LEAVING NO ONE BEHIND

ALL CHILDREN IMMUNIZED AND HEALTHY

unicef
for every child

JUNE 2019

Why does universal coverage of vaccines matter?

Childhood vaccinations save lives. Prior to the introduction of vaccines, millions of children died or suffered long-term disabilities from diseases such as diphtheria, measles, polio, tetanus, meningitis and pertussis. Most of these diseases are highly contagious, spreading quickly through populations, with often devastating consequences. Immunization programmes benefit each vaccinated child and halt the transmission of diseases to others. When a high proportion of the population living in a community is immunized, the ability of pathogens to reproduce is disrupted and 'herd' or 'social' immunity develops. Herd immunity protects members of the community who are unable to be vaccinated, such as newborns and individuals with compromised immune systems. Drops in vaccination coverage under the threshold needed for herd immunity leaves populations vulnerable to disease outbreaks and epidemics.[1] The wave of measles outbreaks making news headlines this year in many countries including the United States is the result of such dips in coverage in specific population groups and local areas.

Immunization prevents between 2 and 3 million deaths every year.[2] Safe and effective vaccines are widely available, often free of cost to families through routine immunization services. However, in 2017, an estimated 19.9 million infants missed out on vaccines such as three doses of DTP vaccine.[3] Most of these children live in conflict-affected or insecure communities, among the urban poor or in remote rural areas, with little to no access to immunization services. It is every child's right to be fully vaccinated, yet the world is falling short on delivering on this promise.

The remarkable increase in vaccination coverage levels around the world over the past three decades is a success story to be celebrated. It is a story of what can be achieved through strong political commitment and leadership, adequate and reliable financing that enables countries to plan long term, and efficient coordination between country governments and development partners. Yet the stagnation of around 85 per cent coverage globally and uneven progress across countries – with some countries such as Syria experiencing precipitous declines, and others, such as India, showing improvements – is an alarm bell that must be answered by us all, both swiftly and collectively.[4]

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1 The threshold required for herd immunity varies for each pathogen, but hovers around 80 per cent to 90 per cent population coverage for most.
Herd Immunity: A Rough Guide. URL: http://cid.oxfordjournals.org/content/52/7/911.full
Description: This article in the Oxford Journal, Clinical Infectious Diseases, provides general information about the concept of herd immunity, as well as various threshold rates for different diseases.
For measles, the herd immunity threshold needs to be around 93 per cen to 95 per cent.
https://www.who.int/immunization/sage/meetings/2017/october/2._target_immunity_levels_FUNK.pdf.

2 WHO, "10 Facts on Immunization", March 2018. https://www.who.int/features/factfiles/immunization/en/.

3 WHO, Immunization Coverage Fact Sheet, July 2018. https://www.who.int/en/news-room/fact-sheets/detail/immunization-coverage.

4 WHO/UNICEF estimates of national immunization coverage, 2017 revision. https://data.unicef.org/topic/child-health/immunization/.

Threats to progress:
Inequities and new challenges on the horizon

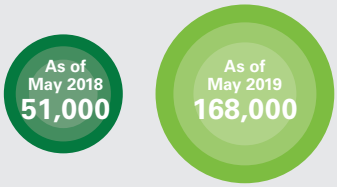
The global success story of immunization masks stark and pervasive inequities in coverage within and across country borders. Although we are making progress in lifting children and their families out of poverty, the poorest and most vulnerable children are still not being reached with immunization services, perpetuating intergenerational cycles of disadvantage. There are also emerging threats to sustaining high vaccination coverage rates in many countries, including reduced risk perception among parents, complacency of governments and donors, and challenges associated with the proliferation of misinformation online. The great achievements in immunization have resulted in a loss of historical memory of wide-scale epidemics. As the impact of infectious diseases becomes less visible in communities, it has become easy to forget the need to stay vigilant to avoid a return to the past, when child death and disability due to vaccine-preventable diseases were common.

Other challenges to immunization programmes are conflicts that both disrupt health-care systems and result in the displacement of children, and demographic changes that make it difficult for countries to anticipate and plan for service needs. These changes include migration within and across country borders, travel for work and tourism, and fertility patterns. Climate change is a future threat if the resiliency of health systems to shocks from natural disasters is not addressed today.

In low- and middle-income countries, pockets of children go unvaccinated mainly because of problems with service availability, including insufficient human resources and a lack of pro-poor policies or effective strategies to ensure universal access. We know how to help countries address these kinds of system-related bottlenecks and the resources required. But in some countries, despite the availability of vaccines, different challenges persist. One emerging and pernicious threat to vaccine coverage is the amplification of misinformation regarding vaccines and immunization programmes through social media, which anti-vaccine groups have effectively exploited in many contexts. These activities are creating confusion and stoking fears among parents, potentially undermining progress in reaching all children with the recommended schedule of childhood vaccines.

