



EQUITY FROM BIRTH

AN INTEGRATED
APPROACH TO
IMMUNISATION
AND NUTRITION
POLICY BRIEF

Introduction

Thanks to a dedicated global effort and leadership in countries, routine immunisation and improved nutrition have been crucial to the substantial reductions in under-five mortality over the last 30 years.¹ The COVID-19 pandemic is now threatening to reverse these hard-won gains, the achievement of the Sustainable Development Goals (SDGs) and their ambition to leave no one behind.² The crisis has caused massive disruption to essential health services, with some lower-income countries facing risk of drastic reductions in immunisation coverage,³ increased vaccine hesitancy and interruption of essential nutrition services. Furthermore, it has negatively impacted food security, jobs, and livelihoods – while exacerbating persistent equity gaps. This is likely to increase significantly the number of malnourished and sick children, and preventable child deaths.⁴

Before the pandemic, there were already large geographic disparities in child survival, with sub-Saharan Africa and South Asia bearing the highest rates of mortality. At the same time, inequities within countries continued to hinder the goal of ending preventable child deaths.⁵ Malnutrition remains an underlying cause of almost half all of child deaths (3.1 million deaths each year).⁶ In early life, particularly in the first 1,000 days, malnutrition negatively impacts children's physical and cognitive development, with lifelong and often irreversible effects.⁷ Although immunisation currently prevents 2–3 million deaths every year from diseases like diphtheria, tetanus, pertussis, influenza and measles,⁸ 1.5 million people still die from vaccine-preventable diseases each year.⁹ Research has also identified an “excess female mortality”, particularly predominant in Africa, with the major causes of death among young girls being diarrhoeal diseases, malaria, respiratory infections and malnutrition – a situation that is likely to be exacerbated by the COVID-19 pandemic.¹⁰

Immunisation and good nutrition are critical for children to develop to their full physical, intellectual and human potential, and to realise their right to the enjoyment of the highest attainable standard of health.¹¹ One dollar invested in nutrition gives a rate of return of US\$ 16,¹² while the return on investment of immunisation in Gavi-supported countries is US\$ 21 per US\$ 1 spent, when considering the cost of illness model, which includes treatment costs, transportation costs, lost caregiver wages and productivity losses.¹³ These basic services are essential for the full enjoyment of the right to health and other human rights. Additionally, they are evidence-based and highly cost-effective – and therefore among the “best buys” in terms of investing in human development. Immunisation and nutrition services are complementary, and their integration is critical for building strong national primary health care (PHC) systems.¹⁴

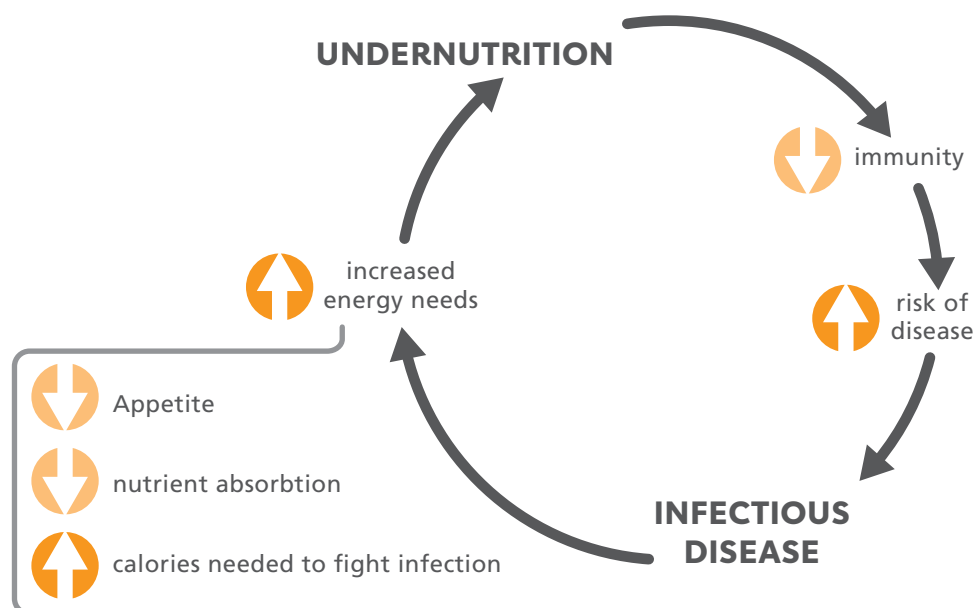
1. The complementarity between immunisation and nutrition interventions

Malnutrition and infectious diseases are mutually reinforcing. They cause millions of preventable child deaths and contribute to a vicious cycle of poor health, stunted growth, poverty, and exclusion, with an intergenerational legacy.

