

# Community-acquired pneumonia

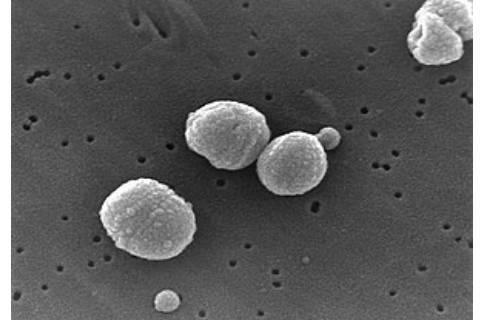
Pneumonia is an acute inflammation of the respiratory bronchioles, alveolar structures and lung interstitium. The term "community-acquired pneumonia" (CAP) refers to a disease acquired outside the hospital, accounting for 80-90% of all pneumonia.

## Types of Pneumonia

### Pneumonia caused by pyogenic bacteria

It is a purulent type of inflammation. It can affect people of all ages. It typically occurs after a cold, short-term stress or exhaustion.

The most common pathogen causing Pneumonia is *Streptococcus pneumoniae*, much more rarely caused by *Haemophilus influenzae*, *Moraxella catarrhalis*, *Klebsiella pneumoniae*, *Staphylococcus aureus*, or conditionally pathogenic bacteria inhabiting the digestive tract (*Escherichia coli*, *Proteus spp.*, *Pseudomonas spp.*, Anaerobic bacteria). Penicillin or cephalosporin antibiotics are used for therapy.



*Streptococcus pneumoniae*

### Pneumonia caused by mycoplasmas and chlamydia

This type is non-purulent interstitial pneumonia. It occurs as small epidemics in healthy people between 5-50 years. Etiological agent: *Mycoplasma pneumoniae*, *Chlamydophila pneumoniae*. Doxycycline or macrolides are used in therapy, treatment time lasts at least 2 weeks.

### Pneumonia caused by virus

It affects both adults and children, with the exception of the RS virus, which is typical for infants. Lymphotropic viruses cause pneumonia in people with immunodeficiency. Etiologic agents: respiratory viruses - viruses influenza A and B, parainfluenza virus, RS virus, adenoviruses, coronaviruses, rarely also animal viruses (coronavirus SARS-CoV), lymphotropic viruses (cytomegalovirus in HIV / AIDS). Therapy requires hospitalization, oxygen therapy, symptomatic and supportive treatment, specific antivirals, corticosteroids (reduce the risk of fibrotic lung remodeling).

### Legionella pneumonia

Most often in middle-aged patients with a history of long-term internal disease (DM...). Etiologic agents: *Legionella pneumophila*. Therapy usually requires hospitalization in the ICU, i.v. macrolides (clarithromycin, azithromycin) or fluoroquinolones (ciprofloxacin, ofloxacin).

### Pneumonia caused by *Mycobacterium tuberculosis*

It typically occurs in immigrants from developing countries, in socially disadvantaged people, and exceptionally in properly vaccinated people after long-term stress. Prior to treatment, repeated collection of material for cultivation is required, after finding acid-resistant rods, specific treatment is given, basic antituberculous: isoniazid, rifampicin, pyrazinamide, streptomycin and ethambutol.

### Pneumonia caused by *Pneumocystis jiroveci*

It affects people with severe immunodeficiency. High doses of co-trimoxazole i.v. or pentamidine i.v. are necessary, later by inhalation.

## Treatment

Initial treatment is 'empirical' and 'outpatient', based on knowledge of the local epidemiological situation, predisposing factors and clinical symptoms. In immunocompetent individuals, in whom the course of the disease is usually without complications with typical clinical symptoms, initial empirical treatment is usually successful. The most commonly chosen model is 'oral antibiotics' in sufficient doses, well tolerated, with a broader spectrum of efficacy on respiratory pathogens and a prolonged effect (2-3 times daily). Efficacy can be verified in two to three days, in case of failure the antibiotic must be replaced by another treatment group. Because the most common cause of community-acquired pneumonia is *Streptococcus pneumoniae*, penicillin is the drug of first choice. A problem with this treatment is the increasing resistance of pneumococci to penicillin.

## Comparison table for typical and atypical pneumonia

PARAMETER	TYPICAL PNEUMONIA	ATYPICAL PNEUMONIA
Basic characteristics	significant physical findings	poor physical findings
Agents	(extracullular) <b><i>Streptococcus pneumoniae</i></b> , <i>Haemophilus influenzae</i> <i>Haemophilus parainfluenzae</i> , <i>Staphylococcus aureus</i> , <i>Klebsiella pneumoniae</i> , <i>Escherichia coli</i> and <i>Pseudomonas aeruginosa</i>	(intra/paracellular) <b><i>Mycoplasma pneumoniae</i></b> , <i>Chlamydophila pneumoniae</i> , <i>Chlamydophila psittaci</i> , <i>Legionella pneumophila Coxiella burnetii</i> , virus – RSV, influenzae, <i>Pneumocystis carinii</i>
Onset	sudden	after HDC infection, slow
Extrapulmonary symptoms	indistinct	common – headache and muscle pain, vomiting, diarrhea
Fever	septic febrile	subfebrile
Shivers	yes	rarely
Cough	productive	dry, irritating
Heart rate	possible tachycardia	standard
Patient looks	ill	'ok'
Physically	crepitus, tubular respiration, influenza	isolated flu
X-ray	segmental / lobar obscuration (alveolar involvement)	interstitial reticulonodulation (interstitial involvement)
Sedimentation	high	slightly increased
Inflammatory parameters	high	slightly increased
Blood count	leukocytosis	lymphocytosis
Therapy	penicillins	macrolides

## Links

### Related links

- Clinical evaluation of pneumonia severity
- Pneumonia

### Bibliography

- BENEŠ, Jiří. *Infectious medicine*. 1. edition. Galén, 2009. 651 pp. pp. 424-427. ISBN 978-80-7262-644-1.
- MAREŠOVÁ, Vilma – URBÁNKOVÁ, Pavla. Účinné a bezpečné používání antibiotik u komunitních pneumonií. *Farmakoterapie*. 2010, y. 20, vol. 1, p. 100,