



**Pneumonia
& Diarrhea
Progress
Report 2020**

TABLE OF CONTENTS

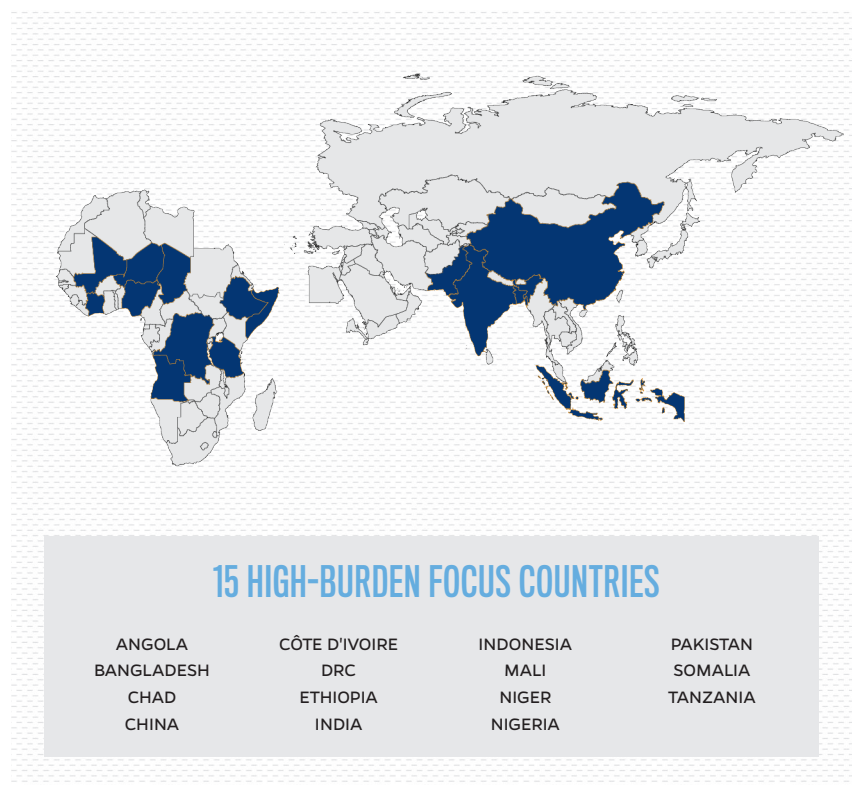
2	EXECUTIVE SUMMARY
3	INTRODUCTION
4	DATA & METHODOLOGY
7	KEY RESULTS & FINDINGS
16	CONCLUSIONS & RECOMMENDATIONS
18	APPENDIX
19	ACRONYMS & REFERENCES
21	ACKNOWLEDGEMENTS

EXECUTIVE SUMMARY

Pneumonia and diarrhea are leading killers of children under the age of five, claiming the lives of more young children globally than any other infectious disease.

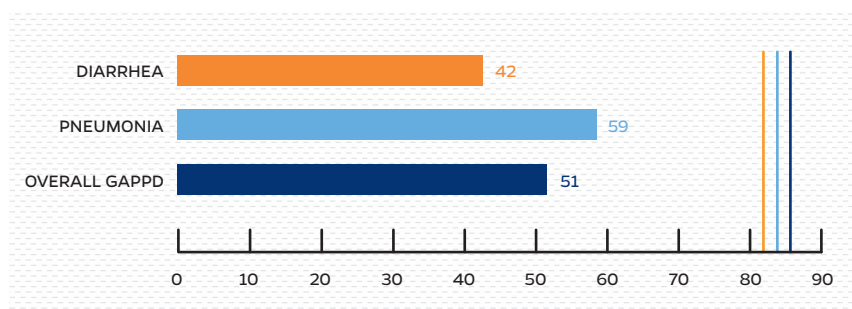
2020 OVERALL GAPPD SCORES MAPPED

Each year, this report tracks progress towards 10 key indicators in the 15 countries with the highest mortality burden of pneumonia and diarrhea in children under 5. These 10 indicators are evaluated and summarized into an Overall GAPPD score.



MEDIAN 2020 GAPPD SCORES ACROSS 15 FOCUS COUNTRIES

None of the 15 focus countries met GAPPD target scores



CLOSING THE GAP

1.24 MILLION

under-5 pneumonia and diarrhea deaths in 2017



of all pneumonia and diarrhea deaths in children under 5 occur in these 15 focus countries

A CHILD UNDER 5 DIES OF PNEUMONIA EVERY 39 SECONDS

ABOUT 1,200 YOUNG CHILDREN DIE PER DAY OF DIARRHEA

↑ 5

focus countries with Overall GAPPD score increases of **more than 1 percentage point**

2 PERCENTAGE POINTS

2019 – 2020 change in Overall GAPPD score across all 15 focus countries

INTRODUCTION

Pneumonia continues to kill more children under five worldwide than any other single infectious disease, claiming an estimated 800,000 children’s lives in 2018, while diarrheal diseases—the second leading infectious cause of death of children under 5—claimed the lives of 437,000 young children. Globally, over 1.23 million children died of pneumonia and diarrhea before reaching their 5th birthday—the equivalent of over 141 child deaths per hour or 3,400 deaths per day.

Children living in countries that already bear disproportionate impacts of pneumonia and diarrhea must now also contend with potentially catastrophic impacts of the COVID-19 pandemic. The fallout of the COVID-19 pandemic threatens to reverse decades of progress in protecting the world’s children from these preventable illnesses.

Despite the massive toll of pneumonia, it has been called the forgotten epidemic. Now more than ever, the global child health community must take action to ensure that the world’s most vulnerable children are not left behind.

In 2009 and 2013, the World Health Organization (WHO) and UNICEF published the integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhea (GAPPD), a bold call to action with the goal of achieving a global 75% reduction in incidence of severe pneumonia and diarrhea in children under 5 by 2025. GAPPD outlines a set of core interventions to successfully prevent, protect, and treat children who are at risk of serious illness or death due to these two diseases.

