

A young child with dark skin and hair is looking through a window frame. The child's face is partially obscured by the frame, and they are holding onto the edge of the window. The background is a blurred outdoor scene with greenery and a building.

Ending Preventable Child Deaths from Pneumonia and Diarrhoea by 2025

The integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD)

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Ending Preventable Child Deaths from Pneumonia and Diarrhoea by 2025

The integrated Global Action Plan for Pneumonia and Diarrhoea (GAPPD)

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Abbreviations and acronyms

ACT	Artemisinin-based combination therapy
ADDO	Accredited drug dispensing outlet
AIDS	Acquired immuno-deficiency syndrome
ANC	Antenatal care
CCM	Community case management
CHW	Community health worker
CoIA	United Nations Commission on Information and Accountability
DHS	Demographic and Health Survey
DTP3	Diphtheria, tetanus and pertussis vaccine
EPI	Expanded Programme on Immunization
EWEC	Every Woman Every Child
GAPP	Global Action Plan for Prevention and Control of Pneumonia
GAPPD	The integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea
HAP	Household air pollution
HEW	Health extension workers
Hib	Haemophilus influenzae B vaccine
HIV	Human immunodeficiency virus
HSS	Health system strengthening
HWTS	Household water treatment and storage
iCCM	Integrated community case management
iERG	Independent Expert Review Group
IMCI	Integrated Management of Childhood Illness
LPG	Liquefied Petroleum Gas
MDG	Millennium Development Goal
MoH	Ministry of Health
NGO	Nongovernmental organization
ORS	Oral rehydration salts
ORT	Oral rehydration treatment
PHC	Primary health care
PCV	Pneumococcal conjugate vaccine
Spn	Streptococcus pneumonia
UNF	United Nations Foundation
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WASH	Water, sanitation and hygiene
WHO	World Health Organization

Executive Summary

Ending two major preventable causes of child death

Stopping the loss of millions of young lives from pneumonia and diarrhoea is a goal within our grasp. The *integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea (GAPPD)* proposes a cohesive approach to ending preventable pneumonia and diarrhoea deaths. It brings together critical services and interventions to create healthy environments, promotes practices known to protect children from disease and ensures that every child has access to proven and appropriate preventive and treatment measures.

The goal is ambitious but achievable: to end preventable childhood deaths due to pneumonia and diarrhoea by 2025.

The momentum needed to achieve this goal exists already. The world has achieved substantial gains in child survival over the past 20 years and extensive work has been done to not only meet the Millennium Development Goal for 2015 on child survival, but also go beyond. The United Nations *Global Strategy for Women's and Children's Health*, launched in 2010, calls for a "continuum of care" approach to services, aiming to save 16 million lives. With the *Every Woman Every Child (EWEC)* movement, efforts

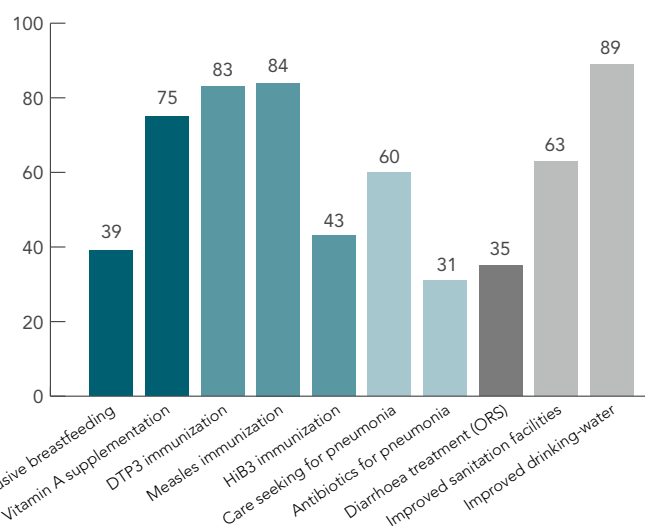
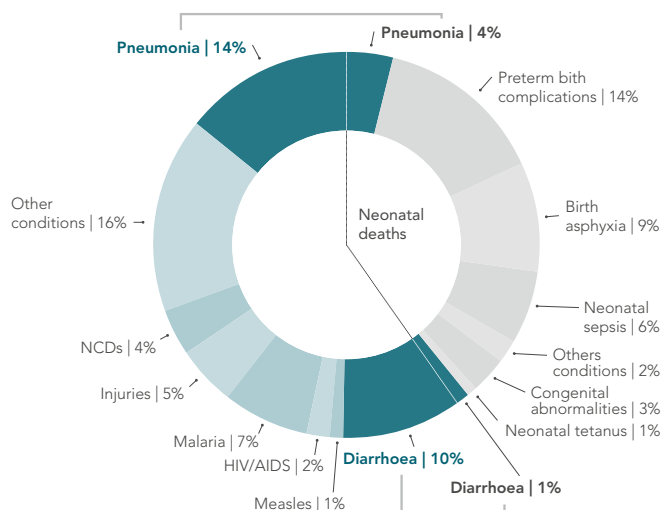
have continued. In 2012, the call to action *Committing to Child Survival: A Promise Renewed* challenged the global community to reduce child mortality to 20 or fewer child deaths per 1000 live births in every country by 2035.

Other contributing initiatives include the *Global Vaccine Action Plan*, which sets out a strategy for preventing childhood disease through vaccination; the comprehensive implementation plan to improve maternal, infant and young child nutrition endorsed by WHO Member States; and the United Nations *Sustainable Energy For All* initiative which is a public-private commitment to universal access to modern energy services by 2030. Moreover, the United Nations *Commission on Life-Saving Commodities* made important recommendations to strengthen access to and use of life-saving commodities including treatment for pneumonia and diarrhoea, while the United Nations *Commission on Information and Accountability* paved the way for improved monitoring of programmes to protect women's and children's health.

Closing the gap: reaching all children with existing interventions

Pneumonia and diarrhoea remain major killers of young children. Together, these diseases account for 29% of all deaths of children less than 5 years of age and result in the loss of 2 million young lives each year.

The solutions to tackling pneumonia and diarrhoea do not require major advances in technology. Proven interventions exist. Children are dying because services are provided piecemeal and those most at risk are not being reached. Use of effective interventions remains too low; for instance, only 39% of infants less than 6 months are exclusively breastfed while only 60% of children with suspected pneumonia access appropriate care. Moreover, children are not receiving life-saving treatment; only 31% of children with suspected pneumonia receive antibiotics and only 35% of children with diarrhoea receive oral rehydration therapy.



Thirty-five percent of deaths in children less than five years of age are associated with malnutrition.'

Sources: WHO Global Health Observatory (http://www.who.int/gho/child_health/en/index.html) and 'Black R et al. *Lancet*, 2008, 371:243-260 (5, 6)

Children who are poor, hungry and living in remote areas are most likely to be visited by these "forgotten killers" and the burden placed by pneumonia and diarrhoea on families and health systems aggravates existing inequalities.

Source: UNICEF's State of the World's Children 2013

Identifying those children at greatest risk, hardest to reach and most neglected, and targeting them with interventions of proven efficacy will enable us to close the gap, ultimately ending the heavy toll of preventable child deaths.

Using interventions that work

Research shows that these interventions and activities work:

- Exclusive breastfeeding for six months and continued breastfeeding with appropriate complementary feeding reduces the onset and severity of diarrhoea and pneumonia.
- Use of vaccines against *Streptococcus pneumoniae* and *Haemophilus influenzae* type b, the two most common bacterial causes of childhood pneumonia, and against rotavirus, the most common cause of childhood diarrhoea deaths, substantially reduces the disease burden and deaths caused by these infectious agents. In response, an increasing number of countries are introducing these vaccines.
- Use of vaccines against measles and pertussis substantially reduces pneumonia illness and death in children.
- Use of simple, standardized guidelines for the identification

and treatment of pneumonia and diarrhoea in the community, at first-level health facilities and at referral hospitals, such as those for integrated management of childhood illness (IMCI), substantially reduces child deaths.

- Oral rehydration salts (ORS), and particularly the low-osmolarity formula, are a proven life-saving commodity for the treatment of children with diarrhoea. Use of zinc supplements with ORS to treat children with diarrhoea reduces deaths in children less than five years of age.
- Innovative demand creation activities are important for achieving behaviour change and sustaining long-term preventive practices.
- Water, sanitation and hygiene interventions, including access to and use of safe drinking-water and sanitation, as well as promotion of key hygiene practices provide health, economic and social benefits.
- Reduction of household air pollution with improved stoves has been shown to reduce severe pneumonia. Safer and more efficient energy in the home prevents burns, saves time and fuel costs, and contributes to better development opportunities.

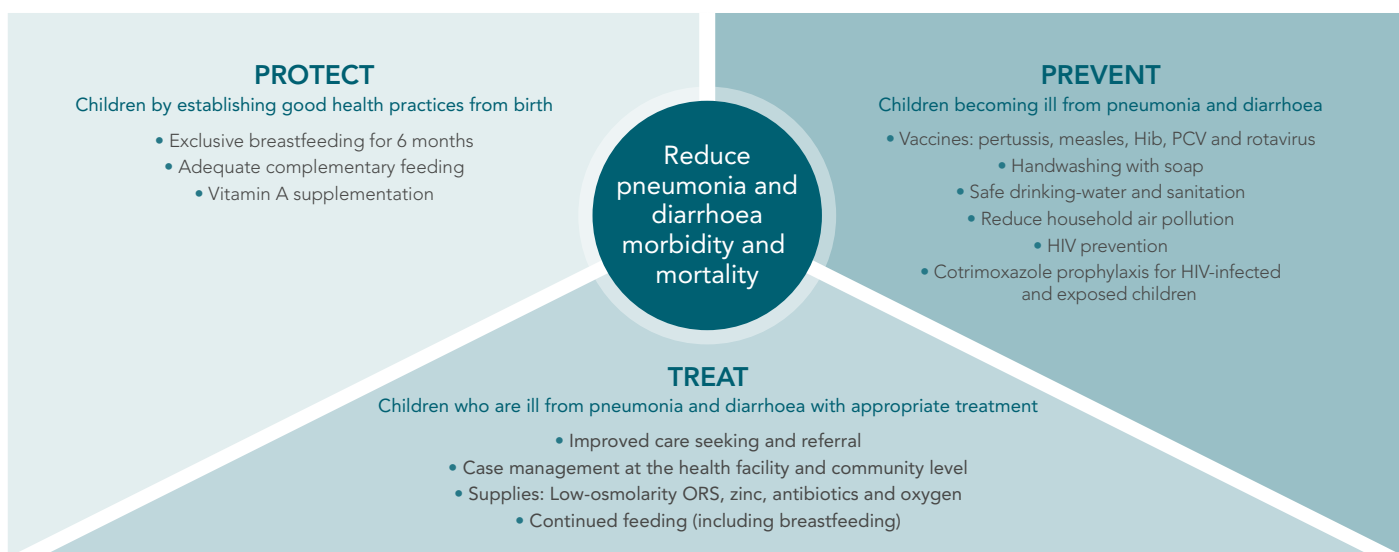
An integrated approach for saving lives

The GAPPD provides an integrated framework of key interventions proven to effectively prevent and treat childhood pneumonia and diarrhoea. Although effective interventions have been well established, they are not always promoted together to achieve maximum benefit. It is now clear that pneumonia and diarrhoea must be addressed in a coordinated manner. The determinants are often the same, hence preventive strategies and delivery platforms via health care facilities, families, communities and schools are similar.

Engaging all sectors and actors

The GAPPD provides a roadmap for national governments and their partners to plan and implement integrated approaches for the prevention and control of pneumonia and diarrhoea. It recognizes that for successful implementation, the effective engagement of all relevant stakeholders is key, and it pays special tribute to front-line health care providers, especially those at the most peripheral levels, as well as communities.

Protect, Prevent and Treat framework



The strategy at a glance

The GAPPD identifies opportunities to better integrate activities as well as capture synergies and efficiencies.

It envisions the various interventions for controlling pneumonia and diarrhoea in children less than five years of age as:

- *protecting* children by establishing and promoting good health practices;
- *preventing* children from becoming ill from pneumonia and diarrhoea by ensuring universal coverage of immunization, HIV prevention and healthy environments;
- *treating* children who are ill from pneumonia and diarrhoea with appropriate treatment.

A focus on country impact

The Integrated Global Action Plan aims to help countries achieve impact by analysing local data, acting on the results and monitoring their progress towards clear, achievable goals.

- **Goals by 2025:**
 - reduce mortality from pneumonia in children less than 5 years of age to fewer than 3 per 1000 live births;
 - reduce mortality from diarrhoea in children less than 5 years of age to fewer than 1 per 1000 live births;
 - reduce the incidence of severe pneumonia by 75% in children less than 5 years of age compared to 2010 levels;
 - reduce the incidence of severe diarrhoea by 75% in children less than 5 years of age compared to 2010 levels;
 - reduce by 40% the global number of children less than 5 years of age who are stunted compared to 2010 levels.
- **Coverage targets:** to achieve these goals, the following targets will need to be maintained or reached by the end of 2025:
 - 90% full-dose coverage of each relevant vaccine (with 80% coverage in every district);
 - 90% access to appropriate pneumonia and diarrhoea case management (with 80% coverage in every district);
 - at least 50% coverage of exclusive breastfeeding during the first 6 months of life;
 - virtual elimination of paediatric HIV.
- **By the end of 2030**
 - universal access to basic drinking-water in health care facilities and homes;
 - universal access to adequate sanitation in health care facilities by 2030 and in homes by 2040;
 - universal access to handwashing facilities (water and soap) in health care facilities and homes;
 - universal access to clean and safe energy technologies in health care facilities and homes.

Action at country level

In order to reach the goals, the GAPPD recommends that governments and partners:

- **Develop a clear country-level strategy and work plan, with key responsibilities assigned:**
 - generate political will;
 - develop/update a situation analysis for pneumonia and diarrhoea;
 - prioritize interventions;
 - develop/update a costed plan for accelerated action;
 - identify areas of harmonization and collaboration between programmes and sectors, including the private sector, academia and civil society;
 - use data to identify groups at greater risk or missed by services and develop targeted approaches to reach them;
 - develop a set of common indicators for tracking progress.
- **Coordinate implementation of interventions:**
 - designate a national working group for pneumonia and diarrhoea prevention and control or review membership of an appropriate existing group;
 - mobilize resources;
 - apply lessons from other integrated disease prevention and control efforts;
 - track execution and progress;
 - take and/or assign accountability for action.
- **Engage and embed critical partners in the overall work plan/approach:**
 - involve other programmes and sectors;
 - involve the private sector and nongovernmental organizations;
 - engage the United Nations agencies and development partners.
- **Other actions:**
 - promote innovations, especially for overcoming barriers to service delivery;
 - generate demand and ensure supply;
 - focus on implementation research and identify optimal modes of delivery of existing interventions in order to reach those most in need.

The targets in the *integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea* will not be achieved without urgent action in the areas listed above from national governments as well as supporting partners at the global level. Focused, coordinated and integrated international, national and sub-national action on pneumonia and diarrhoea control is needed to continue sustaining and increasing the gains in the reduction of child mortality. This document calls on all concerned groups to demonstrate their commitment, allocate the required resources, and work together to make preventable child deaths due to pneumonia and diarrhoea a tragedy of the past.

The integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea (GAPPD)

Ending two major preventable causes of child death

The *integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea (GAPPD)* proposes a cohesive approach to ending preventable pneumonia and diarrhoea deaths. It brings together critical services and interventions to create healthy environments, promotes practices known to protect children from disease, and ensures that every child has access to proven and appropriate preventive and treatment measures.

Reaching every child will require the scaling up and targeting of interventions known to prevent and control pneumonia and diarrhoea. This will be achieved through coordinated and collaborative child health and related programmes. Parents, communities, community health workers (CHWs), civil society and the private sector all have significant roles in enabling this vision.

Clear goals and coverage targets for reducing morbidity and mortality due to pneumonia and diarrhoea have been set from now until 2015 within the context of the Millennium Development Goals (MDGs). Though significant progress has been made towards these goals, much more can still be achieved through accelerated action between now until 2015, and beyond.

The United Nations *Global Strategy for Women's and Children's Health* (1), launched in 2010, calls for a continuum of care approach to services aiming to save 16 million lives. In 2012, a call to action for child survival (2) challenged the world to reduce child mortality to 20 or fewer child deaths per 1000 live births in every country by 2035. Thus, it is now necessary to look beyond the 2015 deadline set by the MDGs. Revised goals and targets consolidating those that have already been accomplished, and striving toward achieving those that have not yet been reached are needed.

The specific goals for 2025 are to:

- reduce mortality from pneumonia in children less than 5 years of age to fewer than 3 per 1000 live births;
- reduce mortality from diarrhoea in children less than 5 years of age to fewer than 1 per 1000 live births;
- reduce the incidence of severe pneumonia by 75% in children less than 5 years of age compared to 2010 levels;

- reduce the incidence of severe diarrhoea by 75% in children less than 5 years of age compared to 2010 levels;
- reduce by 40% the global number of children less than 5 years of age who are stunted compared to 2010 levels.

These goals are ambitious and will require significant political will and the mobilization of additional resources if they are to be reached.

Coverage targets to be maintained or reached have also been set to define efforts needed to attain the above goals. These are:

- By the end of 2025:
 - 90% full-dose coverage of each relevant vaccine (with 80% coverage in every district);
 - 90% access to appropriate pneumonia and diarrhoea case management (with 80% coverage in every district);
 - at least 50% coverage of exclusive breastfeeding during the first 6 months of life;
 - virtual elimination of paediatric HIV.
- By the end of 2030:
 - universal access to basic drinking-water in health care facilities and homes;
 - universal access to adequate sanitation in health care facilities by 2030 and in homes by 2040;
 - universal access to handwashing facilities (water and soap) in health care facilities and homes;
 - universal access to clean and safe energy technologies in health care facilities and homes.

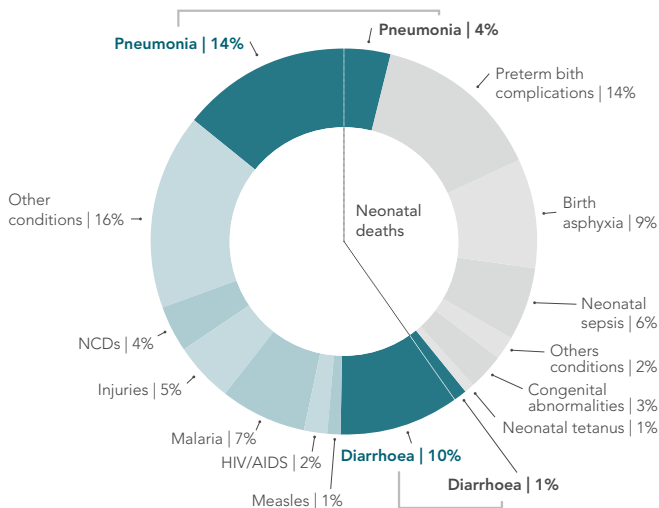
These targets were selected because they are already being monitored through a variety of processes. Progress towards the above targets will be measured through national health information systems, Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), research efforts and/or modelling of mortality and morbidity estimates. The United Nations *Commission on Information and Accountability* (CoIA) and the independent Expert Review Group (iERG) are expected to play roles (see section on **monitoring and evaluation for more detail**).

1. Pneumonia and diarrhoea – major killers of young children

The world has made substantial gains in child survival over the past two decades. However, progress has been uneven both across and within countries. Today, fewer children less than 5 years of age are dying – in 2011, there were 6.9 million child deaths, compared with 12 million in 1990 (4). Despite this advancement, major preventable diseases continue to kill young children.

Globally, pneumonia and diarrhoea are among the leading causes of child mortality (Figure 1). Together, these diseases account for 29% of all child deaths, causing the loss of more than 2 million young lives each year. In 2010, the number of child deaths from pneumonia and diarrhoea was almost equal to the number of child deaths from all other causes after the neonatal period - that is, nearly as many children died from pneumonia and diarrhoea as from acquired immunodeficiency syndrome (AIDS), malaria, measles, meningitis, injuries and all other post-neonatal conditions combined.

