



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



Technical Consensus statement

Updated February 2008

The following consensus statement was formulated, and should be used widely for advocacy purposes and to help promote the global action plan.

- Pneumonia kills more children than any other illness in the world. Pneumonia is a significant problem in communities with a high rate of under-five mortality, and places a huge burden on families and the health system. Pneumonia control is therefore a priority and is essential in achieving MDG4.
- In the context of child survival strategies, countries should address pneumonia control. The key strategies for treating, preventing and protecting from pneumonia are:
 - case management at all levels
 - vaccination
 - prevention and management of HIV infection
 - improvement of nutrition and reduction of /low birth weight
 - control of indoor air pollution
- These interventions, if implemented, have the potential to reduce pneumonia mortality and morbidity by more than half.
 - 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.
 - 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.
 - 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.
 - 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.
- Other preventive strategies, such as encouraging hand washing, should be promoted.
- Pneumonia is a common and serious consequence of pandemic influenza. Preparedness for pandemic influenza should include prevention and control of pneumonia and adds urgency to community case management.

GLOBAL ACTION PLAN FOR PREVENTION AND CONTROL OF PNEUMONIA (GAPP)



© World Health Organization/The United Nations Children's Fund (UNICEF), 2009

All rights reserved. Publications of the World Health Organization can be obtained from WHO Press, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland (tel.: +41 22 791 3264; fax: +41 22 791 4857; e-mail: bookorders@who.int). Requests for permission to reproduce or translate publications – whether for sale or for noncommercial distribution – should be addressed to WHO Press, at the above address (fax: +41 22 791 4806; e-mail: permissions@who.int) or to UNICEF, Division of Communication, 3 United Nations Plaza, New York 10017, USA (Fax: +1 212 303 7985; E-mail: nyhqdoc.permit@unicef.org).

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization or UNICEF concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization or UNICEF in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization and UNICEF to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization or UNICEF be liable for damages arising from its use.

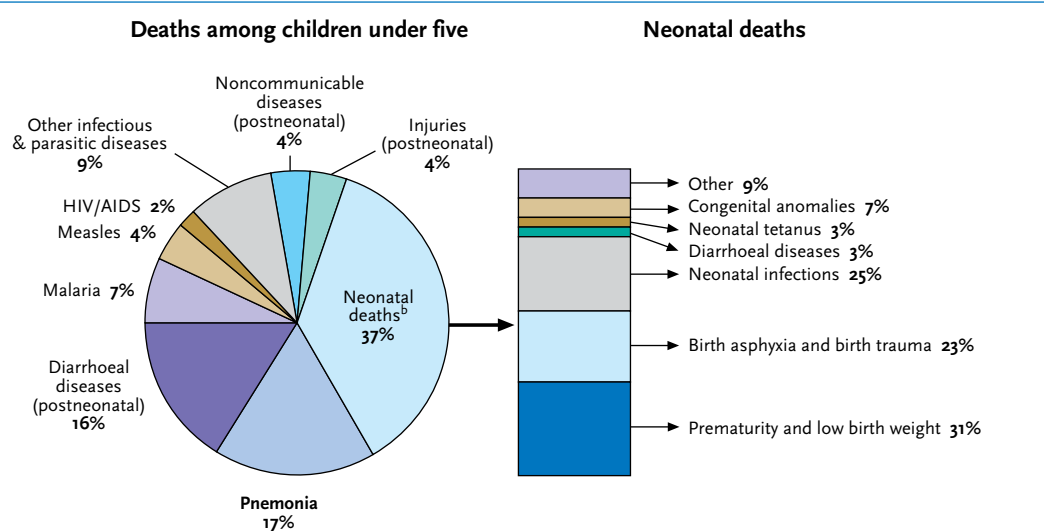
Printed in France

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 2007,¹ around 20% or 1.8 million,^{2,3} were due to pneumonia (see **Figure 1**). In spite of its huge toll on human life, relatively few global resources are dedicated to tackling this problem.

Mortality due to childhood pneumonia is strongly linked to malnutrition, poverty and inadequate access to health care. Consequently, more than 98% of pneumonia deaths⁴ in children occur in 68 countries where progress in reducing under-five mortality is most critical (the “Countdown to 2015” countries).⁵ The burden that pneumonia places on families and the health system in low-resource countries in turn exacerbates inequalities; overwhelmingly, children who are poor, hungry and living in remote areas are most likely to be visited by this “forgotten killer”.⁶

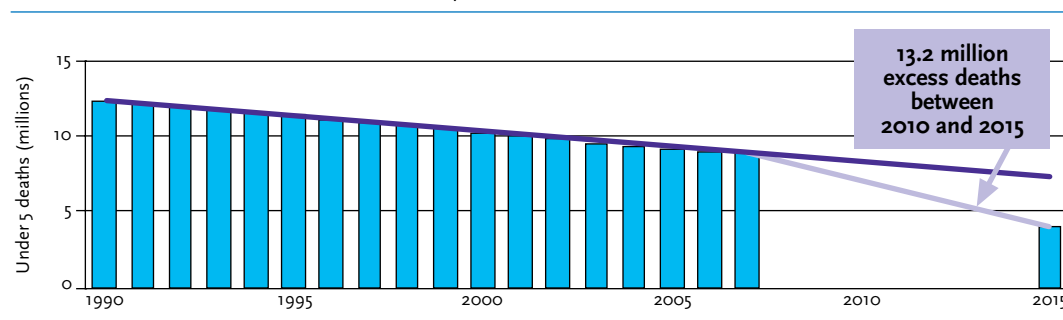
FIG 1. CAUSES OF DEATH IN NEONATES AND CHILDREN UNDER FIVE IN THE WORLD (2004)^a



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.
¹ WHO. *World Health Statistics*. Geneva, WHO, 2009.
² WHO. *The Global Burden of Disease: 2004 update*. Geneva, WHO, 2008.
³ This figure includes pneumonia deaths that occur in the neonatal period, but not those that are associated with measles, pertussis and HIV.
⁴ The percentage of total pneumonia deaths occurring in the 68 countries was estimated based on (year 2000) data on mortality among children under five years of age due to pneumonia (%) from WHO *World Health Statistics* 2008 and births per year from UN population division 2008 projections.
⁵ UNICEF. *Countdown to 2015. Tracking progress in maternal, neonatal and child survival: the 2008 report*. New York, UNICEF, 2008.
⁶ UNICEF and WHO. *Pneumonia: the forgotten killer of children*. New York, UNICEF, 2006.