GAPPD INDICATORS

7 Pneumonia-specific indicators		5 Diarrhea-specific indicators	
Exclusive Breastfeeding			
MCV1 Coverage			
DTP3 Coverage		RotaC Coverage	
Hib3 Coverage		ORS	
PCV3 Coverage		Zinc	
Appropriate Care Seeking			
Antibiotic Treatment			

2020 PDPR FOCUS COUNTRIES

Rank	Country	Under-5 Pneumonia & Diarrhea Deaths
1	India	233,240
2	Nigeria	208,439
3	Pakistan	90,398
4	DRC	64,170
5	Ethiopia	44,692
6	Chad	27,496
7	Indonesia	27,422
8	Angola	25,609
9	Tanzania	25,367
10	Somalia	25,158
11	China	24,254
12	Mali	21,353
13	Bangladesh	21,166
14	Niger	20,048
15	Côte d’Ivoire	18,651

Each year, the International Vaccine Access Center (IVAC) reviews the progress towards achieving these GAPPD targets in the 15 countries with the highest number of pneumonia and diarrhea deaths among children under 5 years of age, including reviewing the latest available data on 10 key pneumonia and diarrhea indicators. Although there are limitations to the indicators, the composite view they provide offers a useful reflection of the overall landscape regarding progress on reducing preventable pneumonia and diarrhea deaths in children under 5.

DATA & METHODOLOGY

IDENTIFYING THE HIGHEST BURDEN COUNTRIES

For this report, we analyze the progress of 10 GAPPD indicators in the 15 countries with the highest total number of pneumonia and diarrhea deaths among children under 5 years.

These 15 high-burden countries are identified based on the latest data on pneumonia and diarrhea deaths, sourced from the WHO Maternal and Child Epidemiology Estimation (MCEE) group estimates. The most recent publicly available estimates were made available November 2018¹.

The list of the 15 high-burden countries can shift from year-to-year as new data is made available. Therefore, countries included in our list of high-burden countries may change either due to country progress that results in fewer under-5

pneumonia and diarrhea deaths or adjustments to the methodology used to estimate mortality.

DATA SOURCES

The main sources for data for this report come from WHO and UNICEF data repositories on global child health. The most recent available data are used to compile the national coverage estimates for each of the 10 GAPPD indicators tracked in the report.

We used data collected within the last 10 years to compile national coverage estimates for each of the 10 indicators.

Three key target scores are calculated by averaging the GAPPD coverage target scores for these 10 indicators: a GAPPD Pneumonia score, GAPPD Diarrhea score, and an Overall GAPPD score that includes both pneumonia and diarrhea

DATA SOURCES FOR 10 GAPPD INDICATORS

Indicator	Source
PROTECT	
Exclusive breastfeeding Percentage of infants 0–5 months of age who are fed exclusively with breast milk	UNICEF’s global database, Infant and Young Child Feeding: Exclusive Breastfeeding (<6 months); USAID Demographic and Health Survey (DHS), UNICEF Multiple Indicator Cluster Surveys (MICS) or equivalent
PREVENT	
DTP3 3rd dose of diphtheria-tetanus-pertussis (DTP) vaccine	WHO/UNICEF Estimates of National Immunization Coverage (WUENIC)
MCV1 1st dose of measles-containing vaccine	
Hib3 3rd dose of <i>Haemophilus influenzae</i> type b (Hib) vaccine	
PCV3 3rd dose of pneumococcal conjugate vaccine (PCV)	
RotaC Final dose of rotavirus vaccine (complete course)	
TREAT	
Pneumonia care-seeking Percentage of children under age 5 with symptoms of acute respiratory infection (ARI) taken to a health care provider	UNICEF’s global database, Pneumonia data: Child health coverage
Antibiotics Percentage of children under age 5 with symptoms of ARI who received antibiotics	USAID Demographic and Health Survey (DHS), UNICEF Multiple Indicator Cluster Surveys (MICS), or equivalent
ORS Percentage of children under age 5 with diarrhea who received oral rehydration salts (ORS packets or pre-packaged ORS fluids)	UNICEF’s global database, Diarrhea data: Child health coverage
Zinc Percentage of children under age 5 with diarrhea who received zinc supplements	

indicators. These scores can be used to track country progress towards achieving GAPPD coverage targets for this selection of proven pneumonia and diarrhea interventions.

LIMITATIONS

Data availability

Not all indicators are available for each country for each year. While the data for some indicators are updated annually, as with the WUENIC immunization coverage, other data sources may only be updated once every few years when new national surveys are published. In cases where a country has no available data for a particular indicator, that indicator is recorded as either “missing” or “0% coverage,” depending on the indicator.

While actual changes in the availability and provision of these key interventions may have occurred in a given year, estimates reflecting these changes may not yet be recorded or available. In the event that new data are not collected, the last reported data point within the last 10 years is used for calculations. Thus, GAPPD scores for countries where more data are available may better reflect trends toward GAPPD targets. This limitation underscores the importance of regularly collected, high-quality data that enables accurate monitoring of key GAPPD interventions. *Table of data availability by year in an appendix on page 18.*

Antibiotics

Some experts have raised concerns about the validity of antibiotics for suspected pneumonia as an indicator and recommend excluding this indicator in analyses of pneumonia treatment coverage.

More information on the “antibiotics for pneumonia treatment” indicator is available as a presentation ([video](#), [slides](#)) by Prof. Harry Campbell (Centre for Global Health Research, Usher Institute of Population Health Sciences and Informatics, University of Edinburgh) and through the [Improving Coverage Measurement \(ICM\) Collection](#). *Additional information in Appendix on page 18.*

Oxygen

The availability of oxygen is not currently a standard health system indicator, despite oxygen’s classification as an essential medicine by the WHO.

[The Every Breath Counts Coalition Indicators Working Group describe the challenges of estimating real-world oxygen access in health facilities.](#)

[Hamish Graham \(University of Melbourne\) describes steps to close the oxygen access gap.](#)

GAPPD INDICATORS

A country’s Overall GAPPD Score reflects the average of **all 10 indicators**.

- The Pneumonia Score reflects the average of **7 pneumonia-specific indicators**.
- The Diarrhea Score reflects the average of **5 diarrhea-specific indicators**.



PROTECT

Exclusively breastfed for the first 6 months ••



PREVENT

MCV1 Coverage ••
PCV3 Coverage ••
DTP3 Coverage •
Hib3 Coverage •
RotaC Coverage •



TREAT

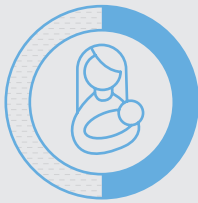
Appropriate Care Seeking •
Antibiotic Treatment •
ORS •
Zinc •

Equation

$$\left[\begin{array}{l} \text{PROTECT} \\ 50\% * 1 \\ \text{breastfeeding} \\ \text{coverage} \\ \text{target} \\ \text{indicator} \end{array} \right] + \left[\begin{array}{l} \text{PREVENT} \\ 90\% * 5 \\ \text{vaccine} \\ \text{coverage} \\ \text{target} \\ \text{indicators} \end{array} \right] + \left[\begin{array}{l} \text{TREAT} \\ 90\% * 4 \\ \text{treatment} \\ \text{coverage} \\ \text{target} \\ \text{indicators} \end{array} \right] = \begin{array}{l} \mathbf{86\%} \\ \text{Overall} \\ \text{GAPPD} \\ \text{target score} \end{array}$$