FIGURE 1. Global distribution of deaths among children less than 5 years of age by cause, 2010



Thirty-five percent of deaths in children less than five years of age are associated with malnutrition.'

Sources: WHO Global Health Observatory (http://www.who.int/gho/child_health/en/index.html) and 'Black R et al. *Lancet*, 2008, 371:243-260 (5, 6)

Most child deaths from pneumonia and diarrhoea occur in the world's poorest regions – with nearly 90% in sub-Saharan Africa and South Asia. Children who are poor, hungry and living in remote areas are most likely to be visited by these "forgotten killers". The burden that pneumonia and diarrhoea place on families and health systems in low-resource countries further exacerbates existing inequalities.

Despite this heavy loss of young life, and the simplicity and cost-effectiveness of necessary interventions, relatively few global resources are dedicated to tackling pneumonia and diarrhoea. Public health investment in the prevention and control of these diseases is not commensurate with the magnitude of the problem (7). The situation described in *Pneumonia: The forgotten killer* (8) and *Diarrhoea: Why children are still dying and what can be done* (9) is beginning to change, but much work remains, as documented in *Pneumonia and diarrhoea: Tackling the deadliest diseases for the world's poorest children* (10).

The solutions to tackling pneumonia and diarrhoea do not require major advances in technology. Proven interventions exist. Children are dying because services are provided piecemeal and those most at risk are not being reached. Many of the causes and solutions for childhood pneumonia and diarrhoea are inter-related, and thus, this plan proposes an innovative approach for integrating the planning, delivery and monitoring of health interventions for these two diseases.

2. Pneumonia and diarrhoea and the Millennium Development Goals

At the Millennium Summit in 2000, the United Nations Member States committed to a number of global goals for 2015, some of which overlap with efforts to reduce the burden of pneumonia and diarrhoea. These include:

- MDG 4 – to reduce the under-5 mortality rate by two thirds;
- MDG 7, Target 10 – to halve the proportion of people without sustainable access to safe drinking-water and basic sanitation.

For all goals, the baseline was set at 1990.

Although substantial progress has been made, MDG 4 can only be achieved by an intensified effort to reduce pneumonia and diarrhoea deaths over the next two years. If global action is not accelerated and sustained over time, an estimated 1.24 million children less than 5 years of age will die from pneumonia and 760 000 will continue to die from diarrhoea every year (11, 12). If the implementation of key interventions

is accelerated, the number of child deaths from these causes will drop substantially every year. This means millions of young lives can be saved simply by providing proven interventions at levels already achieved for better-off households.

Progress has also been made toward achieving MDG 7. The WHO/UNICEF Joint Monitoring Programme (JMP) for Water

Supply and Sanitation, the formal process charged with monitoring MDG 7, reported that the 2015 target for safe drinking-water, namely to halve the proportion of people without sustainable access to safe drinking-water, was met by 2010. However, this coverage target does not address the safety or reliability of water supplies.

3. Background and purpose of the action plan

In 2009, WHO, UNICEF and partners published two separate strategies for control of pneumonia and diarrhoea: a *Global Action Plan for Prevention and Control of Pneumonia* (GAPP) (13) and a diarrhoeal disease prevention and control strategy (*Diarrhoea: Why children are still dying and what can be done*) (9) (see **Annex I** for summaries). These documents spelled out the key interventions needed to combat these conditions, and many countries have begun to implement them.

Since these strategies were launched, it has been recognized that pneumonia and diarrhoea are most effectively addressed in a coordinated manner. They share the same determinants, and thus also share control strategies as well as delivery systems. Both are caused by multiple pathogens and no single intervention will manage either problem. Many countries are already addressing these two diseases jointly through intersectoral working groups, integrating protection, prevention and treatment. For example, Zambia has a Child Health Technical Working Group which covers pneumonia and diarrhoea, in addition to other issues. In many countries, control of these two diseases forms the core of primary health care (PHC). Addressing their prevention and management as integrated bundles helps to strengthen weak health systems.

This action plan provides an integrated framework of key interventions to protect, prevent and treat pneumonia and diarrhoea in children less than five years of age. It offers suggestions of supporting activities to improve and accelerate the implementation of interventions of proven benefit.

The GAPPD does not present a change of direction in terms of *what* needs to be done. It simply identifies opportunities to better integrate activities as well as capture synergies and efficiencies. It proposes an integrated framework of interventions to control diarrhoea and pneumonia (described in **section 5**) and provides a range of supporting activities to improve and accelerate the implementation of these interventions (explained in **section 8**).

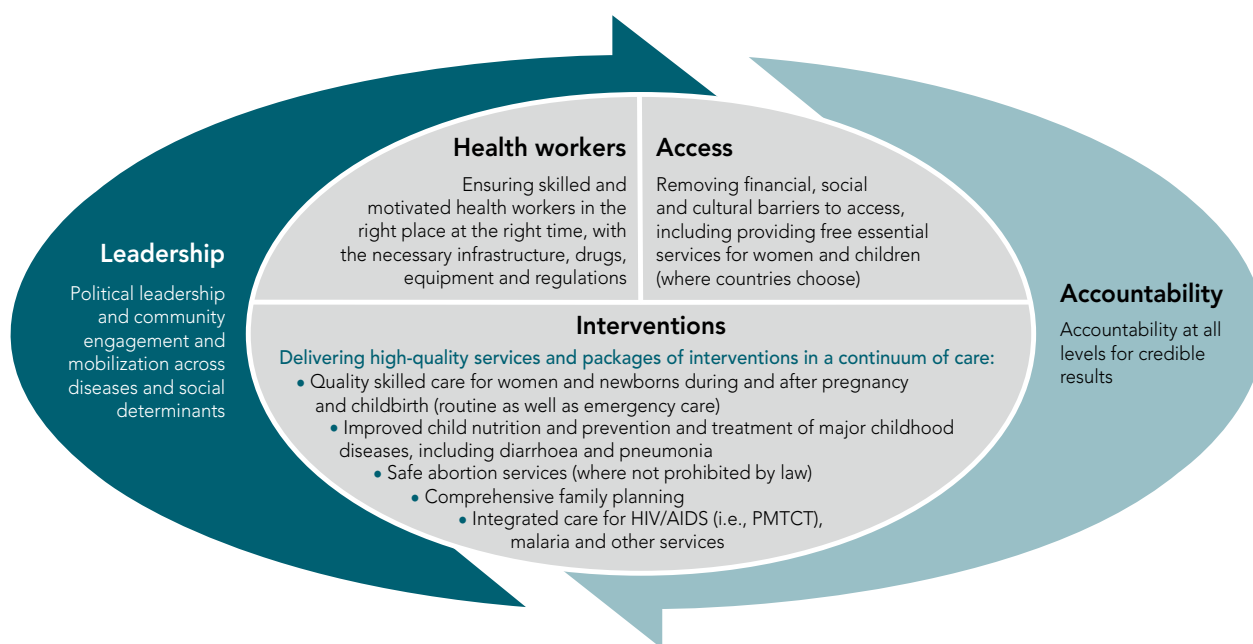
Audience: The GAPPD is intended primarily for national governments and their partners, and secondarily for global organizations, donor agencies and other actors working on pneumonia and diarrhoea. The GAPPD also recognizes that community-level groups and individuals will be critical for effective implementation of the strategy.

4. The GAPPD as part of the global effort to improve women's and children's health

The GAPPD builds on and strengthens many initiatives aimed at improving child health up to 2015 and beyond, including:

- The *Global Strategy for Women's and Children's Health* (1) developed under the auspices of the United Nations Secretary General and launched in 2010. This strategy identifies the key areas where action is urgently required to enhance financing, strengthen policy and improve service delivery. Pneumonia and diarrhoea control are specifically mentioned in the *Global Strategy's* framework (Figure 2). Resources committed to this strategy can strengthen synergies between partners, help avoid duplication and facilitate more effective and efficient use of resources. The GAPPD complements this strategy by spelling out the pneumonia and diarrhoea issues more specifically.
- The United Nations *Commission on Life-Saving Commodities for Women and Children* (15) aims to strengthen marketing, distribution and monitoring of 13 underutilized or neglected commodities. Its recommendations focus on the improvement of markets and quality, the strengthening of national delivery and the integration of the private sector as well as the consumer, all of which have the potential for considerable impact on pneumonia and diarrhoea control. It includes oral rehydration salts (ORS), zinc and oral amoxicillin within its mandate, all critical commodities for the control of pneumonia and diarrhoea.

FIGURE 2. Framework of *Global Strategy for Women's and Children's Health*



- *Committing to Child Survival: A Promise Renewed* (2), led by UNICEF and the United States Agency for International Development (USAID), is a call to action to end preventable child deaths. Its goals are to mobilize political leadership, achieve consensus on a global roadmap highlighting innovative and proven strategies to accelerate reductions in child mortality, and drive sustained collective action and mutual accountability. It will achieve these goals through evidence-based country plans, transparency and mutual accountability, and global communication and social mobilization.
 - The 2012 *Declaration on Scaling up Treatment of Diarrhea and Pneumonia* (14) from donors, industry and nongovernmental organizations (NGOs) calls on all high-burden countries and the international community to provide the resources, political will and focused action needed for ending preventable childhood pneumonia and diarrhoea deaths.
 - The World Health Assembly Resolution 63.24 (16), endorsed in 2010, encourages all countries to implement the actions outlined in the GAPP as a national priority. It calls for the establishment of evidence-based policies and national plans to control pneumonia, and asks for reports of progress on pneumonia control as part of the annual report on progress towards reaching the MDGs.
 - *International Decade for Action 'Water for Life' 2005-2015* and *Sustainable Sanitation: Five-Year-Drive to 2015* (17) were established by the United Nations General Assembly in resolutions adopted in 2005 and 2010, respectively. They state that water and sanitation are indispensable for human health and well-being and call upon Member States to redouble efforts to close the safe drinking-water and sanitation gaps (18).
 - The United Nations *Sustainable Energy for All* initiative (SEFA) is a public-private effort led by the Secretary General working towards universal access to modern energy services by 2030. It addresses access to both electricity (in homes and communities, including health facilities) and energy services for cooking and heating. It aims to secure the investment, technology and other developments required to provide clean (pollution free) and safe household energy, and advocates for robust monitoring and evaluation.
 - The United Nations CoIA (19) highlights the need for periodic large-scale population-based surveys as a complement to national health information. It is developing a system to track whether donations for women's and children's health are made on time, whether resources are spent wisely and transparently, and whether the desired results are achieved. An Independent Expert Review Group prepares a progress report and presents it to the United Nations Secretary General in September of each year.
 - The *Global Vaccine Action Plan* (GVAP) (20), endorsed by the World Health Assembly in 2012, calls for delivery of vaccines as part of the package of complementary interventions for control of diseases, particularly pneumonia and diarrhoea.
 - The Rio + 20 conference in 2012 (21) outcome document states that sustainable development can only be achieved in the absence of debilitating communicable and non-communicable diseases, and where populations have physical, mental and social well-being. It commits to high coverage of effective interventions and to reducing child mortality.
- The GAPPD aligns with and builds on the above initiatives, and provides a roadmap for implementation.

5. The Protect, Prevent and Treat framework for pneumonia and diarrhoea interventions

The GAPPD envisions the various interventions for controlling pneumonia and diarrhoea in children less than five years of age as:

- *protecting* children by establishing and promoting good health practices;
- *preventing* children from becoming ill from pneumonia and diarrhoea by ensuring universal coverage of immunization, HIV prevention and healthy environments;
- *treating* children who are ill from pneumonia and diarrhoea with appropriate treatment.

The *Protect, Prevent and Treat* framework integrates proven effective interventions as shown in **Figure 3**.

These measures should be implemented as part of an integrated package of effective, feasible and affordable interventions for child survival, targeting the most vulnerable populations. When developing action plans, countries will need to select priority interventions based on local context. For instance, in settings with high mortality from pneumonia and diarrhoea, interventions that will reduce mortality most rapidly should be prioritized, alongside investments in long-term, sustainable measures, such as reliable piped safe drinking-water and sanitation services. When selecting and implementing interventions, all relevant sectors, including water, environment and energy, need to be involved and interventions need to be planned and implemented in a coordinated manner. Establishing better linkages between existing programmes can lead to synergies and efficiencies that will maximize the benefits.

The proposed interventions are not new, but implementing them more effectively will require greater coordination and refinement. This plan brings together interventions presented in earlier frameworks and contains some novel approaches. It also identifies new opportunities, especially in

the intersectoral areas of policy. It does not intend to supplant existing programmes and approaches, such as Integrated Management of Childhood Illness (IMCI) or integrated community case management (iCCM), nor approaches that conceptualise along the continuum of care.

As evidence evolves, this framework can incorporate new interventions and new ways of implementing. Some “new” strategies are already being implemented, including the use of community groups and vendors; the application of evidence-based behaviour change techniques and social marketing approaches; and the use of mobile technologies to collect data, prioritize treatment and promote health behaviour change. Other novel strategies may include different approaches to overcoming financial barriers, through for example, conditional cash transfers, vouchers and social insurance initiatives for households, or through loan guarantees and fiscal strategies to encourage investment in infrastructure.

At the country level, many of the interventions require close collaboration between the Ministry of Health (MoH) and other sectors, especially the ministries responsible for water, education, energy and the environment. In many countries, the MoH has important responsibilities for water and sanitation, including training staff and CHWs to effectively promote safe drinking-water treatment, safe sanitation and handwashing with soap, in addition to ensuring that health facilities have appropriate water, sanitation and hygiene (WASH) services (22). These actions will be further enhanced by promoting equity in access to services, progressing toward the elimination of poverty, protecting the quality of the environment and improving women’s status.

Another way of looking at the relationship between interventions for pneumonia and diarrhoea is shown in **Figure 4**. The overlapping area illustrates that most of the required actions are common to both diseases.

FIGURE 3. Protect, Prevent and Treat framework

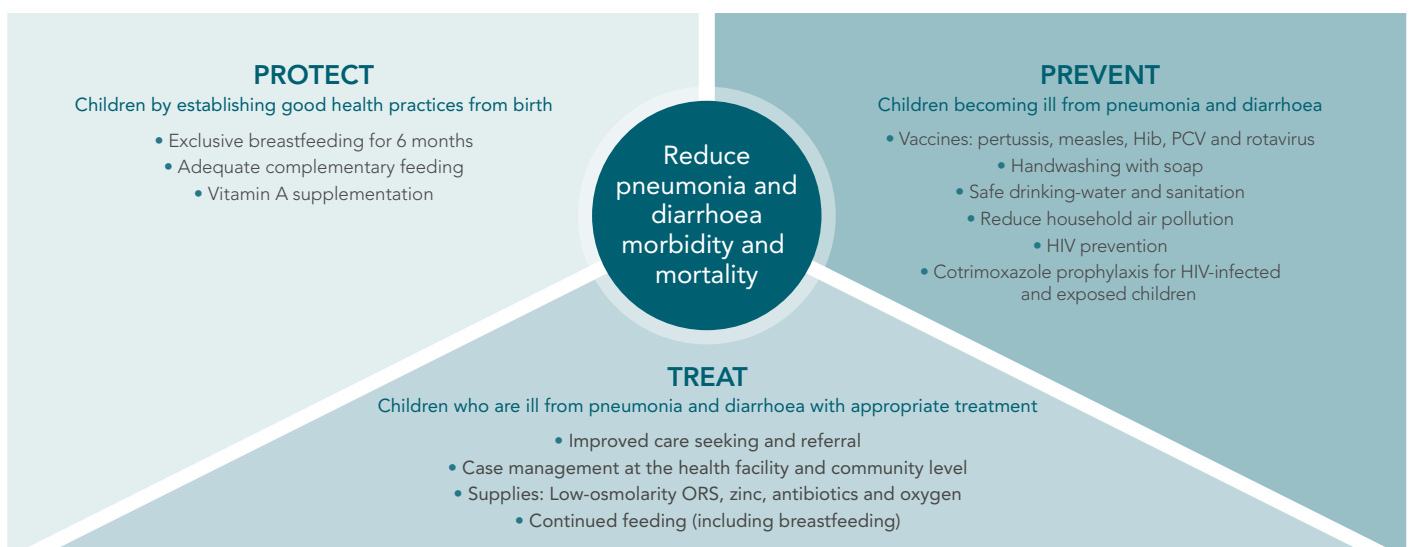
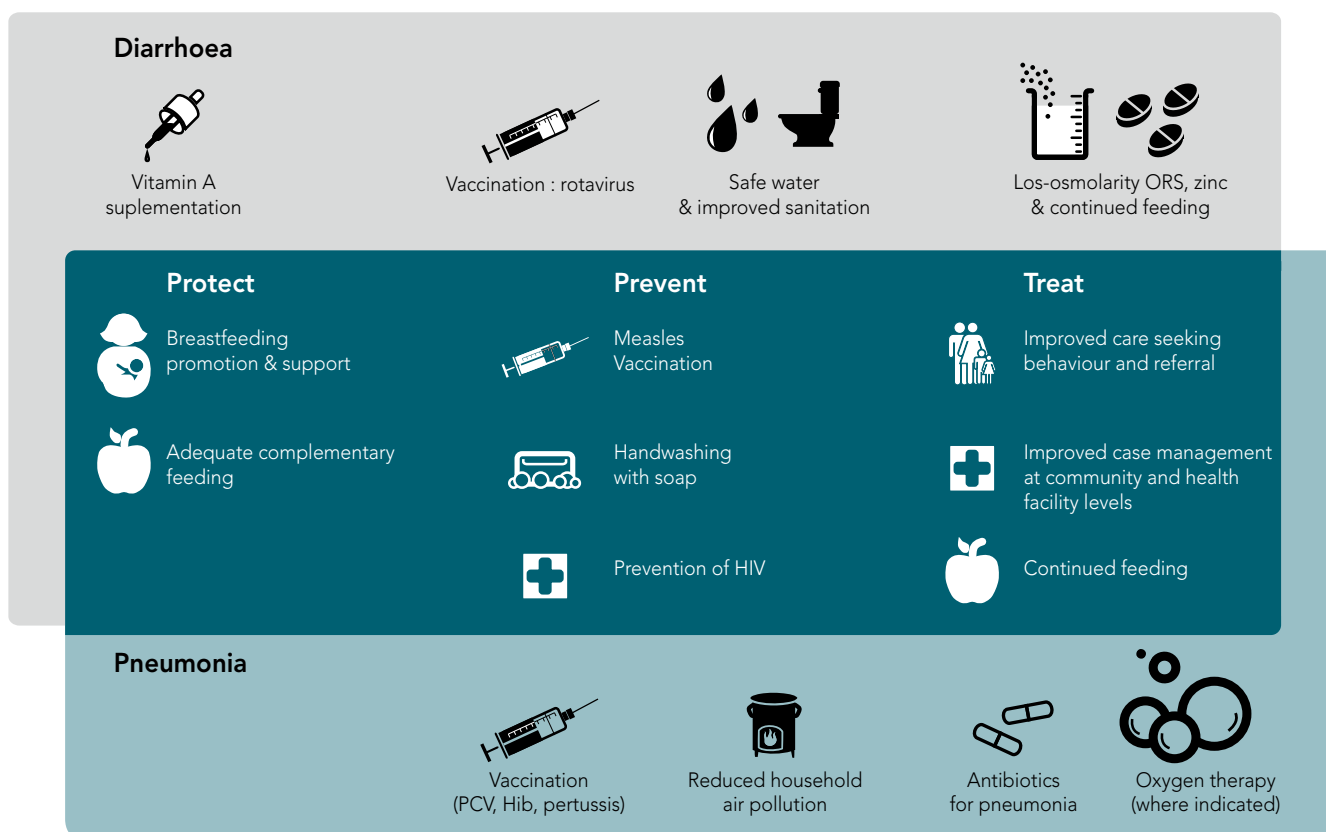


FIGURE 4. Complementarity of pneumonia and diarrhoea interventions



Source: Adapted PATH: Tackling the deadliest diseases for the world's poorest children.

