

# EVERY CHILD'S RIGHT TO SURVIVE: AN AGENDA TO END PNEUMONIA DEATHS

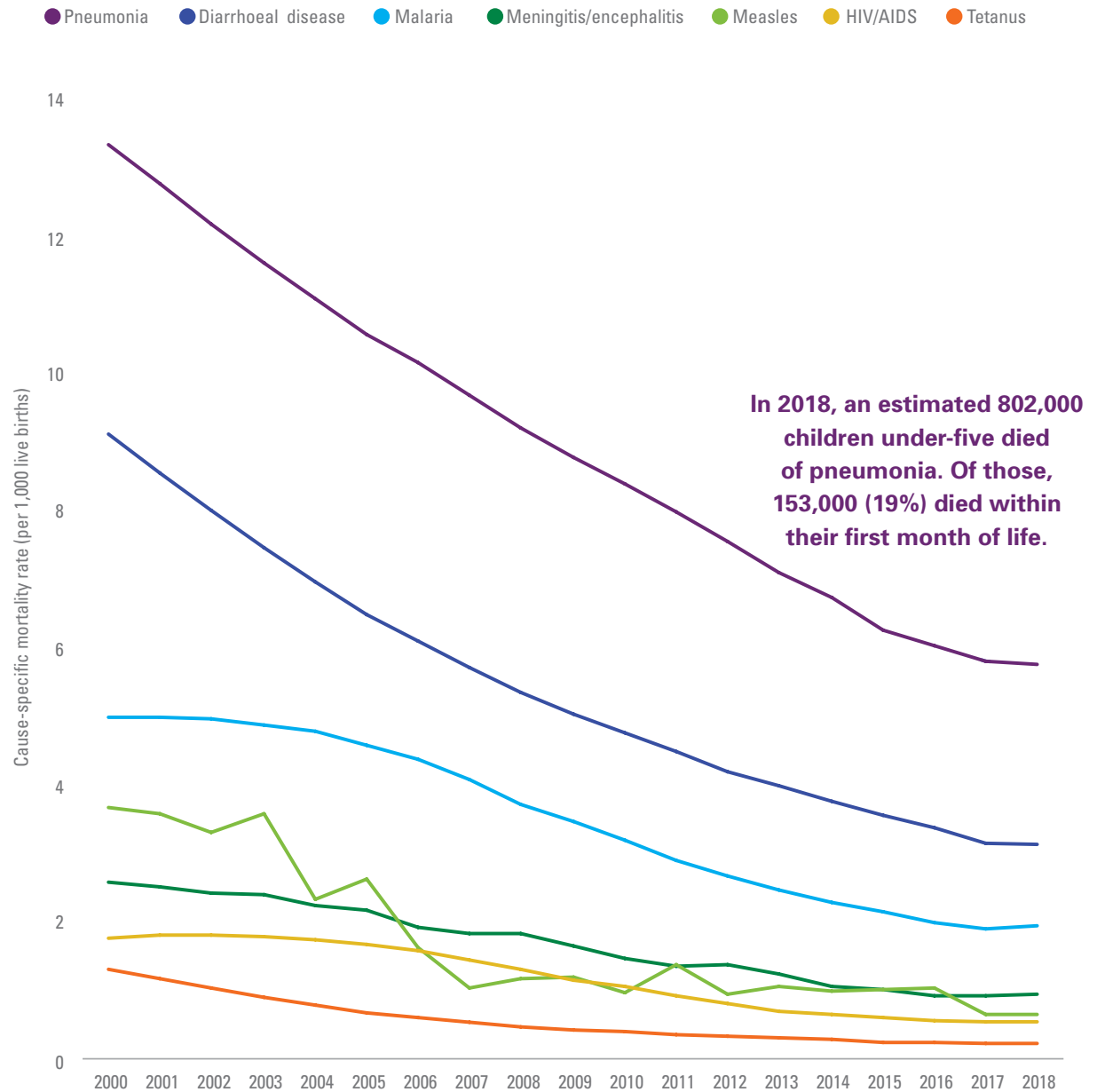


# PNEUMONIA IS A LEADING CAUSE OF DEATH AMONG CHILDREN UNDER THE AGE OF FIVE

The number of deaths among children under the age of five has reduced by half since 1990. Yet over 5 million children are still dying every year from mostly preventable causes.