GAPPD sets forth the following coverage targets for its recommended interventions, which countries should strive to achieve:

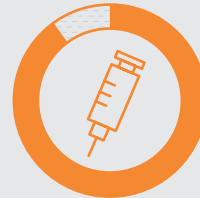
PROTECT



50%

rate of exclusive breastfeeding for the child's first six months of life

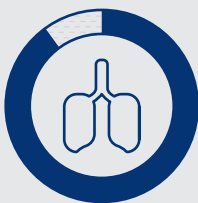
PREVENT



90%

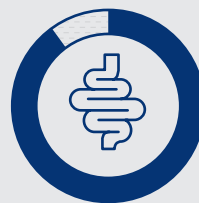
coverage for each of the following vaccines: pertussis, measles, Hib, pneumococcal conjugate, and rotavirus vaccines

TREAT



90%

treatment coverage for children with suspected pneumonia, including care by an appropriate health care provider and antibiotics



90%

treatment coverage for children with diarrhea, including treatment with ORS and zinc supplements

KEY RESULTS & FINDINGS

Each year we calculate and compare GAPPD scores to track global progress toward GAPPD targets. To do so, we use 10 key indicators. Exclusive breastfeeding **PROTECTS** children by making them healthier and less vulnerable to pneumonia and diarrhea. Vaccination against pertussis, measles, Hib, pneumococcus, and rotavirus **PREVENTS** illness and death due to these pathogens that cause pneumonia and/or diarrhea, while access to appropriate health care providers, antibiotics, ORS, and zinc can **TREAT** pneumonia and diarrhea.

GAPPD SCORES FOR THE 15 COUNTRIES WITH THE HIGHEST NUMBER OF UNDER-5 PNEUMONIA AND DIARRHEA DEATHS

Countries with most under-5 pneumonia and diarrhea deaths		Under-5 pneumonia and diarrhea burden (2017)		PROTECT	PREVENT					TREAT				2020 GAPPD Intervention Score		
				% Exclusive breastfeeding in first 6 months	Vaccine coverage (%)					% of children under 5 with suspected pneumonia		% of children under 5 with diarrhea		Overall	Pneumonia	Diarrhea
Global rank	Country	Number of deaths	Number of deaths per 1,000 live births		DTP3	MCV1	Hib3	PCV3	Rotac	Taken to an appropriate health care provider	Receiving antibiotics	Receiving ORS	Receiving zinc supplements			
				Target: 50%	Target: 90%					Target: 90%						
1	India	233,240	9.3	58*	91*	95*	91*	15	53	78	N/A	51	20	61	71	55
2	Nigeria	208,439	28.4	25	57	54	57	57	0	75	23	40	31	42	50	30
3	Pakistan	90,398	16.6	47	75	75	75	75	75	84	46	37	13	60	68	49
4	DRC	64,170	18.9	47	57	57	57	58	0	34	39	24	22	40	50	30
5	Ethiopia	44,692	13.6	59*	69	58	68	63	68	31	7	30	33	49	51	50
6	Chad	27,496	43.1	0	50	41	50	0	0	26	30	20	1	22	28	13
7	Indonesia	27,422	5.6	51*	85	88	85	3	0	92*	34	36	37	51	63	42
8	Angola	25,609	20.8	37	57	51	53	53	58	49	N/A	43	0	45	50	38
9	Tanzania	25,367	11.7	58*	89	88	89	83	85	55	61	45	18	67	75	59
10	Somalia	25,158	39.5	5	42	46	42	0	0	23	N/A	N/A	0	20	26	13
11	China	24,254	1.5	21	99*	99*	N/A†	0	0	N/A	N/A	N/A	0	36	55	30
12	Mali	21,353	27.3	40	77	70	77	74	63	71	18	21	15	53	61	42
13	Bangladesh	21,166	6.9	65*	98*	97*	98*	97*	0	46	63	72	44	68	81	56
14	Niger	20,048	19.4	23	81	79	81	81	78	59	11	41	20	55	59	48
15	Côte d'Ivoire	18,651	21	23	84	76	84	84	70	44	30	17	18	53	61	41
MEDIAN				40	77	76	75	58	53	52	30	37	18	51	59	42

*Indicates coverage was above target

N/A: Data is unavailable or not reported

Data in this table may differ from that reported in WHO, UNICEF, or national survey sources. Differences of 1-2 percentage points are often due to rounding differences across sources. Data used for this table came from the most recently available sources as of September 2020.

Detailed information about data sources available in appendix on page 18.

† China has not yet introduced Hib, rotavirus, or pneumococcal vaccines into its national immunization program (NIP); as such, WUENIC estimates indicate 0% coverage for these three vaccines. Hib and rotavirus vaccines are available through the private market. While relatively high private market coverage for Hib vaccine and low coverage for rotavirus vaccine has been reported in some settings, vaccine coverage levels are not well-documented in the private sector. In past reports, because some evidence suggests that private market Hib3 coverage may exceed 50% in some parts of China even though the vaccine has not yet been introduced into the NIP—as opposed to private market coverage for other non-NIP vaccines, for which data is either unavailable or is limited and reflects low coverage—we classified Hib3 coverage as “missing” (noted in the data tables as “private market coverage”). We have applied the same approach this year. China’s Hib3 coverage is classified as “missing,” and therefore not included in the numerator or denominator for this year’s scores.

PROGRESS SUMMARY



JUST 5 COUNTRIES

met the **50% target** for exclusive breastfeeding: Bangladesh, Ethiopia, India, Indonesia, Tanzania



0 COUNTRIES

met the **90% coverage target** for all 5 vaccines; 1 country met the 90% coverage target for 4 vaccines (Bangladesh); 1 country met the 90% coverage target for 3 vaccines (India)



ONLY 1 COUNTRY

met the **90% coverage target** for any of the four treatment indicators (Indonesia)

OVERALL GAPPD SCORES

Highest scoring countries:

Bangladesh (68%)
United Republic of Tanzania (67%)
India (61%)

Lowest scoring countries:

Somalia (20%)
Chad (22%)
China (36%)

