Pneumonia is one of the most solvable problems in global health, and must remain a priority if we are to successfully combat the world's leading killer of young children.

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Pneumonia Progress Report 2011

EXECUTIVE SUMMARY

Pneumonia killed more children than any other disease in 2008, according to the World Health Organization (WHO). This report examines steps being taken to prevent this illness in the 15 countries with the highest pneumonia death toll among young children. Together, these countries account for approximately 75 percent of the global toll of child pneumonia.

The Global Action Plan for the Prevention and Control of Pneumonia (GAPP), issued by WHO and UNICEF in 2009, showed that pneumonia deaths could be reduced by two-thirds if existing interventions to protect against, prevent and treat pneumonia could be scaled up to reach 90 percent of the world's children.[1]

In 2010, the World Health Assembly resolved that all countries should make it a national priority to implement the indicators outlined in the GAPP. This second annual pneumonia progress report from the International Vaccine Access Center (IVAC) is an effort to monitor and report on progress in the implementation of those interventions.

The pages that follow reveal encouraging results, promising forecasts and some remaining challenges. Significant progress toward GAPP targets has been made this year in the area of vaccination. Within the last year alone, 10 of the 15 profiled countries have either introduced the newest-generation pneumococcal vaccines (PCV10 or PCV13), have been approved for introduction, or have applied to the GAVI Alliance for introduction support. This rate of new vaccine rollout in the developing world is unprecedented.

Great progress is being made to speed vaccines to the developing world, but there remains an urgent need to scale up key pneumonia protection and treatment interventions.

Challenges remain, however, in scaling up access to interventions such as exclusive breastfeeding in the first six months of life and provision of antibiotics to children with pneumonia, which are key parts of the integrated GAPP strategy. Renewed efforts are urgently needed to increase coverage with these interventions.

Investments in pneumonia prevention and treatment are bearing fruit. Funding for these programs must continue if we are to tackle the world's leading killer of young children.

INTRODUCTION

Pneumonia remains the leading killer of young children around the world, according to the most recent WHO estimates. Every year, pneumonia claims the lives of more than 1 million children before their fifth birthday — accounting for more young deaths annually than AIDS, malaria and tuberculosis combined.[2] This loss of life is especially tragic because pneumonia is preventable and treatable. We have the tools to combat pneumonia, and progress is being made — but more work remains to be done to fully protect children from this devastating illness.

WHO and UNICEF published the GAPP, highlighting how scaling up a set of proven, effective pneumonia interventions can prevent two out of every three pneumonia deaths.[1] GAPP focuses on the ways to **prevent** pneumonia infections, to **protect** children from conditions that increase the risk of pneumonia and to **treat** the infections that do occur.

Specifically, this report examines data on several interventions — including exclusive breastfeeding, access to a health care facility, antibiotic treatment and vaccination against pneumonia's four leading causes — in the 15 countries with the most child pneumonia deaths. It also provides additional data on the one area where substantial changes can be documented since 2010 — pneumonia vaccine introduction.

During the past year, improvements in health systems allowed for expanded coverage of existing vaccines. In the 15 focus countries alone, an additional half a million more children were vaccinated against pertussis, more than 1 million additional children were vaccinated against measles and about 155,000 more children were vaccinated against Hib pneumonia, as compared to the previous year.[3]

The speed at which PCV10 and PCV13 are being introduced in low-income countries is unprecedented and is expected to have tremendous health impacts. It is estimated that by 2013, 11 of the 15 countries profiled will have introduced the pneumococcal vaccines into their national immunization programs.

Since the last publication of this report a year ago, three of the profiled countries introduced a new generation vaccine that prevents one of the leading causes of pneumonia, pneumococcal disease. These roll-outs resulted in nearly 7 million additional children gaining access to this intervention.[3] It is estimated that as

