Clinical

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URGENT CARE
CME

Urgent Care Evaluation of Pneumonia

Urgent message: The incidence of community-acquired pneumonia (CAP) is seasonal in nature, with a peak during the winter months and a trough in the summer months. In the urgent care setting, primary concerns are risk factors for CAP, as well as current treatment and testing guidelines.

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Overview

Pneumonia is an acute alveolar lung infection that presents with infiltrates upon chest imaging and is often accompanied by fever, cough, sputum production, shortness of breath, and physical findings of consolidation and elevated white blood counts. CAP is defined as pneumonia not acquired in a hospital, hospital environment, or a long-term care facility and includes pneumonia caused by bacterial, viral, fungal, and zoonotic organisms. The term community-acquired bacterial pneumonia (CABP) refers to all cases of CAP that are specifically caused by bacteria.

The most common CAP bacterial pathogens include *Streptococcus pneumonia* (60% of total U.S. incidence), *Haemophilus influenza* and *Moraxella catarrhalis*, which account for approximately 85% of the total U.S. incidence of CAP.[1] Atypical bacterial pathogens, which do not have a cell wall and cannot be gram stained or cultivated, such as *Mycoplasma pneumonia*, *Legionella*, and *Chlamydia pneumonia,* account for the majority of the remaining cases of CAP. Ambulatory CAP (also known as walking pneumonia) is most common among young adults and is usually due to atypical CAP pathogens.

It is estimated that the U.S. population will increase 38% by 2040; pneumococcal pneumonia hospitalization rates are expected to double in that same time period. Population growth is fastest in older age groups who also experience the highest rates of CAP despite the increase in pneumococcal vaccination rates and improved vaccines.[2]

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Viral causes of pneumonia include rhinovirus, adenovirus, influenza A and B, parainfluenza, and respiratory syncytial virus. A 2015 study published in *The New England Journal of Medicine*, the Centers for Disease Control and Prevention (CDC) Etiology of Pneumonia in the Community (EPIC) Study, found a higher incidence of viral pneumonia than in previous studies conducted in the 1990s. This may be due to the more sensitive molecular and antigen-based laboratory diagnostic tests currently available.[3] Common fungal causes of pneumonia include blastomycosis, coccidioidomycosis, and histoplasmosis.

Table 1. Risk Factors for Community-Acquired Pneumonia

- Lung disease (asthma, chronic obstructive pulmonary disease, cystic fibrosis, bronchiectasis)
- Diabetes
- Heart failure
- Chronic renal disease
- Chronic hepatic disease
- Sickle cell anemia
- Compromised immune system
- Decreased cough reflex or swallowing problems
- Influenza
- Smoking
- Alcohol abuse
- Homelessness
- Malnourished
- Recent cold or flu
- Chemical, pollutants, or toxic fume exposure

Table 2. CAP Pathogens Identified by Sputum Color

Pathogen	Sputum Color
Streptococcus pneumoniae	Rust
Pseudomonas *Haemophilus* Pneumococcal species	Green
Klebsiella species	Red
Anaerobic species*	Multicolored
*Sputum is often foul smelling and bad tasting	

In addition, it is important that urgent care physicians are aware of the correlation between pneumonia and influenza, as the two diseases have overlapping symptom profiles. Influenza incidence has a seasonality comparable to CAP and can be a predisposing factor for acquiring pneumonia, especially in older adults and those with comorbid conditions. Urgent care physicians should note the potentially deadly correlation between pneumonia and influenza. Pneumonia is the most common complication of influenza, and leads to significant morbidity and mortality.[4]

Pneumonia Risk Factors

The two most important risk factors for patients developing CAP are extremes of age—children who are ≤2 years old and adults who are ≥65 years old. Other risk factors are listed in **Table 1**.

Risk factors need to be addressed in a thorough his-

tory of any patient with respiratory or other complaints consistent with pneumonia. Doing so can help drive appropriate testing, disposition, and treatment decisions. Take special care to be cognizant of social history, as social risk factors can play a large role in the appropriate care of patients with CAP. Smokers, alcoholics, drug users, the homeless, and those exposed to occupational hazards, as well as patients with other social issues that inhibit their ability to care for themselves, all need to be identified in order to make appropriate clinical decisions, especially regarding patient disposition.