FIG 2. COST OF FAILURE TO REACH MDG4

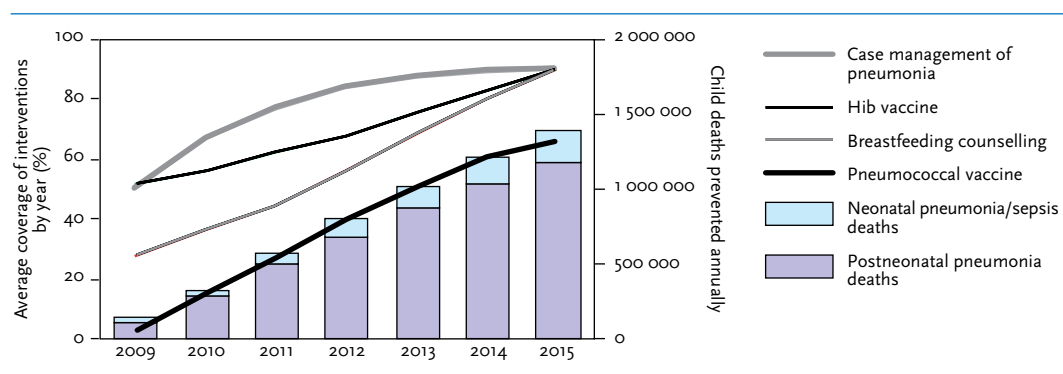


Source: WHO

This situation must not continue. At the Millennium Summit in 2000, the United Nations Member States committed to achieving Millennium Development Goal 4 (MDG4) – to reduce the under-five mortality rate by two thirds by 2015, compared to 1990. Since then, substantial progress has been made in reducing child mortality, but if the current trend continues, an estimated 13.2 million excess deaths will occur between 2010 and 2015 (see Figure 2). MDG4 can only be achieved by an intensified effort to reduce pneumonia deaths. If a global plan is not put in place, around 1.8 million children will continue to die from pneumonia every year. With accelerated implementation of key interventions, each year the number of pneumonia deaths will drop substantially, and by 2015, 67% of child pneumonia deaths will be averted. This reduction translates into 5.3 million lives saved from 2010 to 2015 (see Figure 3). In addition, up to 860 000 deaths due to diarrhoea will also have been averted during this period, as a result of the promotion of exclusive breastfeeding intervention common to both diseases.

The Global Action Plan for Prevention and Control of Pneumonia (GAPP) has been developed in order to increase awareness of pneumonia as a major cause of child death, call for scaling up the use of interventions of proven benefit, and provide guidance on how this can be done. The GAPP calls to action a broad coalition of global and national policy-makers, donor agencies and civil society.

FIG 3. CHILD PNEUMONIA DEATHS THAT COULD BE PREVENTED PER YEAR IN 68 “COUNTDOWN” COUNTRIES^{a,b}



Source: WHO

^a The impact of scaling up essential interventions for pneumonia was calculated using the Lives Saved Tool (LIST) – a tool that has been developed by the Futures Institute in collaboration with the Child Health Epidemiology Reference Group (CHERG). Deaths averted is estimated as the difference between a scenario where coverage is scaled up to on average 90% in the 68 countries, compared to a scenario where coverage remains at constant levels.

^b UNICEF. *Countdown to 2015. Tracking progress in maternal, neonatal and child survival: the 2008 report*. New York, UNICEF, 2008.

GAPP's vision

The Vision of the GAPP is that every child is protected against pneumonia through a healthy environment, and has access to preventive and treatment measures. Specific goals are to:

- Reduce mortality from pneumonia in children less than 5 years of age by 65% by 2015 compared to 2000 levels;
- Reduce the incidence of severe pneumonia by 25% in children less than 5 years of age by 2015 compared to 2000 levels.

The following targets need to be reached by the end of 2015:

- 90% coverage of each relevant vaccine (with 80% coverage in every district);¹
- 90% access to appropriate pneumonia case management;²
- 90% coverage of exclusive breastfeeding during the first six months of life;³

Progress towards these targets will be measured with data collected through national health information systems, Demographic and Health Surveys, and Multiple Indicator Surveys, as appropriate.⁴



IVB/WHO

¹ Pneumococcal vaccine uptake will be gradual and in some countries it will only be introduced in 2014, thus 90% coverage by 2015 will not apply to it.

² Children with difficult or fast breathing treated with appropriate antibiotics by a trained health provider.

³ There is no globally set target for exclusive breastfeeding, but 90% is widely accepted.

⁴ The indicators to be used will initially be the same as those for the 'Countdown to 2015', while a process takes place of developing more pneumonia-specific indicators.