Good nutrition is the bedrock for a functioning immune system; it protects against illness and infection, and it supports recovery. Undernutrition worsens the impact and duration of disease, as it negatively impacts children's ability to generate an immune response, and consequently increases the risk of further infections or death.²¹ For instance, children who are acutely malnourished are between 2.5 and 15 times more likely to die from pneumonia than those who are well nourished²² and up to 8 times more likely to die of diarrhoea.²³ In some places, undernourished children are also less likely to be immunised than their well-nourished peers,²⁴ possibly due to other factors that increase their vulnerability and reduce their access to health services. In addition, undernourished children produce

lower immune response than that of well-nourished children, potentially compromising the efficacy of immunisation.²⁵

In addition to placental transfer of antibodies from maternal vaccination, crucial immunological factors in breast milk provide a protective immune effect to children. Exclusive breastfeeding protects babies from diarrhoea, especially in places where the use of breastmilk substitutes may be compromised by the lack of access to clean water. WHO and UNICEF recommend that children initiate breastfeeding within the first hour of birth and be exclusively breastfed for the first six months of life. Ensuring that pregnant women are well nourished must go hand in hand with supporting families, to allow them to breastfeed their children, as well as to continue breastfeeding with appropriate complementary feeding up to the age of two years or beyond. This should be considered as the first step in building a child's immune system.²⁶



Conversely, children who suffer from infectious diseases – including vaccine-preventable diseases – are at an increased risk of poor nutrition. With each disease episode, some of the energy and calories a child needs for growth and development are diverted to fight off the infection. For children who are already undernourished, infectious diseases can worsen the nutritional status and reduce the child's ability to respond to nutritional interventions. For example, vitamin A during a measles outbreak or episode is critical, and measles vaccine is part of the systematic treatment provided to all acutely malnourished children admitted in treatment programmes. Repeated bouts of diarrhoea have been found to be associated with up to 43% of stunting cases. It is also known that the lifelong impact of stunting (except for central obesity) might affect women more than men.²⁷

Like nutrition, the protective properties of immunisation start before birth. For instance, respiratory infections during pregnancy may exert indirect effects on the developing foetus through placental function and maternal immune responses. This in turn may lead to pre-term births and reduced growth of the foetus. Research has shown that administration of influenza vaccine during pregnancy adds 200 grams to newborn weight and that pneumococcal vaccine given to infants translates into an additional 500 grams of growth in the first six months of life. In addition, maternal influenza vaccine led to a 15% reduction in low birthweight. This

indicates that immunisation can improve intrauterine growth.²⁸

Immunisation can also lead to lower rates of child malnutrition in high-risk populations. An analysis conducted in areas of Ethiopia with high proportions of refugees found that high measles vaccination coverage was linked to lower rates of acute malnutrition in children under five. Each percentage point increase in measles vaccination coverage was associated with a 0.65% decrease in the rate of acute malnutrition in these areas.²⁹ Multiple studies, focusing on the impact of different vaccines, suggest that children in communities with higher overall levels of immunisation have better nutritional status. In Kenya, children who were up to date with routine immunisation were 27% less likely to be stunted,³⁰ and children in Indonesia who lived in communities with higher levels of immunisation were also less likely to be undernourished.³¹

A wealth of evidence stresses that immunisation and nutrition interventions complement each other, making the case for stronger integration. They also indicate that integrated efforts to reach vulnerable children and missed communities with these essential services will be key to breaking the vicious cycle of malnutrition and preventable diseases, an imperative condition for countries to “ensure healthy lives and promote well-being for all at all ages” in line with SDG 3.