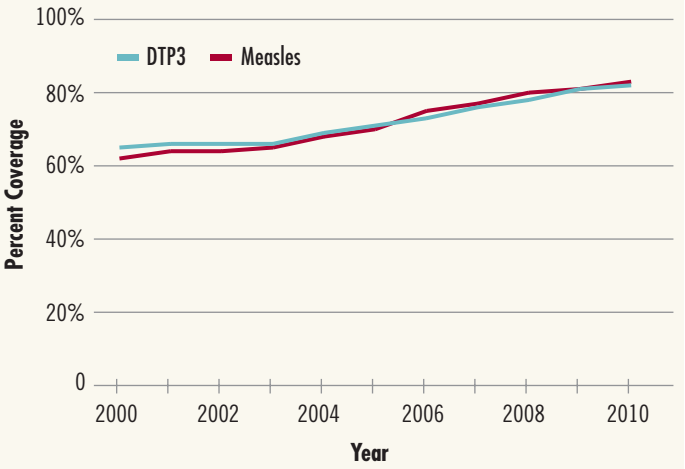
TABLE 1: Status of Pneumonia Intervention Coverage in Countries with the Highest Child Pneumonia Death Toll.

Global Mortality Rank in Pneumonia Deaths	Country	Annual Child Pneumonia Deaths (2008)	Pertussis (DTP3) Coverage 2010	Measles Coverage 2010	Hib Coverage 2010	PCV Introduction Status	% Children with Suspected Pneumonia Taken to Health Facility	% of Children with Suspected Pneumonia Receiving Antibiotics	% Exclusive Breastfeeding in First 6 Months
1	India	371,605	72	74	Not introduced	No action	69	13	46
2	Nigeria	177,212	69	71	Not introduced	Applied	45	23	13
3	DRC	112,655	63	68	63	Introduced	42	N/A	36
4	Pakistan	84,210	88	86	88	Approved	69	50	37
5	Afghanistan	80,694	66	62	66	Applied	N/A	N/A	N/A
6	China	62,229	99	99	Not introduced	No action	N/A	N/A	28
7	Ethiopia	48,892	86	81	86	Introduced	19	5	49
8	Indonesia	38,331	83	89	Not introduced	No action	66	N/A	32
9	Angola	33,078	91	93	91	Approved	N/A	N/A	11
10	Kenya	30,406	83	86	83	Introduced	56	N/A	32
11	Niger	26,319	70	71	70	Approved	47	N/A	10
12	Bangladesh	25,978	95	94	95	Applied	37	22	43
13	Uganda	25,751	60	55	60	Approved	73	47	60
14	Tanzania	25,005	91	92	91	Approved	59	N/A	41
15	Burkina Faso	24,374	95	94	95	No action	39	15	16

Note: Current levels of coverage for interventions that prevent (vaccination), protect against (exclusive breastfeeding) and treat (health facility access and use of antibiotics) pneumonia, including the status of Hib and pneumococcal vaccine (PCV) introduction in the 15 countries with the most child pneumonia deaths.

Source: Black et al. (2010), WHO, JHSPH IVAC Vaccine Information Management System (VIMS), UNICEF

FIGURE 1: Increasing vaccine coverage through stronger systems. Improvements to the systems that deliver vaccines have contributed to a steady increase in vaccine coverage of DTP3 and measles vaccines in the 15 focus countries last decade.



Note: Significant overall progress in coverage of vaccinations against pertussis (DTP3) and measles (two of the four recommended vaccines that can prevent pneumonia) in the 15 countries with the most pneumonia deaths over the past 10 years.

Source: WHO

many as 3–4 million[4,5] child deaths could be prevented by accelerating pneumococcal vaccines in all developing countries over the next decade. However, even more children can be saved from pneumonia if additional gains are made in the following areas:

– Promoting exclusive breastfeeding, which substantially increases a child's immunity to infection;

– Recognizing the signs and symptoms of pneumonia early and ensuring proper treatment with antibiotics;

– Strengthening the health systems that deliver vaccines, antibiotics and routine care; and

– Limiting exposure to indoor smoke — considered by WHO as one of the top five threats to public health in developing countries — by increasing the use of clean cook stoves.