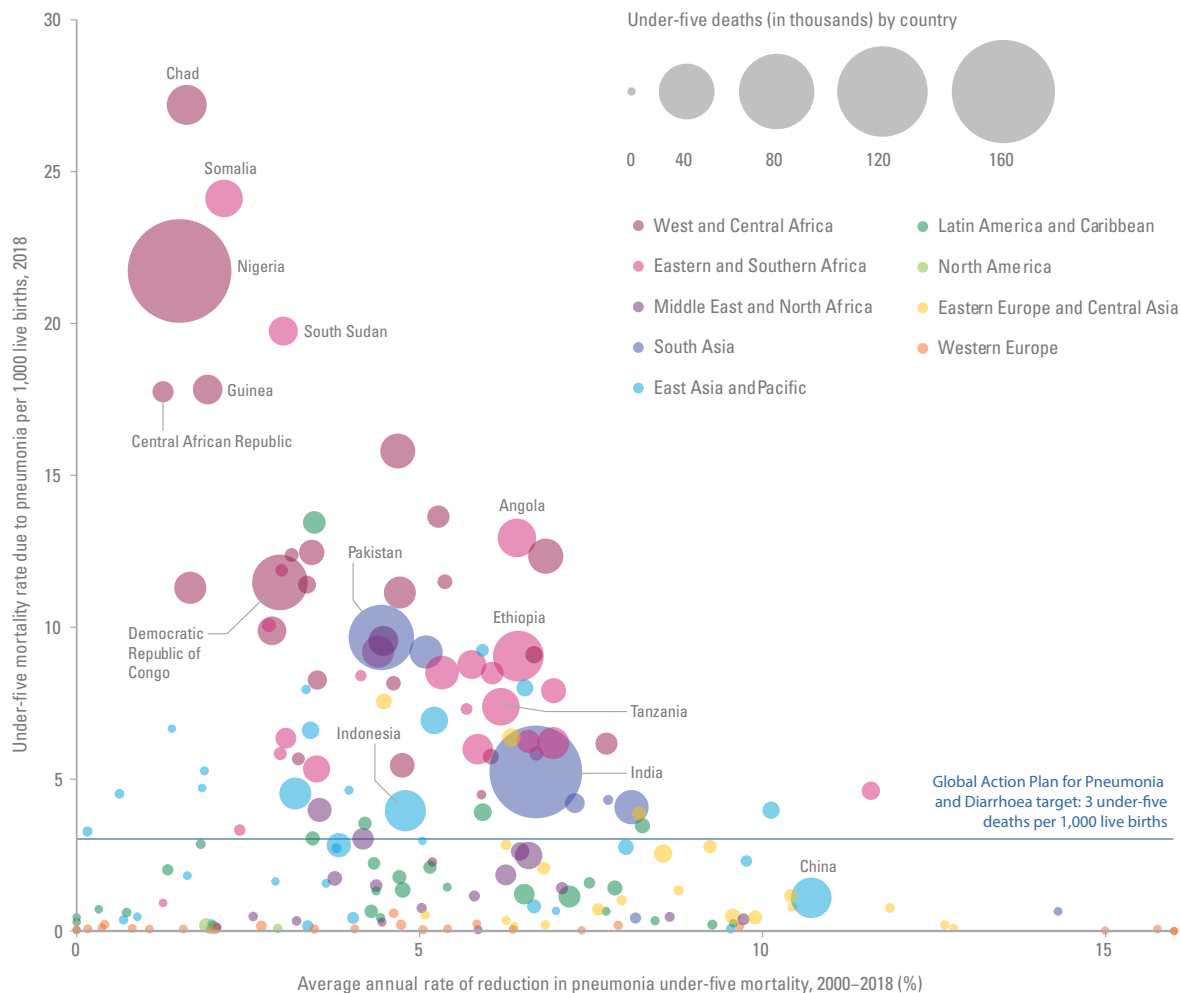
**Pneumonia is responsible for nearly 20% of these deaths and is the leading infectious cause of death in this age group.**<sup>1</sup> The rate of progress in reducing pneumonia-related mortality has been slower than for other leading causes of child deaths, including for malaria and other vaccine preventable diseases. Efforts to reduce childhood pneumonia must be accelerated to ensure children's right to survive. **If the current pace continues, 53 countries will not achieve the SDG3 target to end preventable child deaths.**<sup>2</sup>

**FIGURE 1.** Global trends in top causes of child deaths, cause-specific child mortality rates, 2000–2018



Source: WHO and Maternal and Child Epidemiology Estimation Group (MCEE) interim estimates, applying cause fractions for the year 2017 to UN IGME estimates for the year 2018.

**FIGURE 2.** Child pneumonia mortality rate and average annual rate of reduction, 2000–2018



Source: UNICEF analysis based on WHO and Maternal and Child Epidemiology Estimation Group interim estimates produced in September 2019, applying cause fractions for the year 2017 to United Nations Inter-agency Group for Child Mortality Estimation estimates for the year 2018.

## PNEUMONIA IS A SIGN OF INEQUALITY

Pneumonia is a disease of poverty and a marker of inequities and multiple deprivations. Disparities are large, both within and between countries. Today, **84% of child deaths from pneumonia occur in just 30 countries, mostly in Sub-Saharan Africa and Asia.**<sup>3</sup> More must be done to ensure all children living within these high mortality countries have access to protective, preventive and curative services.