UNDERNUTRITION AND INFECTIOUS DISEASES IN FRAGILE CONTEXTS AND HUMANITARIAN SETTINGS

Child mortality is significantly higher in fragile and conflict-affected contexts and humanitarian emergencies, compared with other settings. The proportion of undernourished people living in areas affected by conflict and protracted crisis is almost three times higher than that of other low- and middle-income countries.^{32,33} Furthermore, coverage of all essential health interventions, including immunisation, tends to be lower in these settings due to insecurity, limited resources, and health services disruption.

While it is challenging to find data specific to emergency situations, indicative studies show that the effects of the vicious cycle of disease and undernutrition worsen during humanitarian emergencies. In the Horn of Africa drought of 2011, it was estimated that children suffering from severe acute malnutrition were nine times more likely than healthy children to die from infectious diseases such as measles, cholera, and malaria.³⁴ These populations are often especially vulnerable to malnutrition in its most extreme forms and live in inadequate overcrowded shelters, providing a breeding ground for many diseases and infections.

Nutrition interventions and immunisation are, therefore, especially critical in these situations. For example, children living in the Yida refugee camp in South Sudan were found to have an elevated pneumonia infection rate, and research showed that vaccination campaigns in a humanitarian context could reduce pneumonia cases and deaths by nearly 20%.³⁵

2. Addressing health inequities through integrated immunisation and nutrition interventions



The COVID-19 pandemic has exacerbated persistent equity gaps, disproportionately affecting the most vulnerable countries and populations. Inequities particularly affect population groups facing multiple deprivations, including systematic constraints on access to essential services. These population groups often live in urban/peri-urban, remote rural or conflict settings and bear a disproportionate burden of diseases. As stated above, these populations face multiple deprivations and are often confronted with extreme poverty, with two thirds of zero-dose children living below the international poverty line of US\$ 1.90 per day.³⁶

Malnutrition and poor immunisation coverage are symptoms of the inequitable distribution of power and resources in our societies. Addressing these inequities requires a strong public sector and community-based and -focused delivery system that is committed, capable, adequately financed and trusted by the public. More than a strengthened government, it also requires strengthened governance, including openness and support for civil society, an engaged and accountable private sector, and people across society to agree on public interests and invest in the value of collective action. In a globalised world, the need for governance dedicated to equity applies equally from the community level to global institutions.³⁷

Investment in the early years of a child's life provides one of the greatest opportunities to reduce health inequities. Access to fundamental rights in early childhood, such as access to health and education, can ensure that all children have an equal chance of being healthy and productive members of society. Identifying those vulnerable communities and groups, and reaching them with essential services from pre-pregnancy, through pregnancy and childbirth, to the early days and years of life, is the basis for breaking vicious cycles of poverty and rebuilding public trust.³⁸

The health system has a key role in identifying and reaching the most vulnerable population groups. As immunisation reaches over 90% of the world's children³⁹ and more households than any other health intervention, it brings communities into regular contact with the health system. In most countries, immunisation programmes include vaccines in the first and second year of a child's life and in some cases throughout the life-course. These multiple contact points provide opportunities to reach children and families with other essential health services, including nutrition interventions and particularly malnutrition screening. For populations living in rural areas, immunisation services are often the first, and sometimes only, point of contact with the health system.

Each time a child is vaccinated by a health worker, it represents an unmissable opportunity to ensure they or their parents receive other crucial health services. Bundling together health services to provide continuous, comprehensive health care unlocks significant cost benefits, allowing lower-income countries to accomplish much more with their limited resources. For example, in Madagascar, Tanzania, Zambia and Zimbabwe, growth monitoring, supplementary feeding, health education, vitamin supplementation and immunisation are all provided at the same time. As a result, nutritional status has improved in the children involved, and other health gains were also achieved.⁴⁰

Many essential nutrition actions⁴¹ are delivered through the PHC system. Yet their coverage tends to be lower than other health services targeting the same group. For example, coverage of folic acid and iron supplementation among pregnant people is lower than the coverage of antenatal care, through which this essential nutrition action should be delivered.⁴² Less than 30% of children suffering from severe acute malnutrition globally have access to life-saving ready-to-use therapeutic

food (RUTF),⁴³ which can be delivered as a standalone intervention by actors outside the health system, especially in humanitarian settings. Even in settings where essential nutrition actions are formally part of routine health care, they are not always fully integrated in services reaching communities.