Interventions that work

Over the past 20 years, research into specific pneumonia and diarrhoea interventions has shown that the following interventions and activities work:

- Promotion of exclusive breastfeeding reduces diarrhoea and pneumonia (23).
- Use of vaccines against *Streptococcus pneumoniae* (Spn) and *Haemophilus influenzae* type b (Hib), the two most common bacterial causes of childhood pneumonia, and against rotavirus, the most common cause of childhood diarrhoea deaths, substantially reduces the disease burden and deaths caused by these infectious agents, as evidenced by countries that have introduced these vaccines (24, 25).
- Use of vaccines against measles and pertussis in national immunization programmes substantially reduces pneumonia illness and death in children (26, 27).
- Use of simple, standardized guidelines for the identification and treatment of pneumonia and diarrhoea in the community, at first-level health facilities and at referral hospitals substantially reduces child deaths (26, 27).
- ORS, especially the low-osmolarity formula, is a proven, life-saving tool in the treatment of children with diarrhoea. Use of zinc supplements with ORS to treat children with diarrhoea reduces deaths in children less than five years of age (29).

- Innovative demand creation activities are important for achieving behaviour change and sustaining long-term preventive practices.
- WASH interventions, including access to and use of safe drinking-water and sanitation, as well as promotion of key hygiene practices, provide health, economic and social benefits (31).
- Reduction of household air pollution with improved stoves has been shown to reduce severe pneumonia. Safer and more efficient energy in the home prevents burns, saves time and fuel costs, and contributes to better development opportunities (32).

Table 1 lists selected interventions and demonstrates evidence for their impact. However, the observed health impact depends on coverage and correct, consistent and sustained use. Furthermore, such interventions require communication and social mobilization strategies that inform and motivate healthy actions and create demand for services and behaviours essential to pneumonia and diarrhoea prevention and control.

TABLE 1. Documented reductions in pneumonia and diarrhoea morbidity and mortality with selected interventions

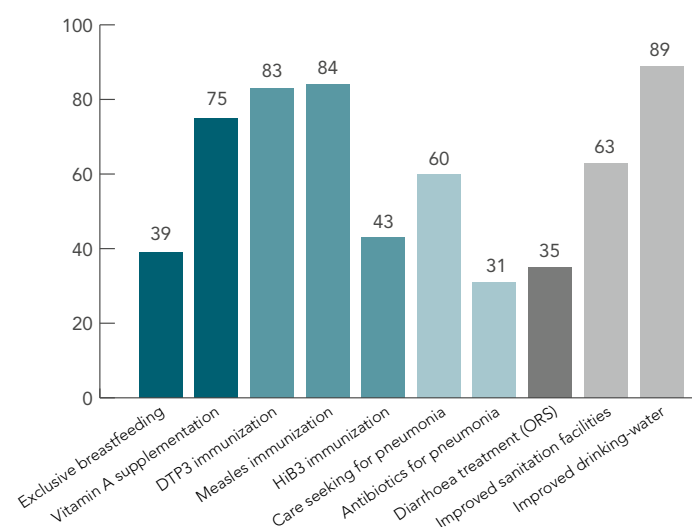
Interventions to Protect	
Exclusive breastfeeding for 6 months	23% reduction in pneumonia incidence (33); 10.5 times greater risk of death from diarrhoea and 15.1 times greater risk of death from pneumonia if not breastfed in first 6 months (34); not breastfeeding associated with 165% increase in diarrhoea incidence in 0-5 month-old infants (35); not exclusively breastfeeding resulted in excessive risk of diarrhoea incidence (RR 1.26 – 2.65), prevalence (RR 2.15 – 4.90), mortality (RR 2.28 – 10.52) and all-cause mortality (RR 1.48 – 14.40) in infants 0-5 months (36)
Continued breastfeeding from 6 – 23 months	2.8 times greater risk of death from diarrhoea if not breastfed (34); not breastfeeding associated with 32% increased diarrhoea incidence in infants 6-23 months (35); not breastfeeding resulted in excessive risk of diarrhoea incidence (RR 1.32) in infants 6-11 months and prevalence (RR 2.07), mortality (RR 2.18) and all-cause mortality (RR 3.69) in infants 6-23 months (36)
Adequate complementary feeding among children 6 – 23 months, including adequate micronutrient intake	6% reduction in all child deaths, including from pneumonia and diarrhoea (37)
Vitamin A supplementation	23% reduction in all-cause mortality (38)
Interventions to Prevent	
Vaccination against measles, pertussis, PCV, Hib and rotavirus	Hib vaccine reduces radiologically confirmed pneumonia by 18% (39); 23 – 35% reduction in incidence of radiological pneumonia for PCV (33); reduction in very severe rotavirus infection by 74% (40); potential effectiveness of 30% for PCV in reduction of overall childhood pneumonia mortality (41)
Prevention of HIV in children	2% reduction in all child deaths (37)
Cotrimoxazole prophylaxis for HIV-infected children	33% reduction in AIDS deaths (42)
Handwashing with soap	31% diarrhoea risk reduction (43); 48% diarrhoea risk reduction (34)
Improved sanitation	36% diarrhoea risk reduction (34)
Increased quantity of water	17% diarrhoea risk reduction (recognizing a minimum quantity of at least 25 litres per person per day is recommended) (43)
Household water treatment and safe storage (to ensure safe drinking-water)	31 – 52% diarrhoea risk reduction (greater reductions realized when used correctly and exclusively by vulnerable populations) (35, 44)
Reduction in household air pollution (HAP) through lower emission stoves and/or clean fuels	Halving of HAP exposure with a chimney stove reduced severe pneumonia by 33% (45); other evidence indicates large exposure reductions may further reduce risk (46)
Interventions to Treat	
Health facility case management for very severe pneumonia cases and vulnerable groups such as newborns, HIV-infected and malnourished children	29 – 45% reduction in case fatality (33); 6% reduction in all child deaths (37); 90% reduction in neonatal deaths due to pneumonia with hospital-based case management (47)
Increasing access to appropriate care through community-based case management of pneumonia/diarrhoea (CCM)	CCM results in 70% reduction in pneumonia mortality (48); 35% reduction in child pneumonia mortality (48); CCM of diarrhoea with ORS and zinc reduced diarrhoeal deaths among under-fives by 93% (49); 42-75% reduction in neonatal deaths due to pneumonia (47)
ORS	ORS reduces diarrhoea mortality by 69% with current coverage, or 93% if 100% coverage (49)
Zinc	Zinc for the treatment of diarrhoea reduces diarrhoea mortality by 23% (50); 14 – 15% reduction in incidence of pneumonia or diarrhoea (33)

The gap: current coverage is too low

Unfortunately, coverage for relevant interventions has not yet reached the levels required for the desired impact (see Figure 5), with the exception of vitamin A supplementation, measles and diphtheria-tetanus-pertussis (DTP3) vaccination which reached higher coverage levels. Data available in 2012 from the *Countdown to 2015* for 75 countries (51) show that:

- only 37% of infants less than 6 months of age are exclusively breastfed;
- about 83% of children received their third dose of DTP3, 43% received a third dose of Hib and 84% received their first routine dose of a measles-containing vaccine (52);
- about 92% of children received two doses of Vitamin A (10);
- about 55% of caregivers reported seeking appropriate care for suspected pneumonia, and antibiotic treatment was given for about 39% of cases (10);
- 33% of children received oral rehydration therapy and continued feeding for diarrhoea (10);
- 40% of homes have improved sanitation facilities, and 76% have improved drinking-water sources.

FIGURE 5. Coverage of interventions



Source: UNICEF's State of the World's Children 2013 (forthcoming)

Other data show that almost 3 billion people still rely on inefficient, polluting solid fuels for cooking and heating, and that 1.3 billion have no access to electricity.

6. An environment for change

Challenges and opportunities

In 2011-2012, WHO, UNICEF and other partners convened a series of workshops to promote coordinated approaches on pneumonia and diarrhoea control, involving over 400 participants from 36 countries in Africa and Asia. The workshops were followed by interaction with countries to monitor the implementation of recommended actions. While the workshops and follow-up activities demonstrated a strong willingness among country participants to work together across

programmes, several challenges were noted (see Box 1).

Despite the challenges cited, the countries also identified many opportunities (see Box 2).

The global context and environment in which the GAPPD will be applied is changing rapidly, as described below.

BOX 1. Challenges to scaling up pneumonia and diarrhoea actions identified by countries during the regional workshops

- **Empowerment:** In many cases, the authority to make the changes necessary to facilitate collaboration across programmes (for example, changing budgets and organizational structures) was largely beyond the control of the participants who attended the regional workshops.
- **Lack of specific guidance:** Many countries have child health policies, but they are not explicit with regard to the use of antibiotics by CHWs for the treatment of pneumonia, and in some cases, the use of zinc for diarrhoea treatment or artemisinin combination therapy for malaria treatment. Regulatory, legislative and administrative barriers to iCCM were also noted.
- **Supply issues:** In some countries, vaccines, zinc and treatment for pneumonia and diarrhoea are unavailable in sufficient quantities or as appropriate formulations for children.
- **Sustaining vaccine coverage:** While there has been good progress in introducing new vaccines, sustaining and increasing vaccine coverage for all vaccines remains an issue in some countries.
- **Surveillance:** The quality of routine data collection to measure progress on pneumonia and diarrhoea control is often inadequate, and health information systems do not usually include community-level activities. As a result, community-level data are not available for decision-making at higher levels.
- **Monitoring and evaluation:** Indicators and plans for monitoring and evaluation, and established mechanisms for supervision have yet to be agreed upon in several countries.

BOX 2. Major opportunities identified by countries during pneumonia and diarrhoea regional workshops

- **Political commitment:** Strong political will to achieve MDGs from global, regional and national levels, and strong partnerships for child survival.
- **Improved access:** Accelerated expansion of primary health care facilities in a number of countries.
- **New vaccines:** Introduction of new vaccines (PCV, rotavirus).
- **Support for change:** Favourable and conducive environment for policy dialogue and change.
- **Resources:** Improved financing mechanisms by governments.

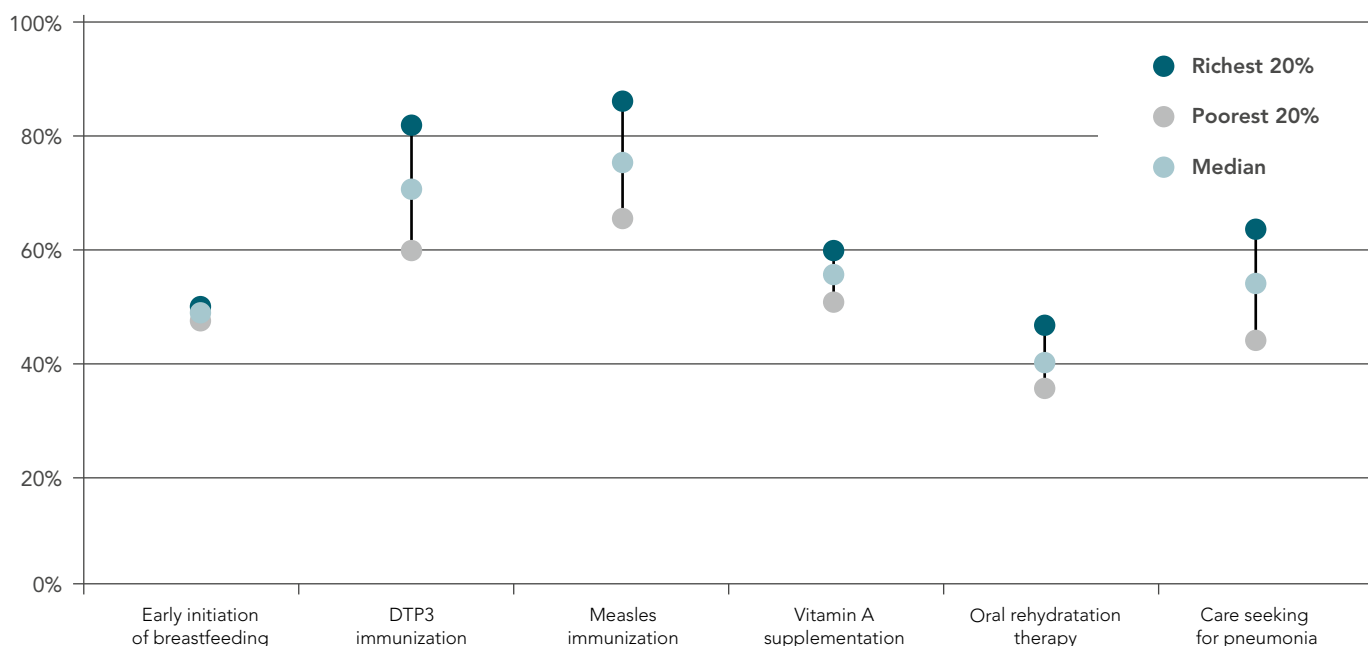
7. Focus on equity and universal health coverage

Pneumonia and diarrhoea deaths are not distributed evenly through the global population or within any one country. The highest death rates from these diseases are recorded in the least-resourced countries and in the poorest populations within those countries. Children of lower socioeconomic class or caste, minority ethnic groups and those living in isolated geographical areas suffer from cumulative inequities. These children are subject to higher prevalence rates of pneumonia and diarrhoea, and more difficult access to health services despite being in greater need of those services. Evidence suggests that children from families in the poorest wealth quintile are less likely to receive high impact interventions than those in the richest quintile (see **Figure 6**).

These populations are also the least likely to have access to improved water and sanitation (53) or to have access to clean,

safe household energy services (54). This situation demands strengthened efforts to reach disadvantaged populations and to achieve universal coverage of relevant interventions. Equity should be ensured by prioritizing interventions that reach children at the highest risk of death and severe morbidity from pneumonia and diarrhoea (10, 55), and should be incorporated into the planning for scale-up of interventions as well as the assessment of national progress (56). Several strategies show promise for improving coverage of effective interventions—and, in some cases, health outcomes in children. Promising strategies include: expanding roles for lay and CHWs; shifting tasks, as appropriate, to lower-level workers; reducing financial barriers; increasing human-resource availability and geographical access; and engaging with the private sector to procure and deliver interventions and services (57).

FIGURE 6. Coverage inequity by intervention



Source: The Countdown to 2015 equity database

Humanitarian emergencies

Pneumonia and diarrhoea are leading causes of death in children less than five years of age in emergencies and fragile, at-risk settings. Emergencies have been increasing in number and frequency, putting more communities at risk and challenging the response capacity of national and international actors (59). These situations disrupt or destroy health systems and services, ultimately affecting their ability to reach children with interventions. Increasing capacity to protect, prevent and treat common illnesses such as pneumonia and diarrhoea, and to prevent outbreaks of these diseases is critical to improving child survival in humanitarian emergencies. Vaccination, safe drinking-water, sanitation and hygiene are usually immediate priorities (60). Provision of services during disaster relief provides opportunities to make more sustainable improvements in access to water, sanitation, energy and health facilities.

Urbanization

Hundreds of millions of children in urban areas are being raised in overcrowded and unhygienic housing structures and communities (61). Such conditions facilitate the transmission of disease, notably pneumonia and diarrhoea, and drive up child mortality. While urban areas are home to the majority of modern health facilities, many urban children are deprived of even rudimentary services. Lower levels of immunization and/or pockets of under-vaccinated children (including those in higher coverage areas) lead to more frequent outbreaks of vaccine-preventable diseases in communities that are already more vulnerable. These areas are often at high risk for disasters. Without sufficient access to safe drinking-water or an adequate water supply for basic hygiene, children's health suffers. Use of polluting household fuels remains common in urban areas and results in exposure which compounds that

from the already high levels of urban air pollution in many developing countries. It also makes a significant contribution to ambient air pollution (62).

An integrated approach to interventions and cross-sectoral collaboration

Traditionally, activities aimed at improving child health have been run as vertical programmes, each in their own "silo" with separate staff, budgets, planning, training, supervision, etc. While in some cases, this focused approach can lead to significant progress, programmes run in this way often use more resources, while not necessarily delivering quality child health care. Moving away from such "siloed" approaches, toward more coordinated and collaborative efforts will allow for cost savings while also increasing the impact of interventions. Such efforts should not only involve the health sector, but also promote better linkages with other sectors. Understanding risks and context, and considering realistic and achievable convergent points between interventions to enable quality and integrity for each is vital. For example, consider "integrated logistics", "integrated service delivery", and/or "integrated outreach".

Efforts to comprehensively reduce childhood deaths associated with pneumonia and diarrhoea have shown that integrated delivery of interventions is possible and advantageous. For example, in Malawi, combining the provision of hygiene kits with antenatal care (ANC) resulted in a nearly 30-fold increase in household water treatment practices 3 years after the intervention (63). It also achieved a 15% increase in health facility deliveries and postnatal checkups (64), both indicators of improved child and maternal health (see **Boxes 3 and 4** for further examples of cross-sectoral collaboration.).

BOX 3. Sanitation and household water treatment as a focus point for cross-sectoral collaboration

Sanitation is often considered 'another sector', but in many countries it falls under the remit of the MoH. In several countries, the MoH is involved in cross-sectoral collaboration to improve water and sanitation. For example:

Mali: In Mali, the MoH released a strategic plan (2011-2015) that specifically focuses on diarrhoeal disease prevention and control through hygiene promotion. The plan outlines responsibilities across different stakeholders and ministries. The MoH oversees IMCI, which includes WASH messages. Community-led total sanitation is being scaled up, led by the Ministry of Environment and Sanitation but in collaboration with the MoH.

Ethiopia: Ethiopia has a Memorandum of Understanding between the MoH, Ministry of Water and Energy and the

Ministry of Education to increase the coordination of WASH services, especially sanitation and water quality surveillance. The National Hygiene and Sanitation Task Force coordinates WASH efforts and has developed a national handwashing strategy with a campaign to target school children. They also have a plan to scale up household water treatment to ensure those most at risk of diarrhoeal disease have access to safe drinking-water. Over 35 000 health extension workers (HEWs) are involved in this effort, in addition to local leaders and communities.

Zambia: The MoH oversees IMCI. Key messages governing community-based activities include disposal of faeces and handwashing.

Source: Adapted from: Tearfund/PATH, 2012. *Diarrhoea dialogues: from policies to progress*. <http://defeatdd.org/media/journalists/press-releases/diarrhoea-dialogues#/media/journalists/press-releases/diarrhoea-dialogues>

BOX 4. Western Kenya: Integrating household water treatment and handwashing education with maternal and child health

This initiative aimed to integrate the distribution of incentive kits with maternal health services in order to increase attendance rates at ANC, improve rates of health facility deliveries, increase use of *WaterGuard* to treat water, and improve handwashing techniques. The intended beneficiaries were 2000 pregnant women residing in Nyanza Province. The integrated effort involved a number of national and international partners, including the Kenyan Ministry of Public Health, the United States Centers for Disease Control and WHO.

The incentives provided included a hygiene kit (chlorine for water treatment and soap) which was given during ANC visits 1 and 3, a nutrition kit (fortified flour) given during ANC visits 2 and 3, and a delivery kit (bucket with lid and tap, chlorine and coagulant/flocculant sachets for water treatment, soap, baby blanket, razor blade, and hospital and surgical gloves) given for health facility deliveries.

At the same time, clinic and service improvements were made, including 1) training of nurses in management of obstetric emergencies, neonatal resuscitation, rapid syphilis testing and quality control, water treatment and hygiene and

patient-centered care, and 2) provision of handwashing and drinking-water stations as well as resuscitation equipment.

Positive outcomes of this approach included:

- substantial increases in fourth antenatal visit (77% compared to 57% at baseline), health facility deliveries (74% compared to 43% at baseline), postnatal checkups (61% compared to 37% at baseline) and counselling in family planning;
- increased reporting of, and observed drinking-water treatment (54% compared to 39% at baseline);
- increased ability to demonstrate correct handwashing techniques (68% compared to 54% at baseline).