PREVENTION: VACCINATION

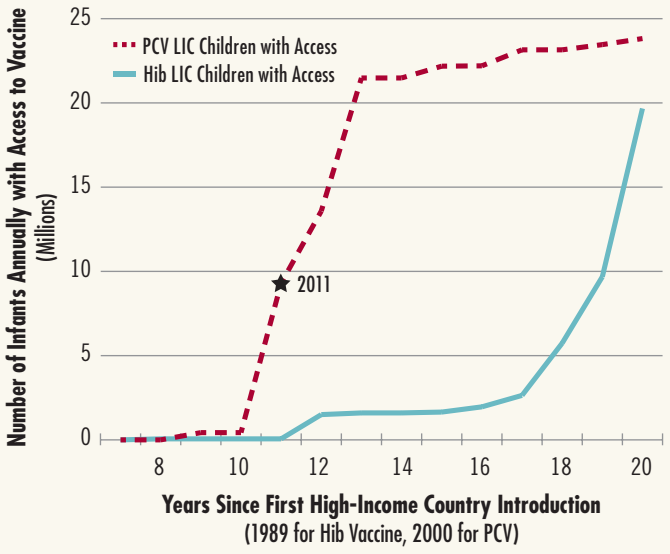
Vaccines are a safe and effective tool for preventing pneumonia before it occurs. WHO recommends that routine childhood immunization programs in all countries include four vaccines that prevent pneumonia — measles, pertussis (DTP3), Hib conjugate vaccine (Hib) and pneumococcal conjugate vaccine (PCV). Measles and pertussis (whooping cough) can cause infections that lead to pneumonia, and as a result, DTP3 and measles vaccines are considered two of the tools available to combat it.

While pertussis and measles vaccines have existed for decades, uptake and coverage in developing countries has been lower than in high-income countries, and below the 90 percent target included in the GAPP. However, recently, increased efforts have focused on improving health systems in low- and middle-income countries. The impact of this commitment is shown in Figure 1, as coverage of measles and pertussis vaccines has steadily increased over the past decade and now reaches over 80 percent of children in the 15 countries where most child pneumonia deaths occur.

Since 2000, an estimated 61 million additional children have been vaccinated against pertussis in the 15 focus countries due to an overall increase in vaccine coverage of 17 percent. From 2000–2010, an estimated 83 million additional children in the 15 countries have also been vaccinated against measles due to a 21 percent increase in coverage with the measles vaccine. These findings illustrate that high coverage rates are possible in these countries but more work is needed to reach the 90 percent GAPP target.

While DTP3 and measles coverage is improving, millions of children in developing countries still lack access to new vaccines that protect against two of the main causes of life-threatening pneumonia — pneumococcus (*Streptococcus pneumoniae*) and Hib (*Haemophilus influenzae b*). For example, four of the 15 focus countries have yet to introduce the Hib vaccine in the 20 years

FIGURE 2: Accelerated PCV introduction will result in an additional 158 million children in low-income countries with access to PCV before 2020.



Note: A comparison of Hib vaccine and PCV introduction and access for children in low-income countries (LIC), as defined by the World Bank 2011.

Source: JHSPH IVAC Vaccine Information Management System (VIMS)

since its first introduction.[3] By contrast, **only four years after initial introductions in high-income countries, it is estimated that 11 of the 15 focus countries will have introduced PCV10 or PCV13.[3] This unprecedented rate of PCV uptake can also be seen globally as 48 of the world's 72 poorest countries (66%) have introduced or have plans to introduce a new generation vaccine only two years after its first use in 2009.[3]**

As of 2010, only six percent of low-income countries globally had introduced pneumococcal vaccines. But with the initiation of the GAVI Alliance's Advanced Market Commitment (AMC) that created revenue incentives and commitments to supply pneumococcal vaccines to poorer countries, 31 percent of low-income countries have introduced the vaccine as of today.[3] By introducing PCV in low-income countries faster than the Hib vaccine was able to be introduced, 158 million additional children in developing countries will become protected over the next decade. This shows that progress is being made in the global effort to speed vaccines to developing world populations, as shown in Figure 2. Recently, the story of PCV introduction and acceleration has become one of progress, following the successful efforts to ramp up access to the Hib vaccine. With support from the GAVI Alliance, every low income country has now either introduced the Hib vaccine or has plans to introduce it by 2013.