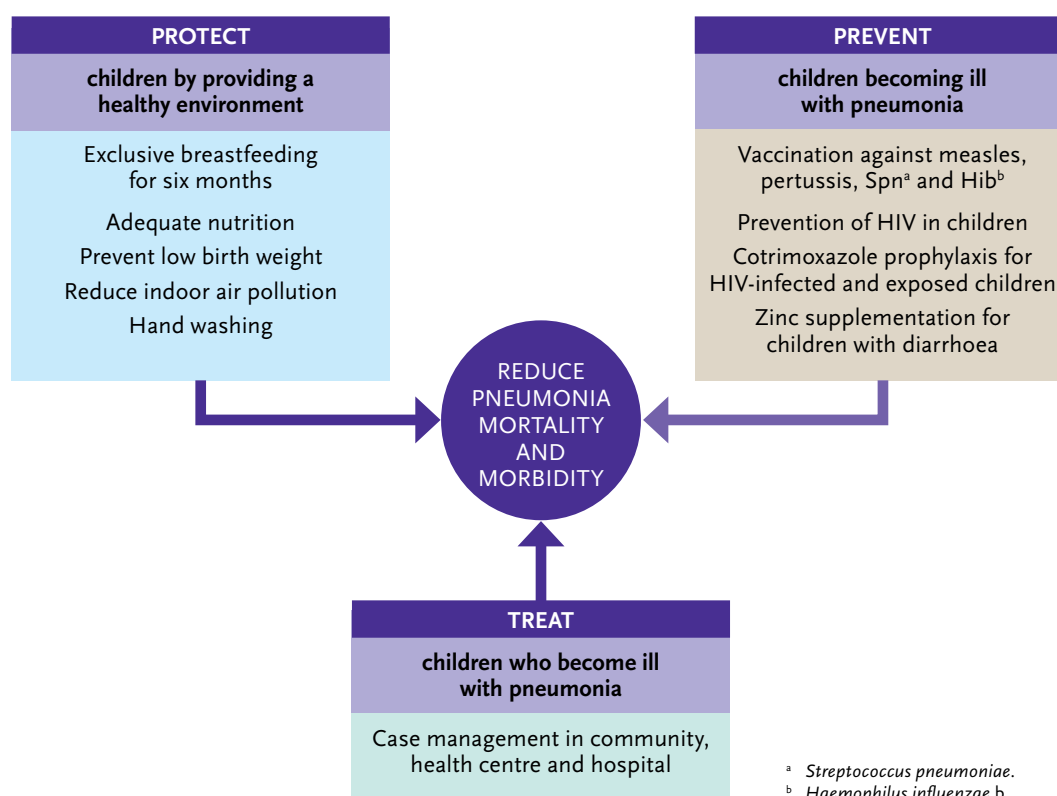
Protecting, preventing and treating pneumonia

Within GAPP's Vision, the various interventions for controlling pneumonia in children under five are categorized as follows (see [Figure 4](#)):

- **Protect** children by providing an environment where they are at low risk of pneumonia;
- **Prevent** children becoming ill with pneumonia;
- **Treat** children who become ill with pneumonia.

A complete approach to pneumonia control includes all the interventions shown in the Framework. They should be implemented as an essential part of an integrated package of effective, feasible and affordable interventions for child survival that are recommended globally, especially for the most vulnerable populations. However, in developing pneumonia control plans, most countries will need to prioritize from among these interventions. In settings with high mortality from pneumonia, emphasis should be given to interventions that will reduce mortality within the MDG time frame, while recognizing that every child has a right to protection, prevention and effective treatment (see [Table 1](#)).

FIG 4. FRAMEWORK FOR PNEUMONIA CONTROL



Tackling pneumonia in a new way – knowledge into action

Over the past 20 years, evidence on the effectiveness of specific pneumonia strategies has been accumulating. It has been shown that:

- Use of simple, standardized guidelines for identification and treatment of pneumonia in the community, at first level health facilities and at referral hospitals has been shown to substantially reduce child deaths.
- The safety and efficacy of new vaccines against *Streptococcus pneumoniae* (Spn) and *Haemophilus influenzae* type b (Hib), the two most frequent bacterial agents of childhood pneumonia, has been established.
- Vaccines against measles and pertussis in national immunization programmes have been shown to substantially reduce pneumonia morbidity and mortality in children.
- Other child survival interventions, including the promotion of exclusive breastfeeding and improvement of the living environment to reduce the spread of germs, have also been demonstrated to play an important role in pneumonia control.

This evidence was recently reviewed for several of the interventions in the Framework, including nutrition, vaccination, case management and reducing indoor air pollution.¹ Further work² provides estimates for the potential impact of these interventions (see [Table 2](#)).



IVB/WHO

¹ See *Bulletin of the World Health Organization*, May 2008.

² Niessen L et al. Comparative impact assessment of child pneumonia interventions. *Bulletin of the World Health Organization*, 2009, 87:472–480.

WHO/M. WEBER


TABLE 1. PHASING OF INTERVENTIONS ACCORDING TO UNDER-FIVE MORTALITY RATE

UNDER-FIVE MORTALITY RATE (NO. DEATHS <5 YEARS/1000 LIVE BIRTHS)				
	≥ 120	40–119	10–39	<10
Delivery of interventions	Majority at home and community, few at health facility ^a	Mixed home and community and health facility	Majority at health facility	Almost all at health facility
INTERVENTIONS FOR SCALING UP				
	Accelerate increase in coverage of interventions at home and community levels Increase access to case management at community and facility levels including referral of severe cases Strengthen outreach services Increase access to immunization Increase promotion of exclusive breastfeeding Strengthen family's capacity to recognize dangerous signs and prompt care seeking Reduce indoor air pollution	Aim for increasing coverage of interventions at all levels Priority on increased quality of care and on care seeking Increase access to immunization Increase promotion of exclusive breastfeeding Strengthen family's capacity to recognize dangerous signs and prompt care seeking Aim for functional referral facility	Aim for universal coverage of interventions Promote care seeking Increase access to immunization Increase promotion of exclusive breastfeeding Increase attention to equity	Promote continued universal coverage of highest quality of prevention and care Increase access to immunization Increase promotion of exclusive breastfeeding Ensure equity Promote healthy behaviours

^a In this table, "health facility" includes all levels, e.g. health post, health centre, district and referral hospitals.