Epidemiology and Incidence

Annual incidence of CAP in the United States is approximately 5 million people, with almost 75% of these cases being treated on an outpatient basis. Pneumonia is the second-leading cause of hospitalization and the eighth-leading cause of death, claiming more lives than breast or prostate cancer.[5,6] The associated costs of pneumonia exceed $17 billion each year. Pneumonia is responsible for approximately 3.2 million emergency department visits, 2.6 million hospitalizations, and 4.5 million ambulatory care visits. The Centers for Disease Control and Prevention (CDC) has stated that drug-resistant *S pneumonia* (DRSP) is responsible for 1.2 million CAP cases per year and 19,000 excess hospitalizations in the U.S.[7]

Clinical Presentation

The incubation period for CAP is usually 1-3 days. Symptoms may include abrupt onset of fever and chills or rigors, a productive cough, dyspnea, tachypnea, hypoxia, tachycardia, malaise, and weakness. A sputum-producing cough is the most common presenting symptom, and the color/character of the sputum can assist the clinician in determining the offending pathogen (**Table 2**). The diagnosis of CAP in elderly patients can be more difficult, as they often do not report classic symptoms but rather present with weakness, mental status changes, or functional decline. Be sure that elderly and other high-risk patients are routinely questioned regarding pneumococcal and influenza vaccination status, because failure to vaccinate increases the risk of CAP.

History and Physical Exam

There are many clues to be gleaned from the history of present illness, as well as the social and past medical histories and physical exam (**Table 3** and **Table 4**). For example, patients with concurrent chest pain or shortness of breath (SOB) should have other potential life-threatening cardiologic and pulmonary causes considered as well.

The history may help identify likely pathogens and patients most at risk for CAP. In addition to asking about the classic findings of cough, shortness of breath, fever/chills, and exposure to ill persons, inquire about patients at risk for pneumonia. Knowledge of comorbid conditions such as HIV/AIDS, cancer/chemotherapy, immunosuppressive conditions, COPD, and chronic lung disease may help to localize patients at risk and tailor therapy to organisms specific to patients with these conditions. The social history may reveal recent travel, potential occupational exposures, smoking, alcoholism, and behavior such as IV drug use. Chronic alcoholics and patients with swallowing difficulties are more likely to have aspiration pneumonia associated with gram-negative (*Klebsiella pneumoniae*, acinetobacter) and anaerobic pathogens. Immunocompromised patients, such as those with HIV, may present with less common pathogens. PCP pneumonia is still the most common opportunistic infection in people with HIV/AIDS. Those with a CD4 cell count <200 are at highest risk.

The physical exam should focus first on abnormal vital signs such as tachypnea, tachycardia, or low pulse oximetry. The general appearance of the patient may reveal clues such as confusion, use of accessory muscles/nasal flaring in an infant, or intermittent coughing or a whoop (pertussis). Lung findings may include adventitious breath sounds such as crackles, rhonchi, or wheezing. Examine the skin for track marks (possibly indicating IV drug use), the mouth for oral hairy leucoplakias (pearly, vertically oriented lines on the tongue which is associated with AIDS), and clubbing or cyanosis suggestive of COPD.

Vaccination

Most pneumococci are encapsulated with complex capsular polysaccharides. These polysaccharides are antigenic and form the basis for classifying pneumococci by serotypes. There were 92 serotypes documented as of 2011. In recent years, these polysaccharides have been used to develop effective pneumococcal vaccines. Pneumococci are common asymptomatic inhabitants of the nasopharynx.

Persons who are at increased risk for CAP, as described previously, should receive pneumococcal vaccines as recommended by the CDC.

Pneumococcal conjugate vaccine PCV13 (PREVNAR 13) is recommended for all children <5 years old, all adults ≥65 years, and people ≥6 years with certain risk factors. Pneumococcal polysaccharide vaccine PPSV23 (Pneumovax) is recommended for all adults ≥65 years

Table 3. Physical Examination Findings in CAP
• Adventitious breath sounds (rales/crackles, rhonchi, wheezes
• Decreased intensity of breath sounds
• Egophony
• Whispering pectoriloquy
• Dullness to percussion
• Tracheal deviation
• Lymphadenopathy
• Pleural friction rub
• Bradycardia[a]
• Periodontal disease[b]
• Bullous myringitis[c]
• Cutaneous nodules[d]
• Decreased gag reflex[e]

