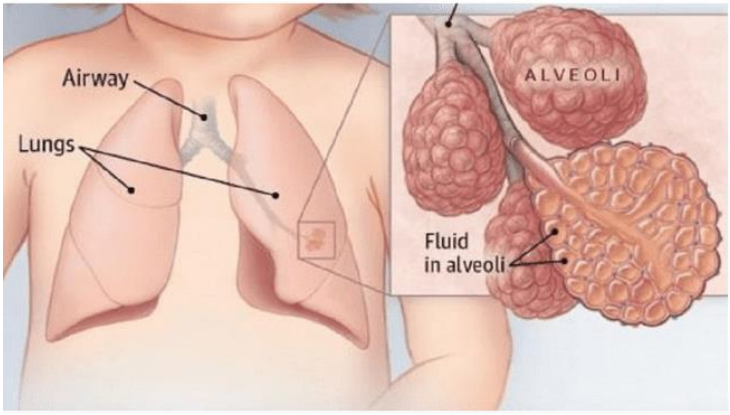
CHAPTER 1 INTRODUCTION

A. Pneumonia Epidemiology

Pneumonia is the most serious result of acute respiratory infections (ARI) and kills more children than any other infectious disease, killing more than 800,000 children under five each year, or about 2,200 every day. This includes more than 153,000 newborns. In comparison, in 2018, 437,000 children under five died from diarrhea and 272,000 from malaria. Globally, there are more than 1,400 cases of pneumonia per 100,000 children, or 1 case per 71 children each year, with the largest incidence occurring in South Asia (2,500 cases per 100,000 children) and West and Central Africa (1,620 cases per 100,000 children).



Picture 1 Anatomy of the respiratory organs with pneumonia
Source: https://onthewards.org/community-acquired-pneumonia-in-children/

CHAPTER

2 THE CONCEPT OF PNEUMONIA

A. Definition of Pneumonia

An infection of the lungs, either one or both, is known as pneumonia. The lungs' air sacs, or alveoli, begin to swell with fluid or pus as a result. Pneumonia may be brought on by viruses, fungi or bacteria. A cough with or without mucus (a slimy material), a fever, chills, and difficulty breathing are just a few of the symptoms that can range in severity from moderate to serious. Depending on your age, general health, and the source of your infection, the severity of your pneumonia will vary(NHLBI, 2022).

Pneumonia is an infection in one or both lungs that causes swelling (inflammation) of the lung tissue. This infection can be caused by a virus or bacteria. Some types of pneumonia in children can be caused by viruses such as coronavirus (COVID-19), while other types are generally caused by bacterial infections. Pneumonia is an acute inflammation that attacks the lung tissue and its surroundings. Pneumonia is the most severe manifestation of acute respiratory infection (ARI) because it can cause death. The causes of pneumonia are various viruses, bacteria or fungi. The most common bacteria that cause pneumonia are pneumococci (Streptococcus pneumonia), HiB (Haemophilus influenza type b), and staphylococci (Staphylococcus aureus). There are many viruses that cause pneumonia, for example rhinovirus, respiratory syncytial virus (RSV) or influenza virus. Measles virus (morbili) can also cause(Nastiti Kaswandani, 2017).

CHAPTER

3 CLASSIFICATION OF PNEUMONIA

A. Based on Source of Infection

1. Community-acquired pneumonia

Community-acquired pneumonia in children (CAP) is the leading cause of death in children under 5 years of age worldwide(Chee et al., 2022). Community-acquired pneumonia (CAP) remains a major health problem, causing approximately 20% of all deaths in children under 5 years of age. Viruses are the most common cause of CAP. The introduction of conjugate vaccines for pneumococci and H. influenzae in the last 10 years has reduced the burden of bacterial disease. Currently, Streptococcus pneumoniae and Mycoplasma pneumoniae are the most common bacteria found among the immunized population, especially after the neonatal period.(Scotta et al., 2019). Community Acquired Pneumonia (CAP) occurs either in the community setting or within the first 48 hours after hospitalization. In only 50% of cases a specific etiological agent is identified. Pneumonia is the most common cause of CAP in people under 60 years of age. Viruses are the most common cause of pneumonia in infants and children. The causative agents of CAP that require hospitalization include streptococcus pneumoniae, H. influenza, Legionella, and Pseudomonas aeruginosa.

Complicated community pneumonia in a previously healthy child is a severe disease characterized by a combination of local complications (eg, parapneumonic effusion, empyema, necrotic pneumonia, and lung abscess) and systemic complications (eg, bacteremia, metastatic

CHAPTER

4 PNEUMONIA PREVENTION

A. Prevention With Pneumonia Vaccines

Children can be vaccinated against pneumococcal infection, the bacteria that causes pneumonia. The American Academy of Pediatrics recommends that all children from 2 months of age receive this immunization (called pneumococcal conjugate or PCV13). A series of doses should be given at 2, 4, 6, and 12 to 15 months of age, at the same time children are receiving other childhood vaccines.