TABLE 2. POTENTIAL REDUCTIONS IN PNEUMONIA MORBIDITY AND MORTALITY WITH SELECTED INTERVENTIONS (ASSUMING NEAR-UNIVERSAL COVERAGE)

INTERVENTIONS TO PROTECT	EVIDENCE OF IMPACT
Promote exclusive breastfeeding for 6 months	15–23% reduction in pneumonia incidence; ^a 13% reduction in all child deaths ^b
Adequate nutrition throughout the first five years of life, including adequate micronutrient intake	6% reduction in all child deaths for adequate complementary feeding (6–23 months of life) ^b
Reduce incidence of low birth weight	Review in progress
Reduce indoor air pollution	Relative risk reduction with liquid fuel stoves; 75% reduction in incidence in specific settings with improved solid fuel stoves ^a
Hand washing	3% reduction in all child deaths when combined with improved water and sanitation interventions ^b
INTERVENTIONS TO PREVENT	EVIDENCE OF IMPACT
Vaccination against measles, pertussis, Spn and Hib	22–34% reduction in incidence for Hib; ^a 23–35% reduction in incidence for Spn; ^a 4% reduction in all child deaths with Hib and 1% with measles ^b
Prevention of HIV in children	2% reduction in all child deaths ^b
Cotrimoxazole prophylaxis for HIV-infected children	Review in progress
Zinc supplementation in children with diarrhoea	14–15% reduction in incidence; ^a 4–5% reduction in all child deaths as preventive measure ^b
INTERVENTIONS TO TREAT	EVIDENCE OF IMPACT
Improved care seeking and demand generation within communities	Review in progress
Health facility case management for very severe cases and vulnerable groups such as newborns, HIV-infected and malnourished children	29–45% reduction in case fatality; ^a 6% reduction in all child deaths ^b
Increasing access to appropriate care through community-based case management	34–50% reduction in neonatal case fatality; ^a reduction in total mortality of 27%, 20%, and 24% among neonates, infants, and children, respectively; reduction in pneumonia mortality in the same groups by 42%, 36%, and 36% ^c

^a Niessen L et al. Comparative impact assessment of child pneumonia interventions. *Bulletin of the World Health Organization*, 2009, 87:472–480.

^b Jones G et al. How many child deaths can we prevent this year? *Lancet*, 2003, 362:65–71.

^c S Sazawal, Black R. Effect of pneumonia case management on mortality in neonates, infants, and preschool children: a meta-analysis of community-based trials. *Lancet Infectious Diseases*, 2003, 3:547–556.

Costs

The cost of implementing the GAPP interventions to Protect (breastfeeding), Prevent (vaccinations) and Treat (case management) in the 68 high child mortality 'Countdown to 2015' countries¹ will be US\$ 39 billion for the 2010-2015 period. One half of the costs are needed for scaling up these interventions in China (US\$ 13 billion) and India (US\$ 7 billion). For the 68 countries, the costs will double over the 6-year period rising from an annual need of US\$ 3.8 billion in 2010 to US\$ 8.0 billion by 2015 (see [Table 3](#)). Expressed another way, the cost of implementing the GAPP interventions represents an additional annual investment of US\$ 12.9 per child. The costing of the GAPP interventions has focused on those shown to be cost-effective in multiple settings and feasible to scale up, together with strengthening of the overall health system. The 68 countries included account for about 98% of global pneumonia deaths in children under five. Costs take into account the necessary vaccines and commodities, service delivery for providing care in facilities and at community level (see [Figure 5](#)), engaging in information and communication activities and programme support to bring coverage of key interventions to 90%. While the costing is based on standard clinical guidelines, key assumptions include an increasing capacity to deliver preventive and curative care at community level. With the inputs described, up to 1.2 million post-neonatal pneumonia deaths can be averted annually by 2015, significantly contributing to MDG4. In addition the scaling up of these interventions will prevent another 0.4 million deaths due to neonatal pneumonia/sepsis and diarrhoea in 2015.² This work is consistent with the work of the Task Force on Innovative International Financing for Health Systems,³ which estimated that an additional US\$ 112–US\$ 251 billion is needed to strengthen the health system and scale up services⁴ to prevent 3.9–4.3 million under-five deaths under different scenarios. The broad estimates of the GAPP costs are similar to estimates for comprehensive malaria control.⁵

TABLE 3. GLOBAL COSTS FOR SCALING UP GAPP INTERVENTIONS (BREASTFEEDING, VACCINATION AND CASE MANAGEMENT) IN COUNTDOWN COUNTRIES, 2010–2015 (US\$ MILLIONS)

	68 countries			66 countries ^a
	2010	2015	2010–2015	2010–2015
Vaccines and injection supplies	1 321.7	1 697.9	9 661.0	6 660.6
Commodities and diagnostics for pneumonia management	3.1	23.9	141.0	109.4
Costs for delivering services ^b	1 621.1	5 383.5	22 653.6	8 070.1
Programme and systems costs	916.9	987.4	6 507.8	4 006.5
Total	3 862.8	8 092.7	38 963.4^c	18 846.5

^a China and India excluded from these estimates.

^b Service delivery costs include human resources at facility level as well as community health workers.

^c Of this amount, US\$ 13 billion is for China and US\$ 7 billion for India.

¹ UNICEF. *Countdown to 2015. Tracking progress in maternal, neonatal and child survival: the 2008 report*. New York, UNICEF, 2008.

² Lives Saved Tool (LiST) was used to calculate impact (<http://www.futuresinstitute.com>).

³ Task force for Innovative International Financing for Health Systems. Constraints to scaling up and costs. Working group 1. http://www.internationalhealthpartnership.net//CMS_files/documents/working_group_1_-_report_EN.pdf.

