

# Urgent conditions in pneumology

They include several serious diseases that can be life-threatening and require prompt diagnosis and initiation of therapy. The patient perceives the conditions as very unpleasant, and therefore they are often accompanied by restlessness and fear.

## Symptoms

Diagnosis is usually difficult, so we focus primarily on symptoms. The most common symptoms are **dyspnoea**, **haemoptysis**, **chest pain** and **acute respiratory insufficiency**. Furthermore, conditions can be accompanied by general exhaustion, disturbances of consciousness, fever, changes in heart rate and pressure.

## Dyspnoea

When taking a history, we are particularly interested in the cause, speed of onset and duration of shortness of breath. What makes it worse, what relieves it (relief positions), and if it's accompanied by pain.

Sudden shortness of breath	Dyspnoea developed over hours, days
pneumothorax	exacerbation COPD, asthma bronchiale, IPF
aspiration of a foreign body	left-sided heart failure
pulmonary embolism	pneumonia, pleural effusion

## Haemoptysis

A severe symptom that usually takes the patient to the doctor. Haemoptysis is often found in lung cancer, pneumonia, pulmonary embolism, bronchiectasis, excessive cough in warfarinised patients, heart failure and pulmonary contusion.

## Chest pain

As with shortness of breath, a history of pain is very important. We ask about the location, origin, duration and nature of the pain. Whether it changes in relation to movement, inhalation, exhalation and cough. It is important to **rule out causes**, other than pneumological (e.g. myocardial infarction, muskuloskeletal pain, GE reflux, panic attack). Chest pain tends to be pleural, the most common cause of which is inflammation, the presence of effusion, pneumothorax or pulmonary embolism.

## Respiratory insufficiency

A situation where adequate gas exchange cannot be ensured. It usually presents with tachypnoea, extreme shortness of breath and restlessness, which can progress to exhaustion, to impaired consciousness. Respiratory insufficiency is divided by development over time into **acute** (formation within a few minutes, e.g. suffocation, ARDS) and **chronic** (develops creepily, e.g. COPD, bronchial asthma). If blood saturation of O<sub>2</sub> below 92 % is found, arterial blood gas values should be checked regularly (typically for COPD exacerbation).

### Respiratory insufficiency therapy

The most common solution is the introduction of **oxygenotherapy**. In some patients it may be inadequate or make the condition worse. Another solution is **non-invasive ventilation support**, which is now considered an essential therapeutic method for acute conditions. It can be used in haemodynamically stable patients without excessive secretion from the airways.

The main indications are non-pharmacotherapeutic respiratory failure, blood pH < 7,35, pCO<sub>2</sub> > 6 kPa and non-cooperation of the patient.

The contraindications for NVS are pneumothorax, vomiting, agitation and restlessness, facial injuries and recent facial and upper airway surgery.