This approach is now being applied throughout Nyanza Province. Other interventions prioritized by the Government of Kenya, such as stethoscopes, blood pressure cuffs, scales, and anaemia testing and treatment may be added.

Source: Adapted from: O'Connor, K. 2012. *Integration of household water treatment and handwashing education with maternal health services in Rural Western Kenya: Preliminary Report.*

Action needed at country level

National governments must lead in developing, implementing, and financing the strategies and actions needed for a reduction in pneumonia and diarrhoea morbidity and mortality. This should be done within existing national child health or child survival strategies. The following general actions (see summary in **Box 5**) should help countries to accelerate implementation of pneumonia and diarrhoea interventions. Individuals or small groups already working in the area within the country will need to take charge of organizing progress towards the actions described in more detail in this section, and will need to obtain the necessary authorization to proceed. Some of the work/targets described here may have been accomplished already; for example, a plan may already have been developed. In this context, it is more important for countries to move forward with implementation, rather than to repeat planning work that has already been done.

Examples of actions for implementing some of the key interventions (water, sanitation and hygiene, vaccination, case management, breastfeeding, emergencies and elimination of paediatric HIV) are detailed in Annex 2.

For more specific planning, national or sub-national authorities are advised to use the situation analysis guide and planning framework developed from the country and regional workshops on pneumonia and diarrhoea in 2011 and 2012 (Annex 3). This guide can help to identify the key gaps and opportunities to scaling up interventions in a coordinated way, and provide a formalized mechanism for different programmes to discuss key issues together.

BOX 5. List of key actions needed to implement/scale up coordinated country work on pneumonia and diarrhoea protection, prevention and treatment

- Develop a clear country-level strategy and work plan, with key responsibilities assigned
 - generate political will;
 - develop/update a situation analysis for pneumonia and diarrhoea;
 - prioritize interventions;
 - develop/update a costed plan for accelerated action;
 - identify areas of harmonization and collaboration between programmes and sectors, including the private sector, academia and civil society;
 - use data to identify groups at greater risk or missed by services and develop targeted approaches to reach them;
 - develop a set of common indicators for tracking progress.
- Coordinate implementation of interventions
 - designate a national working group for pneumonia and diarrhoea prevention and control or review membership of an appropriate existing group;
 - mobilize resources;
 - apply lessons from other integrated disease prevention and control efforts;
 - track execution and progress;
 - take and/or assign accountability for action.
- Engage and embed critical partners in the overall work plan/approach
 - involve other programmes and sectors;
 - involve the private sector and NGOs;
 - engage the United Nations agencies and development partners.
- Other actions
 - promote innovations, especially for overcoming barriers to service delivery;
 - generate demand and ensure supply;
 - focus on implementation research and identify optimal modes of delivery of existing interventions in order to reach those most in need.

Develop a clear country-level strategy and workplan, with key responsibilities assigned

- Generate political will

Advocacy using available global and national information should be carried out at all levels in order to persuade policy- and decision-makers, including those who make resource allocation decisions, to commit to reducing child deaths from pneumonia and diarrhoea. The interest and willingness of high-level political figures to dedicate national resources to pneumonia and diarrhoea will be critical for ensuring success. Relevant, evidence-informed material (e.g. the GAPPD, *Pneumonia and diarrhoea: Tackling the deadliest diseases for the world's poorest children* (10), etc.), and if available, a national situation analysis should be provided to policy- and decision-makers. With this information, policy-makers can make informed decisions and can identify the actions required to overcome country- or region-specific barriers. Parliamentarians and parliamentary committees may be targets of advocacy, and may themselves become advocates for increasing budgets. Political will can also be generated by publicizing credible estimates of the local economic costs of pneumonia and diarrhoea, and by promoting national and subnational prevention campaigns via media organizations and social communication.

At the same time, other significant national and local stakeholders, such as NGOs and potential donors, need to be identified for similar advocacy efforts. Potential champions who can help to generate enthusiasm should be sought.

- Develop/update a situation analysis for pneumonia and diarrhoea

The situation analysis should review current population intervention coverage and levels of support available. It should also identify current barriers to accessing and scaling up interventions, and suggest ways to overcome them. It may include an assessment of the vulnerabilities, hazards and/or capacities at various levels and across interventions that may put communities at risk for emergencies or outbreaks. The analysis should identify policy issues that need to be addressed, such as whether or not trained CHWs are permitted to provide antibiotics for pneumonia at the community level. The analysis should also include formative research on key behaviours that are essential to the prevention of diarrhoeal disease (e.g. handwashing with soap, exclusive breastfeeding, use of ORS, etc.), as well as formative research on the enabling environment (e.g. structures, hardware and commodities necessary to facilitate the desired behaviours). This process enables identification of appropriate interventions that can be scaled up immediately, versus those that will take longer or may need additional support to be put in place.

Most of the information needed for such a situation analysis is likely already available in regional and national child survival strategies and plans. Other documents describing interventions (e.g. country immunization plans, WASH documents, etc.) should also contain this information. The information may simply need to be updated, compiled and acted upon. If such data are not available, a national working group should gather the necessary additional information. Countries that have already participated in this process can use this opportunity to review and update their work.

- Prioritize/implement a package of interventions cross-linked to current maternal and child health plans

Policy-makers and planners should use the situation analysis to develop and implement a package of interventions that address key protective, preventive and treatment factors. This includes making decisions regarding the introduction of relevant new vaccines based on the burden of disease and the key groups affected. Countries will need to assess which interventions should receive special focus, and what policy changes might be required to accelerate progress. They will also need to decide which geographic or population groups should receive particular attention in order to enhance equity. Once these decisions are made, they will have to communicate these to the various programmes, sectors and levels to ensure that resources are appropriately allocated.

- Develop/update a costed multi-year plan for accelerated action

Many countries already have an action plan that includes diarrhoea and pneumonia. For example, many of the country representatives who attended the country or regional workshops developed or updated their action plans at that time (see **Annex 3** for a summary of the process). These plans should now be reviewed and updated, ensuring that costs are estimated and national and subnational progress milestones are set. Milestones and costing should be set for multi-year, in addition to annual programming. Costed national health plans should emphasize service integration across programmes for reproductive, maternal, neonatal and child health. They should also include environmental interventions with a focus on pneumonia and diarrhoea control. Plans made by other relevant interventional programmes should be consulted to ensure coordinated budgets, cost-sharing, and resource mobilization.

- Identify areas of harmonization and collaboration between programmes and sectors

Programmes and sectors work separately for a variety of reasons, and so, suddenly attempting to change this way of working may represent a threat. One way to begin harmonizing efforts is to look at governance structures as well as multi-agency/department partnerships and seek opportunities for coordination, or even attempt to modify existing structures. National, regional and district levels should all be considered.

Establishing mechanisms, such as a government-led multi-agency working group, to facilitate the exchange of information and experiences will help make coordination a norm. Documenting and disseminating best practices and lessons learned when working between programmes/sectors is also helpful. **Key cross-cutting areas where greater collaboration is likely to be beneficial include policy development, planning, social mobilization and advocacy, development of guidelines and tools, supply chain, supervision, training, and monitoring and evaluation.**

Efforts in Cameroon and Kenya to jointly address diarrhoea and pneumonia through household water treatment and improved cookstoves led to gains in joint messaging and distribution (and potentially uptake) (65). See **Box 6** for another example of improved coordination.

BOX 6. Cambodia: Tackling pneumonia and diarrhoea through programme and policy coordination

Childhood pneumonia and diarrhoea account for 38% of under-five deaths in Cambodia. Although attention to these two diseases has helped reduce this toll each year, poor, rural communities continue to lose children to these diseases. To address this disparity, PATH, in collaboration with the Cambodia MoH, WHO, UNICEF and other NGOs, implemented the *Enhanced Diarrheal Disease (EDD) Initiative* in Cambodia from 2011 to 2012. It focused on programme and policy integration to overcome barriers to increased diarrhoea and pneumonia control. The programme, piloted in one district, consisted of a two-pronged approach to build political will and to strengthen policies related to diarrhoea and pneumonia, and then to implement a new integrated package of services within communities.

The integrated approach resulted in coordinated policies, improved access to care at the community level, and the implementation of integrated training for Village Health Volunteers (VHV). PATH, alongside key partners, successfully advocated for ORS and zinc to be deregulated and made available at the community level. To improve community-level service delivery, PATH also brought the MoH and partners together to update health worker training. A number

of key lessons have been learned from the introduction and initiation of the programme:

- National policy must be translated into action at the community level to be effective.
- Coordinated and strategic working relationships between ministries, technical agencies, NGOs, and local organizations ensure support at all levels.
- Comprehensive integration improves programming effectiveness and broadens the scope of reach.
- Capacity building is an ongoing process; trained VHVs need monitoring, supervision, and opportunities for continued learning.
- Health systems strengthening must be holistic, working to overcome financial, governmental, operational and capacity constraints.
- Changing provider behaviour at all levels is integral to improving access to ORS and zinc.

Source: Adapted from http://www.path.org/publications/files/ER_app_edd_cambodia_cs.pdf.

Coordinate planning and implementation of interventions

- Designate a national working group or review membership of an appropriate existing group for pneumonia and diarrhoea control

A national-level coordinating body is needed to take responsibility for formulating and coordinating the implementation of an action plan. In countries with high pneumonia and diarrhoea mortality, it may be necessary to form a new group. In other countries, such a group will be part of an existing national task force or committee related to child survival, including IMCI, immunization, nutrition, health systems, essential drugs, HIV, water, sanitation and hygiene, air quality and other relevant programmes such as those addressing emergencies or outbreaks. Whatever the situation, there should be a body with clear responsibility for controlling pneumonia and diarrhoea. This group should include the relevant managers from various ministries (e.g. ministries of health, water, environment, energy and/or education), as well as appropriate representatives from WHO, UNICEF, other relevant United Nations agencies, NGOs, professional bodies, the private sector and academia. Terms of reference for the group should indicate the membership, tasks, expected outputs and the frequency of meetings (see example in **Annex 4**).

- Develop a resource mobilization plan and mobilize resources
Mobilizing resources is an important role of the national working group or similar body. Other tasks described above, namely generating political will and involving a wide range of

stakeholders, should help direct national resources to priority interventions and raise funds from various sources. Stakeholders may also help by realigning their activities to better reach poorly-served populations. Accurately costed multi-year and annual action plans that clearly link strategies with anticipated outcomes (see section above) will enhance efforts to mobilize resources. The national working group should encourage donors to commit to resourcing the plans through on-budget commitments (preferably multi-year) in accordance with the principles of aid effectiveness. A resource mobilization plan should include inputs (e.g. transport, hardware, supply chain, etc.) from the private sector, as appropriate.

- Increase coverage for key interventions

Action needs to be taken on the critical areas where the evidence for impact on child mortality is the strongest. These are:

- **vaccination;**
- **case management;**
- **breastfeeding;**
- **access to safe drinking-water, sanitation and handwashing facilities.**

There are a number of strategies that can be applied to increase coverage of key interventions which include increasing the roles of community health workers through task shifting (see **Box 7**), engaging the private sector, risk assessment to identify and target fragile and at-risk populations, and social mobilization and community engagement to promote better care seeking.

BOX 7. Community health workers and WASH messages

Since 88% of cases of diarrhoea are due to problems with WASH, it is vital that good sanitation and hygiene practices, such as handwashing with soap, are promoted and practised. However, behaviour change is a complex process and long-term community support is required to achieve it. CHWs are ideally placed to both deliver health messages and to provide long-term support. Integrating WASH messages into existing health programmes will enable more households to be reached with these crucial sanitation and hygiene messages. MoH support is essential, along with technical and financial assistance to support community-level staff.

In Ethiopia, the Health Extension Programme has integrated WASH into health worker activities. The promotion of WASH messages, delivered by HEWs and Community Health Promoters (CHPs), has been associated with a substantial reduction in the incidence of diarrhoea in two areas studied. HEWs and CHPs have also involved local and religious leaders in the promotion and implementation of WASH messages. Use of HEWs and CHPs as role models to

demonstrate good sanitation and hygiene practices in their own homes was highlighted.

Effective change will require a shift of emphasis from message delivery to support for long-term behaviour change. More household visits by CHWs would facilitate this shift.

Strategies that contain behaviour change elements, such as IMCI and community-led total sanitation, should be coordinated. A study into diarrhoea control policies in Mali, Ethiopia and Zambia concluded that without a coordinating mechanism in place, it is difficult to ascertain whether such strategies are complementary and mutually reinforcing. Based on the study findings, it is also unclear whether these strategies support communities as they transition to any long-term behaviour change.

Source: Adapted from: Gill S, Hayes J, Coates S. Diarrhoea dialogues: from policies to progress, A call for urgent action to prevent the biggest killer of children in sub-Saharan Africa. Teddington UK and Washington DC, USA, Tear Fund, PATH, 2012. Available at: <http://tilz.tearfund.org/webdocs/Tilz/Research/DiarrhoeaDialoguesFinal2012Lowres.pdf>, accessed 1 February 2013.

The national working group should develop a concrete plan applying appropriate strategies to increase key intervention coverage in an equitable manner. This plan should ensure that access to interventions is improved in areas or populations that are currently the most under-served (such as rural areas without access to safe water and sanitation, urban slums or those in fragile and emergency risk settings). A recent review of changes in national coverage for infant health found that the countries making faster gains in coverage were those able to increase coverage among the poorest at a faster rate than among the better-off (56).

Policy issues will need to be resolved in order to remove barriers to scaling up. These include empowering community-level workers to manage pneumonia with antibiotics as well as use zinc in diarrhoea case management; improving outreach and service linkages with communities to raise immunization coverage; and considering use of new vaccine delivery devices or use of more heat-stable vaccines.

Health systems strengthening initiatives may highlight other policy issues hindering implementation and help to resolve them. Key building blocks of health system strengthening include health workers, health financing, facilities and drugs, information systems and planning.

- Apply lessons from other integrated disease prevention and control efforts

Many countries have gained considerable experience from using integrated approaches to implement interventions such as IMCI. Large-scale cholera outbreaks, such as those in Nepal and the United Republic of Tanzania, have helped to institutionalize collaborative groupings and change policies and programmes to apply protection, prevention and treatment interventions. Lessons learned from these experiences can be applied to pneumonia and diarrhoea control.

- Track execution and progress

A national working group should measure progress on pneumonia and diarrhoea control. Key indicators should be incorporated into district and national surveillance systems, and data collection should be strengthened to lessen reliance on survey data. Data collected by CHWs should also be incorporated into this system. There should be a process in place that facilitates the use of such information to modify the national plan; to adapt advocacy, communications and resource mobilization efforts; and to engage with relevant WASH and clean air actors. The national pneumonia and diarrhoea plan should contain locally-appropriate goals and targets. It should also include indicators for measuring whether the targets are being reached, as well as strategies for making needed data available.

Available data sources: Epidemiological and programmatic data is normally collected through the national health information system and through periodic surveys, such as the DHS and the MICS. The MICS also collects information on environmental risks to health as well as disease surveillance and early warning systems for epidemic-prone diseases (e.g.

the Integrated Disease Surveillance and Response system in Africa). Data on household energy use are compiled, updated and reported annually by WHO. In addition, the JMP provides comprehensive reports every two years on access to water and sanitation supplies with sub-analyses on access according to location (rural/urban) and wealth quintile. Opportunities exist for linking data collection with other efforts, such as the United Nations CoIA.

- Take and/or assign accountability for action

Countries are accountable, to both their own populations and the global community, for reducing the burden of pneumonia and diarrhoea. Accountability ensures that the responsible party recognizes that there is an issue, and that all partners deliver on their commitment(s). It demonstrates how actions and investment translate into tangible results and better long-term outcomes, and indicates what works, what needs to be improved and what requires more attention.

It comprises three main components:

- **monitoring** involves finding out what is happening where, and to whom;
- **review** involves assessing whether or not commitments have been kept;
- **remedial action** involves making recommendations to stakeholders on how to address areas in need of improvement identified in the review process.

An accountability framework defines the methodology and source of data for indicators, identifies which stakeholders will be responsible for what actions and articulates the process and responsibilities for monitoring and evaluating progress. As an example, the draft *GVAP* (16) lays the groundwork for further development and implementation of an accountability framework at country, regional and global levels.

Accountability also comes in other forms at other levels. Civil society groups as well as community and faith-based organizations can support citizens and communities in improving their health and holding governments accountable. Families and communities also have a role in local-level accountability, and local-level mechanisms to empower these groups to fill this role should be used or created.

There is also increased attention to this issue at the global level. Information on core indicators will be reported annually until 2015 by the *Countdown to 2015*, a supra-institutional initiative that monitors coverage of key interventions as a proxy measure to mortality reduction. The United Nations CoIA has given a major impetus to the need for periodic large-scale population-based surveys as a complement to national health information.

Engage and embed critical partners in the overall workplan/approach

- Involve other programmes and sectors

Many health programmes have a role in pneumonia and diarrhoea control. For example, nutrition programmes promote

breastfeeding and hygiene programmes promote practices to prevent diarrhoea. Task forces set up to manage cholera are putting in measures to prevent, prepare and respond to cholera. The national working group will work with these programmes, and if not already included, representatives from these programmes may wish to join the working group. In addition, the involvement of relevant non-health programmes (such as education for public health information; environment

for housing conditions, energy access and water supply; public transportation for access to care) is encouraged in order to achieve better coordination and collaboration (see **Box 8** for an example of supply chain integration, **Box 9** for an example of integration between pneumonia and diarrhoea activities and those on clean energy access and **Box 10** for an example of integration between household water and air quality).

BOX 8. Health commodities supply chain integration

Parallel systems of supply delivery lead to inefficiencies, through fragmented management of health commodities and through storage and distribution problems such as wastage and stock-outs. This situation is caused in part by the increasing complexity of managing supplies. While there is a push for thermo-stability of some vaccines, pharmaceuticals are becoming increasingly more temperature sensitive.

Optimize projects in Senegal, Tunisia and Vietnam are attempting to understand the feasibility and benefits of an integrated health commodity supply chain with vaccines, and to analyse both physical and management integration.

A supply chain may be integrated vertically, fully or through

segmentation, that is, organizing the supply chain into segments that respond to either customer needs or product requirements. In Senegal, there is full integration throughout the entire supply chain, from national to local level. A "moving warehouse" (topping-up model) is used. In Tunisia, there is segmented integration from national to subnational level for all temperature-sensitive products, but full integration from regional to local level (for all products for government-run programmes). Planned deliveries are based on convenient transportation circuits and efficient route planning (including supervision and service delivery).

Source: Adapted from http://www.who.int/immunization_delivery/optimize/background/en/index1.html, accessed 20 September 2012.

BOX 9. Opportunities to integrate GAPPD with global initiatives on achieving universal access to clean and safe household energy

Globally, nearly 3 billion people still use inefficient and highly polluting solid fuels and simple stoves for cooking and heating, while 1.3 billion lack access to electricity. Recognition of the implications of this energy poverty on health, economic development and the climate (including climate change) has led to the United Nations' ambitious SEFA initiative, launched in 2012. With targets for universal access by 2030 to electricity and modern household energy systems for cooking and heating, this initiative is now a focus for many other international programmes and country actions on improving access to clean, safe household energy. One such example is the United Nations Foundation's (UNF) *Alliance for Clean Cookstoves*, which was established in 2010 to harness the resources and innovation of the public and private sectors. Specific activities, resources and support that can contribute to meeting the GAPPD objectives include:

WHO Household energy database

This database holds nationally representative data on fuel types used for cooking derived from 586 surveys for 155 countries. It includes 97% of all low- and middle-income countries and covers the period from 1974 to the present. Regularly updated and now being expanded to include data on heating and lighting, it has served as the basis for the SEFA baseline report (in preparation) and the calculation of disease burden, among other purposes. It can also make an important contribution to national situation assessment and monitoring.

