Acute Respiratory tract Infections

Facilitator:
Dr. NAVPREET
Assistant Professor, Department of Community Medicine
Govt. Medical College & Hospital, Chandigarh.

Specific Learning Objectives

- At the end of session, the learner shall be able to:

➢ Describe magnitude of problem of ARI

➢ Classification of ARI

➢ Management of ARI

➢ Prevention and control of ARI

Introduction

- Acute Respiratory Infections especially pneumonia:

➢ a significant problem in communities

➢ a high rate of under-five mortality

➢ a huge burden on families and the health system.

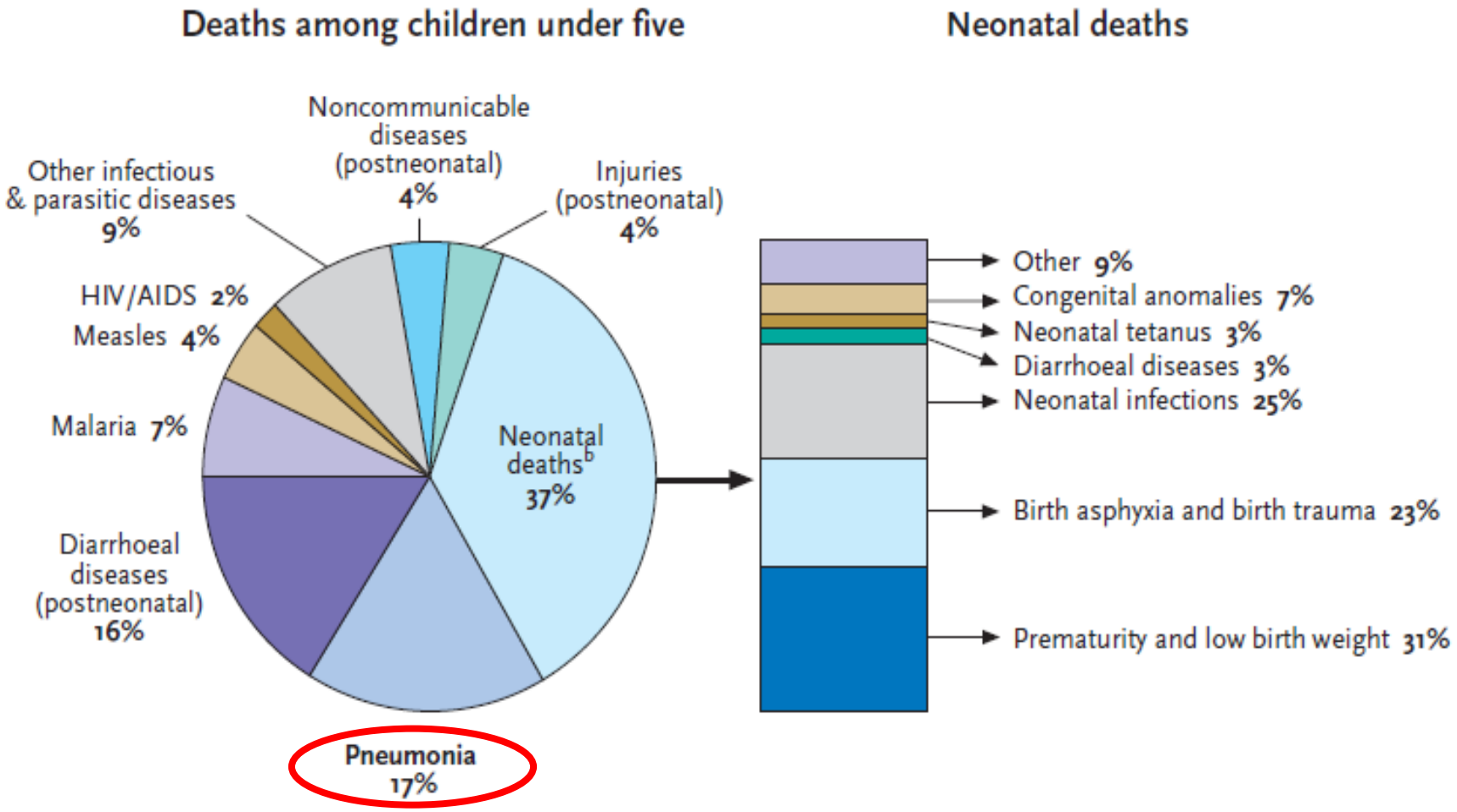
➢ a priority and is essential in achieving **MDG – 4**