Actions must also target the most vulnerable children. In low- and middle-income countries, **children from the poorest households are almost twice as likely to die** before the age of five years compared to children from the wealthiest households.<sup>4</sup> Children living in fragile and humanitarian settings where health systems are weak, and children living in hard-to-reach areas with limited access to quality, integrated health services are also particularly vulnerable to dying from diseases like pneumonia.

# WHY CHILDREN CONTINUE TO DIE FROM PNEUMONIA



Illness and deaths from pneumonia are often the result of children's **exposure to multiple deprivations**. Children who are malnourished, lack access to clean water and basic sanitation facilities, experience other infections such as HIV, and who are exposed to overcrowded conditions and environmental contaminants like indoor and outdoor air pollution are at an elevated risk of pneumonia. Often, these are the same children who **miss out on essential health care services** such as pneumonia-fighting vaccines, and antibiotics and oxygen therapy when needed. In 2018, an estimated 53% (71 million) of the world's infants did not receive Pneumococcal Conjugate Vaccine (PCV).<sup>5</sup> These infants were not vaccinated for one of two reasons; either they live in one of the 44 countries that has not yet introduced PCV (nearly 27 million children), or they were not reached by routine immunization services.

**Children living in the 30 pneumonia high mortality countries are breathing air that is polluted with twice as much fine particulate matter as other low- and middle-income countries and four times higher than high-income countries. This is six times the World Health Organization (WHO) threshold for good air quality and twice as high as what WHO considers acceptable.**

The likelihood of children being exposed to multiple deprivations and having poor access to health services is much higher in low- and middle-income countries than in high-income countries and for the poorest children in these countries.

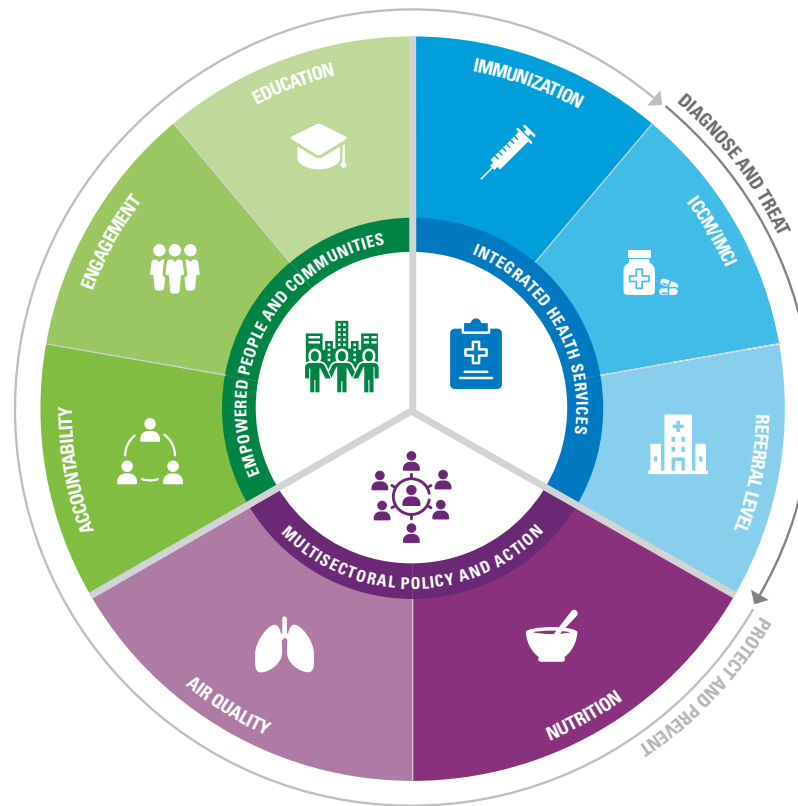


Children are about  
**60 times more likely** to  
get sick with pneumonia  
and die from it in the 30  
high mortality countries  
compared to high-income  
countries.

# AN AGENDA TO END PNEUMONIA DEATHS

Primary health care (PHC) is the most efficient and effective way to achieve health for all, which is the global goal of universal health coverage. Resting on three pillars - integrated health services, multisectoral policy and action, and empowered people and communities - it provides a comprehensive approach to deliver preventive, protective and curative care for pneumonia.

**FIGURE 3.** The Pneumonia Wheel: The three pillars of PHC as the foundation for ending preventable child deaths from pneumonia



The health system must provide **quality health services in an integrated manner** through delivering preventive vaccines, diagnostic services and effective antibiotics at the community level and in frontline health facilities. Treatment services for severely ill children at referral hospitals, including oxygen and other therapeutic measures.