Source: SEFA <http://www.sustainableenergyforall.org/> ; <http://www.sustainableenergyforall.org/tracking-progress>

New WHO Indoor air quality guidelines for household fuel combustion

Due for publication during 2013, these guidelines will provide key information for decision-making on interventions for reducing HAP and preventing associated diseases, including pneumonia, and will also contain evidence and general guidance for implementation.

International standards for cookstoves

These standards were published for the first time in 2012. Based on an international workshop agreement, the multi-tiered standards cover emission rates as well as rates for estimating indoor air quality, fuel efficiency and safety, and are being backed up by investment in regional testing centres.

Monitoring and evaluation strategy

WHO is working with the World Bank and other SEFA partners to develop a multi-tiered monitoring framework. This will serve as a basis for setting targets and monitoring progress in access to modern energy for households and community services, pollutant emission levels and electricity supply. The proposed framework will be tested and refined, including the development of survey questions for DHS, MICS, etc., with a view to implementation within two to three years.

BOX 10. Integrating interventions for household water and air quality in Rwanda

About two fifths of the world's population still relies on solid fuels for their everyday cooking and heating needs, most of which is biomass (wood, crop wastes and animal dung). The great majority of these households are in developing countries, and reliance on solid fuels is closely linked to poverty. The use of biomass for cooking and water treatment (by boiling) in simple, poorly-vented stoves leads to high levels of harmful indoor air emissions, contributes to deforestation in some settings, and imposes an unnecessary burden on the public health and economic development of the vulnerable populations of these countries.

WHO has recently begun working with the Government of Rwanda and a range of stakeholders to address this issue. A key partner is DelAgua Health & Development Programs, which plan to distribute point-of-use water treatment as well as more efficient cookstoves to approximately 3 million residents, covering all 30 districts of Rwanda and targeting the poorest 30% of the country. Households that fall into these categories are defined on a village level by the communities themselves. They are often characterized as lacking land, their own home or possessions. These households already receive direct assistance from

community and national government activities, including health insurance.

The DelAgua Health Rwanda programme will provide water filters and new biomass cookstoves to these households as part of a public health campaign. The project is being carried out in partnership with the Rwanda MoH and the Environmental Management Authority, and is being developed by Manna Energy Limited, a social enterprise that pioneered carbon financed water treatment in Rwanda. The technology distributions will include a household water treatment system that addresses microbiological contamination and a cookstove designed to reduce fuel use and HAP. Neither system requires electricity. The water treatment system will comply with the United States Environmental Protection Agency *Guide Standard and Protocol for Testing Microbiological Water Purifiers*, providing treated water that is as good as, or better than, boiling for reducing microbiological contamination. Plans are underway to evaluate the new stoves, including their impacts on HAP and fuel use, and in due course, on health outcomes.

Source: Adapted from <http://www.delaguahealth.com/program/>.

- Involve the private sector, NGOs and civil society

Too often planning for health interventions, such as those involving pneumonia and diarrhoea control, only consider implementation by the public sector. This may be the case even where private practitioners and drug sellers account for a greater share of health care than the public sector. The appropriate involvement of associations of doctors, nurses, pharmacists, drug sellers, traditional healers, manufacturers of water treatment products and sanitation hardware, and community groups in the planning and implementation of pneumonia and diarrhoea actions can achieve greater population coverage. Private sector involvement in non-health interventions is required for technology and market development, clean energy supply, finance, etc.

- Engage the United Nations agencies and donors

The national working/action group should "map" relevant agencies and other possible donors at the country level to see how existing resources can be best used, and, where possible, how additional resources can be mobilized. WHO and UNICEF provide technical support in many countries, through for example, the provision of guidelines and tools for conducting a situation analysis and developing a pneumonia and diarrhoea action plan. They also often provide support for monitoring progress. Agencies involved in CCM activities for malaria are often a good source of support for iCCM. In fact, rapid diagnostic tests used in iCCM are an important tool for ruling out malaria and knowing when pneumonia treatment is necessary.

Other recommended actions

- Be open to innovations

Planners can integrate proven innovations to eliminate barriers to health and produce better outcomes. These approaches may be applied to all activities: leadership and management, financing (including incentives to achieve better performance and results), tools and interventions, service delivery, and monitoring and evaluation. Innovation can increase efficiency and impact. For example, mobile phone technology enables broad and nearly instant dissemination of information and reporting back of health data (see **Boxes 11 and 12**). Use of e-learning tools increases the number of training options at lower cost and thus coverage with trained health workers. New vaccines aimed at reducing pneumonia and diarrhoea can be integrated into existing immunization programmes while innovative vaccine delivery devices can improve acceptability of immunization. Task-shifting may increase capacity for delivery of key interventions (including iCCM). Innovative ways to help programmes and sectors work together can be included in planning and programme evaluation. The workplan of the United Nations *Commission on Life-saving Commodities for Women and Children* (15) includes work on innovation related to supply and delivery of commodities. Innovations in approaches to financing, both for service and product providers (e.g. loans and guarantees) as well as users (e.g. micro-credit), are expected to be critical for expanding access to modern energy (66).

BOX 11. Stock: Creating an SMS system to improve the supply of child health medicines for CCM

In Malawi, CCM was initiated in 2008, targeting children in hard-to-reach areas. Health Surveillance Assistants (HSAs) are a paid cadre of CHWs who provide CCM services in addition to their other responsibilities. Keeping HSAs supplied with essential medicines for CCM is difficult due to poor infrastructure, such as roads and communication. Often, decision-makers at district or central levels have little or no information on stock status at the community level, and so cannot monitor and address stock problems in a timely manner. The Malawi MoH, with support from the *Improving Supply Chains for Community Case Management of Pneumonia and Other Common Diseases of Childhood* project (SC4CCM) decided to test the use of mobile technology for improving communication between the HSAs and their resupply point. cStock is a rapid SMS, open-source, web-based system that was custom designed by SC4CCM

for monitoring and managing community-level essential medicines and commodities for child health, family planning and HIV testing. The system allows HSAs to transmit their stock information to the health centre via text message and allows community-level data, previously unavailable, to be visible to decision-makers at all levels of the system. User feedback has been positive, and best practices are being generated. The programme is being rolled out in more districts, and similar initiatives are in operation in Ethiopia and Rwanda. A baseline assessment was done in 2010 and the project intends to measure its impact on the availability of products.

Source: Adapted from JSI. *cStock: Creating an SMS system to improve supply of child health medicines for CCM in Malawi*. (flyer, undated); JSI. *Description of the SC4CCM Project in Malawi*. (flyer, 2011).

BOX 12. Skymeds, Bihar

In 2011, the World Health Partners (WHP) launched a "Skymeds" network of rural private providers across 25 districts in Bihar, under the joint venture initiative Anya and funded by the Bill and Melinda Gates Foundation. Since inception of the programme, access to rapid, affordable, high-quality treatments close to home for babies has become a reality for many. These gains in access and quality of care have been made possible by engaging rural private providers, to whom 70-80% of rural people take their children first, often for life-threatening pneumonia or diarrhoea, and encouraging the adoption of good practices for detection and management of childhood illness. Moreover, using telemedicine, rural private providers are linked to qualified doctors, ultimately increasing capacity for quality care. Programme impact is reinforced by a strong supply chain of essential medicines, ensuring the availability and affordability

of medicines for the treatment of pneumonia and diarrhoea, including ORS, zinc and amoxicillin. In order to further strengthen the combat against childhood pneumonia in Bihar, a number of innovations are being explored, many of which will aid in the diagnosis and treatment of hypoxia (low blood oxygen), which often complicates pneumonia. Example innovations that are being explored include respiratory rate timers built onto an Android platform that will assist rural providers in the detection of fast breathing as a key symptom of pneumonia; low-cost pulse oximeters that can be used for the detection of hypoxia; and oxygen concentrators and generators of oxygen by way of chemical reaction that will help remedy the scarcity of supply chains for oxygen supplementation in rural areas.

Source: Personal Communication, Karen Pak Oppenheimer, WHP, January 2013

• Generate demand and ensure supply

Generating demand, both at political and community level, involves advocacy and communication strategies. Providing information, education and communication to health workers, the private sector, the general public and families should be an important part of the action plan. Especially important are activities to raise awareness of risks and increase prevention and care seeking in communities, based on formative research into the barriers and other relevant factors (see **Boxes 13 and 14**). Key family and community practices that have a major impact on child health have been identified. Related interventions have the potential to make a substantial contribution to the reduction in mortality/morbidity and/or improvement in child development (67). Experts in relevant fields should be involved to ensure that

communications are evidence-based, consistent, relevant and correctly targeted. Resources should be dedicated for this purpose in the action plan (see **Box 15**). At the global level, the *Global Coalition Against Child Pneumonia* helps to generate interest and resources through World Pneumonia Day (WPD) activities, and links interested groups together. Besides WPD, promotional and informational activities go on throughout the year.

When generating demand, actions should be taken to ensure that any increased demand for services is met. This can be achieved through careful monitoring of progress in uptake of interventions, and by ensuring that mechanisms are in place to review the availability and distribution of human and other resources.

BOX 13. Interventions to generate demand for community case management of pneumonia

The Lady Health Workers (LHW) Programme, Save the Children – United States and WHO sought to increase demand in communities of Haripur district, Pakistan (population over 700,000) for CCM of pneumonia. This was the first stage of a trial to determine the effectiveness of CCM for children 2-59 months with WHO-defined severe pneumonia by LHWs using oral amoxicillin. At baseline, only 0.9% of caregivers of children with pneumonia sought care from LHWs, even though LHWs had been trained to manage pneumonia in the community. Qualitative research showed that community members perceived LHWs as preventive and promotional care providers with limited or no role in curative care. Based on these findings, the following interventions were implemented to create awareness among community leaders and households and increase prompt care seeking and demand for treatment of pneumonia by LHWs.

A. District and sub-district level advocacy: Individual and group meetings were held with district and sub-district nazims (mayors), religious leaders, teachers and other opinion leaders to communicate messages around LHWs' capacity to manage pneumonia. Their support was sought to disseminate messages to their respective communities, and to motivate community members to seek care from LHWs.

B. Reactivation of men's and women's village health committees: To create awareness and facilitate their work in the community, the programme established or reactivated men's and women's health committees.

C. Training of LHWs and male health activists (MHAs) in community engagement: The LHWs are required to conduct at least one community awareness session (CAS) per month on maternal, newborn and child health topics in their catchment areas. However, pre-service training does not provide the necessary skills to engage with community women, who are often older than the LHWs. Communities were requested to nominate a male volunteer from each LHW's catchment area as a health activist (MHA) to facilitate the work of the LHW and to conduct CAS for men. The LHWs and MHAs were trained in community mobilization and were taught how to facilitate the CAS. The training included classroom sessions, role plays and supervised community sessions. Initial training was followed by regular on-site mentoring by Lady Health Supervisors (LHSs) and six monthly refresher sessions.

After two years of programme implementation, care seeking for treatment of pneumonia by LHWs increased to 50%. This shift in care seeking from LHWs has brought quality care closer to home and decreased visits to referral facilities from 46.7% at baseline to 18.9%, a substantial reduction in burden on already overloaded referral facilities.

Source: Bari et al. Community case management of severe pneumonia with oral amoxicillin in children aged 2-59 months in Haripur district, Pakistan: a cluster randomized trial. Published online November 11, 2011, DOI:10.1016/S0140-6736(11)61140-9 and Sadruddin S (personal communication – unpublished data).

BOX 14. Baby Zinc mass media campaign

The Baby Zinc mass media campaign was developed to spread messages on the benefits of zinc and ORS to fight childhood diarrhoea, which is a leading cause of child death in Bangladesh. The communication strategy was based on understanding the community—their beliefs, culture, language and practices—through formative research. Multiple channels were used to sustain interest and generate demand. Extensive pre-testing ensured proper clarity, acceptability and understanding of the messages. A unique slogan, which incorporated a sound icon, was created.

Baby Zinc communication was strategically placed in the media. An evaluation carried out after initial release showed almost 95% product awareness in urban and semi-urban locations, with 50% in rural areas, primarily from television.

Commercials were created for television viewers and for radio audiences, catering to their different needs. Printed

materials were developed with customized messages to cater to audiences from both the demand and supply ends. Promotional activities focused on direct means of communication aimed at the target population, including courtyard meetings, folk songs and magic shows.

The Baby Zinc slogan has become very popular and sustains the growth of zinc use via word-of-mouth. A 13-episode weekly television drama serial on zinc treatment, titled *Bhalo Achhi Bhalo Theko*, was aired on Bangladesh government television. Set in a rural context, the drama was full of humour and entertainment while carrying messages on the use of zinc along with ORS for the treatment of diarrhoea among children aged from 6 months to 5 years.

Source: Adapted from Suzy News, October 2008, ICDDR, B, http://www.icddrb.org/what-we-do/publications/cat_view/52-publications/10042-icddrb-periodicals/10071-suzy-news/10095-vol-5-no-2-english-2008/11671-baby-zinc-mass-media-campaign-dhansiris-experience.

BOX 15. Communication strategies

Communication strategies to inform and motivate individual, community and social change are vital for child survival programmes. To this end, UNICEF and its partners recently developed the *Communication Framework for New Vaccines and Child Survival* to support the introduction of new vaccines for pneumonia and diarrhoea. This effort is part of a comprehensive package to also strengthen complementary 'healthy actions' for pneumonia and diarrhoea control, such as early and exclusive breastfeeding, handwashing with soap, vaccinations, appropriate care seeking for illness symptoms and clean household energy, among others. New vaccines require communication strategies not only to promote uptake of these vaccines, but also to prevent unrealistic community expectations that could damage immunization programmes.

The communication framework stresses a structured approach to guide the design, implementation and evaluation of a national communication plan for child survival. Communication is challenging, and there is more than one way to carry it out correctly. It must be based on

the information needs of the intended target audience, crafted to both inform and motivate, linked to programme goals, based on sound analysis and research and structured to include rigorous monitoring and evaluation.

In another communication effort, in 2009, groups from around the globe came together to launch WPD. It united a broad coalition and focused the attention of policy-makers and journalists. With each year, the momentum continues to grow as more parents, health workers and policy-makers lend their voices to the cause. Thousands of advocates — representing more than 140 organizations in over 40 countries — have joined the *Global Coalition Against Child Pneumonia* to fight this disease. Events commemorating the fourth annual WPD in 2012 were planned for nearly a dozen countries.

Source: UNICEF 2011a, adapted from extract quoted in UNICEF 2012; IVAC. World pneumonia day, <http://www.jhsph.edu/research/centers-and-institutes/ivac/projects/world-pneumonia-day.html>, accessed 5 November 2012.; Communication Framework link: <https://sites.google.com/site/commframe/>.

8. Areas needing special attention

In the past, some important areas needed to carry out this action plan effectively have not received adequate attention. With a changing climate, an increased number of large protracted outbreaks, recurring global food and nutrition crises and rapid and unplanned urbanization, programmes for diarrhoea and pneumonia should be flexible and able to understand the risks as well as adapt to changes in context.

- Involvement with the private sector

In many high-mortality countries, private sector retailers, such as pharmacies and drug shops, play a significant role in provision of care for childhood illnesses, particularly diarrhoea. In addition to the risk of unregulated distribution of drugs through the private market, more expensive and ineffective treatments may be provided (e.g. antibiotics or anti-motility agents for diarrhoea rather than ORS and zinc). On the other hand, private practitioners, reached through their associations,

can be strong allies for appropriate care when included in awareness-raising and educational activities.

Experience of working with this sector is growing (see **Table 2** and **Boxes 16, 17 and 18** for examples). As mentioned previously, the United Nations *Commission on Life-Saving Commodities for Women and Children* is strengthening public-private partnerships for 1) the delivery of ORS and zinc for diarrhoea and of oral amoxicillin for pneumonia treatment, 2) the production of child-friendly formulations at affordable prices and 3) the creation of demand at national levels.

TABLE 2. Working with the private sector. Actions that government, partners and donors can undertake to collaborate with the private sector at each level of the supply chain

Area for impact	Government / partner / donor activities	Case example
Decrease product manufacturing cost	<ul style="list-style-type: none"> • Work closely with pharmaceutical manufacturers to negotiate lower prices for important commodities in order to enhance availability of appropriate, affordable drugs in the public as well as in the private sector • Provide assistance to manufacturers on their cost structure in order to identify potential efficiencies (e.g. optimal sourcing) 	<p>Contraceptives Through a coalition of governments, private donors and NGOs, a leading drug company agreed to reduce its price of long-acting contraception by more than half, improving accessibility of these contraceptives for 27 million women in the developing world.</p>
Encourage imports of essential commodities	<ul style="list-style-type: none"> • Remove barriers to importation: waive import duties and taxes, and expedite registration processes • Provide market intelligence, including demand forecasts, market size estimates, and transparency on plans for parallel demand generation in the public sector 	<p>Affordable Medicines Facility – malaria (AMFm) artemisinin-based combination therapy (ACT) imports Under the AMFm, 156 million doses of ACT-treatments were imported in 8 AMFm-participating countries, leading to large increases in ACT availability (26–52%) in 6 pilot countries. Interventions included:</p> <ul style="list-style-type: none"> • Regulatory changes, including over-the-counter status • Regular private sector fora to engage first-line buyers and major wholesalers
Activate wholesalers and distributors to include essential commodities in their supply chains	<ul style="list-style-type: none"> • Work with major wholesalers and distributors to ensure essential commodities are included in their supply chain • Provide support in optimizing supply chain management and distribution • Facilitate efficiency improvements by connecting wholesalers directly with high-volume clients/groups of clients 	<p>Zinc and ORS scale-up in Benin By working with the major wholesalers to market OraselZinc through the commercial distribution channels for fast-moving consumer goods (kiosks, drug vendors, retail shops), access to and availability of OraselZinc increased from 36% to 58% within a year in Benin.</p>
Improve private providers prescription at the delivery level through training, detailing, and other interventions	<ul style="list-style-type: none"> • Engage private providers (pharmacists, chemists, drug vendors and general stores) to improve their knowledge and capabilities: <ol style="list-style-type: none"> a. Include private providers in existing training activities b. Reach providers’ professional associations and key opinion leaders c. Establish an accreditation system for lower-level providers 	<p>Zinc and ORS detailing in India Deploy public/private detailing forces to promote and sell zinc and ORS, likely to be contained in a basket of goods in order to incentivize usage.</p>
Improve access to lower-emission solid fuel stoves and clean fuels through involvement of producers and suppliers	<ul style="list-style-type: none"> • Engagement can help in understanding the market for energy technology and services, and in implementing key quality measures including standards and testing • This engagement can lead to more effective policies to promote demand, and can provide supply through private sector loans and increasing affordability for users • Engagement will facilitate contributions from the private sector for monitoring and evaluation 	<p>Cleaner energy access in Indonesia Conversion of more than 40 million homes from polluting kerosene cooking to LPG was achieved through cooperation between the government and the national oil company Pertamina, with involvement of individual kerosene suppliers encouraged to switch to LPG provision. There are many other examples of cooperation between the public sector, producers and NGOs in the development and promotion of improved stoves and cleaner fuels.</p>

Source: (68, 69)

BOX 16. United Republic of Tanzania: Accredited drug dispensing outlets—*Duka la Dawa Muhimu*

Duka la dawa baridi (DLDB) are authorized to provide nonprescription medicines to the private sector in the United Republic of Tanzania. With an estimated 4 600-plus stores, DLDB constitute the largest network of licensed retail outlets for purchasing medicines. The accredited drug dispensing outlet (ADDO) project aimed to improve access to affordable, quality medicines and pharmaceutical services in retail drug outlets in rural or periurban areas where there are few or no registered pharmacies. To achieve this goal, the *Strategies for Enhancing Access to Medicines* (SEAM) Program took a holistic approach that combined changing the behaviour and expectations of individuals and groups who use, own, regulate or work in retail drug shops. For shop owners and dispensing staff, this was achieved by combining training, incentives, consumer pressure and regulatory coercion with efforts to affect client demand for, and expectations of, quality products and services.

