Community Acquired Pneumonia Order Set

Reason / Problem UpToDate UpToDate

Pneumonia

Quality Indicators

CMS/TJC NHIQM Quality Indicators:

☐ Blood cultures should be performed within 24 hours prior to or 24 hours after hospital arrival for patients who are transferred or admitted to the ICU within 24 hours of hospital arrival ☐

☐ Influenza vaccine should be prescribed if patient is greater than 6 months of age ☐

☐ Pneumonia vaccination should be prescribed for patients greater than 65 years old who have never received the vaccination ☐

☐ Pneumococcal vaccine should be prescribed to high risk patients (age 5 through 64 years) ☐

☐ Tobacco use screening should be performed within 3 days of admission for use of cigarettes, smokeless tobacco, pipe and/or cigars within the past 30 days ☐

☐ Venous thromboembolism prophylaxis should be provided to intensive care unit patients at risk ☐

PQRS Quality Indicators:

☐ Appropriate empiric antibiotic should be prescribed in patients with community-acquired pneumonia ☐

☐ Vital signs, including temperature, pulse, respiratory rate, and blood pressure should be documented and reviewed in patients with community-acquired pneumonia ☐

☐ Maximal sterile barrier technique should be performed with central venous catheter insertion including: cap, mask, sterile gown, sterile gloves, large sterile sheet, hand hygiene, and 2% chlorhexidine for cutaneous antisepsis (or acceptable alternative per current guideline) ☐

Admit / Transfer UpToDate UpToDate

- *The 2007 Infectious Diseases Society of America and the American Thoracic Society (IDSA/ATS) consensus guidelines identified two major criteria for direct admission to an intensive care unit (ICU): septic shock requiring vasopressor support and requirement for mechanical ventilation. The presence of either criterion requires ICU care. (UpToDate)*
- *The guidelines also noted that the need for intensive care unit (ICU) care is suggested by the presence of at least three minor criteria: respiratory rate greater than or equal to 30 breaths/minute, PaO2/FiO2 ratio less than or equal to 250, multilobar infiltrates, confusion, blood urea nitrogen greater than or equal to 20 mg/dL (blood urea 7 mmol/L), leukopenia, thrombocytopenia, hypothermia, or hypotension requiring fluid support. (UpToDate)*

☐ Admit inpatient to Intensive Care as soon as possible

☐ Transfer ☐ ☐

Condition

☐ Serious

☐ Critical

Code Status:

☐ Full code

☐ Do not resuscitate

Activity

☐ Bed rest ☐ ☐ ☐ ☐

☐ Elevate head of bed 30 degrees ☐ ☐ ☐

☐ Bed rest with bathroom privileges ☐

☐ Up ad lib

☐ Up to chair with assistance ☐ ☐ ☐

Diet UpToDate

☐ Nothing by mouth except glycerine swabs

☐ Regular diet

☐ Tube Feedings - Continuous [Tube Type]
- [Formula]
- [Rate] [Progression Rate] [Progression Timing] [Goal Rate]
- [Special Instructions]

Vital Signs

☑ Check vital signs [Frequency] [Timing] [Duration] [Notification Parameter]

IV

Crystalloid:

☐ Normal saline [ ] and [ ] [ ]

Lock IV:

☐ Saline lock IV [ ] [ ]

Other Nursing

Assessments:

☐ Complete adult admission assessment

☐ Assess and document patient's smoking status

☐ Obtain weight [ ] [ ] and then every morning

☐ Complete pulmonary embolism prediction [ ] [ ] and then [ ]

Cardiac:

☐ Continuous cardiorespiratory monitoring

Circulatory:

☐ Peripheral IV line care per protocol

☐ Insert peripheral IV line [ ]

☐ Encourage calf and ankle exercises [ ] [ ]

☐ Central venous line care per protocol

☐ Discontinue central venous catheter [ ]

☐ Discontinue peripheral intravenous line [ ]

Education: UpToDate UpToDate

☐ Provide disease/medical condition education [ ]

☐ Provide smoking cessation counseling [ ] UpToDate UpToDate

Fluid Balance:

