IMMUNIZATION
Keeping Children Alive and Healthy
For over 40 years, UNICEF and the World Health Organization (WHO) have helped lead the global drive to bring vaccines to the world’s most vulnerable children, defending their rights to survive and to be healthy.

Immunization is one of the most powerful tools to end preventable child deaths, saving up to 3 million children a year. Today, four out of five children around the world are vaccinated against deadly diseases, compared to only one out of five just over 30 years ago.

But our work is not done. Nearly one in five infants don’t receive the life-saving benefits of vaccines and remain exposed to a far higher risk of death and disability. An estimated 1.5 million unvaccinated children die each year from vaccine preventable diseases.

Immunization is a critical, unfinished agenda in child health. All children have the right to survive and thrive. Immunization also makes economic sense. Scaling up vaccines in 73 of the poorest countries by 2020 could save not only 6.4 million lives but also $6.2 billion in treatment costs and $145 billion in productivity losses.

Around the world, UNICEF and its partners – WHO; Gavi, the Vaccine Alliance; the US Centers for Disease Control; the Bill & Melinda Gates Foundation; and others including numerous non-governmental organizations – jointly act to ensure that vaccines protect all children, especially those hardest to reach and most in need. Furthermore, UNICEF along with its partners are fully engaged and support the goals outlined in the Global Vaccine Action Plan, which cannot be achieved without reaching more children and bringing new vaccines.

Historic achievement

The number of children under five years old dying every year has fallen from 12.7 million in 1990 to 6.3 million today. Immunization in large part drove this historic achievement.

Smallpox has been eradicated. Polio is close to being eradicated. Vaccines for measles, diphtheria, tetanus and pertussis save around 2.5 million lives each year. Since 2000, measles deaths have declined by 75 per cent. Deaths from maternal and neonatal tetanus have plunged 90 per cent over the past two decades.

New vaccines provide advanced weapons in the fight against certain types of pneumonia and diarrhoea – the two leading killers of children.

Millions saved from measles

The measles vaccine has changed the course of global public health. Before 1963, most children around the world caught measles by their 15th birthday. Each year saw an estimated 100 million cases and over 2 million deaths.

By 2000, nearly four decades of steadily increasing use of the measles vaccine meant the number of deaths had fallen dramatically, to just over half a million annually. The second dose of the measles vaccine is part of routine immunization schedules in 148 countries. Since 2000, an estimated 15.6 million child deaths have been averted through measles immunization. In 2002, the Pan American Health Organization (PAHO) declared that measles was eliminated from the Americas region.

Figure 1: Measles global estimated annual deaths and MCV1 coverage*, 1985-2013

Shishita, 10 months old, is brought to an immunization centre by her mother Shuma Rani in Palpara, Tangail
Polio almost eradicated

In 1988, more than 125 countries were affected by polio with a global estimate of 350,000 cases, many of whom were crippled for life. In the last two decades, governments and national authorities, UNICEF and the World Health Organization, the US Centers for Disease Control and Prevention, Rotary International and the Bill & Melinda Gates Foundation and many other partners have led a major push for vaccination that has reduced the number of cases by more than 99% and reduced the number of countries where polio is still endemic to just three: Afghanistan, Nigeria and Pakistan (2014 data). Despite the tremendous progress, it is critical to keep the momentum going and to continue efforts to reach every last child with the polio vaccine until the disease is eradicated.

Steady progress on eliminating maternal and neonatal tetanus

Maternal and neonatal tetanus was eliminated in much of the developed world, mainly by improving hygiene during deliveries. It is declining sharply in developing countries through immunization. More than 128 million women of reproductive age in at-risk countries have received two doses of tetanus toxoid vaccine since 2000 using a campaign style approach.

In 1999, maternal and neonatal tetanus was a major public health problem in 57 countries, which increased to 59 with the independence of Timor Leste and South Sudan. By July 2014, 35 of these had eliminated the disease and another four were close. In 2013, approximately 82 per cent of newborns were protected against tetanus.
Too many children still not immunized

Who are they?
Many of the 21.8 million children who missed out on vaccinations in 2013 are among the most deprived. They typically live in communities where people also lack food and clean water, live in poor housing, do not go to school and cannot access even basic health care.