A SEAM Program evaluation of the ADDO shops in 2004 compared them with a control group of DLDB. The key

lessons learned included:

- Pharmaceutical services in developing countries can be substantially improved through training, accreditation and regulation of private-sector drug sellers, but supervision and monitoring are needed.
- Broad-based support from all stakeholders from the public and private sectors is crucial for the project's design and implementation.
- Defining the appropriate, country-specific mix of public- and private-sector responsibilities in a drug seller initiative is critical for timely scale-up and sustainability.
- Owner, dispenser and local regulatory/inspector training, as well as supervision and mentoring, is expensive and time consuming and needs to be adequately addressed when developing sustainability and rollout strategies.

Source: Adapted from Tanzania: Accredited Drug Dispensing Outlets—*Duka la Dawa Muhimu* on the Management Sciences for Health, Rational Pharmaceutical Management Plus, website <http://www.msh.org/projects/rpmpplus/WhereWeWork/Africa/ADDOs.cfm>, accessed 5 September 2012.

BOX 17. Using the informal private sector to improve quality of care with zinc and ORS – the case of the Point-of-Use Water Disinfection and Zinc Treatment (POUZN) Project, Uttar Pradesh, India

Introduction of zinc and ORS through the public health sector may not reach the vulnerable populations that need them the most since a classic market introduction of zinc would only trickle down to private providers at a very slow pace. The POUZN project in India worked with commercial partners to produce and sell zinc. However, there was no direct contact with informal practitioners or retail outlets in remote areas. To bridge this gap, the POUZN project trained existing indigenous medical providers in Uttar Pradesh to use zinc and ORS. These unlicensed providers normally treat almost 63% of children less than 3 years of age who are suffering from diarrhoea. Through local NGOs, approximately 2000 rural medical practitioners (RMPs) and 500 drug sellers were identified to provide access to zinc and ORS in rural areas.

The project designed communication tools for both the retailers and their clients, including a short DVD designed to raise awareness and convey consistent and correct messages about zinc. Retailers were given DVD players, as well as simple monitoring forms in order

to track prescription practices and client satisfaction. Following a review, the project streamlined the strategy and expanded the programme. About 20 000 RMPs and 5000 drug sellers served a catchment area of around 13 million people. High rates of increase in use of a recommended point-of-use water treatment were observed.

The NGO representatives primed the market in their areas and, equally important, compiled information about the top 25% or so prescribers. POUZN shared this information with companies selling zinc in Uttar Pradesh—essentially identifying their prime customers. Creating such a bridge encourages companies to commit to this new market as it gives them an economic incentive to become more active in underserved areas. It also allows rural providers to learn about and have access not only to zinc, but also to other drugs and health products. It ultimately permits removal of subsidies once the rural market has been primed.

Source: Adapted from USAID. Introducing improved treatment of childhood diarrhoea with zinc and ORT in India, Indonesia and Tanzania. Washington DC, POUZN Project, 2010.

Improving and monitoring quality

Progress on child survival is dependent on delivery of quality, appropriately funded interventions. At the country level, monitoring service quality is an essential part of programme management. Tools, guidelines and experience exist for measuring both content and process in quality improvement efforts. WHO and partners have developed facility-level quality of care indicators for maternal, neonatal and child health

services. These indicators are intended for routine assessment and application of the results to improve services. Methods have also been developed to assess the quality of child health care delivered at the community level as part of the *Catalytic Initiative to Save a Million Lives* (70), an international partnership aimed at strengthening health systems to accelerate progress towards MDGs 4 and 5. The tools have been used in Ethiopia and Malawi and are available for adaptation and use in other settings. Participatory Community Quality Improvement

(PCQI) is a community-based strategy implemented by the *Last Ten Kilometres Project* (L10K) in Ethiopia, which has shown some positive results (see **Box 18**). Furthermore, WASH facilities within health care centres are important not just for infection control but also for overall service satisfaction and improving quality of care. Likewise, energy is required in order

to provide high quality health care; for example, a reliable electrical supply is needed to ensure adequate lighting and functioning of equipment such as oxygen concentrators, as well as for the cold chain. Despite the importance of energy, a high proportion of health facilities in Africa and other regions have no electricity.

BOX 18. Involving communities to improve quality of care – a participatory approach used by the L10K Project in Ethiopia

In some settings, the introduction of CCM has led to increased curative services for childhood illness. However, the performance and quality of most child health services is poor, thus limiting good health outcomes. The L10K Project in Ethiopia developed an approach called Participatory Community Quality Improvement (PCQI) to improve quality and accessibility of health care through greater involvement of the community and HEWs.

The PCQI ensures continuous quality improvement through a cyclical process. First, the community members identify the main bottlenecks and barriers to the accessibility and quality of services. Second, they suggest possible adjustments and advances in these problem areas and take responsibility for monitoring and targeting improvements of access to services and quality of service provision. HEWs also meet quarterly to discuss these issues. Representatives from these different groups share their findings through a “Bridging the Gap” workshop, establish a quality improvement team

and develop a clear plan of action to improve access to and quality of services provided.

In one year of implementation of PCQI, a number of positive changes have been observed. Some of the barriers to accessibility and quality of care identified and addressed include: harmful traditional beliefs, lack of access to services by families, lack of services available at night and HEWs’ insufficient practical experience. Examples of community-driven initiatives include firm commitment to the maintenance and improvement of roads leading to clinics, construction of HEW lodgings near health facilities to facilitate the provision of emergency services during the night, and pooling of funds to buy supplies for the health posts to help improve quality of care.

Source: Adapted from L10K Policy Brief, Vol. 2 - Participatory Community Quality Improvement Approach (PCQI) in Ethiopia http://l10k.jsi.com/Resources/policy_briefs.htm accessed February 14, 2013.

Delivering more impact with lower costs

In many places, resources for health are not increasing as rapidly as needed, especially where demand generation efforts are in place. This situation can limit efforts to deliver services, including those to prevent, protect and treat pneumonia and diarrhoea in an equitable manner. Allocating resources more effectively requires making decisions based on local epidemiology and burden of disease estimates, identifying priority interventions, understanding the resources available and where they can be best used, and taking advantage of new tools. For example, OneHealth and Marginal Budgeting for Bottlenecks are analytical tools for evidence-based health policy, planning, costing and budgeting at country level. These tools help simulate the potential impact on health-

related coverage and outcomes, as well as cost and budget implications of alternative health service delivery strategies using different approaches (community/ family-based, population / outreach-based, or clinic-based).

Moving to sustainability

There are many examples of investments in health that are ended prematurely in response to the cessation of external funding or the prioritization of new initiatives. In recent years, more emphasis has been put on sustaining improvements, and there is a growing body of work to help planners and managers know what to do to sustain evidence-based interventions and programmes in countries. Implementation of interventions for pneumonia and diarrhoea should aim to sustain any gains made.

9. Monitoring and evaluation

Tracking progress on efforts to control pneumonia and diarrhoea needs dedicated attention. Countries will have primary responsibility for ensuring that data are available and used for action, and for measuring progress.

The indicators for GAPPD targets (**Table 3**) have been selected because they are also being used to monitor progress towards MDG 4 in the *Countdown to 2015* and the United Nations CoIA. The other indicators cover key areas (such as water, sanitation and energy) not included in those initiatives. They are usually captured by routine health information systems and/or DHS

and MICS, or by other established processes. Thus the data to measure them is likely to be readily available, even after 2015. Countries will need to establish mechanisms to ensure that data collected by community health and similar workers is incorporated into reporting systems. In some cases, more frequent sampling of high-risk communities than the DHS and MICS permit will be required.

Globally, United Nations agencies and other partners will continue to support countries and compile regional and global information. For immunization coverage, WHO-

UNICEF estimates based on government reports are available at the national level.

Data measuring progress towards GAPPD goals will be measured through surveillance efforts, existing processes such as the Child Health Epidemiology Research Group, and through improved burden of disease impact models. The iERG of the United Nations CoIA will be involved as appropriate, as will as the World Health Assembly.

WHO and UNICEF have been leading the process to develop post-2015 water and sanitation targets. The indicators below are based on this work and adapted specifically to the GAPPD timeline (2025 compared to 2030 as used in the water and sanitation targets). In addition, a target specifically

on household water treatment and safe storage is proposed based on the 2011-2016 Strategy of the WHO/UNICEF *International Network on Household Water Treatment and Safe Storage* (71). These targets will be reviewed by a WHO-commissioned Taskforce that will focus specifically on health in 2013.

WHO and partners are developing a comprehensive monitoring and evaluation strategy for clean household energy. This combines 'bottom-up' information based on supply and purchase of interventions, with 'top-down' data from national surveys. Ad-hoc field studies are also included for more complete evaluation of intervention use and impacts. Work to develop and test survey instruments is at the planning stage.

TABLE 3. Indicators to evaluate progress in achieving key operational targets for pneumonia and diarrhoea control

Indicator	Definition	Sources of Data
Hib immunization coverage	Percentage of children aged 12-23 months who received 3 doses of Hib vaccine	WHO/UNICEF estimates
Measles immunization coverage	Percentage of children aged 12-23 months immunized with measles-containing vaccine	WHO/UNICEF estimates
DTP3 immunization coverage	Percentage of children aged 12-23 months who received 3 doses of DTP3 vaccine	WHO/UNICEF estimates
PCV immunization coverage	Percentage of children aged 12-23 months who received 3 doses of PCV	WHO/UNICEF estimates
Rotavirus immunization coverage	Percentage of children aged 12-23 months who received completed schedule of rotavirus vaccine	WHO/UNICEF estimates
Exclusive breastfeeding for 6 months	Percentage of infants aged 0-5 months who are exclusively breastfed	DHS, MICS, national nutrition surveys
Continued breastfeeding at 1 year	Proportion of children 12-15 months of age who are fed breast milk	DHS, MICS, national nutrition surveys
Complementary feeding	Percentage of children aged 6-23 months who received a minimum acceptable diet	DHS, national nutrition surveys
Vitamin A supplementary coverage	Percentage of children 6-59 months who received 2 annual doses	Monitoring data from bi-annual events; HMIS
Oral rehydration therapy	Percentage of children aged 0-59 months with diarrhoea receiving oral rehydration therapy	DHS, MICS, community-based surveillance data
Zinc for the treatment of diarrhoea	% of children with diarrhoea who received ORT and an appropriate course of zinc	DHS, MICS, community-based surveillance data
Care seeking for pneumonia	Percentage of children aged 0-59 months with suspected pneumonia taken to an appropriate health provider	DHS, MICS
Antibiotic treatment for pneumonia	Percentage of children aged 0-59 months with suspected pneumonia receiving appropriate antibiotics	DHS, MICS, national surveys ²
Antiretroviral prophylaxis among HIV-positive pregnant women to prevent vertical transmission of HIV	Percentage of HIV-infected pregnant women who received antiretrovirals to reduce the risk of mother-to-child transmission	Health information system
Handwashing with soap	Percentage of households and health care facilities with soap and water, and a handwashing facility	MICS, national surveys,
Hygienic sanitation facility	Percentage of households and health care facilities with a hygienic sanitation facility	DHS, MICS, national surveys

1 Some data for this indicator is collected through DHS, but methodological problems exist.

Indicator	Definition	Sources of Data
Access to improved drinking-water	Percentage of households and health care facilities that report using an improved water source	DHS, MICS, national surveys
Use of household water treatment and safe storage ³	Percentage of households and health care facilities with an observed treatment method/product (+ water quality testing in a sub-set of households)	DHS, MICS, national surveys
Household air pollution	Percentage of households using clean fuels for cooking	WHO Household Energy database (DHS, MICS, Living Standards Measurement Study, national surveys and censuses)

Source: Indicators to evaluate progress in achieving key operational targets for pneumonia and diarrhoea control

WHO is working with the World Bank and other SEFA partners to develop a multi-tiered framework (72) to serve as a basis for setting targets and monitoring progress in access to modern energy for households and community services, pollutant

emission levels and electricity supply. The proposed framework will be tested and refined, with a view to implementation within two to three years.

10. Global role of partners

The achievement of the global objectives for pneumonia and diarrhoea control will require coordination of relevant programmes at country and regional levels, as well as expanded support from development agencies and those managing emergencies and outbreaks. Partners will be called on to align their support with government-led action plans and priorities.

The goals of the GAPPD support those of the *Global Strategy for Women's and Children's Health* and the EWEC movement, and in particular, support the call for action of the *Committing to Child Survival: A Promise Renewed*.

A core group of international partners from United Nations agencies, technical institutions and other stakeholders spearheaded the development of the GAPP and the GAPPD. The partners are leading specific activities related to their expertise and interest and may assign dedicated staff to 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 NGOs are already providing, or planning to provide, assistance to developing countries to help build and sustain national capacity for control of pneumonia and diarrhoea in young children. These activities are usually integrated into actions designed to address the MDG 4 target. Such supportive activities must be maintained and enhanced with, where necessary, specific emphasis on pneumonia and diarrhoea, and must be sustained beyond 2015.

Regional and international agencies will be called upon to provide technical assistance for country activities, and where appropriate, provide opportunities for country-to-country

exchange of experience. These activities are likely to include: revision, adaptation and development of technical, operational and managerial policies; pricing of vaccines, drugs and equipment; and presentation of a concise technical programme with projections of cost and outcomes. For example, UNICEF and partners are working closely with manufacturers to increase zinc availability, as UNICEF is the largest buyer of zinc tablets, representing over 80% of international procurement. It is also the largest procurer of dispersible amoxicillin tablets.

Key partners can also make an important contribution to addressing risk factors beyond the health sector that need action, such as access to clean household energy. National groups tasked with coordination of pneumonia and diarrhoea control can draw on the activities and input of SEFA and the UNF *Global Alliance for Clean Cookstoves* and their implementing partners (both international and in-country). Not only will this provide valuable technical (e.g. risk assessment, technology development and evaluation; international standards and testing) and policy (e.g. market development, financing) support for national action plans, but will also help to define the important contributions that can be made from the health system.

In partnerships like this, stronger accountability for actions is required.

The GAVI Alliance and its support for health system strengthening and new vaccine introduction can also be used at the country level to ensure health worker training, monitoring and evaluation, supply chain management, etc. Over the past 3 years, the GAVI Alliance has assisted over 20 countries to introduce pneumococcal conjugate vaccine (PCV), which prevents the most common cause of childhood pneumonia. Introduction of new vaccines can provide a platform for the provision of other commodities such as antibiotics, ORS and zinc, as well as facilitate the update of joint reporting and monitoring tools (e.g. registers, Child Health Cards).

² For a full list of recommended indicators refer to: WHO/UNICEF, 2012. Toolkit for monitoring and evaluating household water treatment and safe storage programmes. http://www.who.int/household_water/resources/toolkit_monitoring_evaluating/en/index.html

11. Research needs

Pneumonia and diarrhoea control efforts are unlikely to be effective unless supported by strong research, both basic and operational. The neglect of research in the fields of pneumonia and diarrhoea over the past decade has left many important clinical and epidemiological questions unanswered. The GAPPD is committed to the promotion of research, including community-based action research and sociocultural research on knowledge, attitudes, perceptions, cultural practices and health seeking behaviours. While country programmes move

to scale up interventions, there will be a need for research on delivery strategies, on overcoming barriers to interventions and on better ways for implementation. However, the need for such research is no reason to delay the implementation of effective interventions now. Research efforts to control pneumonia and diarrhoea in children must include building research capacity in the countries most affected.

12. Opportunities 2013 –2025

The MDGs have built considerable momentum and strengthened political commitment to child survival and development. The significant reduction in under-five mortality that has been achieved since 1990 has saved millions of young lives over the past two decades. Much of this progress has been achieved by the adoption of basic health interventions in the context of general development, economic improvement, increased female education and improved technology. However, 2015 is almost here, and much work remains to be done through to at least 2025. The GAPPD provides a way to enhance progress toward the prevention and control of the top child killers during the countdown to 2015 and beyond. This opportunity to advocate for and provide increased

investment in pneumonia and diarrhoea should not be missed. Considering the size of the global burden of childhood pneumonia and diarrhoea, the resources required to provide proven interventions are relatively modest.

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

13. Conclusion

The global MDG 4 target – reduction of child mortality by two thirds – is still out of reach for many of the poorest countries of the world. Although the MDG target for access to improved water has been met, hundreds of millions of people still lack access to safe and reliable drinking-water and 2.5 billion have no access to improved sanitation. Targets for improving the health of children beyond 2015 will not be achieved without urgent action on pneumonia and diarrhoea from national governments as well as supporting partners at the global level. Focused, coordinated and integrated international, national and sub-national action on pneumonia and diarrhoea control, as foreseen in the GAPPD, is needed now. In a changing world, programmes for diarrhoea and pneumonia must be flexible and able to understand risks and adapt to changes in context.

This document calls on all concerned groups to demonstrate their commitment, allocate the required resources, and work together to make preventable child deaths due to pneumonia and diarrhoea a tragedy of the past.

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ANNEX

ANNEX 1. Previous Action Plans for Pneumonia and Diarrhoea (summaries)

1.1. Pneumonia: The Global Action Plan for the Prevention and Control of Pneumonia (GAPP), launched in 2009 by WHO and UNICEF

Goals and vision

The Global Action Plan for the Prevention and Control of Pneumonia 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 due to pneumonia in children under age 5 by 65% by 2015 compared with 2000 levels
- Reduce the incidence of severe pneumonia by 25% in children under age 5 by 2015 compared with 2000 levels

Three targets are to be reached by the end of 2015:

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

Technical consensus statement

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 birthweight
- Control of indoor air pollution

Five interventions could more than halve pneumonia mortality and morbidity:

- *Adopting effective case management at the community and health facility levels.* Countries with a high under-five mortality rate should adopt plans to expand adequate case management of pneumonia at the hospital, health facility and community levels to achieve 90% coverage within a predetermined timeframe
- *Achieving Global Immunization Vision and Strategy targets for vaccines against measles and pertussis.* Countries that have not yet done so, especially high-mortality countries, should introduce PCV and Hib vaccine into their national immunization programmes

- *Promoting exclusive breastfeeding and zinc supplementation.* These strategies reduce rates of low birthweight and undernutrition, which helps prevent pneumonia
- *Reducing indoor air pollution.* New technologies can reduce indoor air pollution, which may prevent pneumonia, and additional research is needed to demonstrate the health benefits of these interventions
- *Preventing mother-to-child transmission of HIV, improving management of HIV infection and increasing use of P. jiroveci pneumonia prophylaxis.* These interventions are important in countries with HIV prevalence

Other preventive strategies, such as encouraging handwashing, should also 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.

1.2. Diarrhoea: Why Children Are Dying and What Can Be Done

This report lays out a seven-point action plan for comprehensive diarrhoea control.

Treatment

The treatment package focuses on two main elements:

- Fluid replacement to prevent dehydration
- Zinc treatment

Oral rehydration therapy is the cornerstone of fluid replacement. New elements of this approach include low-osmolarity ORS, which is more effective at replacing fluids than previous ORS formulations, and zinc treatment, which decreases diarrhoea severity and duration. Other important components are continued feeding, including breastfeeding, during the diarrhoea episode and use of appropriate fluids available in the home if ORS are not available.

Prevention package

The prevention package focuses on five main elements to reduce diarrhoea in the medium to long term:

- Increasing coverage of rotavirus and measles vaccines
- Promoting early and exclusive breastfeeding and vitamin A supplementation
- Promoting handwashing with soap

- Improving water supply quantity and quality, including treatment and safe storage of household water
- Promoting community-wide sanitation

New aspects of this approach include rotavirus vaccination, which was recently recommended for global introduction into national vaccination programmes, and approaches to increase demand to stop open defecation, which have proven more effective than previous strategies.

Implementation of the prevention package must be approached in a concerted way, because single interventions alone are likely to have lesser overall impact. For example, diarrhoea caused by rotavirus cannot be prevented solely by improvements in water and sanitation, and rotavirus vaccine does not prevent other pathogens (such as *E. coli* and *Shigella*) from causing diarrhoea. The package should be accompanied by clear, targeted and integrated behaviour and social change communication strategies to improve uptake by families and communities.