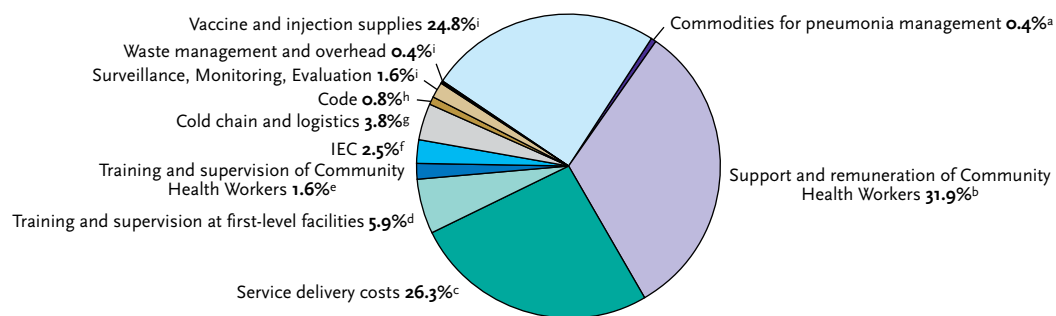
⁴ In 49 low-income countries.

⁵ Roll Back Malaria Partnership. *The Global Malaria Action Plan*. Geneva, Roll Back Malaria Partnership, 2008.

WHO/M. WEBER



FIG 5. 68 COUNTRIES: BREAKDOWN OF TOTAL COSTS 2009–2015



Source: WHO

^a Medicines, injection materials and diagnostics.

^b Includes honorarium of community health workers (CHWs), and staff at national and subnational level to coordinate the CHW programme

^c The costs include human resources plus overhead costs such as capital investments, infrastructure maintenance, electricity and water required for running the facility. The costs reflect the resources used by the provider in providing these services and do not consider who finances these costs, whether this be the government, the patient or another entity.

^d Includes: Vaccine related training and supervision, and IMCI training cost.

^e Includes: Training CHWs, and regular supervision.

^f Includes: Information, education and communication (IEC) for child health; and social mobilization activities for immunizations.

^g Vaccine specific. Cold chain and transport/vehicles.

^h Enactment, monitoring and enforcement of the Code of Marketing of Breast-milk Substitutes (breastfeeding specific).

ⁱ Vaccine specific.

Country strategies

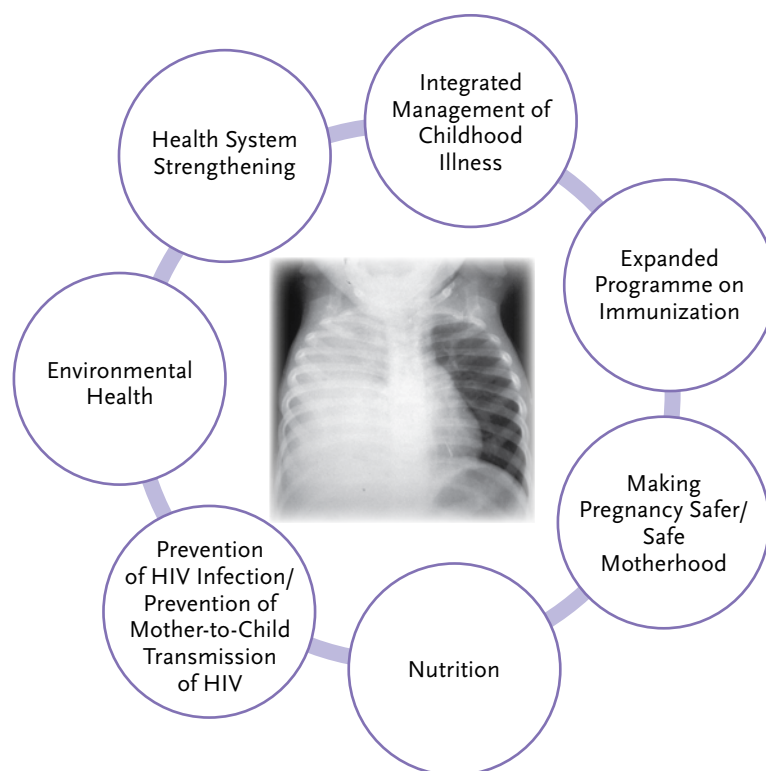
The key to reducing childhood pneumonia and achieving MDG4 is to urgently turn current knowledge into a package of effective and affordable interventions. This package will protect children by providing an environment where they are at lower risk of pneumonia, will prevent pneumonia morbidity by applying proven interventions, and will effectively treat cases when they occur in order to reduce mortality. Most child pneumonia deaths would be averted if this package of interventions were implemented on a broad scale and reached the most vulnerable populations.

Many of the interventions in the package fall within the scope of health ministries, but some will require close collaboration with other sectors. Actions will be further enhanced by progress in eliminating poverty and protecting the quality of the environment.

Most countries are already implementing at least some of the interventions needed to control childhood pneumonia, through various programmes and approaches (see [Figure 6](#)).