  ➢ **To reduce the under-five mortality rate by two thirds by 2015, compared to 1990.**

Pneumonia – the number 1 killer of young children

- Pneumonia kills more **children under five years** of age than any other illness in every region of the world.
- Of the estimated 9 million child deaths in 2007, around 20% were due to pneumonia

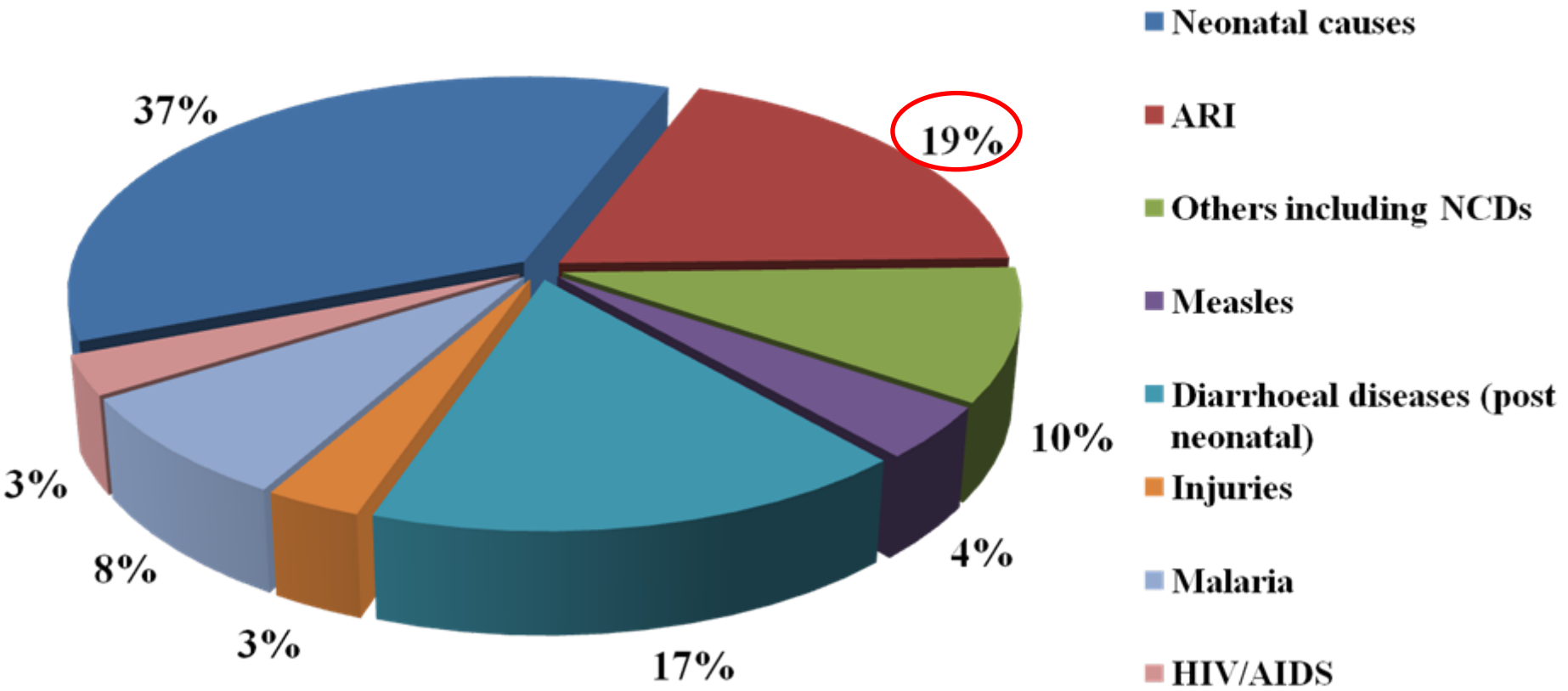
Causes of Death in Neonates and Children Under Five in the World (2004)



35% of under-five deaths are due to the presence of undernutrition[c]

[a] WHO. *The Global Burden of Disease: 2004 update*. Geneva, WHO, 2008.
[b] 3% of the neonatal deaths are estimated to be due to pneumonia.
[c] Black R et al. Maternal and child undernutrition: global and regional exposures and health consequences. *Lancet*, 2008, 371:243–260.

