a related definitive diagnosis when the sign or symptom is not routinely associated with the diagnosis.

Healthcare acquired condition

ICD-10-CM/PCS Coding Clinic, Fourth Quarter 2013 Page: 119 Effective with discharges: October 21, 2013

Question:

A patient is admitted to the hospital and diagnosed with severe sepsis due to healthcare associated pneumonia. The physician documented that her healthcare associated pneumonia was due to her recent hospitalization. During a recent ICD-10-CM training it was suggested that code Y95 Nosocomial condition could be assigned in addition to R65.20, Severe sepsis without septic shock, and J18.9 Pneumonia, unspecified organism. There is currently no indexing in the ICD-10-CM index that supports this assignment. Is it appropriate to assign code Y95, Nosocomial condition based on the documentation of healthcare associated pneumonia or hospital acquired pneumonia?

Answer:

Yes, it is appropriate to assign code Y95, Nosocomial condition, for a documented healthcare acquired condition. Code Y95 can be found on the Index to External Causes under the main term "Nosocomial condition."

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Sepsis from influenza with pneumonia

ICD-10-CM/PCS Coding Clinic, Third Quarter ICD-10 2016 Pages: 11-12 Effective with discharges: September 23, 2016

Question:

How do you code a patient who is admitted with sepsis from influenza with pneumonia?

Answer:

Assign code A41.89, Other specified sepsis, for a diagnosis of sepsis due to influenza. Although codes A30-A49 classify bacterial illnesses, there is no specific code for viral sepsis. Code A41.89 is the best available option to capture the concept of sepsis when no specific code exists. "Sepsis, specified organism NEC" is indexed to code A41.89. In addition, assign code J11.00, Influenza due to unidentified influenza virus with unspecified type of pneumonia, for the influenza with pneumonia.

Bacterial pneumonia, influenza A, & acute exacerbation of chronic obstructive pulmonary disease

ICD-10-CM/PCS Coding Clinic, Fourth Quarter ICD-10 2017 Page: 96 Effective with discharges: October 1, 2017

Question:

The patient was admitted with wheezing and shortness of breath. The provider's diagnostic statement listed, "Bacterial pneumonia on top of influenza A, exacerbation of chronic obstructive pulmonary disease (COPD)." Would a combination code be assigned for the influenza with pneumonia and COPD and pneumonia; or should each condition be coded separately? Does the fact that a combination code is assigned for COPD with acute lower respiratory infection affect assigning an additional code for influenza with pneumonia? How would this case be coded?

Answer:

Assign code J10.08, Influenza due to other identified influenza virus with other specified pneumonia; code J44.0, Chronic obstructive pulmonary disease with acute lower respiratory infection; code J15.9, Unspecified bacterial pneumonia; and code J44.1, Chronic obstructive pulmonary disease with (acute) exacerbation. All four codes are needed to capture the diagnostic statement. The circumstances of the admission would determine the principal diagnosis.

Please note that effective October 1, 2017, the "use additional code to identify the infection" note at code J44.0, Chronic obstructive pulmonary disease with acute lower respiratory infection, has been revised to "Code also to identify infection."

Sepsis secondary to influenza B

ICD-10-CM/PCS Coding Clinic, Third Quarter ICD-10 2016 Page: 11 Effective with discharges: September 23, 2016

Question:

What are the appropriate ICD-10-CM codes for a diagnosis of sepsis secondary to influenza B?

Answer:

Assign code A41.89, Other specified sepsis, for a diagnosis of sepsis due to influenza B. Although codes A30-A49 classify bacterial illnesses, there is no specific code for viral sepsis. Code A41.89 is the best available option to capture the concept of sepsis when no specific code exists. "Sepsis, specified organism NEC" is indexed to code A41.89. Assign also code J10.1, Influenza due to other identified influenza virus with other respiratory manifestations, for the influenza B.

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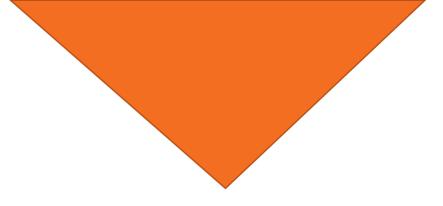
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