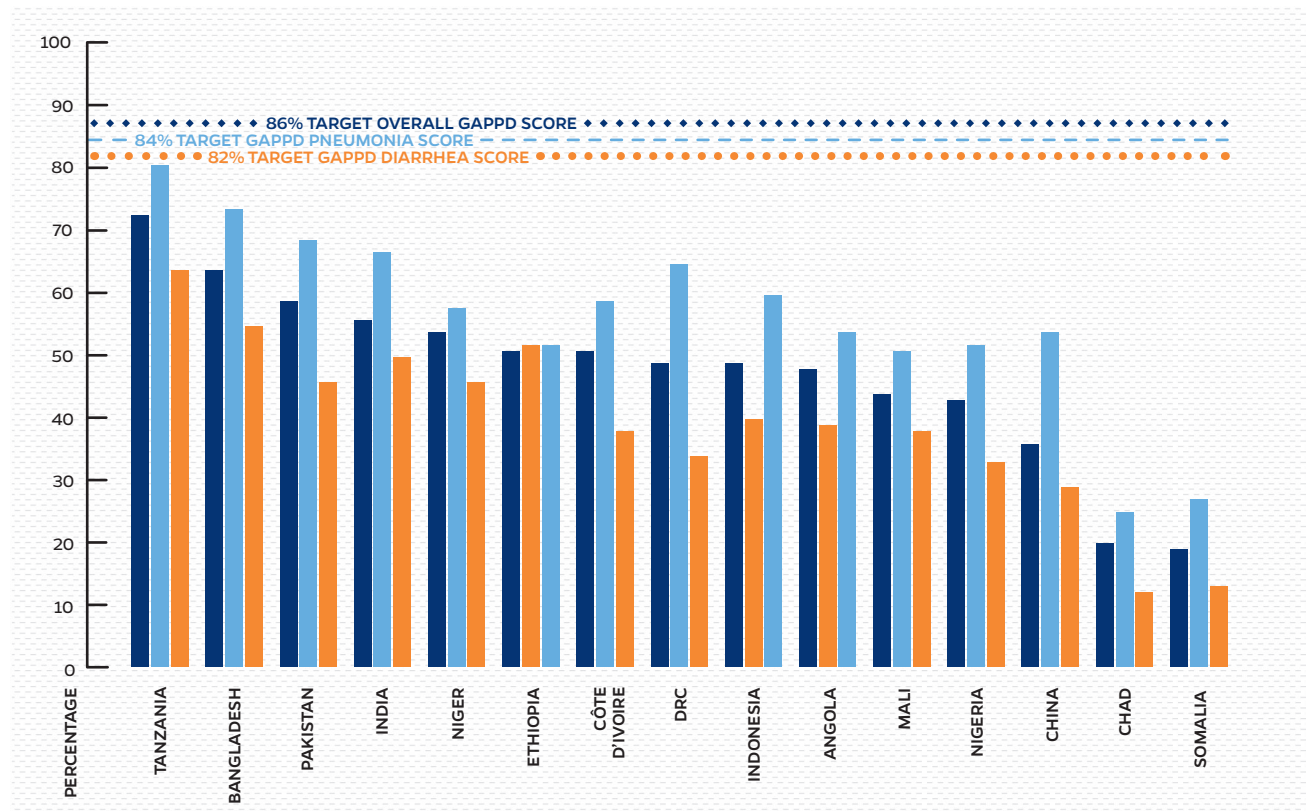
OVERALL GAPPD SCORES FOR THE 2020 REPORT RANGED FROM 20-68%

THE MEDIAN FOR OVERALL GAPPD SCORE ACROSS ALL 15 COUNTRIES WAS 51%

This was a slight increase from 49% from the 2019 Report

TOTAL GAPPD TARGET SCORES

None of the 15 high burden countries met GAPPD targets





GAPPD PNEUMONIA SCORES

Although **no countries met** the GAPPD Pneumonia score target of 84%, several countries are **very close** to reaching this target.

Highest scoring countries:

- Bangladesh (81%)
- Tanzania (75%)
- India (71%)

Lowest scoring countries:

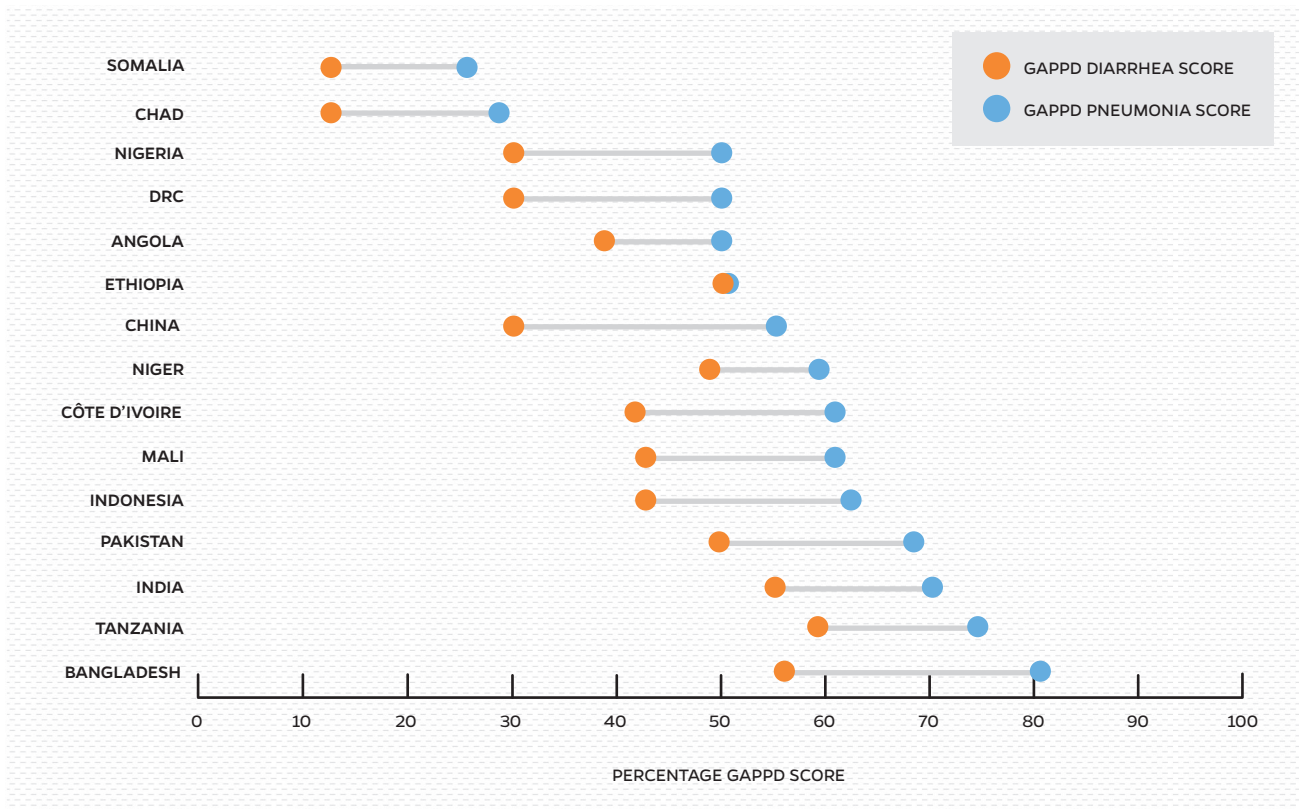
- Somalia (26%)
- Chad (28%)
- Nigeria (50%)