[a]May indicate *Legionella* etiology
[b]May indicate an anaerobic and/or polymicrobial infection
[c]May indicate a *Mycoplasma pneumonia* infection
[d] May indicate a *Nocardia* infection
[e]Suggests risk for aspiration pneumonia

Table 4. Differential Diagnosis in CAP
• Asthma
• Atelectasis
• Bronchiectasis
• Bronchiolitis
• Bronchitis
• Chronic obstructive pulmonary disease
• Foreign body aspiration
• Fungal pneumonia
• Lung abscess
• *Pneumocystis jiroveci pneumonia*
• Respiratory failure
• Viral pneumonia
• Neoplasm

of age. People age 2–64 years old who are at high risk of pneumococcal disease should also receive PPSV23. The timing of vaccination varies by age and the presence of comorbid/high-risk conditions. Currently, only 63% of adults >65 years are properly vaccinated and less than 25% of adults in other high risk groups are vaccinated.[7] Urgent care clinicians play an increasingly important role in their communities, and should encourage pneumococcal vaccination when indicated.

Radiography

Though management may be based on a clinical diagnosis, the IDSA guidelines state that chest x-rays are con-

Table 5. Clinical Indications for More Extensive Diagnostic Testing[8]					
Indication	Blood culture	Sputum culture	*Legionella* UAT	Pneumococcal UAT	Other
Intensive care unit admission	■	■	■	■	■a
Failure of outpatient antibiotic therapy		■	■	■	
Cavitary infiltrates	■	■		■	■b
Leukopenia	■			■	
Active alcohol abuse	■	■	■	■	
Chronic severe liver disease	■			■	
Severe obstructive/ structural lung disease		■			
Asplenia (anatomic or functional)	■			■	
Recent travel (within past 2 weeks)			■		■c
Positive *Legionella* UAT test		■d	NA		
Positive pneumococcal UAT test		■		NA	
Pleural effusion	■	■	■	■	■e

NA = not applicable; UAT = urinary antigen test
a Endotracheal aspirate if intubated, possibly bronchoscopy or nonbronshoscopic bronchoalveolar lavage
b Fungal and tuberculosis cultures
c See Table 8 for details
d Special media for *Legionella*
e Thoracentesis and pleural fluid cultures

sidered the standard method for diagnosing the presence of pneumonia; the presence of an infiltrate confirms the diagnosis.[8] Despite that, it must be noted that the accuracy of plain chest radiography for detecting pneumonia is dependent on several variables including the experience of the interpreting clinician, the stage of infection (initial stage more difficult to detect), dehydration, and confounding factors such as concurrent congestive heart failure and chronic lung disease. Recent prospective and retrospective studies have shown that in patients admitted with a clinical diagnosis of CAP, the initial chest radiograph lacks sensitivity and may not demonstrate an infiltrate in 11%-47% of patients.[9] Even with the absence of radiologic findings, clinicians should consider empiric antibiotic treatment if there remains a high clinical suspicion for CAP. Clinical variables that should raise suspicion for the diagnosis of pneumonia include: age >65 years, moderate to severe comorbid conditions, and current smokers. Historical and physical exam findings that increase the suspicion of pneumonia include fever, chills, sputum production, orthopnea, altered mental status, cyanosis, dullness on percussion, crackles, abnormal vital signs (ie, HR>100 beats/min, RR>20 breaths/min or T>100.4 degrees F), and room air O2 sat <92%. Another study revealed that patients with and without radiographic confirmation of pneumonia had similar rates of positive sputum cultures and blood cultures during hospitalization. The authors concluded that the absence of radiographic findings should not supersede clinical judgment and empiric treatments in these patients.[10]

Laboratory

Laboratory tests may include a serum chemistry panel and complete blood count (CBC) with differential. CBC results may reveal leukocytosis with a left shift in a bacterial infection, yet its absence (particularly in elderly patients) should not cause the clinician to discount the possibility of a bacterial infection, as leukopenia may be a clinical sign of impending sepsis.