However, implementation thus far has been uneven and service delivery remains uncoordinated. Only 54% of children with pneumonia are reportedly taken to a qualified health care provider in developing countries. Despite the essential role of antibiotics in reducing child deaths from

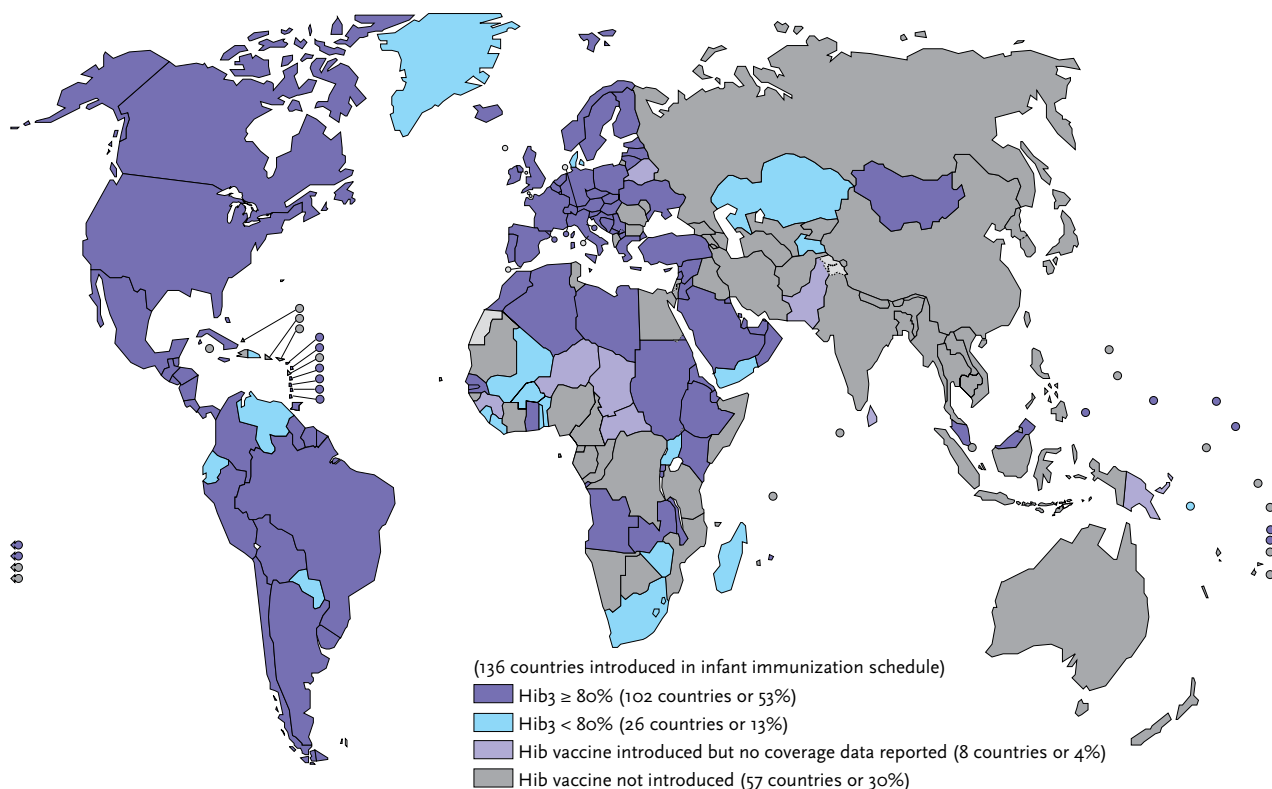
FIG 6. COLLABORATION BETWEEN PROGRAMMES AND APPROACHES TO ADDRESS PNEUMONIA



pneumonia, only 19% of under-five children with clinical signs of pneumonia received antibiotics.¹ Only 82% of children receive their first routine dose of a vaccine against measles.² There has been a significant reduction in measles deaths because of the provision of a second opportunity for measles vaccination through mass campaigns. Nevertheless, a risk exists that many countries will suffer increased numbers of measles cases unless global efforts to control the disease are intensified. Not all countries have introduced Hib vaccination, although there has been recent progress in this area. Sixty-one of 72 GAVI-eligible countries have already or will introduce Hib into their routine immunization schedule in 2009 (see [Figure 7](#)). Few countries have yet included the pneumococcal conjugate vaccine in their national immunization programmes though there is strong interest in many countdown countries to do so (see [Figure 8](#)). Exclusive breastfeeding up to six months is only practised by 34.8%³ of mothers. Low coverage prevails for other interventions also, and where coverage is poor, it is usually the children at greatest risk of pneumonia who are not covered.

There are major programmatic challenges to improving this situation: identifying the best package of interventions for a particular country, defining ways to scale them up, ensuring that the

FIG 7. COUNTRIES THAT HAVE INTRODUCED HIB VACCINE AND COVERAGE IN INFANTS (2008)



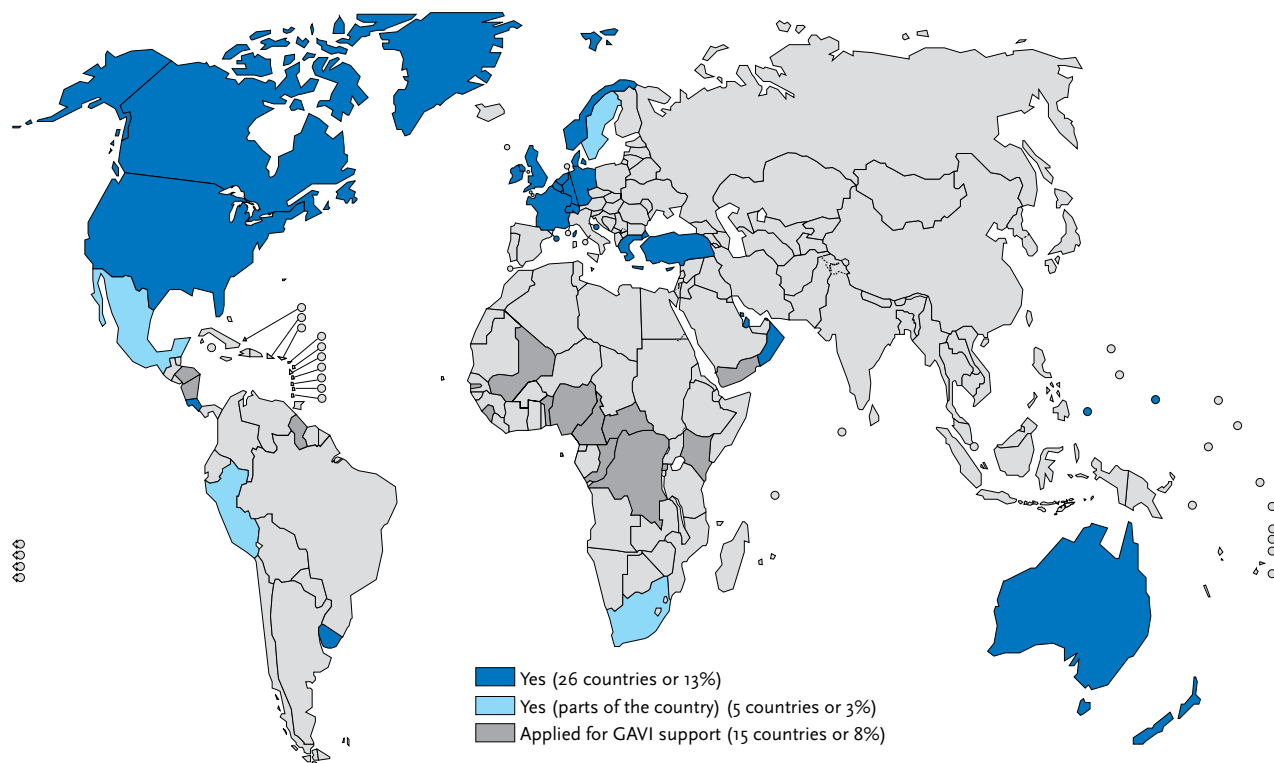
Source: WHO/UNICEF coverage estimates 1980–2008, July 2009