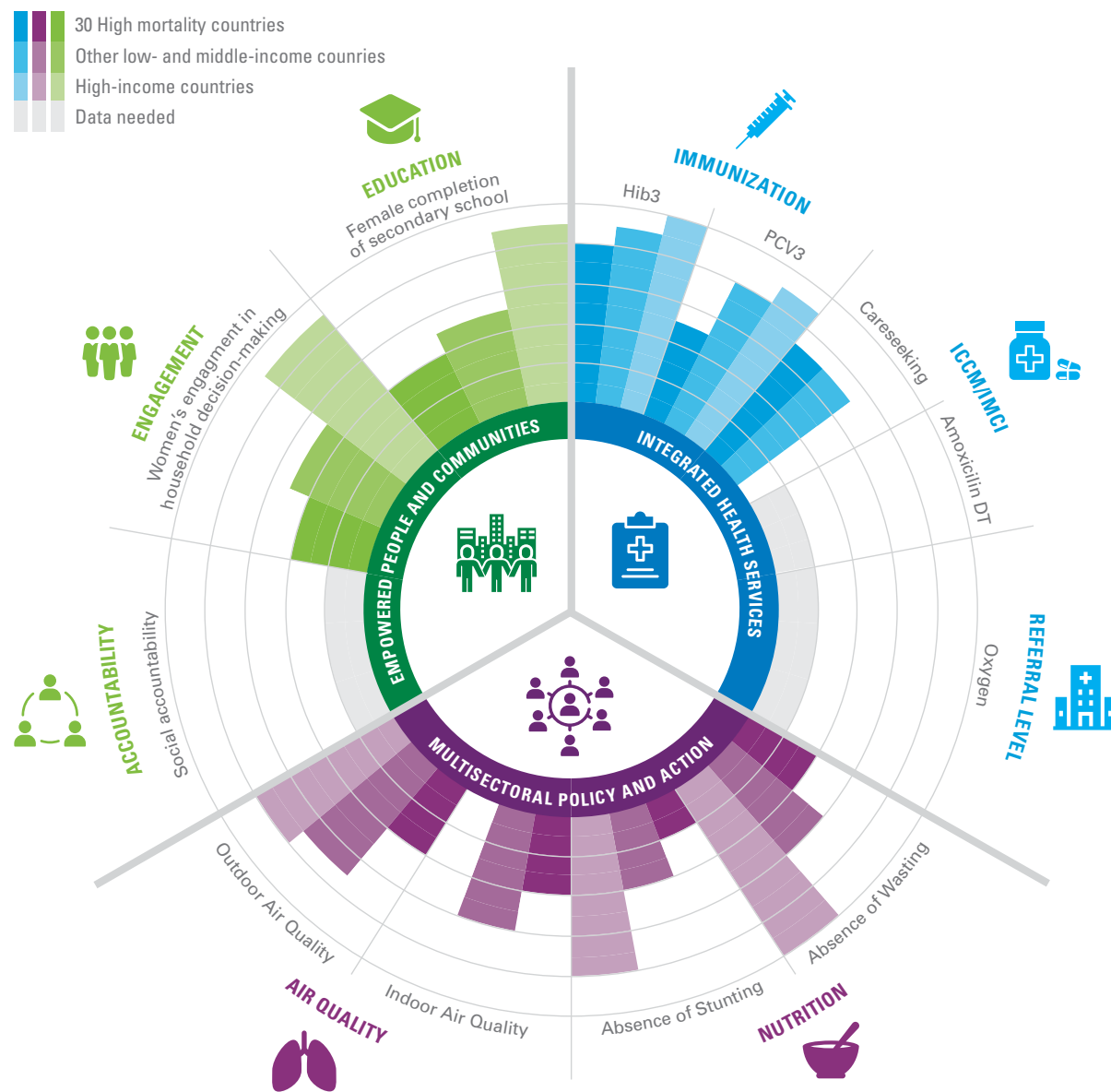


**Multisectoral policies and actions** are needed to ensure children have sufficient and nutritious foods to eat, clean air to breathe, optimal living conditions including adequate housing, and access to quality health care, safe water, sanitation and hygiene.



**Empowered people and communities** have an important role to play in sustainably improving child health. Communities that are engaged in decision making about the health care system are able to ensure available care is responsive to and addresses their needs. A key dimension of community engagement in improving health services is women's empowerment given their role in care seeking and child care.

**FIGURE 4.** Indicators across components of the Pneumonia Wheel for a) 30 pneumonia high mortality countries, b) other low- and middle-income countries and c) high-income countries



There are stark differences in the coverage of effective interventions, mortality and risk factors for pneumonia between the 30 high pneumonia mortality countries, other low- and middle-income countries and high-income countries.