The resurgence of measles in countries where the disease had been eliminated and the frequency of reports from many countries on other outbreaks of vaccine preventable diseases is alarming. The total number of measles cases reported by May 2019 (168,000 cases) is more than three times the number reported by this date in 2018 (51,000 cases).[5] The two continents with the highest number of reported measles cases as of May 2019 are Africa and Europe. Between April 2018 and March 2019, the top 10 countries with the highest number of reported cases were Madagascar, Ukraine, India, Pakistan, Philippines, Yemen, Nigeria, Brazil, Thailand and Kazakhstan. In response to this crisis, UNICEF has ramped up its efforts to support government immunization programmes and circulate accurate information on vaccines via social media and other communication platforms. The World Health Organization (WHO) has declared vaccine hesitancy – the reluctance or refusal to vaccinate despite the availability of vaccines – to be among the 10 threats to public health.

The total number of measles cases reported



Between April 2018 and March 2019, the top 10 countries with the highest number of measles cases reported:

Madagascar **India** **Philippines** **Nigeria** **Thailand**
Ukraine **Pakistan** **Yemen** **Brazil** **Kazakhstan**

But, what are the reasons for parental reluctance to vaccinate their children? How can we best address their concerns and partner with digital platforms, social media giants and others to: 1) stem the tide of harmful misinformation about vaccines, and 2) promote user-friendly, evidence-based messages about vaccine safety and efficacy? And what will it take for us to improve the quality and reach of vaccination programmes to strengthen trust, equity and parental willingness to protect their children with safe and effective vaccines?

[5] **Source**: WHO, Global Measles and Rubella Update, May 2019. https://www.who.int/immunization/monitoring_surveillance/burden/vpd/surveillance_type/active/measles_monthlydata/en/.
Note: Provisional data based on monthly data reported to WHO (Geneva) as of May 2019. WHO estimates that less than 1 in 10 cases are reported globally, with variations by region.

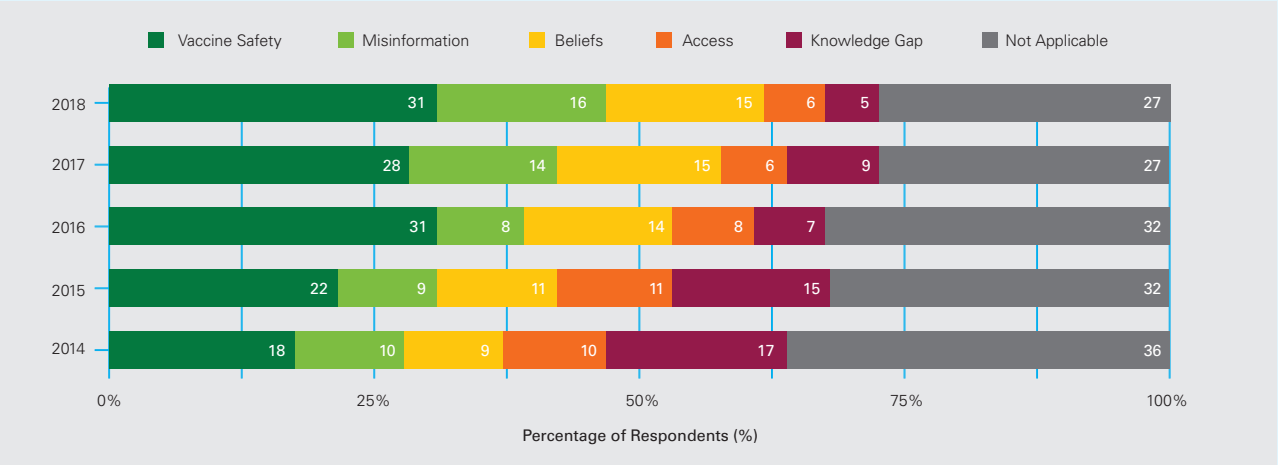
Trends in the causes of vaccine hesitancy: Reports from countries

WHO and UNICEF collect a range of information on vaccines annually from 194 countries through the Joint Reporting Form (JRF). This form has included a set of open-ended questions on vaccine hesitancy since 2014. We organized country responses on the first reason provided on the JRF for vaccine hesitancy into seven response types: Access (e.g., parents are working or are engaged in other tasks and cannot take children for vaccination), beliefs (e.g., personal, religious, local norms), knowledge gap (e.g., lack of information about vaccines), misinformation (e.g., distrust of vaccines due to anti-vaccine lobby groups), vaccine safety (e.g., fear of adverse reactions), no hesitancy/not applicable, and no response provided.[6]

The number of countries by UNICEF region and by World Bank income classification that responded to the JRF questions on vaccine hesitancy indicates that a representative number of countries for each region and income classification responded in all five years. The non-response rate did not differ systematically by region or income categorization. It is important to note that each year only around 30 per cent of countries referenced documented evidence in support of their response.

