

1.0 ACUTE RESPIRATORY INFECTIONS (ARI)

1.1 Pneumonia

Pneumonia is the inflammation of the lung tissue. Pneumonia can either be primary (to the causing organism) or secondary to pathological damage in the respiratory system. The common causative organisms for pneumonia are bacterial (for example *Streptococcus pneumoniae*, *Hemophilus influenza*, and *Staphylococcus aureus*, and *Mycoplasma pneumoniae*, viral or parasitic e.g *Pneumocystis jirovecii*. The important clinical features are high fever 39°C, dry or productive cough, central cyanosis, respiratory distress, chest pain and tachypnea.

1.1.1 Pneumonia in Children

For more details, refer also *Integrated Management of Childhood Illness (IMCI) guidelines*

Diagnosis

For children under five years of age the important symptoms are coughing or difficult breathing. Classification of pneumonia in children is based on respiratory rate which is fast breathing and chest in-drawing.

Fast breathing is defined as

- Respiratory rate >60 age less than 3 months
- Respiratory rate > 50 age between 3 months and 5 years
- Chest indrawing is when the lower part of the chest moves in when the child breaths in.

Table 1: Important clinical features of pneumonia in underfives

Age	Signs	Classification
<i>Infants less than 2 months</i>	<ul style="list-style-type: none">• Severe chest in-drawing Or	Severe pneumonia (all young infants with pneumonia are classified as severe)
	<ul style="list-style-type: none">• 60 breaths per minute or more• No severe chest in-drawing• Less than 60 breaths per-minute	No pneumonia: Cough or cold
<i>Children from 2 months to 1 year</i>	<ul style="list-style-type: none">• Chest in-drawing	Severe pneumonia
	<ul style="list-style-type: none">• No chest in-drawing• 50 breaths per minute or more	Pneumonia
	<ul style="list-style-type: none">• No chest in-drawing• Less than 50 breaths per minute	No pneumonia Cough or cold
<i>Children from 1 year to 5 year</i>	<ul style="list-style-type: none">• Chest in-drawing	Severe pneumonia
	<ul style="list-style-type: none">• No chest in-drawing• 40 breaths per minute or more	Pneumonia
	<ul style="list-style-type: none">• No chest in-drawing• Less than 40 breaths per minute	No pneumonia

		Cough or cold
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General management

- Oxygen therapy if available
- Supportive care
 - Lower the temperature if $\geq 38.5^{\circ}\text{C}$, give Paracetamol
 - If wheezing giving rapid-acting bronchodilator: Nebulized Salbutamol
 - Ensure that the child receives daily maintenance fluid appropriate for the child's age but avoid over-hydration refer to IMCI/ STG & Essential medicines List for Children

Treatment of very severe pneumonia:

A: Ampicillin 50 mg/kg I.V/I.M every 6 hours
Plus

A: Gentamicin (7.5 mg/kg I.V/I.M once a day) for 5 days;

If child responds well, complete treatment at home or in hospital with

A: Amoxicillin (15 mg/kg three times a day)
Plus

A: Gentamicin 7.5 mg/kg I.M once daily for a further 5 days.

Alternatively,

B: Chloramphenicol (25 mg/kg I.M or I.V every 6 hours) until the child has improved. Then continue orally 4 times a day for a total course of 10 days.

If the child does not improve within 48 hours, switch to

A: Gentamicin (7.5mg/kg I.V/IM once a day)
Plus

A: Cloxacillin (50 mg/kg IV or IM every 6 hours), then continue Cloxacillin orally 4 times a day for a total course of 3 weeks.

- If the child is not improving use ceftriaxone (80 mg/kg I.V or I.M once daily) for 10 days.
- For children above 5 years, atypical pneumonia should be considered e.g. mycoplasma. A macrolide (Erythromycin OR Azythromycin) should be considered as a drug of choice in addition to the above antibiotics or as a second line treatment.

Severe pneumonia

A: Benzyl Penicillin 50 000 units/kg I.V or I.M every 6 hours for at least 3 days
THEN

A: Amoxicillin 15 mg/kg 8 hourly for 7 days.

- If the child does not improve within 48 hours, or deteriorates, look for complications and treat accordingly. If there are no apparent complications, switch to

B: Chloramphenicol (25 mg/kg every 6 hours I.V or I.M) until the child has improved. Then continue orally for a total course for 10 days.

Non-severe pneumonia

A: Amoxicillin 25 mg/kg 12 hourly for 5 days

- Give the first dose at the clinic and teach the mother how to give the other doses at home.
- Encourage breastfeeding and feeding.