This lack of integration results in higher costs, lost synergies and additional time spent by busy health workers and volunteers. Standalone service delivery means parents and caregivers must spend additional resources and time away from their work and family responsibilities; pay for additional transportation costs; and access different services, at different times and sometimes at different locations. These barriers ultimately

discourage care-seeking behaviours and reinforce existing health inequities.

Importantly, the integration of immunisation and nutrition interventions increases the chances for countries to reach missed communities with a full course of PHC interventions.⁴⁴ For example, when vitamin A was administered during polio vaccination campaigns across Angola, Chad, Côte d'Ivoire and Togo, coverage exceeded 90% for both vitamin A and polio vaccination the second year.⁴⁵ By undertaking an integrated approach, countries can gain efficiencies and multiply their strengths to identify and reach missed communities and vulnerable populations, making it easier and less costly for families and children to access these services.

3. Increasing political will and maximising efficiency gains to reach more people



Ending malnutrition and preventable child mortality will not happen by simply attaching nutrition interventions to existing immunisation programmes. To achieve these goals, a broader societal effort is needed, with clear actions to address the underlying causes of poverty and discrimination. As countries respond to the COVID-19 crisis and plan for recovery, they will need to adapt and scale up innovative and equity-enhancing strategies to reach vulnerable groups and populations⁴⁶ in line with SDG 1.B ("Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions"). This can only be achieved through strong political commitment, especially at the highest levels of national governments, and hence the need for dedicated advocacy campaigns by civil society and partners to build and maintain the necessary political will.

It is also clear that increased and more efficient financing to enable the implementation of equity-enhancing

strategies is a critical part of their sustainability and, therefore, must be at the centre of advocacy activities. Synthesising knowledge in support of equity strategies and collecting up-to-date data is a vital tool for advocacy. Context-specific evidence, packaged into persuasive messages, can support partners in framing PHC interventions – not as a cost, but as an economic and social investment in preparedness, response and recovery. In an uncertain world, such investments yield important returns, promoting community resilience and gender equality.⁴⁷

While it is critical to tackle the structural drivers of inequity – globally, nationally, and locally – more immediate solutions can also play their part. For instance, while immunisation and nutrition are often included in national governments' PHC services packages, many countries still need to improve their coverage by ensuring that they mutually reinforce each other. In the most challenging contexts, especially in fragile and conflict-affected settings, immunisation and nutrition

programmes risk missing the most vulnerable children if they continue to be implemented as vertical interventions and delivered mainly at health facility level.⁴⁸

To succeed, the integration between immunisation and nutrition needs to go deeper than bundling service delivery. Real integration means sharing a broad range of objectives and functions across delivery platforms and community-led solutions, and ensuring that countries fully integrate and roll out nutrition and immunisation in their basic package of health services. For real efficiency gains and long-term sustainability, immunisation and nutrition need to be part of an integrated PHC system. Integration needs to be context-specific and intentional to maximise synergies, identify missed communities and ensure they are not left behind. This integrated approach implies changing how countries plan for, fund and deliver health and nutrition services at subnational and community levels, as well as the way they monitor and evaluate them.

It also requires updating treatment protocols and health workers' training curricula, especially at the community

level, and, among other things, streamlining supply chains. Community health workers need to be trained to understand how nutrition interventions and vaccines interact, and how to integrate the right treatment protocols as part of routine service delivery at the right time. Proven, effective approaches exist, such as the Integrated Community Case Management (iCCM) and Integrated Management of Childhood Illnesses (IMCI), but these need to be scaled up and the quality of delivery improved.

Screening for acute malnutrition, referral for treatment or even bringing adequate nutritional treatment closer to the communities are areas that should be explored for an appropriate integration of nutrition and immunisation. At the same time, routine health system data collection, monitoring and evaluation need to be expanded so that missed communities are identified and reached with an integrated package of essential services. Likewise, UNICEF and governments must ensure an integrated approach to immunisation and nutrition in their policies in support of the roll-out of the Global Action Plan on Child Wasting.