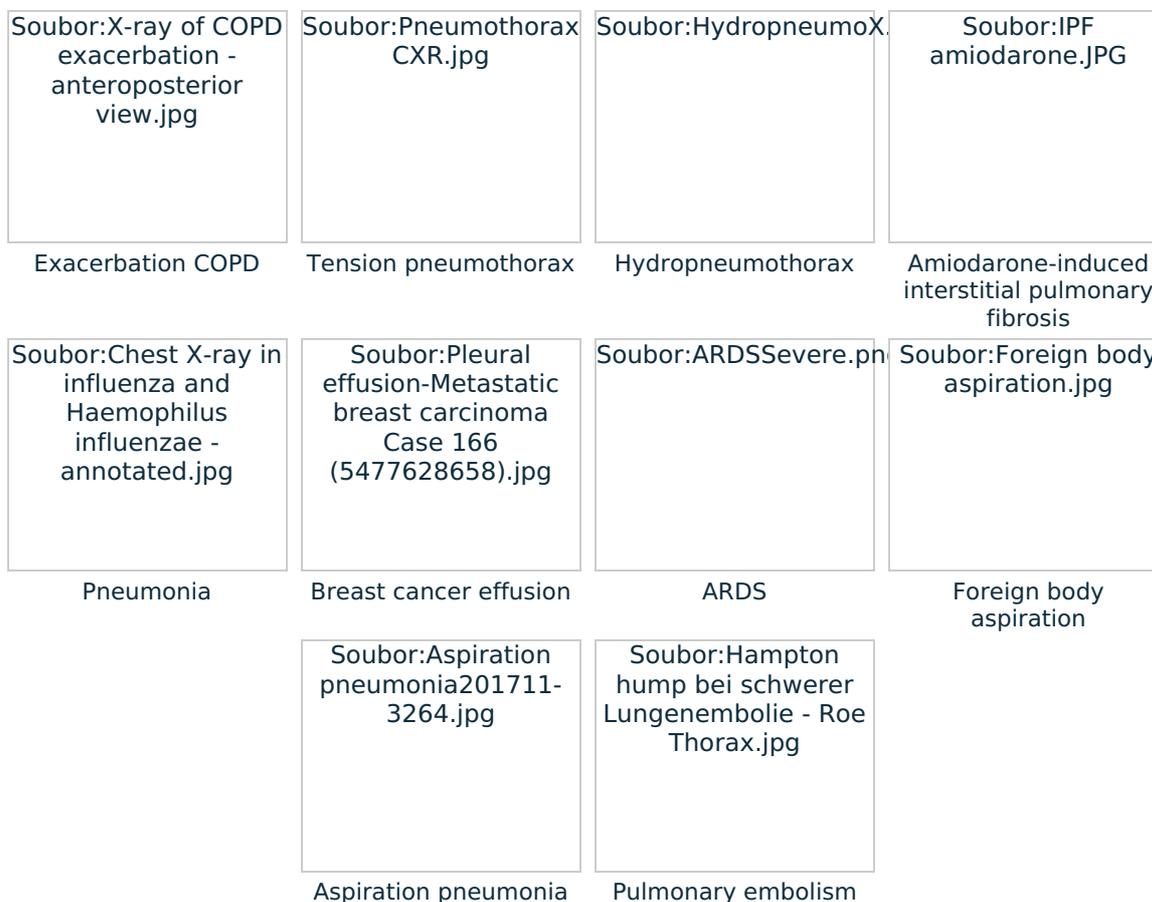


Patient on non-invasive pulmonary ventilation

## Diagnosics and therapy

The cause of emergencies is broad spectrum. Their determination is not always easy. The basic methods (in addition to physical examination) are imaging methods (X-ray) and laboratory testing (astrop, blood count a CRP, EKG, cardial enzymes, D-dimers and NT-proBNP).

Most common causes of emergencies		
pneumonia (abscess, empyema)	exacerbation of idiopathic pulmonary processes	malignancy complications
exacerbation COPD	hydrothorax	pulmonary embolism
exacerbation asthma bronchiale	aspiration of foreign body	chest trauma
pneumothorax	ARDS	critical respiratory stenosis
anaphylaxis	laryngospasm	shock conditions



## Exacerbation asthma bronchiale

It begins unobtrusively, with a gradual worsening of symptoms. On intake, 40-60% O<sub>2</sub>, reliever anti-asthmatics administered by nebulization (salbutamol, ipratropium bromide), corticosteroids, or IV as appropriate. (prednisone, hydrocortisone) and theophylline. If associated infections are suspected, antibiotics are administered. If the patient does not respond to treatment, an X-ray is indicated.

ICU therapy is indicated in case of persistent or worsening hypoxaemia, hypercapnia, decrease in blood pH and respiratory acidosis, fatigue and confusion, or arrest of circulation.

## Exacerbation COPD

The characteristic symptoms are increased sputum production with character change, worsening of cough and breathing difficulties. Frequent exacerbations impair lung function and with it the patient's quality of life. The main causes of exacerbations include viral or bacterial infections and deterioration of air quality. About 30% of the cause is undetectable.

Patients tend to be calmly breathless with tachypnoea, involve auxiliary respiratory muscles, are usually unable to self-serve, are confused and lethargic. When listening, spastic phenomena, or a quiet chest, may be present. Sudden limb swelling and cyanosis may occur.

After admission, we collect blood gases and administer 40-60% O<sub>2</sub> and short-acting bronchodilators by nebulization. Blood gas values should be checked regularly every 20-30 minutes. We also administer systemic corticosteroids, mucolytics and, if necessary, antibiotics. In case the condition does not improve, we administer aminophylline IV and consider chest X-ray and non-invasive pulmonary ventilation.

## Links

## Source

- ŠTEFÁNEK, Jiří. Medicína, nemoci, studium na 1. LF UK [online]. [s.n.]. [cit. -]. <<https://www.stefajir.cz/>>
- TURČÁNI, Pavel. Krátký úvod do akutní pneumologie [online]. [cit. 31.1.2021]. <<https://www.internimedica.cz/pdfs/int/2010/12/09.pdf>>
- LOSSE, Stanislav. Akutní stavy v pneumologii [online]. [cit. 31.1.2021]. <<https://docplayer.cz/5887029-Akutni-stavy-v-pneumologii.html>>

## Related Articles

- Endotracheal intubation
- Non-invasive pulmonary ventilation/SC (sister)
- Haemoptysis, Haemoptoia, Differential Diagnostics and First Aid/PGS (VPL)
- First aid for chest injuries

Kategorie:Pneumology