☐ Intake and output [ ] and then [ ] [ ]

Miscellaneous Treatments:

☐ Turn and reposition [ ] and then [ ] [ ]

Precautions:

☐ Aspiration precautions

Respiratory:

☐ Maintain oxygen saturation between [ ] and [ ]

☐ Monitor pulse oximetry [ ] [ ] [ ] [ ]

Protocols:

☐ Smoking cessation protocol *Smoking cessation should be a goal for hospitalized patients with community-acquired pneumonia (CAP) who smoke. (UpToDate)*

Urinary:

☐ Catheter care per protocol

☐ Discontinue indwelling urinary catheter [ ]

☐ Insert [ ] [ ] [ ] and then [ ] [ ]

Therapies

Procedures:

☐ [ ] central venous catheter [ ] [ ]

Respiratory Therapy Service:

☐ [ ], [ ] oxygen [ ] [ ] [ ]

Ventilation: UpToDate

☐ Invasive ventilation

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

☐ Non-invasive ventilation

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

Medications UpToDate UpToDate

Empiric Antibiotic Therapy:

- *For hospitalized patients requiring intensive care unit (ICU) care without risk factors for, or microbiologic evidence of, Pseudomonas aeruginosa, UpToDate suggests initial combination therapy with an anti-pneumococcal beta-lactam (ceftriaxone, cefotaxime, or ampicillin-sulbactam) PLUS either intravenous therapy with azithromycin or a respiratory fluoroquinolone (levofloxacin or moxifloxacin) PLUS, if methicillin-resistant Staphylococcus aureus (MRSA) is suspected, vancomycin (15 mg/kg IV every 12 hours, adjusted to a trough level of 15 to 20 mcg/mL and for renal function or linezolid (600 mg IV every 12 hours) (Grade 2B). A loading dose of vancomycin (25 to 30 mg/kg) may be given in seriously ill patients. (UpToDate)*

☐ cefTRIAXone sodium 1 gram intravenously every 24 hours

Or

☐ Cefotaxime sodium 1 gram intravenously every 8 hours

Or

☐ Ampicillin-sulbactam 1.5 grams intravenously every 6 hours

And

☐ Azithromycin 500 mg intravenously every 24 hours

Or

☐ Levofloxacin 750 mg intravenously every 24 hours

Or

☐ Moxifloxacin HCl 400 mg intravenously every 24 hours

Empiric Therapy - Beta-Lactam Allergy: UpToDate

- *For penicillin-allergic patients, if a skin test is positive or if there is significant concern to warrant avoidance of a cephalosporin or carbapenem, options include: aztreonam (2 g intravenously (IV) every six to eight hours) plus levofloxacin (750 mg daily); or aztreonam plus moxifloxacin plus an aminoglycoside. (UpToDate)*
- *Patients with past allergic reactions to cephalosporins may be treated with aztreonam, with the possible exception of those allergic to ceftazidime. (UpToDate)*

☐ Aztreonam 2 grams intravenously every 6 hours

And

☐ Levofloxacin 750 mg intravenously every 24 hours

Or

☐ Aztreonam 2 grams intravenously every 6 hours

And

☐ Moxifloxacin HCl 400 mg intravenously every 24 hours

And

☐ Gentamicin sulfate 7 mg/kg intravenously every 24 hours UpToDate

Empiric Therapy - Pseudomonas Risk Factors:

- *In patients (particularly those with bronchiectasis or chronic obstructive pulmonary disease (COPD) and frequent antimicrobial or glucocorticoid use) who may be infected with Pseudomonas aeruginosa or other resistant pathogens, therapy should include agents effective against the pneumococcus, P. aeruginosa, and Legionella spp. Acceptable regimens include combination therapy with a beta-lactam antibiotic and a fluoroquinolone, such as the following regimens: piperacillin-tazobactam (4.5 g every six hours), imipenem (500 mg IV every six hours), meropenem (1 g every eight hours), cefepime (2 g every eight hours), or ceftazidime (2 g every eight hours) PLUS ciprofloxacin (400 mg every eight hours) or levofloxacin (750 mg daily). (UpToDate)*