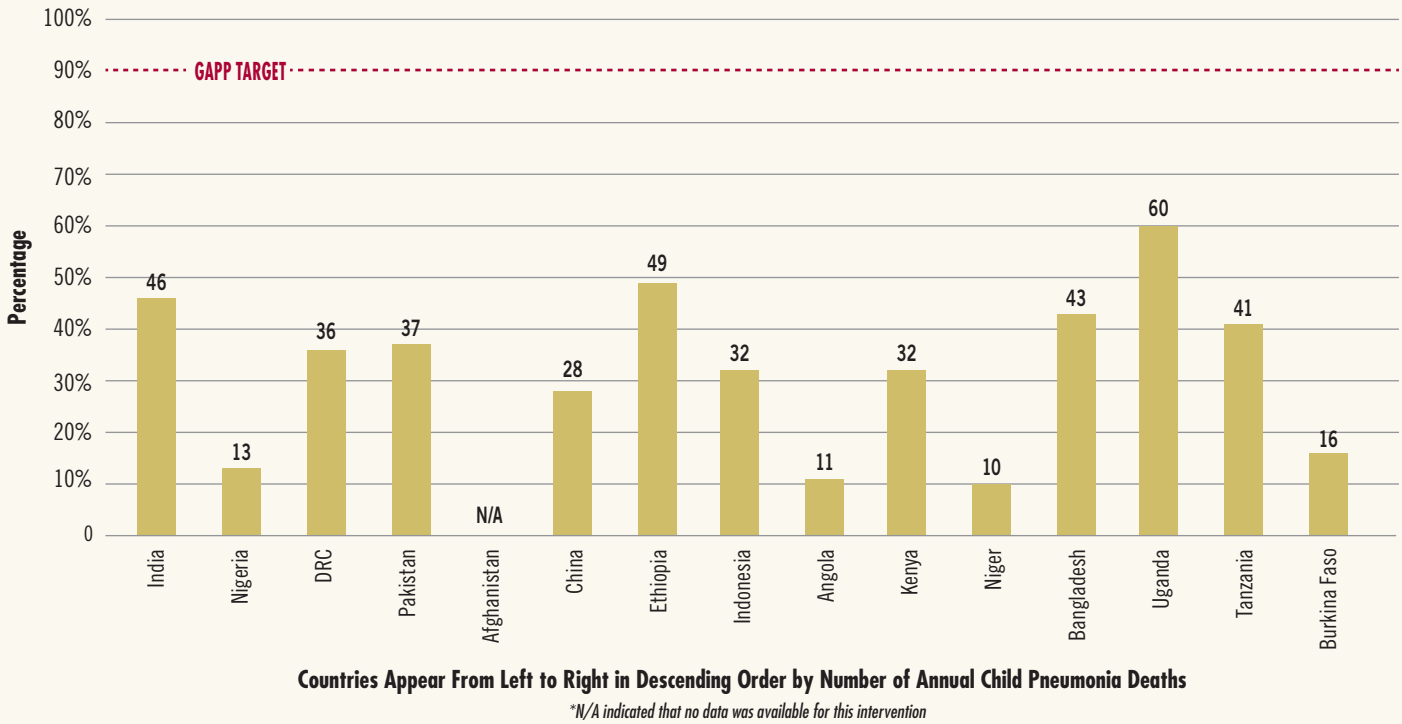
In December 2010, Nicaragua became the first country in the developing world to introduce the newest formulation of PCV (PCV13), less than a year after it was introduced in the USA. Since World Pneumonia Day 2010, 23 additional countries have introduced PCV into their immunization programs, 16 of which have introduced with GAVI Alliance support.

PROTECTION: EXCLUSIVE BREASTFEEDING

Feeding infants only breast milk in the first six months of life is a key protection intervention highlighted in the GAPP report. Breast milk alone provides all of the essential nutrients babies need to thrive and grow, so no other liquid or food is required.

Exclusive breastfeeding has multiple positive effects, and chief among them is its ability to bolster an infant's immunity to help combat disease, protecting babies from not only pneumonia but also diarrhea and other infections. **Of the countries for which data is available, exclusive breastfeeding is characterized by sub-optimal coverage levels ranging from only 10 percent to 60 percent — all of which fall short of the 90 percent GAPP target.[6]** Efforts to increase awareness about the benefits of exclusive breastfeeding are essential to increasing coverage of this intervention in the 15 focus countries.