THE MEDIAN FOR THE GAPPD PNEUMONIA SCORE FOR ALL 15 COUNTRIES WAS **65%** NEARLY 20% BELOW THE TARGET

GAPPD PNEUMONIA SCORES FOR THE 2020 REPORT RANGED FROM **26-81%**

GAPS IN GAPPD PNEUMONIA AND DIARRHEA SCORES PERSIST

Across 14 countries, coverage for pneumonia indicators was higher than coverage for diarrhea indicators. Although 2020 saw progress on rotavirus vaccine coverage, access to zinc and ORS still lags in all 15 focus countries.



SPOTLIGHT: PCV IN INDONESIA

INDONESIA TO INTRODUCE PCV INTO ROUTINE IMMUNIZATION PROGRAM

Sowmya Kadandale, Unit Chief Health, UNICEF Indonesia

In Indonesia, pneumonia remains the leading killer of children after the newborn period. With nearly 20,000 pneumonia deaths among children each year, Indonesia ranks among the highest in the world—outranking all other Southeast Asian countries, including China.

Through Gavi's Advance Market Commitment (AMC) mechanism, Indonesia will now be able to access pneumococcal vaccines that fight childhood pneumonia for a quarter of the previous cost, allowing nationwide access to PCV vaccines.

Indonesia's approval of the PCV Advance Market Commitment is therefore vital for child health. Securing this agreement has not been easy. It has required major ministerial engagement outside the health sector and with higher levels of government. This has been an important opportunity to work across ministries and to draw

attention to the critical issues of pneumonia and child deaths while leading to longer-term savings.

Through an ambitious PCV roll-out plan, the government of Indonesia aims to reach all of the 5 million babies born in the country each year by 2024. This will have significant outcomes on child mortality in the country and overall child well-being.

The COVID-19 pandemic is already causing disruptions in the delivery of essential health services in the country, including immunization. For example, diphtheria, pertussis, and tetanus (DPT3) and measles and rubella (MR1) vaccination coverage rates were reduced by more than 35% from March to May 2020 compared to the same period in the previous year. There is further concern that fiscal and human resources are being diverted away from these vital interventions.

UNICEF will continue sustained support as the country continues to deliver immunization services and scale up PCV, taking into account any needed adjustments as COVID-19 vaccines and COVAX facility discussions progress.



On 16 September 2020, (left-right) Secretary General of the Ministry of Health Oscar Permadi, Indonesian Minister of Health Terawan Agus Putranto, UNICEF Indonesia Representative Debora Comini, Indonesian Minister of Foreign Affairs Lestari Priansari Marsudi and Indonesian Minister of State-Owned Enterprises Erick Thohir attend a signing ceremony for a Memorandum of Understanding (MoU) between UNICEF and the Indonesian government at the Ministry of Health office in Jakarta, Indonesia. The agreement with UNICEF allows the Indonesian government to purchase high-quality commodities at lower prices—including vaccines, medicines, and equipment—which would take place through the UNICEF Supply Division in Copenhagen.



GAPPD DIARRHEA SCORES

Highest scoring countries:

Tanzania (59%)
 Bangladesh (56%)
 India (55%)

Lowest scoring countries:

Chad (13%)
 Somalia (13%)
 China (30%)
 DRC (30%)
 Nigeria (30%)

GAPPD DIARRHEA SCORES FOR THE 2020 REPORT RANGED FROM **13-59%**

IN 2020, NO COUNTRIES MET THE GAPPD DIARRHEA TARGET SCORE OF 82%

As in past years, GAPPD diarrhea scores continued to lag far behind GAPPD pneumonia scores, largely due to low coverage for ORS and zinc.

THE MEDIAN FOR THE GAPPD DIARRHEA SCORE FOR ALL 15 COUNTRIES WAS ONLY **42%**

Even the highest scoring countries were 23% below the GAPPD Diarrhea target. However, 2020 did see a substantial increase in rotavirus vaccine uptake in several countries.

SPOTLIGHT: INDIA COMPLETES NATIONWIDE ROTAVIRUS INTRODUCTION

In 2019, India completed the “100-days agenda”—an unprecedented national scale-up of rotavirus vaccine across the entirety of the nation.

“Diarrhea is one of the biggest killers in children and rotavirus is one of the most common causes of severe diarrhea in children less than 2 years of age,” said Harsh Vardhan, Union Minister of Health and Family Welfare. “Rotavirus vaccine will now be given to every child across all 36 states and [Union Territories] by September, 2019. The government aims to end morbidity and mortality in children due to diarrhea by 2022.”

Three doses of rotavirus vaccine will be provided to India's birth cohort of 26 million children each year, preventing millions of cases of life-threatening diarrhea.



The phased expansion of rotavirus vaccine in India has been praised as “an excellent example of how government stewardship with well-defined roles for development partners can allow a new vaccine introduction to be used as a system strengthening activity².”

SPOTLIGHT: ORS AND ZINC

PROGRESS IN THE USE OF ORS & ZINC FOR THE TREATMENT OF CHILDHOOD DIARRHEA

**Robert E. Black, MD, MPH, Professor,
Department of International Health, Johns
Hopkins Bloomberg School of Public Health**

As a landmark decision in the prevention and treatment of childhood diarrhea deaths, the WHO added co-packaged ORS and zinc to both the Model List of Essential Medicines for Children (EMLc) and the WHO's Model List of Essential Medicines (EML) in July of 2019.

Recent efforts to promote use of ORS and zinc for diarrhea treatment in some countries have shown that substantial progress is possible and may provide important lessons for other countries.

From 2012 to 2016, the Clinton Health Access Initiative (CHAI)³ engaged with governments, health care providers, and communities to improve diarrhea treatment in Kenya, Uganda and selected high-mortality states of India and Nigeria.

In the three African countries where the CHAI activities were implemented, ORS coverage at baseline ranged from 38% to 44% but zinc use was negligible. The CHAI interventions included improving knowledge about appropriate treatment for caregivers via schools and community health workers and for providers via education and mentorship as well as drug detailing.