Other options include pneumococcal and *Legionella* urine antigen testing. Per the most recent IDSA guide-

lines: "Patients with CAP should be investigated for specific pathogens that would significantly alter standard (empirical) management decisions, when the presence of such pathogens is suspected on the basis of clinical and epidemiologic clues. (Strong recommendation; level II evidence.)"[8] Specifically, IDSA recommends *S pneumoniae* urine antigen testing for patients with the following clinical indications: outpatient antibiotic therapy failure, leukopenia, active alcohol abuse, severe liver disease, asplenia, pleural effusion, and intensive care unit admission (**Table 5**). The IDSA guidelines recommend *Legionella* urine antigen testing only for the following indications: failed outpatient antibiotic therapy for CAP, require intensive care admission, immunocompromised, exposure to an outbreak of Legionnaires' disease, or travel history within 2 weeks before onset of illness. Further study and clinical experience is still needed to clarify the clinical value of newer advanced molecular testing and biological markers, especially in the urgent care environment.
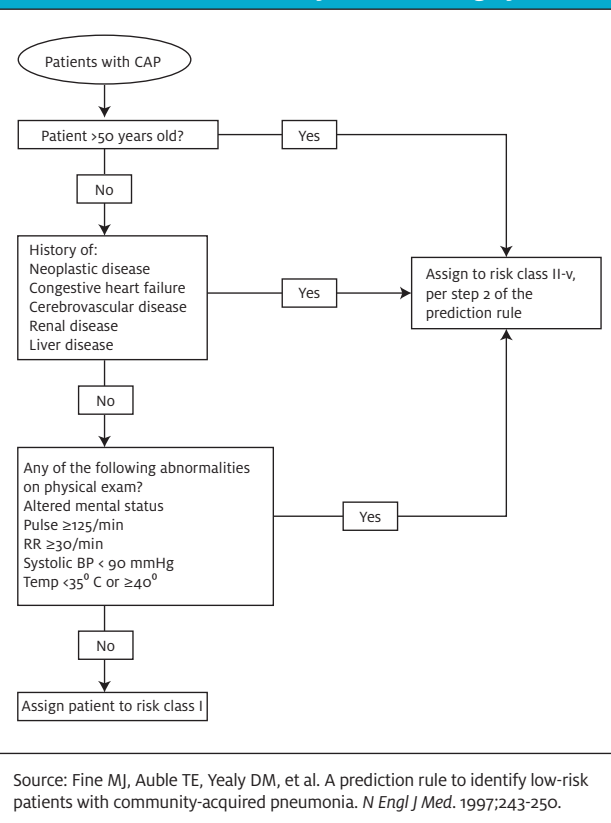
Serologic assays and sputum cultures can be nonspecific, while blood cultures are insensitive. Neither are practical nor indicated in the urgent care setting.

Risk Stratification

Initial risk stratification in CAP helps guide the clinician in major decisions regarding diagnostic modalities, treatment decisions, and patient disposition (site of care). The site-of-care decision on whether or not a patient needs hospital admission is an important economic consideration in CAP, as the cost of inpatient care for pneumonia is logarithmically higher than outpatient care. Low-risk CAP patients should be treated as outpatients whenever possible to avoid complications of hospital-acquired superinfections and thromboembolic events. Also, CAP patients treated as outpatients are more likely to return to work and other activities faster than those admitted as inpatients. It is important to understand that most people prefer to be treated as outpatients whenever possible. Providers should also consider barriers to outpatient treatment such as frailty, lack of response to previous therapy, severe social or psychiatric problems, substance abuse, homelessness, and unstable living conditions when making site-of-care treatment decisions.

Severity-of-illness scores, such as the CURB-65 criteria, or prognostic models, such as the Pneumonia Severity Index (PSI), can be used to identify patients with CAP who may be candidates for outpatient treatment. The PORT score (based on the PSI scoring sys-

Table 6. Pneumonia Severity Index Scoring System

Source: Fine MJ, Auble TE, Yealy DM, et al. A prediction rule to identify low-risk patients with community-acquired pneumonia. *N Engl J Med*. 1997;243-250.

tem) is a tool used to help guide the decision regarding the site of care (**Table 6** and **Table 7**). The stratified risk classes are based on measured mortality rates within 30 days of diagnosis. All patients ≤50 years of age who have none of the coexisting illnesses or physical examination abnormalities identified in step one of the rule are assigned risk class I and should be candidates for outpatient treatment due to very low mortality rates. Risk class II patient also have low mortality rates; it is recommended that these patients also be treated at home. Patients in class III may benefit from a period of observation in the emergency room before a decision is made regarding the site of care, but patients in risk classes IV and V require hospital admission. Any patient >50 years of age is automatically classified as at least risk class II, even if they have no other risk criteria. PSI scores may underestimate the patient's need for admission due to barriers to outpatient admission mentioned above. Conversely, the PSI may overestimate the mortality in higher-risk patients. The IDSA guidelines also recommend that physicians consider home therapy for patients in PSI risk classes I, II, and III.