ADDRESSING POWER IMBALANCES FOR WOMEN AND GIRLS TO THRIVE

Addressing gender inequalities and empowering women and girls is fundamental if we are to break the cycle of malnutrition, ill health, poverty, and exclusion. Women and girls make up 60% of the chronically hungry people in the world.⁴⁹ Women comprise 70% of the global health care workforce but only hold 25% of senior roles.⁵⁰ Even though women farmers are responsible for between 60–80% of food production in low- and middle-income countries, their rights and status are rarely equal to that of men. While they normally bear the responsibility of preparing family meals, women and girls often eat least, last, and might be left with nutritionally poor food. The evidence is clear: higher levels of gender discrimination are associated with higher levels of both acute and chronic undernutrition.⁵¹ Furthermore, adolescent pregnancy is expected to rise as result of the COVID-19 crisis, due to school drop-out and school closure.⁵² The economic impacts of COVID-19 in 2020 alone may have put as many as one million additional girls at risk of adolescent pregnancy. Birth and pregnancy complications are already the leading cause of death among girls aged 15–19 globally. The additional pressure on girls' bodies during pregnancy will make improved access to vaccines and nutrition critical to meet the needs of a growing population of child mothers and their babies.⁵³

When women have more control over their bodies, household decisions and resources, families are healthier, better nourished and better educated. Improvements in women's status and women's education account for over half of global reductions in underweight children.

Malnutrition in girls and women has severe negative intergenerational effects, as malnourished mothers are more likely to have malnourished children. The adolescent period is critical, as adolescence is the second most important growth period during the life cycle – second only to the first year of life. Furthermore, adolescent mothers are more likely to have stunted and underweight children than are adult mothers.⁵⁴

Including adolescents and their needs in the development of tailored interventions provides a unique opportunity to be gender transformative, as it is during these periods that cultural and societal norms are developed. Reaching adolescents with human papillomavirus (HPV) vaccine and nutritional actions creates positive interactions with the health sector and builds an enabling environment for a lifetime of health-enhancing behaviours for adolescents and their future children.

At the global level, there are no significant differences in immunisation coverage between the genders. However, differences do exist in some socio-economically and geographically marginalised populations at sub-national level, exacerbated by gender-related barriers that limit immunisation service demand, utilisation, coverage, and impact. To overcome this, strong evidence-based gender policies must be adopted, for example by ensuring the design and implementation of health interventions and services are informed by analyses of gender-related and intersecting barriers considering the needs of different population groups. This requires gender-transformative investments, in addition to improved equity policies.

PHC service design and delivery to reach zero-dose communities, particularly with a view to build back better from the pandemic, should be informed by the gendered needs of caregivers. In certain contexts, primary caregivers of children, usually women, may lack the knowledge to attend primary health services due to unequal access to information, lack of education, responsibilities for household labour, lack of agency or mobility, among other factors. Men's participation in childcare and as influencers in broader societal networks is also important to increase demand for health services and to empower women in decision-making.

A special focus on gender-related barriers faced by the health workforce is also required. Despite most frontline health workers being female, only 25% occupy leadership roles, and even less in many lower-income countries.⁵⁵ Unequal participation of women at all levels in decision-making for health and in leadership positions, gender pay gaps, gender-based occupational segregation and the prevalence of sexual harassment in the workplace negatively impact the quality of health services. In addition, security threats and gender-based violence limit the extent to which female health workers can safely undertake outreach missions and staff clinics.

4. Conclusion and recommendations

The current pandemic is pushing countries and partners to find new ways of reaching the most vulnerable populations with essential health services such as immunisation and nutrition. This policy brief argues that, through a more holistic and integrated approach, countries can reinvigorate their efforts to identify, and reach missed communities, and at the same time make it easier and less costly for families and children to access them.

These efforts require strong political commitment, especially at the highest levels of national governments, hence the need for dedicated advocacy campaigns led by civil society and credible partners to build and maintain the necessary political will. Increased and more efficient financing for the implementation of equity-enhancing strategies must be core objectives of these advocacy activities.

To have maximum impact, an integrated approach to immunisation and nutrition requires the right mix of policies, involvement of communities and local influencers, as well as the most appropriate way of incentivising integration at sub-national and community levels. Special attention is needed to appropriately integrate immunisation and nutrition services into routine health care delivery where these are currently lacking.