An important strategic activity in these countries was the change from separate ORS and zinc products to a co-packaged product, particularly in the public sector. These efforts from 2012 to 2016 contributed to combined ORS and zinc coverage levels of 30% in the eight Nigerian states, 30% in Uganda, and 15% in Kenya at the end line assessment. These coverage levels exceed those of most countries in Africa. This is likely the result of the successful implementation of the comprehensive interventions needed to scale up recommended diarrhea treatments, but especially influential in regard to zinc is co-packaging it with

ORS, quickly equalizing their use.

These evaluations illustrate that countries can improve diarrhea treatment if they address product and supply issues, provider incentives, consumer demand, and the policy environment. The question is no longer what needs to be done to increase the quality of childhood diarrhea treatment—it is when we will collectively as a global community take action on this evidence.

We know what it takes to eliminate preventable diarrhea deaths in children globally. On this 50th anniversary of the discovery of ORS, let us recommit ourselves to making this a reality.

Adapted from a 2019 editorial authored by Robert E. Black for the Journal of Global Health. Licensed under a Creative Commons Attribution 4.0 International License.⁴

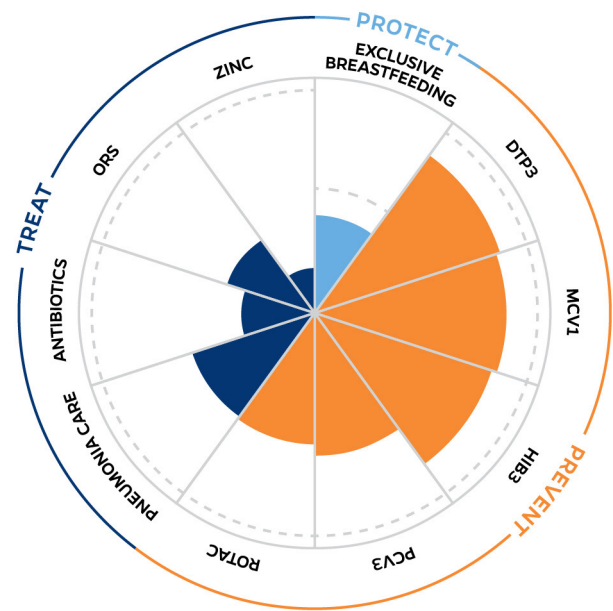


MEDIAN COVERAGE BY INDICATOR: PROGRESS TOWARDS GAPPD TARGETS

Median coverage of 10 GAPPD indicators across all 15 focus countries

As in past years, immunization coverage was the indicator with the highest coverage in the report. Immunization coverage is also the indicator with the most frequently updated data (WUENIC estimates are updated each year while many of the other indicators may not be updated for five years or even longer). Treatment coverage indicators, particularly for zinc, lagged behind other indicators.

**Dashed lines indicated target coverage levels for each indicator (50% for exclusive breastfeeding and 90% for all other indicators)*



PROGRESS IN OVERALL GAPPD SCORE

From 2018 to 2019, five countries saw overall GAPPD score changes of more than one percentage point.

BANGLADESH: Bangladesh experienced a four percentage point increase in Overall GAPPD score. New data from the 2019 MICS reflects improvements in coverage in breastfeeding (an increase from 55% to 65%) and antibiotic treatment for pneumonia (34% to 63%).

INDIA: India experienced a four percentage point increase in Overall GAPPD score. Continued successful national rollouts of rotavirus (increase from 35% to 53%) and pneumococcal conjugate vaccines (increase from 6% to 15%) led to substantial gains in immunization coverage. India's GAPPD Pneumonia score increased by 3 percentage points and the GAPPD Diarrhea score increased by 5 percentage points.

MALI: Largely driven by improvements in treatment indicators, the Overall GAPPD score for Mali increased by six percentage points, from 47% to 53%. Although this score is still well short of the GAPPD target of 86%, progress in pneumonia careseeking (23% to 71%) and treatment with zinc (9% to 15%) contributed to increases in GAPPD Pneumonia and Diarrhea scores. The GAPPD Pneumonia score increased by 7 percentage points and the GAPPD Diarrhea score increased by 2 percentage points.

NIGER: Modest gains across immunization coverage for four vaccines and a 10 percentage point increase in zinc treatment led to a 2 percentage point improvement in Overall GAPPD score.

PAKISTAN: Large gains in rotavirus vaccine coverage (58% to 75%) fueled a four percentage point increase in GAPPD Diarrhea score and a two percentage point increase in Overall GAPPD (58% - 60%).