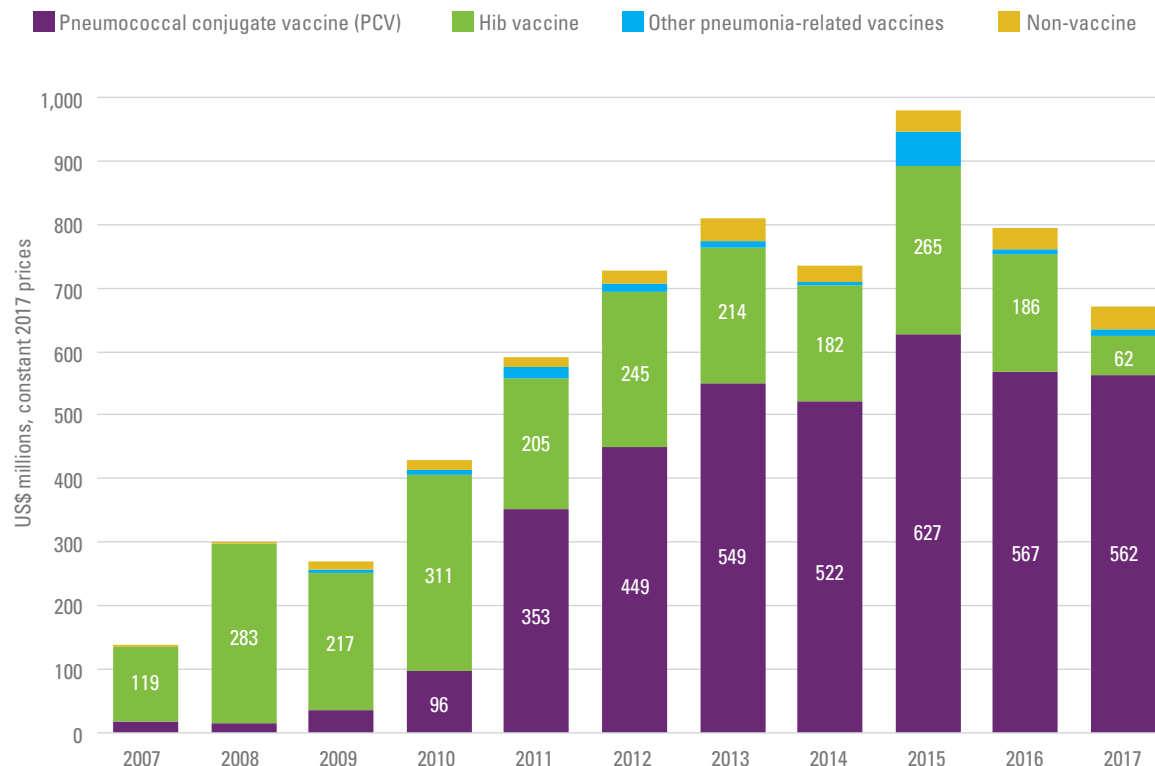
Directing resources, domestic and international, and increasing leadership, including amongst communities, for inclusive primary health care will contribute to dramatic reductions in the number of children getting sick and dying from pneumonia. Health services should be free at the point of use, funded by fair taxation and supplemented, for the poorest countries, with donor assistance.

Source: UNICEF global databases, The DHS Program via STATcompiler, UNESCO Institute for Statistics via UIS.Stat, Institute for Health Metrics and Evaluation Global Burden of Disease Program, Organisation for Economic Co-operation and Development. Notes: Data have been adjusted to reflect a harmonized scale and directionality to enable comparisons in progress across the three pillars. Population weighted averages have been rounded to the nearest 10 for the purposes of visualization. For more details, see the Technical Note on page 12.

## RESOURCES ARE NEEDED

Between 2000 and 2015, international development assistance for pneumonia increased sevenfold from \$140 million to \$980 million (US dollars). However, this assistance has fallen each consecutive year since 2015 with an overall decline of more than 30% to \$670 million (US dollars) in 2017. This is a concerning downward trend in a time when more resources are needed if high mortality countries are to achieve SDG3 targets.