Causes of death of children under five (2000-2003)



Totals are more than 100 due to rounding

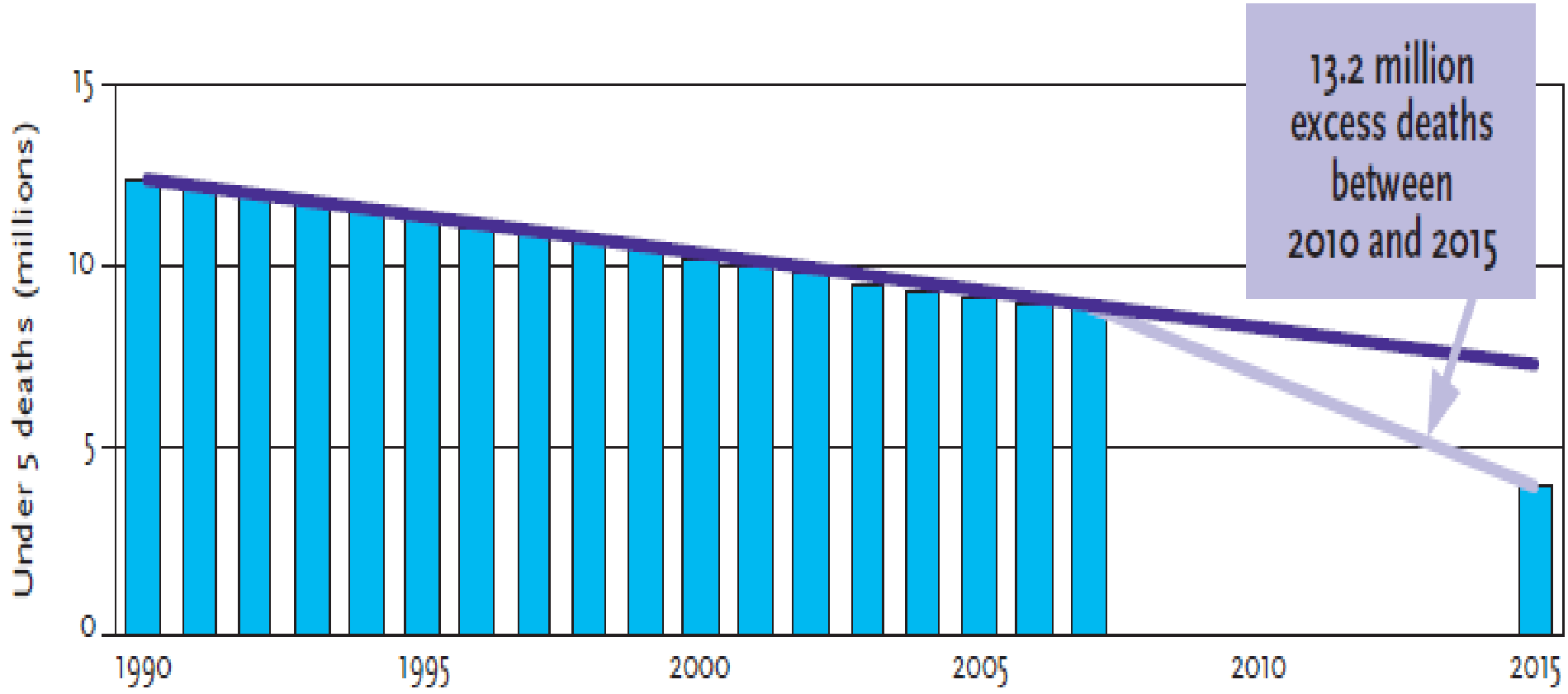
WHO (2005), World Health Report 2005, Make every mother and child count

- At the millennium Summit in 2000, the United Nations Member States committed to achieving **Millennium Development Goal 4 (MDG4).**

- Since then, substantial progress has been made in reducing child mortality.

- If the current trend continues, an **estimated 13.2 million excess deaths** will occur between 2010 and 2015

Cost of failure to reach MDG4



Source: WHO

- In addition to preventive interventions such as
  - routine vaccination,
  - exclusive breastfeeding and
  - complementary feeding,

- Strategies that rely on community capacity development can reduce pneumonia mortality in developing countries.

Quality of care at first-level public health facilities

- Improving quality of care at first-level public health facilities and ensuring they are financially, logistically and geographically **accessible**.
- Even then, there may be barriers preventing parents from using the facilities.

Improving quality of care in the private sector

- In many settings, especially in urban areas, children are often treated in the private sector.
- Although active collaboration between public and private sector is a relatively new strategy, and there is no conclusive evidence showing which approach is most effective, interventions involving private practitioners should continue to be pursued.