If your child doesn't receive their first dose at the recommended time, talk to your pediatrician about scheduling a catch-up. One dose of PCV13 should be given to all healthy children aged 2 through 5 years who have not previously received the recommended dose before age 2 years and to children aged 2 years through 18 years with certain medical conditions who have not previously been given. received a dose of PCV13.

Pneumococcal vaccineanother (pneumococcal polysaccharide or PPV23) is also recommended for older children (ages 2 to 5 years) who are at high risk of developing invasive pneumococcal infection. This includes children with:

- Sickle cell anemia
- Heart disease
- Lung disease
- Kidney failure
- The spleen is damaged or absent
- Organ transplant
- HIV (human immunodeficiency virus) infection

CHAPTER

5 PNEUMONIA DIAGNOSIS

A. Assessment

The assessment and diagnosis of pneumonia must be accurate because many respiratory disorders have similar manifestations. The following are assessments and diagnostic tests that can determine pneumonia.

- Take the client's health history.
  The diagnosis of pneumonia is made by history, especially a recent respiratory infection.
- Physical examination.
  Primarily, the number of breaths per minute and breath sounds are assessed during the physical examination.

B. Supporting Examination

1. **Chest X-Ray**
   Identify structural distribution (eg, lobar, bronchial); may also show multiple abscesses/infiltrates, empyema (staphylococcus); diffuse or localized infiltration (bacterial); or diffuse/extensive nodular infiltrate (more often viral). In mycoplasmal pneumonia, a chest X-ray may be obvious.
2. **Fiberoptic bronchoscopy**
   It can be diagnostic (qualitative culture) and therapeutic (re-expansion of lung segments).
3. **ABG / pulse oximetry.**
   There may be abnormalities, depending on the extent of lung involvement and the underlying lung disease.

CHAPTER

6 COMPLICATIONS AND MANAGEMENT OF PNEUMONIA

A. Complications of pneumonia

Pneumonia complications are more common in young children, the elderly, and those with pre-existing health conditions, such as diabetes.

Possible complications of pneumonia include:

- Pleurisy
  The thin lining between the lungs and ribs (pleura) becomes inflamed, which can cause respiratory failure
- Lung abscess
  A rare complication that is mostly seen in people with a serious pre-existing illness or a history of severe alcohol abuse
- Blood poisoning (sepsis)
  Also a rare but serious complication

You will be admitted to the hospital for treatment if you have any of these complications.

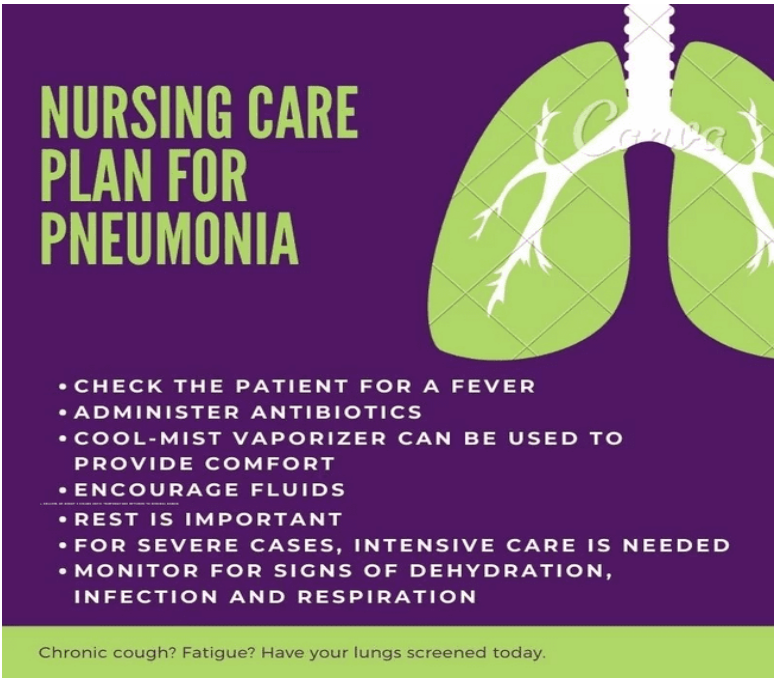
B. Treatment of Pneumonia

Mild pneumonia can usually be treated at home with:

- Plenty of rest
- Take antibiotics if the pneumonia is most likely caused by a bacterial infection
- Drink lots of fluids

CHAPTER

7 NURSING CARE



Picture 29 Nursing care plan for pneumonia
Source: https://www.tutorsploit.com/nursing/nursing-care-plan-for-pneumonia-a-students-guide/