FIGURE 3: Protection. Percentage of Infants Exclusively Breastfed in the First 6 Months.



Note: Levels of exclusive breastfeeding for infants in the first 6 months of life in the top 15 countries, 2005-2009.

Source: UNICEF's State of the World's Children 2011

Coalition Partner Spotlight

Exposure to smoke from traditional cookstoves and open fires — the primary means of cooking and heating for nearly 3 billion people in the developing world — increases the risk of acute respiratory infections, including pneumonia. The use of a clean cookstove that significantly reduces indoor smoke, can potentially reduce a child's risk for pneumonia by up to 50 percent. **The Global Alliance for Clean Cookstoves** is a public-private partnership aiming to save lives and combat climate change by creating a thriving global market for clean and efficient household cooking solutions. Momentum is building around this preventative measure against pneumonia. US Secretary of State Hillary Rodham Clinton, actress Julia Roberts and renowned chef Jose Andrés have joined on as the Alliance's ambassadors. To learn more about this partner in the fight against pneumonia, please visit **www.cleancookstoves.org**.

TREATMENT: ACCESS TO CARE & ANTIBIOTICS

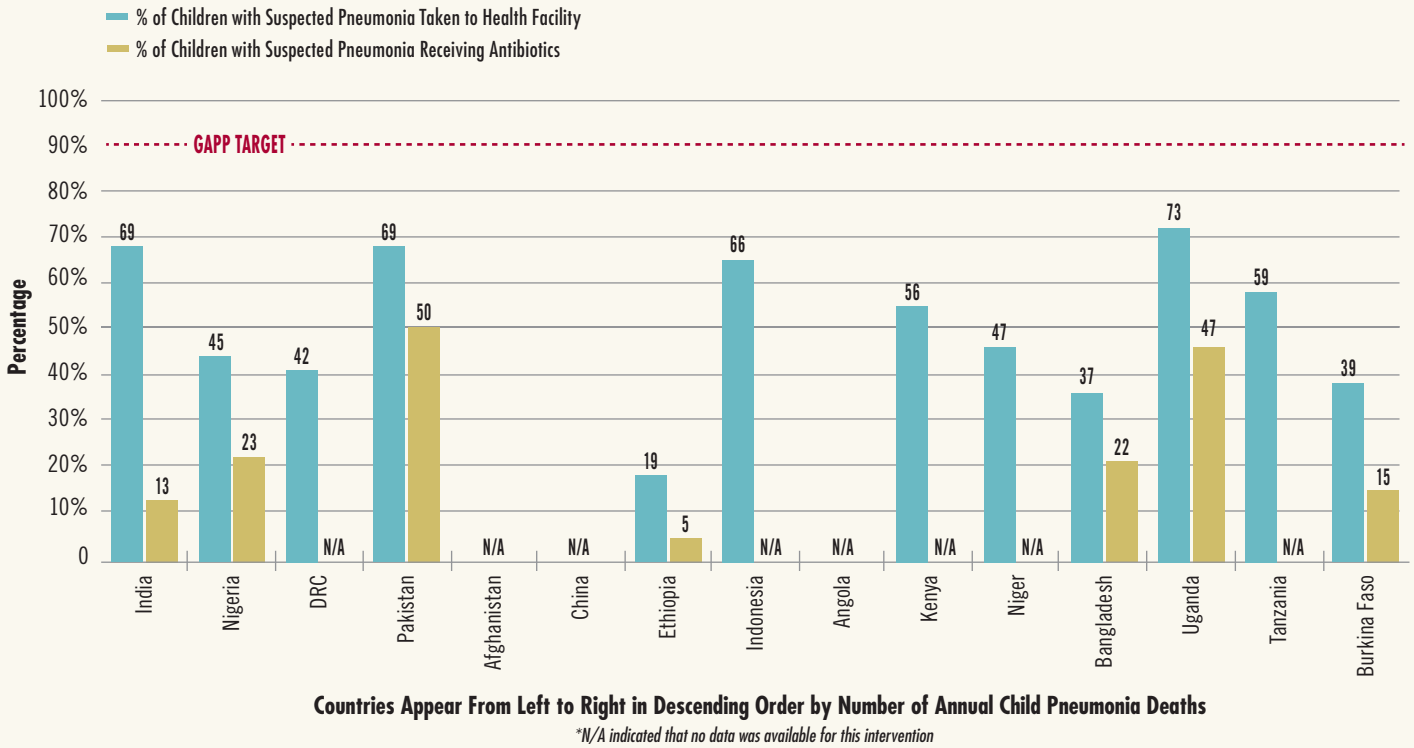
Since prevention and protection interventions are less than 100 percent effective and do not address every cause of pneumonia, children will always need access to safe, effective pneumonia treatments. **Current coverage levels of access to care and antibiotic treatment in our focus countries range from 5 percent to about 70 percent — far lower than the GAPP target level of 90 percent.**[6] Thus, expansion of community-based management programs and improvement of access to care and treatments for the most seriously ill children are necessary for reaching GAPP targets.