Increasing access to quality care

- Increasing access to quality care can be achieved through community-based care.
- Community health workers can be trained to:
  - assess sick children for signs of pneumonia;
  - select appropriate treatments;
  - administer the proper dosages of antibiotics;
  - counsel parents on how to follow the recommended treatment regimen and provide supportive home care; and
  - follow-up sick children and refer them to a health facility in case of complications.

- The ARI Control Programme was started in India in 1990. It sought to introduce scientific protocols for case management of pneumonia with Co-trimoxazole.
- Since 1992 the Programme was implemented as part of CSSM and later with RCH.
- **Integrated Management of Neonatal and Childhood Illnesses (IMNCI)** offers a comprehensive package for the management of the most common causes of childhood illnesses i.e sepsis, measles, malaria, diarrhoea, **pneumonia** and malnutrition.

Management of child with cough or difficult breathing

1. Assessing the child by asking
2. Classifying the illness of the child
3. Decision for treatment
4. Follow up of cases

Assess

- **Ask:**
  - How old is the child?
  - Is the child coughing or having difficult breathing?
  - For how long?

Age of child	**History for danger signs**
Age 2 months to 5 years	Is the child able to drink?
Age less than 2 months	Has the child stopped feeding well?
	For how long?
	Has the child had convulsions?
	Has the child had fever?

- **Look; Listen; and Feel**
  - Count the breaths in one minute
  - Look for the chest indrawing
  - Look and listen the stridor
  - Look and listen the wheeze
  - See if the child is abnormally sleepy or difficult to wake up
  - Feel for fever or low body temperature
  - Look for severe malnutrition

Age of the child	**Fast breathing is present if RR is**
Less than 2 months	60 breaths per minute or more
2 months up to 12 months	50 breaths per minute or more
12 months up to 5 years	40 breaths per minute or more

Classify the illness

- Purpose:
  - To make decision about severity of disease
  - Choose line of action or treatment

- It is done on basis of danger signs and respiratory rate

Colour coding

- Based on signs, the child is classified into:

	Colour Code	Treatment
Very severe disease	**Pink**	**Refer urgently to hospital**
Severe Pneumonia	**Pink**	**Refer urgently to hospital**
Pneumonia (not severe)	**Yellow**	**Give an antibiotic and home care**
No pneumonia	**Green**	**Home care**

Treatment Guidelines and Follow Up

- Young infants (0-2 months)
- Children 2 months to 5 years

Young infant (0-2 months)

Signs	•Stopped feeding well •Convulsions •Abnormally sleepy or difficult to wake •Stridor in calm child •Wheezing, or •Fever or low body temperature	•Severe chest indrawing, or •Fast breathng	•No severe chest indrawing and •No fast breathing
Classify as	**VERY SEVERE PNEUMONIA**	**SEVERE PNEUMONIA**	**NO PNEUMONIA Cough or Cold**
Treatment	•Refer URGENTLY to hospital •Keep young infant warm •Give first dose of an antibiotic	•Refer URGENTLY to hospital •Keep young infant warm •Give first dose of an antibiotic (if referral is not feasible, treat with an antibiotic and follow closely)	Advise mother: •Keep young infant warm •Breastfeed frequently •Clear nose if it interferes with feeding •Return quickly if: •Breathing becomes difficult; or fast •Feeding becomes a problem •Young infant becomes sicker

Classification of illness and treatment guidelines. WHO algorithm

Child age 2 months to 5 years

Signs	•Not able to drink •Convulsions •Abnormally sleepy or difficult to wake •Stridor in calm child, or •Fever or low body temperature	Chest indrawing (if also recurrent wheezing, go directly to treat wheezing)
Classify as	**VERY SEVERE DISEASE**	**SEVERE PNEUMONIA**
Treatment	•Refer URGENTLY to hospital •Give first dose of an antibiotic •Treat fever, if present •Treat wheezing, if present •If cerebral malaria is possible, give an antimalarial	•Refer URGENTLY to hospital •Give first dose of an antibiotic •Treat fever, if present •Treat wheezing, if present (if referral is not feasible, treat with an antibiotic and follow closely)

Classification of illness and treatment guidelines. WHO algorithm

Child age 2 months to 5 years

Signs	•No chest indrawing, and •Fast breathing	•No chest indrawing •No fast breathing
Classify as	**PNEUMONIA**	**NO PNEUMONIA COUGH OR COLD**
Treatment	•Advise mother to give home care •Give an antibiotic •Treat fever, if present •Advise mother to return with child in 2 days for reassessment, or earlier if the child is getting worse.	