☐ Piperacillin sodium-tazobactam sodium 4.5 grams intravenously every 6 hours

Or

☐ Imipenem-cilastatin 500 mg intravenously every 6 hours

Or

☐ Meropenem 1 gram intravenously every 8 hours

Or

☐ Cefepime HCl 2 grams intravenously every 8 hours

Or

☐ cefTAZidime 2 grams intravenously every 8 hours

And

☐ Ciprofloxacin 400 mg intravenously every 8 hours

Or

☐ Levofloxacin 750 mg intravenously every 24 hours

Pathogen-Directed Therapy - MRSA:

- *UpToDate recommends treatment for methicillin-resistant Staphylococcus aureus (MRSA) with the addition of vancomycin (15 mg/kg IV every 12 hours, adjusted to a trough level of 15 to 20 mcg/mL and for renal function; in seriously ill patients, a loading dose of 25 to 30 mg/kg may be given) or linezolid (600 mg intravenously (IV) every 12 hours) until the results of culture and susceptibility testing are known. (UpToDate)*

☐ Linezolid 600 mg intravenously every 12 hours

Or

☐ Vancomycin HCl 15 mg/kg intravenously every 12 hours

Bronchodilators:

☐ Albuterol sulfate 2.5 mg/3 mL nebulizer solution 2.5 mg nebulized 4 times per day as needed for wheezing

☐ Albuterol-ipratropium 2.5-0.5 mg/3 mL nebulizer solution 3 mL nebulized 4 times per day as needed for wheezing

☐ Ipratropium bromide 0.5 mg/2.5 mL nebulizer solution 0.5 mg nebulized 4 times per day as needed for wheezing

Proton Pump Inhibitors: UpToDate

- *For intensive care unit (ICU) patients who are able to receive enteral medications and in whom stress ulcer prophylaxis is indicated, UpToDate recommends an oral proton pump inhibitor (PPI) rather than an alternative prophylactic agent (Grade 1B). (UpToDate)*
- *For intensive care unit (ICU) patients who cannot receive enteral medications and in whom stress ulcer prophylaxis is indicated, UpToDate suggests an intravenous H2 blocker rather than an intravenous proton pump inhibitor (Grade 2B). Intravenous H2 blockers are usually much less expensive than intravenous proton pump inhibitors (PPI) and the lower cost probably outweighs the modest increase in efficacy, especially since the baseline risk of stress ulcer-related gastrointestinal bleeding is low. In situations where cost is not an issue, and intravenous PPI is a reasonable choice. (UpToDate)*

☐ Esomeprazole magnesium 40 mg orally 1 time per day

☐ Lansoprazole delayed release capsule 30 mg orally 1 time per day

☐ Omeprazole delayed release capsule 40 mg orally 1 time per day

☐ Pantoprazole sodium 40 mg orally 1 time per day

☐ Esomeprazole sodium 40 mg intravenously 1 time per day

☐ Pantoprazole sodium 40 mg intravenously 1 time per day

H2 Antagonists:

☐ Famotidine 20 mg intravenously every 12 hours

☐ Ranitidine HCl 50 mg intravenously every 6 hours

Vaccines:

- *Vaccination can be administered at any time during hospitalization after the patient has become stable. (UpToDate)*

☐ Influenza virus vaccine (equivalent to Fluzone) 0.5 mL intramuscularly single dose UpToDate

☐ Pneumococcal polysaccharide vaccine 0.5 mL intramuscularly single dose UpToDate

☐ Pneumococcal 13-valent conjugate vaccine 0.5 mL intramuscularly single dose

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Laboratory UpToDate

Blood Gases:

☐ Arterial blood gas (arterial blood)

☐ Central venous blood gas (blood)

Chemistry:

☐ Basic metabolic panel (serum)

☐ Hepatic function panel (serum)

☐ Lactate (serum)

Hematology:

☐ CBC with platelets and differential (blood) today

Microbiology: UpToDate UpToDate

- *Patients with severe community-acquired pneumonia (CAP) requiring intensive care unit admission should have blood cultures, Legionella and pneumococcus urinary antigen tests, and sputum culture (either expectorated or endotracheal aspirate). (UpToDate)*
- *The 2007 Infectious Diseases Society of America and the American Thoracic Society (IDSA/ATS) consensus guidelines recognize the limitations of sputum Gram stain and culture. The guidelines recommend that pretreatment sputum Gram stain and culture of expectorated sputum be performed only if a good quality sputum can be obtained, with appropriate measures in place for collection, transport and processing to assure quality performance. (UpToDate)*
- *According to the 2007 Infectious Diseases Society of America and the American Thoracic Society (IDSA/ATS) consensus guidelines on community-acquired pneumonia (CAP), the pneumococcal urinary antigen assay may augment the standard diagnostic methods of blood culture and sputum Gram stain and culture, with the potential advantage of rapid results similar to those for sputum Gram stain. It is of particular value when antibiotic therapy has already been initiated, prior to obtaining a sputum sample; specimens may remain positive three days after antibiotic initiation. A disadvantage compared to culture is the inability to test antibiotic sensitivity. (UpToDate)*

☐ Gram stain (sputum) today

☐ Routine culture [ ] (sputum) UpToDate *The specimen should be a deep cough specimen obtained prior to antibiotics. (UpToDate)*

☐ Routine culture and sensitivities 2 sets (blood) *Before first antibiotic dose.*

☐ Legionella antigen (EIA) (urine) UpToDate

☐ Streptococcus pneumoniae antigen (urine) UpToDate

☐ Adenovirus DNA by PCR (nasopharyngeal swab)

☐ Chlamydophila pneumoniae DNA by PCR (nasopharyngeal swab) UpToDate

☐ Influenza A/B antigen RNA by PCR (nasopharyngeal swab) UpToDate

☐ Mycoplasma pneumonia antibodies IgG and IgM (serum) UpToDate

☐ Mycoplasma pneumonia DNA by PCR (nasopharyngeal swab)

☐ Parainfluenza virus RNA by PCR (nasopharyngeal swab)

☐ Respiratory syncytial virus RNA by PCR (nasopharyngeal swab)

Therapeutic Drug Levels:

- *Extended-interval aminoglycoside dosing targets a peak serum concentration of approximately 15 to 20 mcg/mL. Troughs are most often undetectable because of the long dosing interval. (UpToDate)*
- *Application of the published nomogram requires that a single serum concentration be obtained 6 to 14 hours after the first dose. Results from this measurement are then used to determine the necessary dosing interval. (UpToDate)*

☐ Gentamicin (serum) UpToDate *6 to 14 hours after first dose.*

☐ Vancomycin trough before 4th dose (serum) UpToDate *Draw trough level before fourth dose: Target serum trough concentration of 15 to 20 mg/L. (UpToDate)*

Imaging UpToDate

- *For hospitalized patients with suspected pneumonia and a negative chest radiograph, the 2007 Infectious Diseases Society of America and the American Thoracic Society (IDSA/ATS) consensus guidelines consider it reasonable to initiate empiric antibiotic therapy and repeat the chest radiograph in 24 to 48 hours. Alternatively, a computed tomographic (CT) scan could be performed in patients with a negative chest radiograph when there is a high clinical suspicion for pneumonia. (UpToDate)*

X-Ray:

☐ Portable inspiration AP (upright) X-ray of the chest today ☐

☐ Routine inspiration PA/lateral X-ray of the chest today ☐

Computed Tomography:

- *Computed tomographic (CT) scan, especially high resolution CT (HRCT), is more sensitive than plain films for the evaluation of interstitial disease, bilateral disease, cavitation, empyema, and hilar adenopathy. (UpToDate)*

☐ Chest CT scan without IV contrast today ☐

Other Tests

Cardiac Testing:

☐ 12-lead ECG today ☐

Consultations

☐ Critical Care Medicine consultation today ☐

☐ Infectious Disease consultation today ☐

☐ Pharmacist consultation today ☐

☐ Physical Therapy referral today ☐

☐ Pulmonology consultation today ☐

☐ Respiratory therapy consultation today ☐