With fewer than ten years left to achieve the SDGs, and the serious disruptions caused by the COVID-19 pandemic, this is the time to invest better and smarter, as countries gradually find ways to maintain, restore and strengthen these essential interventions, and to build back better from the pandemic. This is a prerequisite for the achievement of SDG 2 (zero hunger), SDG 3 (good health and well-being) and other related

goals. We encourage stakeholders to follow these recommendations to contribute to the achievement of these goals:

ACTIONS FOR GOVERNMENTS

- Maintain, restore and strengthen routine immunisation and nutrition programmes, with equity as the central goal, to lay the foundations for integration of PHC services and rebuilding better.
- Ensure that immunisation and nutrition interventions are fully integrated in the basic package of health services, that the possibility to jointly roll out interventions is mentioned explicitly and that it is integrated in the relevant health worker curricula.
- Identify missed communities and zero-dose children by using triangulation of available data, disaggregated by sex and socio-cultural and economic factors.
- Prioritise reaching zero-dose children with immunisation, nutrition and other essential services.
- Sustain and scale up domestic funding to strengthen PHC systems and integrate interventions when appropriate, including for integrated delivery of immunisation and nutrition services as a core principle.
- Focus on community-based interventions tailored for specific contexts to reach zero-dose children and missed communities.
- Seek innovative, evidence-based solutions to combine immunisation and nutrition (and broader routine health) programmes, including sharing infrastructure and value chains, to maximise coverage of both nutrition services and immunisation.
- Ensure alignment and integration between national immunisation strategies, multi-sectoral nutrition plans, PHC and UHC roadmaps, national and sub-national development plans.

ACTIONS FOR THE INTERNATIONAL HEALTH COMMUNITY

- Hold a joint technical meeting between relevant international health partners on how to progress on immunisation and nutrition integration
- Maintain and scale up funding for equity-enhancing strategies on immunisation and nutrition services as part of broader efforts to strengthen PHC systems and achieve UHC.

- Provide incentives for countries to use health system strengthening grants to improve integration of immunisation, nutrition, and other essential services.
- Promote alignment and coordination of global health stakeholders at global, regional, and country levels to ensure commitments made under the Global Action Plan on Wasting, the Global Action Plan for Healthy Lives and Well-being and in the UHC2030 country compacts are delivered at national and subnational levels.
- Support the piloting, de-risking and scaling up of private sector and public-private partnership initiatives focused on improving immunisation and nutrition services' efficiency.
- Issue technical recommendations for governments to foster integration of malnutrition screening during immunisation campaigns.
- Provide guidance and technical support to governments and other stakeholders to better integrate immunisation and nutrition, including in humanitarian contexts.

ACTIONS FOR CIVIL SOCIETY ORGANISATIONS

- Support governments in identifying missed communities and zero-dose children, especially by contributing to triangulation of data on the reach of immunisation, nutrition, and other essential services.
- Advocate for improved, well-funded, integrated immunisation and nutrition services, available to all, including supporting citizen-led efforts to hold governments to account for delivering quality services.
- Support governments on integration of immunisation and nutrition programmes, especially by mobilising community-based organisations and health workers, including in programme design, decision-making and implementation.
- Support operational community-based research on innovative programme models for integrated delivery of immunisation and nutrition for further learning and policy design.

ACTIONS FOR ACADEMIA

- Improve the evidence base on the response to immunisation in the context of undernutrition.
- Help address knowledge gaps through functional studies, operational research and formative research on barriers to service access and utilisation to inform advocacy and better policies.

- Generate robust evidence on effective and cost-effective integrated immunisation and nutrition interventions for children and pregnant and lactating people, especially in fragile settings, to inform advocacy and better policies.
- Commit to translating knowledge gained from research studies in multiple languages and outside academia to ensure accessibility to policymakers.
- Commit to publishing results of studies with full transparency, including studies with negative results, which are just as important for contextualising and understanding.

ACTIONS FOR THE PRIVATE SECTOR AND BUSINESSES

- Contribute to smart value chain solutions for integrated delivery of immunisation and nutrition services.
- Do no harm, including by adhering to the International Code of Marketing of Breast-milk Substitutes and the WHO Guidance on Ending the Inappropriate Promotion of Foods for Infants and Young Children.

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