Where do they live?
Gaps in immunization affect children in rural and urban areas and in low and middle-income countries. Over 70 per cent of children under 1 year of age worldwide who had not received the three recommended doses of vaccine against diphtheria, tetanus and pertussis containing vaccine (DTP3), live in Africa and Asia. More than a third live in India alone.

Why do they miss out?
Children who don’t get vaccinated may live in hard-to-reach communities or in slums. They may be marginalised by poverty or cut off by conflict from access to services. Weak health-care systems fail to reach children due to insufficient funds, limited human resources or the inability to operate in certain areas. Without access to a health worker or vaccine, a child will not be immunized.

Immunizing every child: equity matters.
In everything that UNICEF does, the children and countries in greatest need have priority. UNICEF focuses intensive efforts on countries with the largest inequities in immunization coverage so that even the most disadvantaged and marginalised can benefit from the life-saving power of vaccines.

Using the recently developed Reaching Every Community strategy, UNICEF helps countries to focus on immunization activities and prioritise resources on the most vulnerable and excluded communities so that all children are protected from vaccine-preventable diseases, regardless of where they live.

The strategy helps health care workers identify children who are not fully immunized and create detailed plans for reaching the most excluded communities with life-saving vaccines. Reaching Every Community also introduces new technologies and other innovative solutions to protect children that the health system has not yet reached. Thanks to this strategy, the immunization status of children from disadvantaged communities is regularly monitored to make sure that they are protected from serious – and potentially life-threatening – diseases.

Strengthening supply chains – and health systems
From the moment a vaccine arrives in a country, its distribution affects and is affected by all aspects of the health system – from logistics to direct service delivery. Immunization can therefore be a strategic instrument to improve health systems as a whole.

Source: Adapted from http://www.who.int/immunization/monitoring_surveillance/routine/coverage/number_unvaccinated_children_year_who_regions.pdf
UNICEF invests in cold chain and supply chain infrastructure and management to improve the conditions in which vaccines and other life-saving health commodities are delivered. These investments, including the introduction of temperature monitoring systems, reduce vaccine stock-outs and enhance information systems for more accurate monitoring. UNICEF also helps in deploying the use of solar power, mobile technology and biometrics to safely get the right vaccines to the right places at the right time.

Stronger supply chains make it possible to bring a comprehensive set of safe and potent vaccines to where they are needed, and thus to help protect more children.

**Promising new vaccines**

New and underutilised vaccines are protecting more children in more countries than ever before. Support from Gavi, the Vaccine Alliance, of which UNICEF and WHO are founding partners, has helped developing countries to prevent 6 million deaths from hepatitis B, Haemophilus influenzae type b (Hib), measles, meningitis A, pneumococcal disease, rotavirus diarrhoea and yellow fever.

The introduction of the new meningococcal A conjugate vaccine in the 11 countries of the African meningitis belt has drastically reduced the occurrence of large-scale epidemics. More than 200 million people were vaccinated against the disease between 2010 and 2014.

By July 2014:

- 184 countries had rolled out the infant hepatitis B vaccine.
- 190 countries were providing the Hib vaccine.
- 109 countries were giving the pneumococcal vaccine.
- 66 countries had introduced the rotavirus vaccine.
- 72 countries were providing inactivated poliomyelitis vaccine.
- 58 countries were giving human papillomavirus vaccine.
- 139 countries had introduced the rubella vaccine.

**Figure 5: The potential of existing and future vaccines in relation to the mortality caused by infectious diseases**


Note: The area of circles is proportional to the number of deaths from the disease (based on 2008 data). Grey shaded areas are proportional to the number of deaths prevented by vaccination.

**Saving through pooled procurement**

UNICEF is the world’s largest purchaser of vaccines for children in low and middle-income countries and only buys vaccines which meet the global standards of quality, safety and efficacy established by WHO prequalification. To reduce vaccine prices, UNICEF Supply Division in Copenhagen, Denmark, pools demand from multiple countries and provides forecasts, predictable funding and innovative contracting terms. In 2013,
UNICEF’s procurement strategies generated over $184 million in savings, making the most out of every donation to immunize as many children as possible.