Reassess in two days a child who is taking an antibiotic for pneumonia

Signs	•**WORSE**: Not able to drink Has chest indrawing Has other danger signs	**SAME**	**IMPROVING**: Breathing slower Less fever Eating better
Treatment	•Refer URGENTLY to hospital	Change antibiotic or Refer	Finish 5 days of antibiotic

Classification of illness and treatment guidelines. WHO algorithm

Treatment of Pneumonia in Young infants aged less than 2 months

Antibiotic	Dose	Frequency	
		Age <7 days	Age 7 days to 2 months
Inj. Benzyl Penicillin **OR**	50,000 IU/kg/dose	12 hourly	6 hourly
Inj. Ampicillin **AND**	50 mg/kg/dose	12 hourly	8 hourly
Inj. Gentamycin	2.5 mg/kg/dose	12 hourly	8 hourly

Treatment of Severe Pneumonia in children aged 2 months to 5 years

	Antibiotics	Dose	Interval	Mode
A	First 48 hours			
	Benzyl Penicillin	50,000 IU/kg/dose	6 hourly	IM
	OR			
	Ampicillin	50 mg/kg/dose	6 hourly	IM
	OR			
	Chloramphenicol	25 mg/kg/dose	6 hourly	IM
B	If condition IMPROVES, then for the next 3 days:			
	Procaine penicillin	50,000 IU/kg	Once	IM
	OR			
	Ampicillin	50 mg/kg/dose	6 hourly	Oral
	OR			
	Chloramphenicol	25 mg/kg/dose	6 hourly	Oral
	If NO IMPROVEMENT, for next 48 hours:			
	CHANGE ANTIBIOTIC			
C	Provide symptomatic treatment for fever and wheezing, if present			
D	Monitor fluid and food intake			
E	Advise mother on home management on discharge.			

Treatment of Pneumonia
Daily Dose Schedule of Cotrimoxazole

Age/Weight	Paediatric Tablet: Sulphamethoxazole 100mg and Trimethoprim 20mg	Paediatric syrup: Each spoon (5ml) contains: Sulphamethoxazole 200mg and Trimethoprim 40mg
< 2 months (wt. 3-5 kg)	One tab BD	Half spoon BD
2-12 months (wt. 6-9 kg)	Two tab BD	One spoon BD
1-5 years (wt. 10-19 kg)	Three tab BD	One and half spoon BD

Home Care

- Mother should
  - Keep the baby warm
  - Continue breast feeding and feeding the child
  - To increase feeding after recovery
  - To clear the nose if it interferes with feeding
  - Proper dose of antibiotic for 5 days
  - Cough can be relieved by home made decoctions
  - To bring back the child after 2 days for reassessment
  - To watch for danger signs

Key strategies for treating, preventing and protecting from pneumonia

- Case management at all levels
- Improvement of nutrition and reduction of low birth weight
- Vaccination
- Control of indoor air pollution
- Prevention and management of HIV infection

These interventions, if implemented, have the potential to reduce pneumonia mortality and morbidity by more than half.

Global Action Plan for Prevention and Control of Pneumonia (GAPP)

- Effective case management at the community and health facility levels is an essential part of pneumonia control.
- Countries with significant rates of under-five mortality should adopt plans to expand adequate case management of pneumonia at hospital, health facility and community levels to achieve 90% coverage within a predetermined time frame.

- Promotion of **exclusive breastfeeding** and **zinc supplementation** are an important element of pneumonia prevention.
- Strategies to reduce rates of low birth weight and malnutrition will prevent pneumonia and should be encouraged.

- All countries should take steps to achieve Global Immunization Vision and strategy (GIVs) targets for measles and pertussis containing vaccines;
- Countries that have not yet done so should add Hib and conjugate pneumococcal vaccines to their national immunization programmes, especially if they have high child mortality.

- **Indoor air pollution** increases the risk of pneumonia.
- New technologies can reduce indoor air pollution, and additional research is needed to demonstrate the health benefits of these interventions.
- Strategies to reduce indoor air pollution may prevent pneumonia and should be encouraged.

- Strategies to prevent mother-to-child transmission of HIV and to improve the management of HIV infection and *P. jiroveci pneumonia prophylaxis in children* should be promoted in countries where HIV is prevalent.