ANNEX 2. Key actions for selected interventions

2.1. Universal access to safe drinking-water, hygienic sanitation and handwashing facilities

Initial implementation plan

Providing safe, reliable, piped-in water and safe sanitation to every household is the ultimate goal of global efforts and would yield optimal health gains while contributing to the MDG targets for poverty reduction, nutrition, childhood survival, school attendance, gender equity and environmental sustainability.³ Four WASH interventions—increased access to water, improved drinking-water safety, adequate sanitation and handwashing with soap—have been shown to be effective in significantly reducing the incidence of diarrhoeal disease.⁴ These are highlighted as proven prevention interventions in the 7-point strategy for comprehensive diarrhoea control, adopted by UNICEF and WHO in 2009.⁵

Achieving meaningful health gains from water, sanitation and hygiene interventions requires scaling up to those populations most at risk. Such scaling up depends, in large part, on national enabling environments and policies which recognize and clearly define the roles of ministries (health, water, education, commerce). In addition, engaging key stakeholders, including international organizations, academia, donors, private sector, and NGOs is important for ensuring coordinated funding, action and assessment.

Key activities

Establish national action plan and targets for access to safe drinking-water, sanitation and hygiene

Policy/decision-making level

- Coordinate with health, water, sanitation and hygiene actors in prioritizing provision of services with a key objective of reducing pneumonia and diarrhoeal disease (e.g. with common/shared indicators, budgets, strategies)
- Strengthen institutional capacity at all levels (i.e. performance monitoring and risk assessments)
- Consider creating one common WASH fund
- Mobilize resources (grants, carbon credits, private sector)
- Establish monitoring and evaluation mechanisms to assess progress in improving WASH and reducing childhood pneumonia and diarrhoea
- Develop norms and standards to guide implementation

Implementation level

- Promote a comprehensive package of interventions to prevent and treat diarrhoea and pneumonia, including preventive WASH practices, zinc, ORS, exclusive breastfeeding and vaccines

Ensure availability of trained human resources and key commodities required to achieve targets

Policy/decision-making level

- Assess availability of water and sanitation technologies; consider reducing/eliminating tariffs on imported technologies
- Ensure products meet international and national standards (i.e. household water treatment should meet WHO performance targets)
- Work with private sector in developing an efficient supply chain

Implementation level

- Ensure access to safe drinking-water, handwashing facilities and sanitation in all health care facilities by prioritizing services to such facilities. Consider construction of “tippy taps” or handwashing devices that can be made using a 5 litre or 1.5 gallon plastic container that allows for running water without hand contact⁶
- Integrate promotion of key WASH practices (handwashing with soap at critical times; treatment, safe storage and handling of water; and safe faeces disposal) as part of antenatal, postnatal and nutrition counselling; HIV/AIDS treatment and care; and child care visits
- Train CHWs and volunteers to promote WASH practices and, where appropriate, disseminate WASH products (e.g. soap, water treatment products, etc.) as incentives to seek health services
- Link community members with organizations in the WASH sector that are active in national sanitation initiatives; work with the private sector to support access to low-cost sanitation products (e.g. in kiosks near the health centre that sell ORS, water treatment products, soap, safe storage containers, etc.)

3 Prüss-Üstün, Bonjour & Corvalán, 2008

4 Fewtrell et al., 2005; Clasen et al., 2007; Waddington et al., 2009

5 UNICEF/WHO (2009). *Diarrhoea: why children are still dying and what can be done*. New York, NY, USA, United Nations Children's Fund; Geneva, Switzerland, World Health Organization (http://www.who.int/maternal_child_adolescent/documents/9789241598415/en/index.html).

6 <http://www.tippytap.org/build-a-tippy-tap-manual>

Assess progress in achieving targets and modify programme delivery as needed

Policy/decision-making level

- Explore the extent to which the health sector can leverage its community-level reach to collect WASH sector monitoring information (i.e. access to safe drinking-water and sanitation, treatment and safe storage of drinking-water in the home, handwashing with soap, hygienic handling and preparation of foods)
- **Priority commodities:** soap, household water treatment products (chlorine, filters, coagulant/flocculant), safe storage containers, bore well digging equipment, water pumps (both hand and mechanical), latrine slabs, cement for tanks

Examples of milestones

- % increase in access to safe drinking-water, sanitation and handwashing facilities in all health care facilities and schools (especially those in rural areas)
- % of policies and % of programmes which have integrated WASH into key activities (maternal and child health, nutrition, HIV/AIDS)
- % increase in uptake of health services where WASH has been integrated into programmes and facilities are available
- % reduction in childhood diarrhoea and pneumonia

2.2. 90% coverage of each relevant vaccine (with 80% coverage in every district)

Initial implementation plan

The *Global Vaccine Action Plan* (http://apps.who.int/gb/ebwha/pdf_files/WHA65/A65_22-en.pdf) sets out the guiding principles and strategic objectives for achieving the goals of the *Decade of Vaccines*. Country, regional and global stakeholders need to take responsibility for specific actions, translate the action plan into detailed operational plans, complete the development of an accountability framework for the Decade of Vaccines and mobilize resources. The key activities below should ensure increased and sustained coverage of traditional childhood vaccines and appropriate introduction of new ones.

Key activities

Commit to immunization as a priority, with routine immunization as a platform

Policy/decision-making level

- Establish and sustain commitment to immunization
 - Ensure legislation or legal framework
 - Develop comprehensive national immunization plan as part of overall national health plan
 - Set country-specific targets
- Strengthen national capacity to formulate evidence-based policies
 - Create or strengthen existing, independent bodies that formulate national immunization policies

Implementation level

- Inform and engage opinion leaders on the value of immunization
- Scrutinize, defend and follow closely immunization budgets, disbursements and activities
- Support local civil society organizations and professional associations to contribute to national discussions on immunization

Individual and communities understand the value of vaccines and demand immunization as both their right and responsibility

Policy/decision-making level

- Create incentives to stimulate demand and improve caregiver knowledge, attitudes and practices
 - Create incentives for households and health workers in favour of immunization
 - Conduct social research to improve the delivery of immunization services and the ability to meet the needs of diverse communities
 - Identify reasons for vaccine hesitancy and take steps to increase community confidence and demand for immunization

Implementation level

- Build advocacy capacity
 - Recruit new voices, including those of educators, religious leaders, traditional and social media personalities, family physicians, CHWs, and trained immunization champions (among others)
 - Train health workers in effective communication techniques, especially to address vaccine hesitancy and to respond to reports of serious adverse events following immunization
 - Engage, enable and support in-country civil society organizations to advocate the value of vaccines to local communities and policy-makers and local and global media.
 - Create national advocacy plans that involve in-country civil society organizations
- Link advocacy efforts with professional, academic and media networks
- Engage individuals and communities on the benefits of immunization and hear their concerns
 - Utilize social media tools and lessons learnt from commercial and social marketing efforts
 - Include immunization in the basic education curriculum
 - Conduct communications research

Benefits of immunization are equitably extended to all people

Policy/decision-making level

- Develop and implement new strategies to tackle inequities
 - Recast “Reaching Every District” to “Reaching Every Community” (ensuring that all five components are included and equally emphasized and implemented) in order to deal with inequities within districts
 - Engage underserved and marginalized groups to develop locally tailored, targeted strategies for reducing inequities
 - Introduce appropriate new vaccines into national immunization programmes
 - Prevent and respond to vaccine-preventable diseases during disease outbreaks and humanitarian crises, and in conflict zones

Implementation level

- Build knowledge base and capacity for enabling equitable delivery
 - Track each individual’s immunization status, leveraging immunization registries, electronic databases and national identification number systems
 - Take advantage of community structures to enhance communication and deliver services (for example, traditional birth attendants, birth registries)
 - Involve civil society organizations in community outreach and planning
 - Develop new approaches to community engagement for urban and peri-urban areas

- Train health workers and civil society organizations in engaging communities; in identifying influential people who can assist in planning, organizing and monitoring health and immunization programmes, as well as community needs; and in working with communities to meet those needs
- Conduct operational and social science research to identify successful strategies to reduce inequities and improve the quality and delivery of immunization services

Strong immunization systems are an integral part of a well-functioning health system

Policy/decision-making level

- Develop comprehensive and coordinated approaches
 - Ensure that global vaccine programmes focusing on eradication and elimination goals (for example, poliomyelitis and measles campaigns) are incorporated into national immunization programmes and do not operate independently
 - Ensure that new vaccine deployment is accompanied by comprehensive plans to control targeted diseases
 - Ensure coordination between the public and private sectors for new vaccine introduction, reporting of vaccine-preventable diseases and administration of vaccines, and ensure quality of vaccination in the public and private sectors
 - Consider the inclusion of vaccines (as appropriate to national priorities) in health programmes across the life-course

Implementation level

- Strengthen monitoring and surveillance systems
 - Improve the quality of all administrative data concerning immunization and promote its analysis and use at all administrative levels to improve programme performance
 - Develop and promote the use of new technologies for collection, transmission and analysis of immunization data
 - Further strengthen and expand disease surveillance systems to generate information for decision-making, monitoring the impact of immunization on morbidity and mortality and changes in disease epidemiology
 - Ensure capacity for vaccine safety activities, including capacity to collect and interpret safety data, with enhanced capacity in countries that introduce newly developed vaccines
- Strengthen capacity of managers and front-line workers
 - Ensure that immunization and other PHC programmes have adequate human resources to schedule and deliver predictable services of acceptable quality
 - Increase levels of pre-service, in-service and post-service training for human resources, and develop new, relevant curricula that approach immunization as a component of comprehensive disease control
 - Promote coordinated training and supervision of community-based health workers

- Strengthen infrastructure and logistics
 - Innovate to improve cold-chain capacity and logistics, as well as waste management
 - Minimize the environmental impact of energy, materials and processes used in immunization supply systems, both within countries and globally
 - Staff supply systems with adequate numbers of competent, motivated and empowered personnel at all levels
 - Establish information systems that help staff to track the available supply accurately

Immunization programmes have sustainable access to long-term funding and quality supply

Policy/decision-making level

- Increase total amount of funding
 - Establish government commitment to invest in immunization according to its ability to pay and the expected benefits
 - Engage new potential domestic and development partners and diversify sources of funding
- Improve allocation of funding
 - Strengthen budgeting and financial management to better integrate financial and health care planning and priority setting
 - Coordinate funding support from development partners and other external sources
 - Promote the use of cost and cost-benefit arguments in fund raising, decision-making, and in defence of immunization funding
 - Explore pay-for-performance funding systems

Implementation level

- Secure quality supply
 - Strengthen national regulatory systems

Research and development innovations to maximize the benefits of immunization

Policy/decision-making level

- Improve programme efficiencies and increase coverage and impact
 - Research the use of more effective information through modern communication technologies

Priority commodities: vaccines and related commodities, training and communication materials

Examples of milestones

- Reach 90% national coverage and 80% in every district or equivalent administrative unit for all relevant vaccines in national programmes, unless otherwise recommended

- Introduction of relevant new or underutilized vaccines in low- and middle-income countries
- Presence of a legal framework or legislation that guarantees immunization financing
- Presence of an independent technical advisory group that meets defined criteria
- Drop-out rate between first dose of DTP3-containing vaccine and first dose of measles-containing vaccine

2.3. At least 50% coverage of exclusive breastfeeding during the first six months of life (target from plan adopted by WHA, 2012)

Initial implementation plan

A national strategy on infant and young child feeding, based on the *Global strategy for infant and young child feeding* (<http://whqlibdoc.who.int/publications/2003/9241562218.pdf>), provides a framework for action to protect, promote and support appropriate feeding, including exclusive breastfeeding. The *Planning guide for national implementation* (http://whqlibdoc.who.int/publications/2007/9789241595193_eng.pdf) provides guidance on the actions to be taken to develop or revise this strategy. The UNICEF Programming guide on infant and young child feeding also provides guidance on how to design, plan and implement a comprehensive strategy (http://www.unicef.org/nutrition/files/Final_IYCF_programming_guide_June_2012.pdf).

The key activities below are most relevant to exclusive breastfeeding, but will help to improve infant and young child feeding in general. They should be part of the overall national strategy.

Key activities

Take measures to adopt and implement a national code of marketing of breast-milk substitutes (or review and update existing code)

Policy/decision-making level

- Raise awareness of the Code and the need for effective implementation at the national level among key policy-makers, manufacturers and the public
- Draft national code regulations, including all provisions of the International Code of marketing of breast-milk substitutes (<http://whqlibdoc.who.int/publications/9241541601.pdf>) and subsequent World Health Assembly resolutions (WHA33.32, WHA34.22, WHA35.26, WHA37.30, WHO39.28, WHA41.11, WHA43.3, WHA45.34, WHA46.7, WHA49.15, WHA54.2, "HA55.25 at <http://www.who.int/governance/en>), with effective monitoring, implementation and enforcement provisions
- Circulate draft national code for comment
- Finalize the national code regulations through legal processes

Implementation level

- Educate health workers and others on their responsibilities under the code, including ensuring that government offices have guidance for staff on interactions with infant formula manufacturers
- Monitor implementation, ensuring that this is done in a transparent, independent manner, free from commercial influence
- Promote and enforce code compliance

Enact legislation to protect the breastfeeding rights of working women

Policy/decision-making level (see International Labour Organization *Maternity protection resource package* (<http://mrrp.itcilo.org/pages/en/index.html>))

- Take steps to ratify the International Labour Organization *Maternity protection convention No. 183* (http://www.ilo.org/dyn/normlex/en/f?p=1000:12100:0::NO::P12100_ILO_CODE:C183)
- Assess the situation of working women in regards to facilitating breastfeeding
- Begin development and adoption of legislation in line with the convention
 - Build consensus on draft legislation
 - Finalize draft
 - Adopt country legislation
- Publicize legislation, especially informing relevant stakeholders and the public
- Monitor situation

Implementation level

- Raise awareness of legislation among health and other workers
- Monitor local implementation, provide reports to other levels

Revitalize and expand the Baby-friendly Hospital Initiative (BFHI) (<http://www.who.int/nutrition/publications/infantfeeding/9789241594950/en/index.html>)

Policy/decision-making level

- Assess the status of BFHI in the country
 - Existence of coordinator and/or working group
 - Existence of targets
 - Proportion of hospitals having achieved baby-friendly status
- Monitor quality in certified hospitals
- Promote the concept to other hospitals and sustain levels in certified hospitals
- Carry out further assessments, reassessments and monitoring
- Ensure that BFHI is a part of all hospital standards

Implementation level

Improve the skills of health providers in first and referral-level health facilities to give adequate feeding support

Policy/decision-making level

- Update/upgrade the curricula and materials for pre-service education

Implementation level

- Assess levels of skills and knowledge, and needs for improvement
- Assess training carried out, such as by type of course (e.g. <http://www.who.int/nutrition/publications/infantfeeding/9789241504812/en/index.html>)
 - Number and type of staff trained
 - Distribution of trained staff geographically and by health facility
 - Quality of training
- Assess remaining training needs
- Analyse how to meet needs given resource constraints
- Train staff, including using e-learning tools where available
- Develop and use quality job aids
- Provide skills-oriented supportive supervision

Strengthen community-based support for breastfeeding

Implementation level

- Identify community-based decision-makers and groups
- Motivate groups for action

- Conduct assessments and formative research
- Build capacity of groups and peer counsellors
- Plan and implement communication strategy
- Provide on-going support to community action through health and community services, community-based groups and other mechanisms

Priority commodities: training materials, communication materials

Examples of milestones:

- Existence of national code of marketing of breast-milk substitutes with legal framework for implementation
- Ratification of *Maternity convention No. 183*
- Increased proportion of baby-friendly health facilities
- At least one health worker trained in breastfeeding/infant and young child feeding in each facility offering maternal-child health services
- Communication strategy to promote exclusive breastfeeding developed and implemented

2.4. 90% access to appropriate pneumonia and diarrhoea case management (with 80% coverage in every district)

Initial implementation plan

To ensure high access (social, cultural, financial and geographic) to good quality pneumonia and diarrhoea case management, health services must endeavour to be available around the clock, every day, as well as being flexible and adaptable to changing contexts, such as emergencies or outbreaks of diseases. For these services to be available, training, supervision and motivation must be regularly provided. Health workers who are able to give such services should be available in virtually all health facilities, and services must extend into communities without facilities. Where access to health facilities is low, well-trained, supervised and supported CHWs can appropriately diagnose childhood pneumonia and diarrhoea and provide effective treatment. The approach of having CHWs where the situation warrants it increases the total numbers of children receiving appropriate treatment when they need it, rather than just changing the place where they get treatment.

While this section deals with pneumonia and diarrhoea, obviously efforts need to build on existing strategies and initiatives, target areas at highest risk and be closely linked with other on-going relevant programmes, such as for malaria and nutrition and/or IMCI.

Key activities

Carry out a situation analysis with regards to case management of pneumonia and diarrhoea ⁷

Policy/decision-making level

- Assign responsibility for carrying out the situation analysis and the time frame in which it is required
- Assemble available data on, e.g., existing policies around pneumonia and diarrhoea case management; epidemiology of pneumonia and diarrhoea in the country and by sub-national level/populations; coverage/access to services (including through the private sector); health workers trained and location; number and distribution of community-level workers and their training; supply and procurement issues; care seeking; demand creation efforts; special situations, e.g. fragile contexts, emergencies and displaced populations
- Collect additional information, as required
- Prepare a report and ask for inputs from stakeholders, including related programmes/sectors
- Disseminate the results among stakeholders and managers
- Use the results of the situation analysis to guide actions

⁷ See Core Group et al. Community Case Management Essentials: Treating Common Childhood Illnesses in the Community: a guide for programme managers. Washington DC, USAID, 2010 for suggestions on carrying out a situation analysis on iCCM (link).

Implementation level

- Disseminate the relevant findings of the situation analysis among health workers, local NGOs and other stakeholders
- If necessary, take measures to ensure that national policies, guidelines and laws on treatment of pneumonia and diarrhoea within health facilities and in communities facilitate access to appropriate treatment to children most at risk of morbidity and mortality from these diseases.

Policy/decision-making level

- Based on the situation analysis, organize or empower an existing task force to further review/revise existing policies/guidelines/legislation related to case management of pneumonia and diarrhoea (and other diseases/conditions, as appropriate, such as cholera)
- Build resilience into existing systems and services so they are flexible and adaptable to changes in context such as emergencies, changes in climate and outbreaks
- Build on activities of other related programmes/sectors to extend access
- Raise awareness of IMCI and iCCM and the need for effective implementation at the national level among key policy-makers and stakeholders
- Propose to enact revised policy/legislation to ensure access to appropriate care at referral level, in other health facilities and communities
- Review implementation of policies at appropriate intervals, and propose measures to enforce/facilitate implementation as needed.