MOVING FORWARD

This report shows that while progress has been made toward increasing coverage among essential pneumonia interventions, specifically vaccines, there is still more work ahead. Funding for programs that round out a comprehensive approach toward pneumonia prevention, protection and treatment are necessary to saving millions of children's lives.

Looking forward, efforts must focus on the interventions, outlined in the GAPP, that are proven to impact pneumonia

FIGURE 4: Treatment. Percentage of Children with Pneumonia Who Access a Care Facility or Receive Antibiotics.



Note: Levels of children with suspected pneumonia taken to a health facility or treated with antibiotics, 2005-2009.

Source: UNICEF's State of the World's Children 2011

Pneumonia Fighter: Dr. Fred Were

For Dr. Fred Were, fighting pneumonia and other childhood killers is part of his daily routine. Dr. Were's steadfast commitment to saving children's lives is widely known in his home country of Kenya. As a pediatrician, a specialist in neonatal medicine and the National Chairman of the Kenya Paediatric Association, Dr. Were starts his rounds at sunrise and travels each day from a clinic to two Nairobi hospitals to care for his young patients. He advocates for pneumonia prevention globally as a member of the Sabin Vaccine Institute's Pneumococcal Awareness Council of Experts (PACE), and locally founded Kenya's annual Run for Child Survival, which raises awareness about pneumonia among Kenyan families. Most recently, Dr. Were established a group of leading pediatricians from across east Africa to advocate for solutions to the region's health challenges, including pneumonia. Dr. Were's leadership and personal commitment is a prime example of the impact that one pneumonia fighter can have on increasing attention and focus around the deadliest disease for children under five.

deaths. By tackling pneumonia in these 15 countries alone, we can help eliminate up to three-quarters of the world's pneumonia burden, and take one of the biggest steps yet toward achieving Millennium Development Goal 4, a two-thirds reduction in child mortality.

Reducing the global pneumonia burden is not the task of one organization or one country, but requires that all of us — donors, policymakers, practitioners, child advocates — work together toward this common end. It is essential that momentum is not lost. In fact, efforts need to be made more robust to ensure scale up is successful. Pneumonia is one of the most solvable problems in global health, and must remain a priority if we are to successfully combat the world's leading killer of young children.

METHODOLOGY

There are important limitations that should be considered in the interpretation of this progress report. First, the report is based on estimated coverage in 2010, and in some cases may differ from current coverage levels. Second, the report illustrates national level data and as such, these national average levels may mask significant variations in coverage that exist within countries.

Most data analyzed from this report were drawn from UN sources. Coverage data for protection and treatment measures were taken from UNICEF's 2011 State of the World's Children report. The 2011 Pneumonia Progress Report uses data from the most recent WHO-UNICEF publication on yearly vaccine coverage statistics. In the interpretation of this data, it is important to note the distinction between vaccine coverage and vaccine access. Vaccine coverage is the estimate of the number of infants actually receiving the vaccine and is based on national data. Vaccine access reflects the number of surviving infants who could possibly access the vaccine if the vaccine has been introduced in the country.

Additional information about projected vaccine access was acquired from the Vaccine Information Management System (VIMS), a secure, web-based database administered by the International Vaccine Access Center at Johns Hopkins University School of Public Health.

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IVAC's mission is to accelerate global access to life-saving vaccines through development and implementation of evidence-based policies.

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