The trend data from 2014 to 2018 (Figure 1; Table 1) show that the first reason reported by countries for vaccine hesitancy was consistently vaccine safety. The good news is that knowledge gaps and access issues both decreased over time as reasons for vaccine reluctance. But, the percentage of countries reporting beliefs and misinformation as the first source of vaccine hesitancy increased slightly. These patterns were generally the same across regions and country income classification.

Figure 1. First reason for hesitancy to accept vaccines as a percentage of total responses, by UNICEF response type and year, 2014 – 2018



Note: Not Applicable includes: NA responses; no hesitancy reported; and non-response.
Source: UNICEF analysis of WHO/UNICEF Joint Reporting Form, May 2019; 2018 data are provisional.

Table 1. Number of country responses citing a first reason for hesitancy to accept vaccines, by UNICEF reponse type and year, 2014 – 2018

Response type	2014	2015	2016	2017	2018
Access	19	21	15	12	11
Beliefs*	18	22	27	30	29
Knowledge Gap	33	29	13	17	10
Misinformation	20	18	16	27	31
Vaccine Safety	34	42	60	55	60
No Hesitancy	13	15	15	9	10
Not Applicable	13	10	13	10	7
Not Provided	44	37	35	34	36
Total	194	194	194	194	194

* Personal, local, religious.
Source: UNICEF analysis of WHO/UNICEF Joint Reporting Form, May 2019; 2018 data are provisional.

[6] Detailed information on the methodology used for the analysis of the WHO/UNICEF Joint Reporting Form is available upon request.

Panel 1 presents the example of the Philippines, a country facing a combination of problems in the delivery of its immunization programme, as well as mistrust in and misinformation about vaccinations. This confluence of factors resulted in a severe measles outbreak in 2017, with residual effects still experienced today.

The findings from the WHO/UNICEF Joint Reporting Form (JRF) and the Philippines example show the role that public confidence in the quality of immunization programmes and vaccine safety plays in achieving universal coverage of vaccines, especially in countries with a history of low public trust in health services. The global health community needs to work together to understand the underlying reasons for vaccine hesitancy in specific contexts and to track how public perceptions change over time so that locally appropriate responses can be implemented. Proactive steps are also required to promote broad-based public trust and support for immunization programmes. One such step involves working with civil society and professional associations, training journalists, and partnering with influencers such as traditional and religious leaders to promote basic public health literacy and to foster resilience to misinformation. Another step is tracking misinformation about vaccines and ensuring that governments are equipped to manage the communications response to vaccine-related events (e.g., the dengue situation in the Philippines). Achieving this step will require improving country reporting mechanisms on public perceptions of health services and vaccines, and should be a task undertaken jointly by WHO and UNICEF in partnership with government and civil society.

As we collectively work on improving bottlenecks to vaccine service delivery, parallel efforts are needed to promote public demand for basic health and vaccination services and to counter the proliferation of misinformation about vaccines. Recent outbreaks of vaccine-preventable diseases are a warning call that new tactics are required to rise to the challenges of the twenty-first century, and that urgent action is needed before disease outbreaks become a routine occurrence rather than a scourge of the past.

Panel 1. The Philippines: Addressing supply and demand-side challenges to immunization

The Philippines launched its Expanded Immunization Program (EPI) with UNICEF support in 1976. Thirty-five years later, the country passed the Republic Act No. 10152, known as the, "Mandatory Infants and Children Health Immunization Act of 2011". This act mandated the State to adopt a comprehensive, mandatory and sustainable immunization programme for vaccine-preventable diseases, and reflected strong political commitment to the EPI. The act includes a proviso that vaccines be available for free at any government hospital or health centre to improve equitable access.

Although the act was passed with lofty intentions, the immunization programme was hampered by problems such as supply shortages, logistical challenges with vaccine distribution due to the country's thousands of islands, decentralization of the health system and weak governance. These problems were exacerbated by the dengue vaccine crisis. The dengue vaccine was introduced in the country's immunization programme in 2016 in selected regions but was suspended in the last quarter of 2017 following safety concerns. A consequence of the dengue debacle was a huge upswing of anti-vaccination activity, waning confidence in vaccines, and a consequent reluctance among parents to vaccinate their children (Figure 2). These trends precipitated a decline in immunization coverage, triggering a severe measles outbreak in 2017. Refusals during the measles immunization campaign in 2018 prolonged the measles outbreak until early 2019. The measles epidemic is now considered controlled and the country has experienced 30 per cent fewer cases (300) as of May this year in comparison to the same time period in 2018 (429 cases).

Figure 2. Dramatic drop in vaccine confidence in the Philippines following the dengue vaccine scare

The Philippines experience is illustrative of how supply and demand-side factors combine to drive the success or failure of immunization programmes. To address these factors, the Philippines must couple investments in strengthening the immunization programme with wide reaching communication strategies on vaccine benefits.

In addition to helping the Philippines strengthen the logistical aspects of its immunization programme, UNICEF is working with the country to increase demand for vaccines. UNICEF is running a social media campaign called Community for Immunity to encourage parents to vaccinate their children and to share accurate information on measles. As of 13 June