Implementation level

- Raise awareness on current/new policy and legislation on iCCM among health workers/local NGOs

Ensure availability of trained health and/or community workers to manage pneumonia and diarrhoea in children in development and in fragile settings, emergencies and outbreaks

Policy/decision-making level

- Assess levels of skills and knowledge, and needs for improvement
- Assess training carried out, such as by type of course
 - Number and type of staff and other workers trained
 - Distribution of trained staff geographically and by health facility
 - Quality of training
- Assess remaining training needs
- Develop/review a national costed training plan for increasing the number and quality of health and community workers, including at referral level, in pneumonia and diarrhoea case management (building on strategies for other diseases/conditions, as appropriate)

- Update/upgrade the curricula and materials for pre-service education
- Allocate/mobilize resources to implement the plan
- Monitor overall numbers/distribution of workers trained
- Revise/update the plan as required

Implementation level

- Improve the skills of health care providers to deliver appropriate case management in health facilities and the community
- Improve the skills of health care providers to adapt their existing service delivery to changes in context, such as emergencies or outbreaks (e.g. cholera)
- Analyse how to meet needs given resource constraints
- Train staff on case management and related issues, including promoting breastfeeding, adequate nutrition, immunization and handwashing, and strengthening counselling/communication skills
- Enhance training using innovative e-learning materials
- Develop and use quality job aids
- Provide skills-oriented supportive supervision
- Monitor and evaluate training to ensure quality
- Carry out follow-up after training
- Review/revise supervision guidelines
- Supervise regularly

Ensure supplies/commodities are in place for case management at all levels, including referral levels, and stockpiled where appropriate

Policy/decision-making level

- Review/update policy/legislation related to supplies/commodities for case management, focusing on appropriateness of commodities for management of pneumonia and diarrhoea (e.g. are low-osmolarity ORS and zinc used?)
- Review/update procedures for quantification/procurement/distribution of supplies/commodities related to pneumonia and diarrhoea from central to implementation to community level
- Define technical specifications for commodities, for example, dispersible, in blisters, individual rapid diagnostic kits for malaria (to know if pneumonia treatment is necessary), etc.
- Quantify needs
- Identify bottle-necks and take measures to resolve them

Implementation levels

- Set up systems to supervise and monitor availability of supplies at facility/community level
- Identify bottle-necks at district/local levels and take measures to resolve them

- As needed, train/re-train supply officers
- Train CHWs and other relevant community-level workers in medicine management

Foster and strengthen care seeking/demand for pneumonia and diarrhoea case management and increase community knowledge/action related to preventive measures

Policy/decision-making level

- Use information from the situation analysis to assess levels of care seeking for pneumonia and diarrhoea case management and use/practice of preventive interventions to assess where/what type of action is needed
- Liaise with other entities responsible for pneumonia/diarrhoea preventive activities, such as water and sanitation and groups occupied with emergencies and outbreaks, to ensure coordinated approaches
- Develop/review national communication strategy for pneumonia and diarrhoea, including reaching the private sector
- As needed, carry out national level formative research on pneumonia and diarrhoea
- Develop generic communication messages/materials

Implementation levels

- Identify community-based decision-makers and groups
- Motivate groups for action
- Conduct local assessments and formative research
- Build capacity of community-based groups, peer counsellors and community leaders
- Develop local communication strategy, based on any national efforts
- Develop/adapt messages/materials
- Community meetings of mothers and male members of the community
- Educate mothers to recognize signs of illness for prompt care seeking
- Periodically assess implementation/impact of communication efforts

Monitor progress on making treatment universally available

Policy/decision-making level

- Assess the national health management information system to ensure relevant information related to access, coverage and quality of treatment of pneumonia and diarrhoea are captured
- Ensure key monitoring activities at various levels are included in national plan and carried out as scheduled

Implementation levels

- Carry out planned monitoring/evaluation activities
- Ensure community-level data are captured, analysed and used for planning and decision-making at district, facility and community level.

Priority commodities: training materials, communication materials, low-osmolarity ORS, zinc, oral amoxicillin

Examples of milestones

- Existence of facilitating national policy environment for increasing access to prevention interventions and case management, e.g. soap for handwashing and household water treatment methods and safe storage, provision for use of zinc for diarrhoea and antibiotics for pneumonia by CHWs
- At least two health workers trained in case management of pneumonia and diarrhoea case management in each facility offering maternal-child health services
- Proportion of villages with community-level workers trained on case management of pneumonia and diarrhoea
- Proportion of villages without stock of essential medicines for treatment of pneumonia and diarrhoea
- Communication strategy developed and implemented to increase demand for pneumonia and diarrhoea case management in place
- Incentives to seek treatment including provision of other services and interventions (i.e. household water treatment, bednets, etc.) along with removal of financial barriers

2.5. Virtual elimination of paediatric HIV ^{8,9}

Initial implementation plan

There is an unprecedented global commitment to accelerate the prevention of mother-to-child HIV transmission (PMTCT) with the goal of eliminating paediatric HIV by 2015. The *Global plan towards the elimination of new HIV infections among children by 2015 and keeping mothers alive* (http://www.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/20110609_JC2137_Global-Plan-Elimination-HIV-Children_en.pdf) focuses on women living with HIV and their children from pregnancy until the mother stops breastfeeding. Although scientific and programmatic evidence demonstrates that PMTCT interventions can reduce the risk of HIV transmission from mother-to-child to less than 5% in developing country settings, coverage of these interventions is still far too low and based largely on less effective antiretroviral regimens. The goal of the action framework is to galvanize and harmonize the support of donors, development and implementing partners, national governments and civil society to the implementation of the MTCT elimination (eMTCT) agenda.

The objectives of eMTCT are to:

- Keep the momentum on eMTCT as a priority component of global efforts to reaching MDGs 4, 5 and 6
- Provide a framework to set goals and targets, track progress and monitor performance at global, national and sub-national levels
- Foster prioritization of evidence-informed solutions to overcoming bottlenecks to progress
- Mobilize and leverage partners and resources for country level action

The *Global plan* provides an operational framework from which global partners, national governments, policy-makers, programme managers and implementing partners can draw to develop their own eMTCT goals and roadmap.

Key activities

Keep the momentum on eMTCT as a critical priority for reaching MDGs 4, 5 and 6

Policy/decision-making level

- Identify local decision-makers, professional bodies, media audiences and civil society to be engaged to commit to the goal of eMTCT

8 Defined as reduction of new paediatric HIV infections by 90% from the 2009 estimated baseline and reduction in the overall, population-based HIV transmission rate through mother-to-child transmission to <5% (<2% in the absence of breastfeeding or as measured at 6 weeks).

9 Adapted from: A global action framework for the elimination of mother-to-child transmission of HIV and the Global monitoring framework and strategy for the global plan towards the elimination of new HIV infections among children by 2015 and keeping their mothers alive (eMTCT).

- Mobilize in-country donors and ministries of health and finance to allocate necessary resources - both human and financial - to deliver on the eMTCT commitment

Implementation level

- Draw attention to bottle-necks and scaling-up successes, and work with stakeholders, such as people living with HIV, health workers and implementing partners to overcome barriers to access or to quality results

Set goals and targets, and track progress

Policy/decision-making level

- Establish realistic goals and targets
- Ensure monitoring mechanisms are in place

Implementation level

- Disseminate goals and targets among health workers and local stakeholders
- Record and report relevant data

Foster prioritization of evidence-informed solutions to overcoming bottle-necks to progress

Policy/decision-making level

- Identify bottle-necks and prioritize strategies to overcome them
- Define strategic implementation areas for focused country-level action to overcome bottle-necks
- Adapt PMTCT programmatic approaches to the performance of the mother-child health platform
- Improve the quality of service delivery by addressing human resources for health, especially task shifting and sharing
- Assess supply requirements and system functionality linked to programme performance
- Adapt evidence-based international guidelines on PMTCT and HIV and infant feeding to the local context
- Establish training requirements for health staff and other workers

Implementation level

- Ensure that promotion of key WASH practices is included in PMTCT
- Improve communication and community-based approaches, including community involvement to promote increased demand, utilization and follow-up support for services
- Train staff in PMTCT issues

Mobilize and leverage partners and resources to support country level implementation

Policy/decision-making level

- Conduct mapping of available resources and define the gap that needs to be filled to help address the bottlenecks that impede implementation and progress
- Promote and support strategic orientation to planning, taking into consideration the need for PMTCT to be linked and integrated into broader mother-child health responses
- Develop and implement resource leveraging strategies to help address the bottlenecks and gaps that are impeding implementation
- Promote and facilitate investors' participation in all key steps— International partner representation and participation should be encouraged in various planning, coordination and review processes at national level
- Develop a framework and strategies for effective communication and coordination among all key stakeholders

Implementation level

- Work with local stakeholders to mobilize resources locally
- Review mother-child health activities to see where efficiencies can improve performance on PMTCT with little extra cost

Priority commodities: HIV test kits, ARVs, training materials, communication materials

Examples of milestones:

- % increase in resources available for eMTCT
- At least one health worker trained in eMTCT in each facility offering maternal-child health services
- Communication strategy to create demand for services developed and implemented

2.6. Alleviate excess mortality and morbidity from pneumonia and diarrhoea during humanitarian emergencies

Initial implementation plan

Crises from a variety of hazards including conflict, floods, earthquakes and epidemics are on the rise due to vulnerabilities such as climate change, food shortages and rapid and unplanned urbanization. Practically all regions of the world are affected. Countries that are fragile or experiencing conflict generally have extremely high under-five mortality rates in comparison to more stable settings

Crisis settings increase the likelihood of excess morbidity and mortality from common illnesses such as pneumonia and diarrhoea and increase the risk of epidemics and malnutrition. This is due to destroyed or disrupted protection, prevention

and treatment programmes; lack of access to essential services such as food, water, sanitation and shelter; and population movements and crowding.

Priority life-saving measures outlined in this document for pneumonia and diarrhoea must continue and be targeted to affected populations. The actual interventions do not change significantly, but they should be prioritized and delivered in innovative ways to reach affected communities.

Key activities

Address governance, advocacy and policy

Policy/decision-making level

- National policies and plans for child survival should address emergency risks (based on an assessment) to pneumonia and diarrhoea services and outline capacity needs to make these programmes resilient and able to respond to local threats (emergencies, climate change, outbreaks)
- Health and disaster risk management sectors should work closely together to align strategies and policies to address the prevention and treatment of pneumonia and diarrhoea in different contexts through an integrated approach with other sectors and services

Implementation level

- Contribute local experience for the prevention and management of pneumonia and diarrhoea to national disaster planning
- Ensure local plans are kept up to date and include the prioritization and management of pneumonia and diarrhoea and possible outbreaks (i.e. cholera), and that they are able to respond to early warning systems

Strengthening multi-sector working and coordination

Policy/decision-making level

- Create collaborative mechanisms and coordinate efforts across sectors such as water and sanitation, shelter, nutrition and food security, education, protection, and livelihoods both before and after a disaster

Implementation level

- Create a local inter-sectoral disaster management team and involve all coordination mechanisms in health (development, emergency, outbreak)

Human resources and supplies are in place to manage pneumonia and diarrhoea to reduce risk during emergencies

Policy/decision-making level

- Integrate into existing training programmes (IMCI, iCCM) capacity building to adjust to changing contexts (e.g. increasing cases of acute watery diarrhoea/cholera and how to deliver priority services during an emergency)

- Increase and target services for the prevention and management of pneumonia and diarrhoea towards communities in fragile and at risk settings.
- Strengthen or implement disease surveillance and early warning systems to recognize and respond to outbreaks
- Plan to ensure availability of contingency stocks of drugs and other supplies appropriate to the needs of children including antibiotics for pneumonia, ORS and zinc for diarrhoea and additional stocks for outbreaks such as cholera
- Ensure that health facilities are built safely and prepared to respond to the health needs of children in emergencies
- Identify and address barriers that impede access to health services

Priority commodities: water treatment, soap for handwashing, sanitation hardware, zinc, ORS, antibiotics, vaccines, training and communication materials

Examples of milestones

- National policy inclusive of emergency risks and outbreaks and how they link to the management of pneumonia and diarrhoea through development programmes
- Proportion of population with access to improved water and sanitation supplies and to handwashing facilities which include soap and water
- Proportion of health workers or CHWs in areas at high risk for emergencies trained in standard treatment protocol for pneumonia and diarrhoea and how to adapt to a change in context, and where indicated trained in the management of epidemic-prone diseases such as cholera
- Stock outs of medicines for pneumonia and diarrhoea during emergencies
- Diarrhoea incidence rate in affected populations
- Availability of supplies for case management

Implementation level

- Provide services for pneumonia and diarrhoea at all levels of health care, including at peripheral health facilities, in the community and through mobile services where indicated
- Ensure health workers and others involved follow standard guidelines and tools for pneumonia and diarrhoea case management (and management of cholera, where indicated)
- Empower communities and families by raising awareness of risks and actions to protect health from local hazards
- Initiate programmes of health education and promotion at community and at health facility level, including through messages encouraging people to seek early care for fever, cough, diarrhoea, etc.

ANNEX 3. Planning Framework for Coordinated Approaches for Pneumonia and Diarrhoea Control

The purpose of this **Annex** is to guide a working group responsible for taking action on pneumonia and diarrhoea control through a planning process, beginning with conducting a situation analysis. This process should facilitate coordination and collaboration between child health and other programmes and sectors.

The **Steps** in the process include:

1. Conduct a situation analysis
2. Identify the pneumonia and diarrhoea protection, prevention and control interventions that have been included in existing policies/strategies/plans, including for epidemic-prone diseases such as cholera
3. Identify the main problems pneumonia and diarrhoea control has faced
4. Analyse causes of problems and identify options for overcoming them
5. Formulate recommendations for coordinated actions and identify specific actions that need to be taken with clear responsibilities and time frame
6. Monitor and track progress in implementation of the actions identified

Step 1. Conduct a situation analysis

1. Involve programme managers or other senior staff for child health, immunization, nutrition, HIV, health systems, water and sanitation, environmental health, emergencies and outbreaks, planning, and finance as well as relevant United Nations agencies, major NGOs, etc., in the situation analysis.
2. Refer to the following documents (in addition to the GAPPD) for background information on the problem:
 - *Global Action Plan for Prevention and control of Pneumonia (GAPP)* – especially pages 1-7, and page 13.
 - *Diarrhoea: Why children are still dying, and what can be done*
 - *Pneumonia and diarrhoea: Tackling the deadliest diseases for the world's poorest children.*
3. Gather together the most recent key country documents, such as:
 - DHS /MICS: recent reports
 - National health plan or strategy and budget
 - Comprehensive multi-year plan (cMYP) for immunization
 - National IMCI and/or child health/survival strategic plan
 - National nutrition/IYCF policy/strategy
 - National PMTCT strategic plan
 - MDG /Countdown Reports
4. Review epidemiology and burden of disease figures
 - WHO/UNICEF JMP report on access to water and sanitation
 - National WASH strategies (water quality, sanitation, etc.)
 - Poverty reduction strategic plans
 - Strategies and policies for emergencies and outbreaks including risk assessments
5. Review the progress the country is making towards implementing the key interventions for maternal, neonatal and child survival as per the most recent data available (e.g. DHS). Review intervention coverage by: interventions to protect, interventions to prevent and interventions to treat
 - Is progress good for some interventions? Note key reasons why good progress is being made
 - Is progress poor for some interventions? What are the key bottlenecks/barriers?
 - Begin to identify key actions to improve the situation
6. Review national strategies in place to support implementation of diarrhoea and pneumonia interventions, including in high-risk/fragile contexts and emergencies
 - National strategy for IMCI /control of diarrhea and pneumonia, water, sanitation and hygiene in place?
 - National standards and norms for diarrhoea and pneumonia management available?
 - When was the last update made on national norms and standards?
 - Does the management of diarrhoea include use of low-osmolarity ORS and zinc?
 - Are zinc and household water treatment products included in the national essential medicines list?
 - Are national guidelines for the management of pneumonia and diarrhoea in the community available?
 - Are community health workers trained in iCCM and key WASH messages?
 - Are there national guidelines for management of severe malnutrition in the community?

7. Review the enabling policy environment

- Is there a policy on community case management for: pneumonia, diarrhoea, malaria, malnutrition, neonatal conditions?
- Is there a national strategic plan for: child survival or health, IMCI, nutrition/IYCF, EPI, safe drinking-water, sanitation, hygiene and clean air?
- Are national standards in place for drinking-water and sanitation facilities in health facilities and in homes?
- Is there a budget line for drinking-water? Sanitation? Hygiene?
- Is spending on water and sanitation reaching levels committed at international forums such as the eThekweni Declaration,¹⁰ Libreville Declaration?¹¹
- Within the policies are there considerations for emergencies and outbreaks?

8. Review budget for child health and nutrition

- Is there a budget line and how much is the national budget for child health for the current fiscal year?
- Is there a budget line and how much is the national budget for IMCI for the current fiscal year?
- Is there a budget line and how much is the national budget for EPI for the current fiscal year?
- Is there a budget line and how much is the national budget for nutrition for the current fiscal year?
- What is the national budget for water, sanitation and hygiene provision?
- List the main donors and additional donor funding that is received for each programme

9. Describe the organization of programmes in the MoH, and the linkages with other relevant sectors (look at organograms, describe existing relevant committees/working groups)

- Review, summarize and analyse the information

Step 2. Identify the pneumonia and diarrhoea protection, prevention and control interventions that have been included in existing policies/strategies/plans.

These strategies and plans may include: national child health/child survival strategy, immunization policy/strategy/cMYP, nutrition strategy, malaria policy/strategy, water, sanitation and hygiene policy/strategy, environmental health strategy, PMTCT/HIV plan, etc.

Step 2.1. Review the interventions by:

Interventions to Protect

- Exclusive breastfeeding for 6 months
- Adequate complementary feeding

- Vitamin A supplementation

Interventions to Prevent

- Measles vaccine
- Spn vaccine
- Hib vaccine
- Rotavirus vaccine
- Prevention of HIV in children
- Cotrimoxazole prophylaxis for HIV-infected and exposed children
- Treatment and safe storage of household water
- Promotion of handwashing with soap
- Community-wide sanitation promotion
- Reduce household air pollution

Interventions to Treat

- Improved care seeking and demand generation within communities
- Case management for pneumonia and diarrhoea at community and health facility levels
- Increasing access to appropriate care for pneumonia through CCM
- Increasing access to appropriate care for diarrhoea through CCM
- Oral rehydration therapy (low-osmolarity ORS)
- Zinc treatment for children with diarrhoea

Step 2.2. Summarize the interventions that are not included in existing plans or strategies and need to be included

Step 2.3. Describe the coordination mechanisms in place to implement the interventions described above

Step 3. Identify the main problems pneumonia and diarrhoea control has faced

The aim of this step is to identify interventions where more action is needed based on the situation analysis and also to identify the main problems affecting implementation. In doing so, describe the problems by major programmatic areas such as:

- Policy/strategy, plans and guidelines
- Planning, management, coordination and partnership
- Human resources
- Materials and financial resources
- Logistics and supply chain management for vaccines, medicines, equipment, consumables, etc.
- Access to services, including referral
- Quality of service delivery
- Communication and social mobilization

10 2008. eThekweni Declaration and AfriSan Action Plan. <http://www.afrisan.org/Pages/EthekwiniDecl.aspx>

11 2011. Libreville Declaration on Health and the Environment in Africa. <http://www.afro.who.int/en/regional-declarations.html>

- Supervision, monitoring and evaluation
- Health information system

Step 4. Analyse causes of problems and identify options for overcoming them

Step 5. Formulate recommendations for coordinated actions and identify specific actions that need to be taken with clear responsibilities and time frame

These actions need to be reflected in existing plans of actions.

Step 6. Monitor and track progress in implementation of the actions identified

Assess whether systems are in place to provide data to target and monitor the impact of interventions

ANNEX 4. Terms of reference for national working group for pneumonia and diarrhoea prevention and control¹³

Purpose of working group

- The purpose of this working group is to ensure coordinated implementation of interventions for pneumonia and diarrhoea protection, prevention and control.

Membership

- Relevant programme managers from MoH (or equivalent): mother and child health, community health, immunization, nutrition, health information, health systems, essential drugs, HIV, planning, water, sanitation and hygiene, air quality
- Relevant stakeholders from: Ministries of Water, Environment, Energy, Education, Planning, Finance
- Interested NGOs, professional groups, medical training institutions, private sector, mass media
- Relevant international organizations, e.g. WHO, UNICEF
- Key donors

Meetings

- Meetings will be held on the first Tuesday of each month, at a time and place to be announced by the chair.

Responsibilities/outputs

- Carry out and periodically update situation analysis on pneumonia and diarrhoea protection, prevention and control
- Monitor implementation of national costed plan for pneumonia and diarrhoea protection, prevention and control, and periodically update, as necessary
- Periodically review data on pneumonia and diarrhoea morbidity and mortality and recommend appropriate action
- Periodically review data on coverage of recommended interventions and recommend appropriate action
- Periodically review new research evidence on interventions for pneumonia and diarrhoea prevention and control
- Increase awareness of pneumonia and diarrhoea as public health problems
- Advocate for resources for pneumonia and diarrhoea protection, prevention and control
- Arrange capacity building for committee members on relevant topics

12 This group could be an already-existing committee or sub-committee.



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