¹ UNICEF and WHO. *Pneumonia: the forgotten killer of children*. New York, UNICEF, 2006.

² UNICEF. *The state of the world's children 2009. Maternal and newborn health*. New York, UNICEF, 2009.

³ WHO. *Global data bank on infant and young child feeding*. 2009.

FIG 8. STATUS OF GLOBAL PNEUMOCOCCAL CONJUGATE VACCINE INTRODUCTION (2008)



Source: WHO/IVB database, 193 WHO Member States, July 2009

highest risk communities are reached, and introducing appropriate new interventions. Creating synergy among the concerned programmes and departments within ministries of health and among other institutions that provide health services or implement complementary interventions is a particular challenge.

Because of the need to act urgently, pneumonia interventions must be prioritized at the policy and financial level, to ensure that an environment conducive to interventions is in place and that resources are available. At the same time, delivery of key interventions needs to be integrated at the point of care, e.g. breastfeeding promotion, case management and preventing missed opportunities for vaccination.

Recommendations for major actions to be taken in countries

■ Designation of a national action group for pneumonia control

A coordinating body at national level is needed to take responsibility for formulating and coordinating the implementation of an action plan. In some countries with high pneumonia mortality, the formation of a new group may be necessary, while in others this group will be part of an existing national task force or committee related to child survival, e.g. IMCI, immunization, making pregnancy safer, HIV, environmental health. Whatever the situation, it is of critical importance that there be a body with a clear responsibility for pneumonia.¹ As part of the action plan, this group will advocate for resources for scaling up pneumonia interventions, and monitor progress in achieving goals.

■ Generating political will

Advocacy with policy- and decision-makers, including those who make resource allocation decisions, is critical for their understanding of the problem and necessary action. The interest and willingness of high-level political figures to dedicate national resources for pneumonia will be key to ensuring success.

■ Developing a situation analysis for pneumonia

The information needed for the development of a situation analysis for pneumonia is usually already present in regional and national child survival strategies and plans. It needs to be compiled and acted upon. If it is not available, then the national action group will be responsible for gathering necessary additional data. The situation analysis should review estimates of population coverage by pneumonia intervention (e.g. exclusive breastfeeding rates, vaccination coverage, percentage of children receiving appropriate case management for pneumonia) and the support available for scaling up interventions. This process provides an opportunity to discuss the appropriate mix of interventions to be immediately scaled up, given the country's circumstances.

■ Involving other programmes

Many health programmes are already acting in pneumonia prevention and control. The action group will work with them to see how they can revitalize their roles. In addition, the involvement of relevant non-health programmes (such as environment for housing conditions, water supply and sanitation, public transportation for access to care) will be encouraged.

■ Identifying areas of harmonization and collaboration

An important role of the action group is to help various programmes to harmonize efforts in areas such as policy, guidelines and tools, supervision and monitoring, and find ways of collaborating to optimize use of resources. Any health systems strengthening initiatives should be taken into account, and staff involved may make valuable contributions to this process.

¹ Where relevant, this body may also be responsible for any diarrhoea initiative, as it is the second most common cause of death in under-five year old children.

■ **Increasing coverage for vaccination, access to case management and promotion of exclusive breastfeeding**

Nearly all countries will need to take action in at least the three critical areas of vaccination, case management and breastfeeding. Based on resource availability, the national action group will develop a concrete plan on how to increase coverage for these key interventions in an equitable manner. They will take into account the fact that rapid reductions in pneumonia mortality are more likely to come from ensuring access to interventions in areas or populations that are currently the most under-served, thereby reducing inequity. Policy issues, such as improving access to care by empowering community-level workers in pneumonia case management, will need to be resolved in order to remove barriers to scaling up. Health systems strengthening initiatives may help to highlight other policy issues hindering implementation and help in their resolution.

■ **Tracking progress**

The national pneumonia plan will contain locally-appropriate goals, targets and indicators for measuring whether the targets are being reached, as well as how needed data will be made available. The national action group will be responsible for measuring progress, and using the information for modifying the national plan, advocacy and resource mobilization. Epidemiological and programmatic data is normally collected through the national health information system and periodic surveys, such as Demographic and Health Surveys and Multiple Indicator Cluster Surveys. As part of the situation analysis, or the work of a specific sub-group, an assessment will be required of what data will be available when, and, if necessary, how additional data may be collected.