Table 7. Classification of Pneumonia Risk	
Characteristic	**Points Assigned***
Demographic Factor Age • Men • Women Nursing home resident	 Add age (years) Add age (years) - 10 +10
Coexisting Illnesses Neoplastic disease[†] Liver disease[‡] Congestive heart failure[§] Cerebrovascular disease Renal disease[¶]	 +30 +20 +10 +10 +10
Physical Examination Findings Altered mental status[#] Respiratory rate ≥30/min Systolic blood pressure <90 mmHg Temperature <35° C or ≥40° C Pulse ≥125/min	 +20 +20 +20 +15 +10
Laboratory and Radiographic Findings Arterial pH <7.35 Blood urea nitrogen ≥30 mg/dL (11 mmol/L) Sodium <130 mmol/L Glucose ≥250 mg/dL (14 mmol/L) Hematocrit <30% Partial pressure of arterial oxygen <60 mmHg** Pleural effusion	 +30 +20 +20 +10 +10 +10 +10

*A total point score for a given patient is obtained by adding the patient's age in years (age minus 10 for females) and the points for each applicable patient characteristic. Points assigned to each predictor variable were based on coefficients obtained from the logistic regression model used in step 2 of the prediction rule.

[†]Any cancer, except basal or squamous cell cancer of the skin, that was either active at the time of presentation or diagnosed within 1 year of presentation.

[‡]A clinical or histologic diagnosis of cirrhosis or other form of chronic liver disease, such as chronic active hepatitis.

[§]Systolic or diastolic ventricular dysfunction documented by history and physical examination, as well as chest radiography, echocardiography, MUGA scanning, or left ventriculography. A clinical diagnosis of stroke, transient ischemic attack, or stroke documented by MRI or CT scan.

[¶]A history of chronic renal disease or abnormal blood urea nitrogen and creatinine values documented in the medical record

[#]Disorientation (to person, place, or time, not known to be chronic), stupor, or coma.

**In the pneumonia PORT cohort study, an oxygen saturation value <90% on pulse oximetry or intubation before admission was also considered abnormal.

PORT Scoring System
Total Score <70 = Risk Class II
Total Score 71-90 = Risk Class III
Total Score 91-130 = Risk Class IV
Total Score >130 = Risk Class V
PORT and CURB 65 scores used to determine the point of care for treatment—home vs hospital vs ICU

Adapted from PSI/PORT Score: Pneumonia Severity Index for CAP. Fine MJ. Available at: https://www.mdcalc.com/psi-port-score-pneumonia-severity-index-cap/. Accessed January 17, 2017.

The CURB-65 scale is simpler to use in determining pneumonia severity, yet it is less sensitive than the PSI (**Table 8**). Clinicians assign one point for each criterion (eg, confusion, blood urea nitrogen, respiratory rate, blood pressure, age) met by the patient. If the individual scores 0-1 points, then outpatient treatment is appropriate. Two points indicates hospitalization and inpatient treatment. A score of 3 or more points warrants inpatient treatment in the intensive care unit. The use of the CURB-65 and PORT scores may be problematic in the urgent care setting, as many centers do not have point-of-care diagnostic testing or access to arterial blood gas testing. If a center does not have the ability for point-of-care blood urea nitrogen testing and the patient still has a CURB-65 score of 2 or higher, then they clearly meet hospital admission criteria.