**FIGURE 5.** International development assistance (in US dollars) allocated for pneumonia, 2007–2017

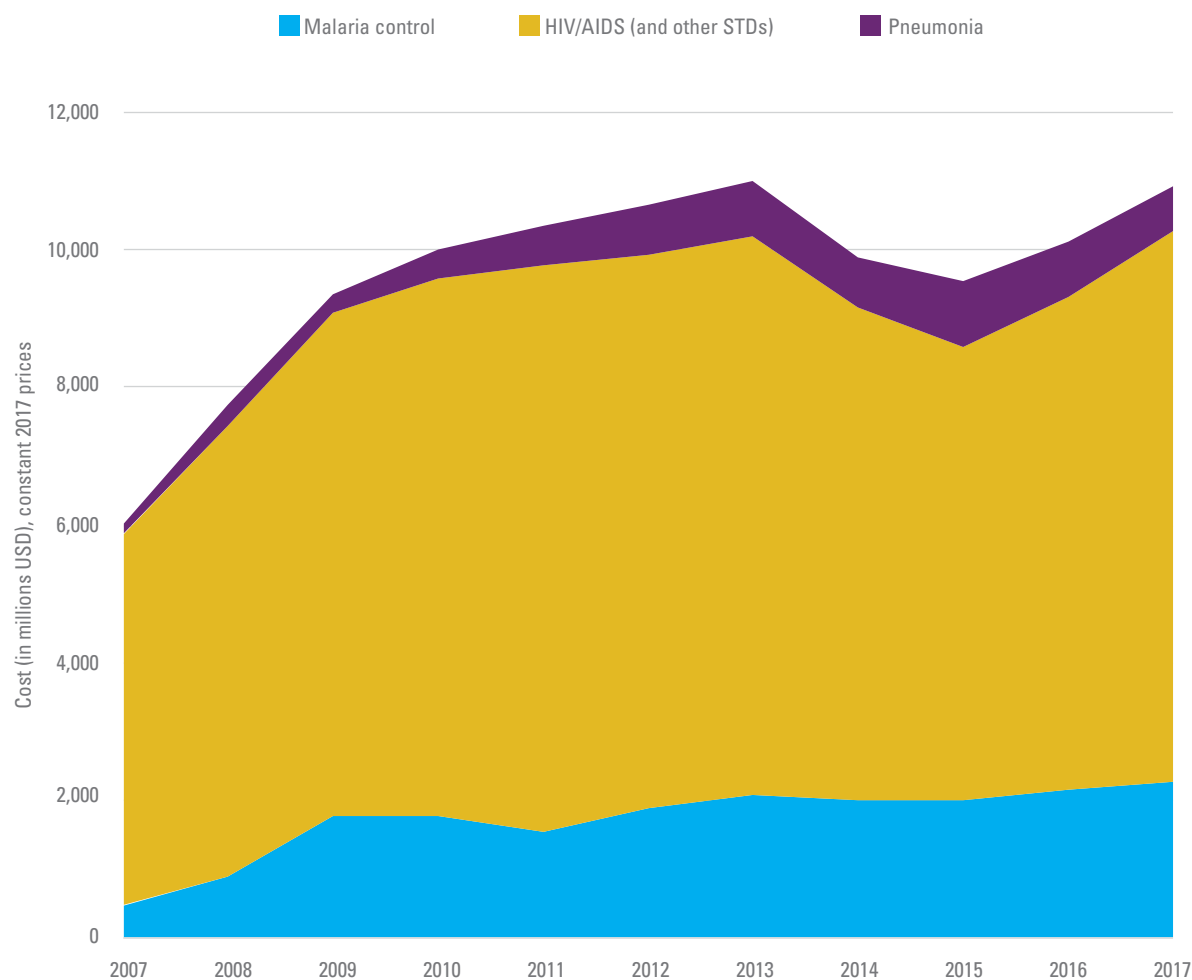


Source: Development Initiatives analysis based on OECD Common Reporting Standards (CRS). Note: Data is gross disbursements of official development assistance and private development assistance reported in the Organisation for Economic Co-operation and Development's (OECD) Creditor Reporting System (CRS). Categories of pneumonia expenditure were classified using descriptive information on aid activities within the OECD CRS. For more details, see the Technical Note on page 12.

In 2017 nearly 95% of funding for pneumonia (\$636 million US dollars) was spent on vaccines, in particular, PCV. All children deserve access to these vaccines, but sick children also need access to appropriate diagnostics and life saving treatment. **Of the remaining \$34.2 million of development assistance that was spent on non-vaccine related pneumonia initiatives, over half (\$17.3 million) went to research and development (R&D), and slightly more than a third (\$12.5 million) was spent on programs including community-based management, diagnosis-based interventions, and treatment-based interventions.**<sup>6</sup> It is promising that the 10 largest recipients of international assistance for pneumonia are high mortality countries; on the other hand, many other high mortality countries are missing out on donor funds.<sup>7</sup>



**FIGURE 6.** Comparison of international development assistance to pneumonia relative to other leading infectious killers (malaria, HIV)