SPOTLIGHT: OXYGEN

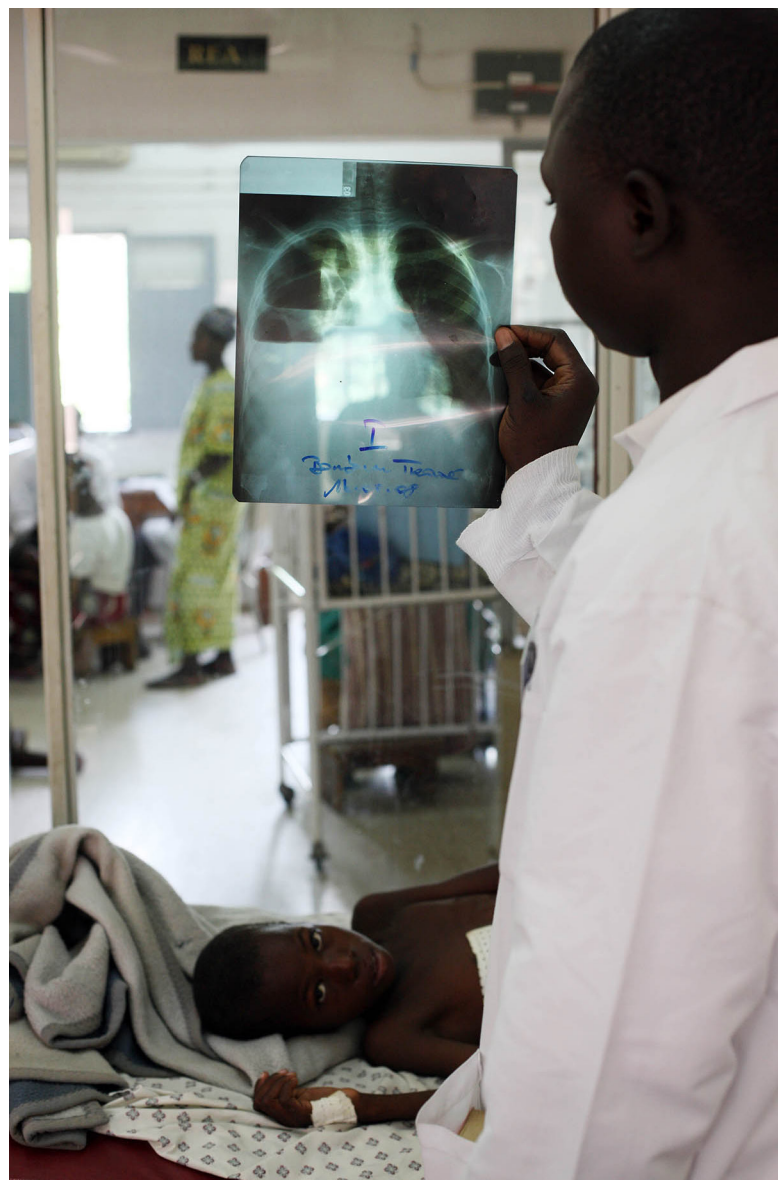


INCREASING ACCESS TO MEDICAL OXYGEN WITH EVERY BREATH COUNTS

As COVID-19 spreads in low- and middle-income countries (LMICs), a lack of oxygen is leaving patients gasping for breath. But a lack of access to medical oxygen has always been a factor in the high number of deaths from pneumonia among both children and adults in LMICs. Despite the WHO listing medical oxygen as an “essential medicine”⁵, the majority of hospitals in LMICs do not have reliable supplies of medical oxygen⁶.

Prior to COVID-19, children paid a heavy price for the lack of oxygen. For example, studies have found that just one in five children hospitalized with pneumonia actually receive the oxygen they need⁷, and estimated that closing these oxygen gaps could prevent more than 148,000 child pneumonia deaths each year⁸. Lack of oxygen has also contributed to deaths in childbirth, as well as from communicable and non-communicable diseases and injuries that require surgery, all areas targeted by the Sustainable Development Goals (SDGs)⁹.

The rapid spread of COVID-19 in LMICs has made these problems worse, with lack of access to oxygen now contributing to many more deaths from coronavirus, mainly among adults. About 20% of COVID-19 patients need up to 10 to 20 liters of oxygen per minute, according to the WHO, which is two to six times the oxygen needs of an average non-COVID-19 ICU patient. The WHO Director-General¹⁰ has warned of a global medical oxygen shortage and said, “even as we search for a vaccine and medicines, we have an urgent responsibility to do everything we can with the tools we have now to save lives.” A great many lives are at stake, especially in the 37 LMICs now struggling with more than 17 million confirmed COVID-19 infections and 430,000 deaths, and 530,000 child pneumonia deaths.



To help LMICs meet this rising need for medical oxygen, the WHO, UNICEF, the World Bank and others are providing pulse oximeters, oxygen concentrators, CPAP/BiPAP machines, ventilators, and the other respiratory care items in the WHO COVID-19 disease commodity package. But much more needs to be done.

In an Open Letter¹¹ to global health leaders, the Every Breath Counts Coalition has called for the Access to COVID-19 Tools (ACT) Accelerator to invest in the production, distribution, installation and maintenance of affordable, quality medical oxygen designed to meet the needs of public



“Limited access to medical oxygen puts lives at risk. As hospitals face an influx of COVID-19 patients, it’s never been more important to implement more sustainable and resilient oxygen infrastructure around the world.”

**KEITH KLUGMAN, MD, PHD,
DIRECTOR FOR PNEUMONIA,
BILL & MELINDA GATES
FOUNDATION**

health systems in low-resource settings, and train health care staff to operate the equipment safely. Governments, companies, and global health agencies must all work together to close these gaps and measure their progress. Currently, no government, company, or global health agency routinely measures access to medical oxygen and its impact on lives saved! Coalition members have released a Call to Action¹² to include pulse oximetry and oxygen coverage among health indicators routinely measured by official surveys.

Studies have found that just one in five children hospitalized with pneumonia actually receive the oxygen they need. It's estimated that closing these oxygen gaps could prevent more than 148,000 child pneumonia deaths each year.

COVID-19 is a wake-up call to governments, companies, and the global health community that access to medical oxygen is a critical service all health systems must provide, not just during respiratory pandemics but for the achievement of most of the health SDGs and especially for the reduction in child pneumonia deaths that is so critical to child survival. While the world waits for new vaccines and medicines that can prevent and treat COVID-19, increasing access to medical oxygen will not only keep sick COVID-19 patients alive, but will reduce child and adult mortality from pneumonia and many other causes accelerating achievement of the SDGs.

The Every Breath Counts Coalition is a public-private partnership including 46 organizations representing UN and multilateral health agencies, donor governments and foundations, companies, NGOs and academic institutions working together to help low and middle-income countries reduce pneumonia deaths, including from COVID-19.

CONCLUSIONS & RECOMMENDATIONS

Impacts of COVID-19 Pandemic Disruptions to Health Systems



DISRUPTION OF ESSENTIAL HEALTH SERVICES

A WHO global pulse survey of more than 100 countries conducted between May and July 2020 found that 90% of countries reported disruptions to 25 essential health services since the start of the COVID-19 pandemic. Low- and middle-income countries reported the greatest difficulties with disruptions to health services.¹³



LOSING GROUND

In a June 2020 survey conducted by UNICEF, WHO, Gavi, and the Sabin Vaccine Institute, half of respondents mentioned parents' reluctance to visit vaccination centers due to fear of exposure to COVID-19. Additional challenges for parents and health workers included limited public transportation, lockdown measures, and lack of personal protective equipment. These service disruptions could affect approximately 80 million children under one year of age living across 68 countries.¹⁴



ROUTINE IMMUNIZATION OUTWEIGHS RISK OF COVID-19

A recent analysis in 54 African countries found that the benefits of continuing routine childhood vaccination services outweighs the risk of being infected with COVID-19 during the vaccination visit. Using a model, researchers predicted that 84 under-5 child deaths could be prevented through continuing routine vaccinations for every additional COVID-19 death associated with exposure to the virus during routine clinic visits.¹⁵



A HALT IN SDG PROGRESS

Released in September 2020, the Bill & Melinda Gates Foundation's Goalkeepers Report found that vaccine coverage is already dropping to levels seen decades ago, "setting the world back about 25 years in 25 weeks." The report points to continued efforts to make PCV more affordable and strengthening health system resources like treatment with oxygen as innovations that can continue progress on fighting child mortality.¹⁶

The year 2020 is unlike any other year of the Pneumonia and Diarrhea Progress Report: Progress against these deadly, yet preventable diseases is under threat. Across the globe, the impacts of the COVID-19 pandemic are influencing child health in a myriad of ways, ranging from country-wide lockdowns that have delayed routine immunizations to catastrophic impacts of economic instability and pressures on already fragile health care systems.