Treatment

The IDSA and the Thoracic Society of America (TSA) provide excellent evidence-based guidelines for the treatment of outpatients, inpatients, and ICU patients with CAP. The IDSA/TSA Consensus Guidelines on the Management of Community Acquired Pneumonia in Adults[8] for outpatient CAP recommend the following:

1. Outpatient Treatment
   a. Previously healthy and no risk factors for DRSP infection:
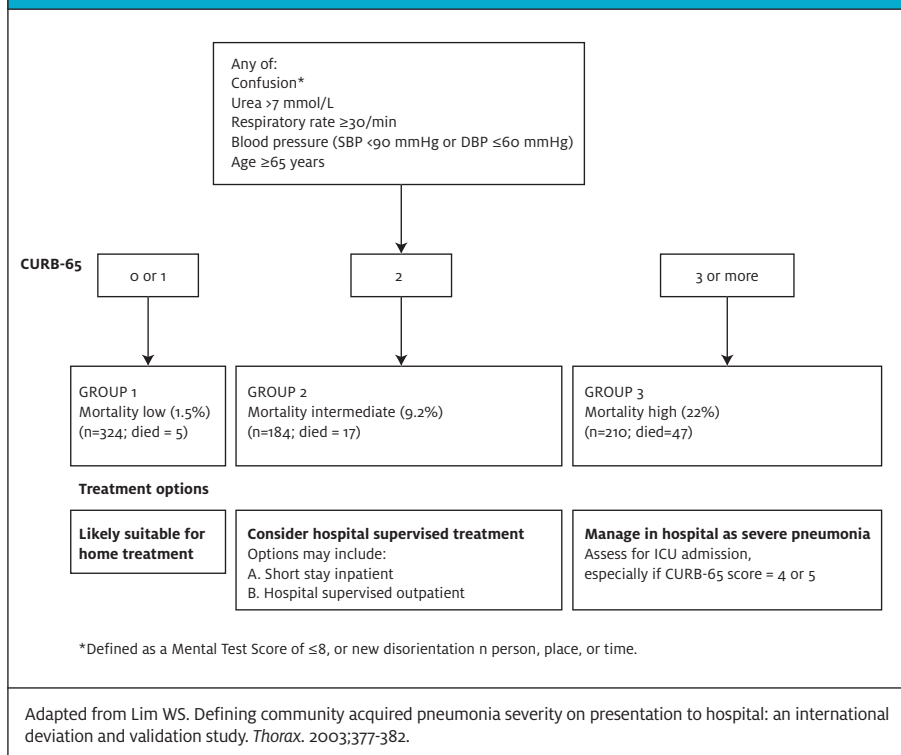   1. A macrolide (azithromycin, clarithromycin, or erythromycin) (strong recommendation; level I evidence) OR
      2. Doxycycline (weak recommendation; level III evidence)
   b. Presence of comorbidities, such as:
      1. Chronic heart, lung, liver, or renal disease; diabetes mellitus; alcoholism; malignancies; asplenia; immunosuppressing conditions; or use of immunosuppressing drugs
      2. Use of antimicrobials within the previous 3 months (in which case an alternative from a different class should be selected)
      3. Other risks for DRSP infection
         a. Respiratory fluoroquinolone (moxifloxacin, gemifloxacin, or levofloxacin [750 mg daily]) (strong recommendation; level I evidence) OR
         b. A beta lactam PLUS a macrolide (strong recommendation; level I evidence)
            1. High-dose amoxicillin (eg, 1 g 3 times daily) or amoxicillin-clavulanate (2 g 2 times daily) are preferred beta lactams
            2. Alternative beta lactams include ceftriaxone, cefpodoxime, and cefuroxime
            3. Doxycycline [level II evidence] is an alternative to the macrolide

As bacterial resistance rates have increased, new pneumococcal serotypes have been identified, and referred to as drug-resistant *Streptococcus pneumoniae* (DRSP).

Table 8. The CURB-65 Scale

Any of:
Confusion*
Urea >7 mmol/L
Respiratory rate ≥30/min
Blood pressure (SBP <90 mmHg or DBP ≤60 mmHg)
Age ≥65 years

CURB-65 → 0 or 1 / 2 / 3 or more

GROUP 1	GROUP 2	GROUP 3
Mortality low (1.5%) (n=324; died = 5)	Mortality intermediate (9.2%) (n=184; died = 17)	Mortality high (22%) (n=210; died=47)

Treatment options

Likely suitable for home treatment	Consider hospital supervised treatment Options may include: A. Short stay inpatient B. Hospital supervised outpatient	Manage in hospital as severe pneumonia Assess for ICU admission, especially if CURB-65 score = 4 or 5

*Defined as a Mental Test Score of ≤8, or new disorientation n person, place, or time.