■ **Engaging the United Nations agencies and donors in countries**

WHO and UNICEF provide technical support in many countries, such as provision of guidelines and tools for conducting a situation analysis and development of a pneumonia action plan. The national action group will “map” these agencies and other possible donors at country level, to see how existing resources can be best used, and, where possible, how additional resources can be mobilized.



AVEC/H VINCENT

Global Role of Partners

The achievement of the global objectives for pneumonia prevention and control will require coordination among the concerned individual programmes at country and regional level and expanded support from development agencies.

As an example of improved efforts at coordination, a core group of international partners from United Nations agencies and technical institutions has spearheaded the development of the GAPP. This group, appropriately expanded, will act as a Global Task Force and continue to provide a common platform for cooperation among various stakeholders. It will primarily work to:

- Increase awareness of pneumonia as the leading cause of death among children less than five years of age in developing countries, including the identification of champions to support important messages;
- Support the implementation or scaling up of child survival interventions with a focus on accelerating the reduction of mortality from childhood pneumonia;
- Propose a set of priority activities to achieve the targets of each selected intervention;
- Facilitate monitoring, evaluation and surveillance activities to measure progress in achieving the objectives of the GAPP;
- Mobilize resources in support of the implementation of child survival interventions to reduce mortality from childhood pneumonia in low-income countries.

The partners, according to their expertise and interest, will take responsibility in leading specific activities identified by the Task Force and may assign dedicated staff for these activities. Within the United Nations system, WHO and UNICEF have a leading responsibility based on their combined expertise and experience of child survival efforts.

Many international governmental and non-governmental organizations are already providing, or planning to provide assistance to developing countries to help build and sustain national capacity for control of pneumonia in young children. These activities are usually integrated into actions designed to address the MDG₄ target. Such supportive activities must be maintained and enhanced with, where necessary, specific emphasis on pneumonia.

Regional and international agencies will be called upon to provide technical assistance for country activities. These activities are likely to include: revision, adaptation and development of technical, operational and managerial policies; tiered pricing of vaccines, drugs and equipment; and presenting a concise technical programme, cost and outcome projections.

Research

The neglect of research in the field of pneumonia over the past decade has left many important clinical and epidemiological questions unanswered.¹ Pneumonia prevention and control efforts are unlikely to be effective unless supported by strong research, both operational and more basic. Therefore, efforts to control pneumonia in children must be underpinned by an expanded research effort, including building research capacity in the countries most affected. While country programmes move forward to scale up, there will be a need for research on delivery strategies and finding better ways for implementation. However, the need for this research is no reason to delay the implementation of effective interventions now.

Key areas that can be addressed through research are:

- Main barriers to health care seeking and health care access for children with pneumonia in different contexts and settings in developing countries;
- Finding more effective methods of diagnosing pneumonia and its causes in the community and first level facilities;
- Investigating new treatment regimens in the face of increasing antimicrobial resistance of respiratory bacterial pathogens, and shifts in prevalent pathogens post Hib and pneumococcal vaccine introduction and HIV prevalence;
- Continued and expanded vaccine development to produce improved versions of existing vaccines and new vaccines for infections that are not yet vaccine preventable.

The new tools should not only be effective, but also affordable, sustainable and acceptable to health workers and to the population. The Global Task Force will create a forum to facilitate communication between research groups to exchange information on on-going studies, provide information about funding sources, discuss results from recently concluded studies and convene workshops to standardize research methodologies, address key gaps in knowledge, organize multi-centre studies and generate resources. The Global Task Force will also facilitate the implementation of promising new interventions at the country level.

¹ Enserink M. Global health: Some neglected diseases are more neglected than others. *Science*, 2009, 323(5915):700.

Opportunities 2009–2015

In the context of the size of the global problem of childhood pneumonia, the resources required to provide proven interventions are modest. The MDGs have built considerable momentum and strengthened political commitment to addressing child mortality. The significant reduction in under-five mortality that has been achieved since 1990 has resulted in saving millions of young lives in the past two decades. It is a strong incentive to intensify efforts because most of this progress has been the result of increases in the adoption of basic health interventions. With less than six years left to achieve MDG4, the GAPP presents a way to enhance progress on reducing the top child killer. This opportunity to advocate for and provide increased investment in pneumonia should not be missed.

A further opportunity is the general recognition that success in the reduction of global health problems requires active involvement of affected communities supported by effective international partnership and collaborative efforts. Policies and actions are recognizing and laying the groundwork for this community-based approach.

BELAL HOSSAIN, CHRF, DSH, DHAKA



Conclusion

The global MDG₄ target to reduce child mortality by two thirds is still out of reach for many of the poorest countries of the world. This target will not be achieved without urgent action on pneumonia from national governments and ministries of health and supporting partners at the global level. Focused, coordinated and integrated international and national action on pneumonia control, as foreseen in the GAPP, is needed. This document calls on all concerned groups to express their political commitment to such action, and to allocate resources to achieve the targets.



WHO/P. VIROT

**For further information, please contact:
Department of Child and Adolescent Health and Development
(cah@who.int)**

- WHO and UNICEF have developed the Global Action Plan for Prevention and Control of Pneumonia (GAPP) to support countries. The GAPP provides a global framework for action around which partners can coordinate their efforts.
 - Pneumonia kills more children than any other illness – more than AIDS, malaria and measles combined.
 - Effective interventions to reduce pneumonia deaths are available but reach too few children.
 - More than a million lives could be saved if prevention and treatment interventions were implemented universally.
 - Preventing children under five from developing pneumonia in the first place is key.
-

**WORLD HEALTH ORGANIZATION
Avenue Appia 20, 1211 Geneva 27, Switzerland**

**UNITED NATIONS CHILDREN'S FUND
3 UN Plaza, New York, New York 10017 USA**

November 2009