UNICEF - procured vaccines, including those purchased on behalf of Gavi, the Vaccine Alliance, reach more than a third of the world’s children. UNICEF also provides technical assistance to countries wishing to procure vaccines on their own.

Since 2011, UNICEF has published price data for essential products including vaccines as part of its commitment to transparency, affordability and sustainability of vaccine supplies.

In 2013, the value of UNICEF’s vaccine procurement reached nearly $1.3 billion – that’s 2.8 billion vaccine doses for children in 100 countries, including:

- 1.7 billion doses of oral polio vaccines
- 300 million doses of measles vaccines
- 180 million doses of pentavalent vaccines
- A wide range of other vaccines for children against diphtheria, hepatitis B, Hib, human papilloma virus, influenza, meningitis A, pneumococcal disease, polio, rabies, rotavirus, rubella, tetanus, tuberculosis and yellow fever.

## Communication and community partnership

To increase uptake of immunization, UNICEF employs participatory communication strategies. Community by community, these strategies help health workers and local public health officials tailor their services so more people can access and demand vaccines.

UNICEF helps health staff improve professional skills, including interpersonal communication. Immunization services are adapted to local needs and values, taking into account cultural norms, gender dynamics and other social factors so that these do not stand in the way of any child being vaccinated.

Engaging local religious and community leaders as champions for immunization builds trust and goodwill. Joint planning of outreach services ensures that services are delivered in ways that meet community needs.

Targeted strategies to reach women recognise that while they are generally the primary caregivers of children, many face obstacles in getting information and using health services.

UNICEF promotes routine immunization along with other low-cost, high-impact behaviours – among them exclusive breastfeeding, hand washing and community sanitation. Advocacy with local public health officials and engagement with marginalised or underserved communities helps ensure that everyone benefits equitably from vaccines.

Innovative solutions, including mobile technology, improve immunization outcomes by strengthening links between health workers and caregivers. One such solution is mTrac, a UNICEF-supported, government-owned initiative.
in Uganda to digitise health-care data and transfer them via mobile phones. Through mTrac, community members can report on service delivery challenges, and district health teams can receive timely and actionable information.

**Immunization funding**

Protecting every child with life-saving vaccines through effective and safe immunization services requires predictable and sustainable funding from both national and international sources.

To support sustainability, UNICEF and WHO work with governments and other partners to increase the proportion of national financial resources that fund immunization programs. Both organizations also help countries develop credible data on how resources are used, identify and improve weak financial management practices, and increase equity and efficiency.

**The post-2015 agenda**

The post-2015 Sustainable Development Goals aim to protect the rights of all children everywhere to get the best start in life and to survive and thrive. Immunization makes a vital difference, yet some important challenges must still be overcome.

Health systems cannot provide universal coverage because they struggle with multiple constraints. They need more financing, comprehensive social policies, stronger management and the removal of barriers such as user fees. Difficulties in delivering vaccines arise from gaps in infrastructure and supply chains and from poor management. Innovative technologies, efficient management and new delivery approaches can all help ensure that vaccines safely reach children.

Without complete, timely and reliable data, it can be impossible to identify and act on obstacles to immunization. Information systems and data management practices need to be geared towards providing comprehensive, high-quality evidence to guide effective decisions. Lack of understanding about the importance of vaccines can also hobble immunization drives. Well-targeted social mobilization campaigns counter misconceptions and boost demand.

Finally, funding to achieve global immunization goals is insufficient. From 2016 to 2020, an estimated $32.9 billion will be needed to sustain and scale up current immunization coverage, introduce new vaccines and expand underused ones, and ensure that children in the world’s lowest-income countries receive the same vaccines as those in developed nations. Projected funding, of which a little over two-thirds is expected to come from the governments of low- and middle-income countries, leaves a funding gap of $14.3 billion. National and international partners need to work together on closing this gap so that no child misses out on life-saving immunizations.

![Figure 6: Projected vaccination funding gap for low- and middle-income countries, 2016–2020.](image)