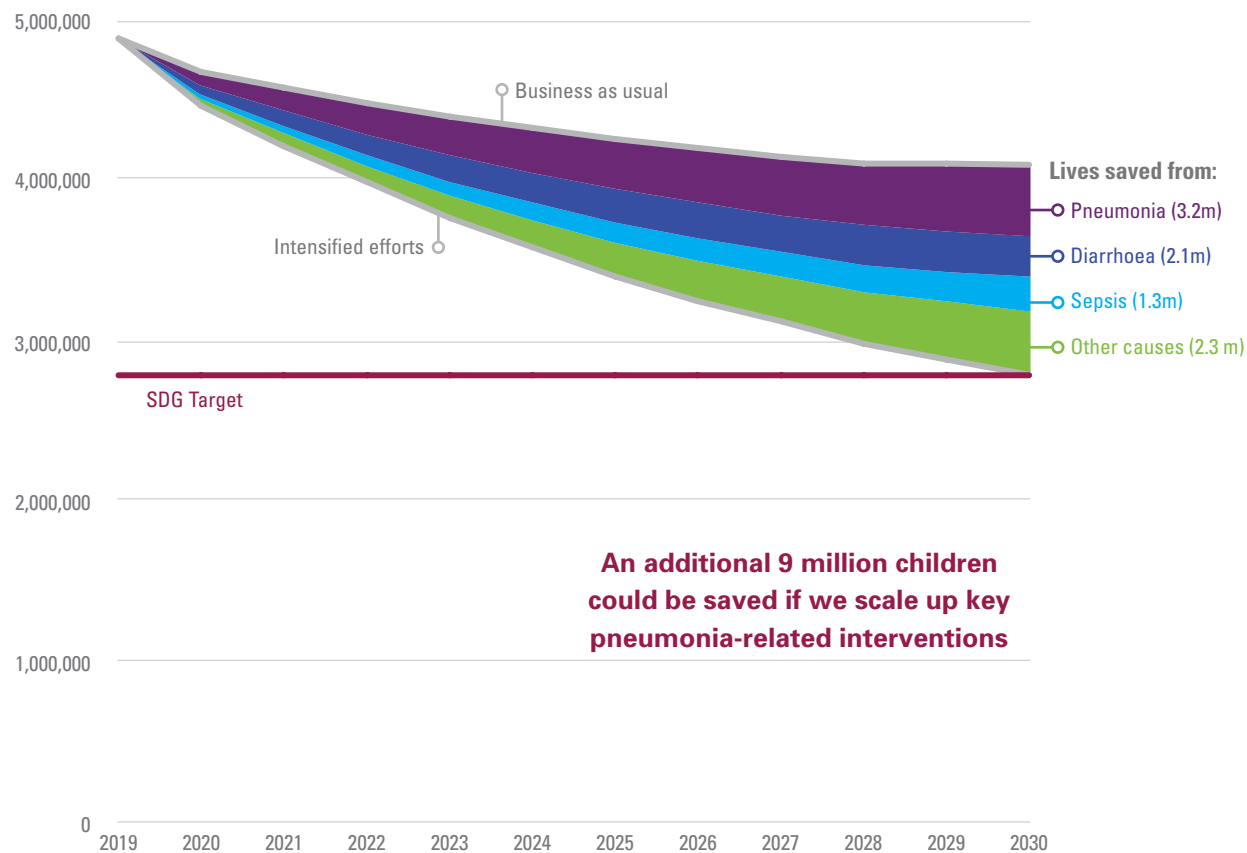
Despite being a leading killer of children, pneumonia receives considerably less development assistance than malaria and HIV/AIDS. Out of the total \$105.7 billion (US dollars) spent on these three diseases in 2017, HIV/AIDS received 76%, malaria 18% and pneumonia only 6%.

Source: Development Initiatives analysis based on OECD Common Reporting Standards (CRS). Note: Data is in constant 2017 prices, expressed in US dollars. 'STD control including HIV/AIDS' and 'Malaria control' are OECD Development Assistance Committee (DAC) sectors. For more details, see the Technical Note on page 12.

# LOOKING AHEAD

With a decade left to achieve the SDG3 targets and to deliver on our commitment for health for all children, there is a renewed sense of urgency. Resources must be directed where the impact will be the greatest in reducing child mortality. If the current rate of progress in scaling up pneumonia-related health interventions continues, we are on track to save 14.5 million children by 2030, including 5.9 from pneumonia. But, if we scale-up these interventions to 100% coverage, we could save an additional 8.9 million lives, including 3.2 million more from pneumonia. The return on investment is a total of 23.4 million children saved from pneumonia and other causes over the next decade - saving one child every 13 seconds.

**FIGURE 7.** Estimated lives saved from scale up of pneumonia interventions, 2019–2030, by major cause of child death



Source: Analysis by the Johns Hopkins Bloomberg School of Public Health using the Lives Saved Tool (LiST). Notes: 'Business as usual' projections are based on a continuation in the annual rate of change for coverage of 19 pneumonia-reducing interventions; 'Intensified efforts' projections are based on a linear projection of 2019 coverage values to 100% by 2030 with prevalence of stunting and wasting reduced to 2.275%. Analysis is based on the 81 countries that account for over 90% of child deaths. For more details, see the Technical Note on page 12.



## ALL CHILDREN HAVE A RIGHT TO SURVIVE AND GROW UP IN GOOD HEALTH

Pneumonia is a litmus test for whether the promise of universal health coverage will be achieved for children. Strengthening primary health care is an opportunity. It can comprehensively deliver for children, if all actors across sectors align and adequate resources are made available.