Adapted from Lim WS. Defining community acquired pneumonia severity on presentation to hospital: an international deviation and validation study. *Thorax*. 2003;377-382.

These DRSP serotypes are particularly resistant to currently available macrolides, such as azithromycin. The current IDSA guidelines on the management of CAP recommend the use of an alternative to macrolides in areas where DRSP rates are >25%.[8] They also recommend clinicians become aware of the prevalence of drug-resistant pneumococci in their treatment area to help aid antibiotic decision making.

Most large hospital systems produce antibiograms which detail local bacterial resistance rates to common CAP pathogens and can aid the urgent care clinician in their treatment decision. Macrolide resistant rates of >25% in the U.S. leave clinicians with little choice in the outpatient treatment of CAP other than doxycycline or the fluoroquinolones. In July 2016, the FDA issued new warnings on the fluoroquinolone class in regard to side effects involving tendons, muscles, joints, nerves, and the central nervous system and stated that the risk of these side effects outweigh the benefits for patients with acute bacterial sinusitis, acute exacerbation of chronic bronchitis, and uncomplicated urinary tract infections. Routine use of fluoroquinolones for the above diagnoses in the urgent care setting should be avoided whenever possible. However, the FDA did determine that the benefits of fluoroquinolone use outweigh the risks of side

Table 9. Risk Factors for Possible DRSP Infection
• Recent antibiotic use (within 3 months)
• Age >65 years
• Immunosuppressive illness
• Multiple medical comorbidities
• Exposure to a child attending a daycare center
• Alcohol abuse
• Asthma/COPD
• Diabetes mellitus

effects for serious bacterial infections such as pneumonia.[11] Fluoroquinolones are also more likely to cause *Clostridium* difficile infection than either doxycycline or the macrolides.[9.] Along with local resistance rates, it is important that antibiotic selection decision making take into account the patient's risk factors for possible infection with DRSP (**Table 9**). DRSP risk factors were present in approximately half of outpatient CAP cases treated in the acute care setting; however, guideline-concordant antibiotic therapy was infrequent.[12]

The most prevalent causative organism in CAP is *S pneumoniae*, regardless of the host or the setting. Empiric antibiotic therapy should always be selected with this microorganism and its drug-resistant serotypes in mind.

The IDSA guidelines recommend that patients with CAP should be treated for a minimum of 5 days (Level I evidence), should be afebrile for 48-72 hours, and should have no CAP-associated sign of clinical instability (ie, T>37.8 C, HR>100, RR>24, SBP<100, room air O2 sat<90, inability to maintain oral intake, or altered mental status) before therapy is completed.[8] Longer therapy is usually reserved for patients with prolonged clinical instability and for nonresponders if the initial therapy was not active against an identified pathogen. Response to antibiotic therapy should be evaluated within 48-72 hours of treatment initiation, as the vast majority of outpatients with CAP become clinically stable in that timeframe. Urgent care clinicians should ensure that patients are closely followed up, whether via a confirmed referral or repeat urgent care visit. Antibiotics should not be changed within the first 72 hours unless marked clinical deterioration occurs or the causative pathogen is identified. Chest x-rays usually clear within 4 weeks in patients <50 years old, yet resolution can be delayed for ≥12 weeks in older individuals. Patients of any age who remain symptomatic should undergo follow-up imaging.[13]

Conclusion

Community-acquired pneumonia remains a deadly disease and is commonly encountered in the urgent care setting, especially in the winter months and during "flu season." Urgent care clinicians should take care to choose the proper disposition for patients with CAP and make sure patients receive adequate follow-up referrals and instructions. Awareness of current treatment options, local antibiotic resistance rates, and length-of-treatment guidelines will help the clinician in providing the current standard of care in CAP. The diagnosis of CAP by clinical presentation along with the presence of diagnostic chest x-ray findings should be followed by empiric treatment with the most narrow-spectrum and safest drug possible. Assessment of local resistance patterns is important for appropriate treatment considerations, along with risk stratification. Additional diagnostic testing and pathogen identification is a consideration when appropriate pretest indications are present, though their utility in urgent care has not yet been established. ■

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