Investments in these proven prevention, treatment, and protection interventions have dramatically reduced child mortality, but **with over 1 million young children still dying of pneumonia and diarrhea every year, we cannot allow this progress to stall out or backslide.** Preliminary reporting is already showing that the global pandemic is having unprecedented impacts on access to routine health services, especially children's access to routine immunization.

High-burden countries continue to fall short of GAPPD targets. In the 2019 report, we wrote that “progress continues slowly” and warned of the dire need to invest in critical infrastructure and policy commitment to avoid stagnation or backsliding in coming years. The window to act was already urgent in 2019, but in the coming year we simply cannot afford to accept the loss of decades of progress in reducing childhood mortality.

RECOMMENDATIONS FOR MAINTAINING PROGRESS

- Deaths due to pneumonia and diarrhea among young children continue to be disproportionately concentrated in a subset of countries. **We must continue to work with key stakeholders in these vulnerable settings** to advance country-level and regional progress to reduce this unacceptably high burden of preventable child mortality.
- National programs to roll-out life-saving immunizations, such as rotavirus vaccine in India, represent notable achievements. This progress in vaccine introduction is significant to not only reduce morbidity and mortality but also to **leverage immunization as a key health system strengthening activity.**
- Collecting high-quality data to reliably track progress remains an essential stepping-stone to monitor national and global gains. **Further efforts will be needed to explore important subnational disparities** so that efforts can be efficiently targeted to reach communities which are suffering the most due to prevailing health inequities.
- **Ensuring universal access and availability of oxygen and pulse oximetry** as effective treatments is a goal which remains beyond the reach of those providing care in low-resource settings. Improvements in availability, frequency, and completeness of data reporting on oxygen should be considered a priority to underscore the central role of this essential, life-saving treatment in the future.

APPENDIX

YEAR OF LATEST AVAILABLE COVERAGE DATA BY COUNTRY AND INDICATOR

Country	PROTECT	PREVENT					TREAT			
	% Exclusive breastfeeding in first 6 months	Immunization Coverage					% of children under 5 with suspected pneumonia		% of children under 5 with diarrhea	
		DTP3	MCV1	Hib3	PCV3	RotaC	Taken to an appropriate health care provider	Receiving antibiotics	Receiving ORS	Receiving zinc supplements
Angola	2015-16 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2015-16 ¹	N/A ³	2015-16 ¹	N/A ¹
Bangladesh	2017-18 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2019 ¹	MICS 2019 ⁴	2019 ¹	2019 ¹
Chad	2014-15 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2014-15 ¹	MICS 2010 ⁵	2014-15 ¹	2014-15 ¹
China	2013 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	N/A	N/A	N/A	N/A
Côte d'Ivoire	2016 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2016 ¹	MICS 2016 ⁶	2016 ¹	2016 ¹
DRC	2013-14 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2018 ¹	MICS 2018 ⁷	2018 ¹	2018 ¹
Ethiopia	2019 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2016 ¹	DHS 2011 ⁸	2016 ¹	2016 ¹
India	2017-18 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2015-16 ¹	N/A	2015-16 ¹	2015-16 ¹
Indonesia	2017 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2017 ¹	DHS 2017 ⁹	2017 ¹	2017 ¹
Mali	2018 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2018 ¹	MICS 2015 ¹⁰	2018 ¹	2018 ¹
Niger	2012 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2015 ¹	DHS 2012 ¹¹	2015 ¹	2015 ¹
Nigeria	2018 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2018 ¹	MICS 2016-17 ¹²	2018 ¹	2018 ¹
Pakistan	2017-18 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2017-18 ¹	DHS 2017-18 ¹³	2017-18 ¹	2017-18 ¹
Somalia	2009 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2020 ¹	N/A	2006 ¹	N/A
Tanzania	2015-16 ¹	2019 ²	2019 ²	2019 ²	2019 ²	2019 ²	2015-16 ¹	DHS 2015-16 ¹⁴	2015-16 ¹	2015-16 ¹

Appendix References on Page 19

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2. WHO/UNICEF. (July 2020). WHO-UNICEF Estimates of National Immunization Coverage (WUENIC), 1980-2019
- 3-14. USAID Demographic and Health Survey (DHS), UNICEF Multiple Indicator Cluster Surveys (MICS), or equivalent

Indicator validity of antibiotic treatment for pneumonia

Concerns have been raised by global health experts about the validity of "antibiotic treatment for pneumonia" as an indicator historically used to track population-based intervention coverage. Validation studies recently conducted in Bangladesh, Pakistan, and Nigeria found that the sensitivity and specificity of estimates may vary widely and relying on this standard approach to calculate this indicator from data collected through household surveys may be flawed.

Efforts to measure effective coverage of pneumonia treatment should ideally move toward estimation based upon linked datasets. Data about care-seeking coverage from household surveys can be linked to quality of care data collected in health provider surveys. Adopting this approach would mitigate risks associated with advocating for inappropriately elevated targets which could lead to substantial over-treatment and the emergence of antibiotic resistance. Implementing this recommended strategy for tracking pneumonia treatment, unfortunately, requires the availability of recent data from both household and health provider surveys which may not be feasible in the immediate future although the collection of high-quality data is a recognized priority and long-term goal to advance child health in these vulnerable settings.

ACRONYMNS & REFERENCES

- DHS** — Demographic & Health Survey
- DRC** — Democratic Republic of Congo
- DTP** — Diphtheria-tetanus-pertussis vaccine
- GAPPD** — The Integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhea
- Hib** — *Haemophilus influenzae* type B
- IVAC** — International Vaccine Access Center
- LMIC** — Low- and middle-income countries
- MCEE** — WHO Maternal and Child Epidemiology Estimation Group
- MCV** — Measles-containing vaccine
- MICS** — Multiple Indicator Cluster Survey
- NIP** — National Immunization Program
- NFHS** — National Family Health Survey
- ORS** — Oral rehydration salts
- PCV** — Pneumococcal conjugate vaccine
- RotaC** — Rotavirus vaccine final dose
- UNICEF** — United Nations International Children's Emergency Fund
- WHO** — World Health Organization
- WUENIC** — WHO/UNICEF Estimates of National Immunization Coverage

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MORE RESOURCES



VIEW-Hub (Vaccine Information and Epidemiology Window):
<http://view-hub.org/viz/>



VoICE (The Value of Immunization Compendium of Evidence):
<https://immunizationevidence.org/>



Rotavirus Organization of Technical Allies
<http://preventrotavirus.org>

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