## TECHNICAL NOTES

**30 pneumonia high burden countries:** Afghanistan, Angola, Bangladesh, Benin, Cameroon, Central African Republic, Chad, China, Comoros, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Ethiopia, Guinea, Haiti, India, Indonesia, Kenya, Mali, Mozambique, Niger, Nigeria, Pakistan, Philippines, Sierra Leone, Somalia, South Sudan, Sudan, Uganda, United Republic of Tanzania

**The Pneumonia Wheel:** Data have been adjusted to reflect a harmonized scale and directionality to enable comparisons across the three pillars and for consistency. Population weighted averages have been rounded to the nearest 10 for the purposes of visualization. The following indicators (with sources) are health intervention coverage indicators and have not been modified: Hib3 (WHO/UNICEF), PCV3 (WHO/UNICEF), Careseeking for symptoms of ARI (UNICEF). Female completion of secondary school (UIS) has also not been modified because the data is reported as a percentage with the aim of achieving 100 per cent. For indoor air quality (DHS), the value correlates to the per cent of household not cooking indoors with solid fuels. For outdoor air quality (IHME), the value correlates to the average annual concentration of fine particulate matter (PM<sub>2.5</sub>) where scores were applied based on the PM<sub>2.5</sub> concentration relative to WHO µg/m<sup>3</sup> thresholds and scaled to 100 per cent. For stunting (UNICEF) and wasting (UNICEF), scores were applied based on the WHO threshold ranges for “very high”, “high”, “medium”, “low” and “very low”. The values attributed to these thresholds were 10, 30, 50, 70 and 90, respectively. For Women’s inclusion and non-discrimination, SIGI values were taken from the UNICEF 2019 State of the World’s Children report and scores were applied based on the thresholds defined in the Social Institutions and Gender Index (OECD). The values attributed to the thresholds for “very high”, “high”, “medium”, “low” and “very low” were 10, 30, 50, 70 and 90, respectively. Though we are aware of efforts to measure coverage of amoxicillin DT provision, and oxygen treatment, there are currently no internationally standardized metrics available for these two health sector interventions. Although there are databases which capture some dimensions of social accountability, there are no standard metrics that capture community engagement in the development and monitoring of health services. For these reasons, those indicators have been left blank intentionally to highlight this critical data gap.

**Financial analysis:** To determine spending levels of pneumonia-related official and private development assistance, a methodology of applying pneumonia relevant key-words to aid activity descriptive fields in the Organisation for Economic Co-operation and Development’s Creditor Reporting System (OECD CRS) was undertaken. Returned results were further categorised on the basis of their descriptions into categories outlining the level and type of their relevance to pneumonia. (More information on the methodological approach is available in the following publication: [https://stoppneumonia.org/wp-content/uploads/2018/11/The-Missing-Piece\\_-0611\\_Spread.pdf](https://stoppneumonia.org/wp-content/uploads/2018/11/The-Missing-Piece_-0611_Spread.pdf))

**Lives Saved analysis:** The Lives Saved Tool (LiST) is housed within Spectrum, a free and publicly available software package maintained by Avenir Health, that provides the necessary demography, HIV/AIDS, and family planning information for mortality impact modeling in LiST. Results shown here were generated using Spectrum version 5.80. For more information on the LiST see Neff Walker, Yvonne Tam, Ingrid K Friberg (2013). Overview of the Lives Saved Tool (LiST). BMC Public Health 2013, 13(Suppl 3). <http://www.biomedcentral.com/1471-2458/13/S3/S1>.

Analysis is based on 81 Countdown to 2030 countries that account for over 90% of child deaths. ‘Business as usual’ projections are based on a continuation in the annual rate of change for coverage of 19 pneumonia-reducing interventions; ‘Intensified efforts’ projections are based

on a linear projection of 2019 coverage values to 100% by 2030 with prevalence of stunting and wasting reduced to 2.275%. The 19 interventions included in this model are: balanced energy supplementation, calcium supplementation, change in stunting prevalence, change in wasting prevalence, micronutrient supplementation (iron and multiple micronutrients), vitamin A supplementation, zinc supplementation, H. influenzae b vaccine, Pneumococcal vaccine, Rotavirus vaccine, case management of neonatal sepsis/pneumonia, prevalence of early initiation of breastfeeding, age-appropriate breastfeeding practices, hand washing with soap, improved water source and improved sanitation, water connection in the home, Intermittent preventive treatment of malaria during pregnancy, households protected from malaria with ITN/IRS, and oral antibiotics for pneumonia. The SDG target on child survival commits to reducing under-five mortality to at least as low as 25 per 1,000 live births. Calculations by Save the Children using the UN World Population Prospects 2019 suggest that this goal limits the number of under-five deaths in 2030 to 2.8 million.

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## PHOTO CREDITS

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## REFERENCES

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- 6 Development Initiatives based on OECD CRS
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