The diagnosis of pneumonia should be considered in any patient who has newly acquired respiratory symptoms, (cough, sputum production, and/or dyspnea), especially if accompanied by fever and auscultatory findings of abnormal breath sounds and crackles. In a patient with advanced age or an inadequate immune response, pneumonia may present with non-respiratory symptoms such as confusion, failure to thrive, worsening of an underlying chronic illness, or falling down. In these patients, fever may be absent, but tachypnea is usually present, along with an abnormal physical examination of the chest. In the initial evaluation of the patient with community acquired pneumonia, the history may on occasion help identify patients at risk for infection with specific organisms.

**Diagnosis**

Diagnosis in community acquired pneumonia is ideally based on:

- **History** (pleuritic chest pain, fatigue, loss of appetite, fever, chills, sweats, shortness of breath, cough).
- **Physical examination** (fever over 100 degrees, rales, diminished breath sounds, wheeze, bronchial breath sounds).
- **Chest x-ray** is useful to confirm the diagnosis and exclude other problems such as effusion, mass, pneumothorax, etc. It should be ordered on all individuals with pleuritic chest pain. A chest x-ray may not exclude pneumonia secondary to delayed findings in some individuals.
- **Sputum culture/Gram stain**- sputum culture and gram stain are imperative and may identify drug-resistant pathogens, or organisms not covered by usual empiric therapy. A gram stain should be used to guide the interpretation of culture results.

*While a rapid diagnosis is optimal in the management of community-acquired pneumonia, the responsible pathogen is not defined in as many as 50% of patients, even when extensive diagnostic testing is performed. No single test is presently available that can identify all potential pathogens, and each diagnostic test has limitations.*

*If Gram stain is not performed or does not establish a diagnosis, antibiotics are selected on the basis of probabilities according to patient age, epidemiology, host risk factors, and severity of illness.*

**Treatment**

**Age <50, no comorbidities and no recent antibiotic use and no smoking history**-
Consider macrolide first. May consider azithromycin or clarithromycin with or without amoxicillin/clavulanate or a 2nd generation cephalosporin.

**Age <50 with smoking history**-
Consider azithromycin or clarithromycin with or without amoxicillin/clavulanate or a 2nd generation cephalosporin; or quinolone (levofloxacin or moxifloxacin).

**Age >50, no comorbidities and no smoking history**-
Consider azithromycin or clarithromycin with or without amoxicillin/clavulanate or quinolone alone or combo of azithromycin and augmentin or cephalosporin.

**Age >50 with smoking history or other comorbidity**-
Consider using quinolones first (levofloxacin or Amoxifloxacin).

**Patient Education and follow-up**
Key information messages to be given to the patient include a description of the cause and seriousness of community-acquired pneumonia, measures to be taken by the patient to speed recovery and relieve symptoms, criteria for follow-up, help in deciding when to return to work, secondary prevention measures, and other important issues of concern to the patient.

Patient should be educated that if they experience any of the following symptoms they need to be rechecked: difficulty breathing, worsening cough, worsening or onset of rigors, fever persisting >48 hours, medication intolerance, or worsening of chest pain.

A follow-up chest x-ray should be obtained in patients with pneumonia to ensure resolution of the infiltrate, especially in patients who are >40 years old and/or smokers. Barring complications, a follow-up x-ray is recommended at 6-8 weeks.

**Considerations**
Co-morbidity factors: Diabetes, Congestive Heart Failure, Steroid Therapy, Chronic Obstructive Pulmonary Disease, Chronic Renal Failure, Pneumonia last year and ETOH abuse must be considered in treatment.

Others factors: leukopenia, leukocytosis (WBC > 20,000), multi lobar or extra pulmonary involvement, hypoxemia, altered mental status, pulse > 125/minute, respiratory rate > 30/minute, temperature < 35° C or> 40° C, systolic blood pressure < 90 mm Hg, or bacteremia.

Treatment should be evaluated and therapy modified as needed. Literature does not document how long therapy should be maintained.

Discontinue therapy when appropriate.

**If the organism is identified see sensitivity testing to determine treatment plan.**

**References:**

