Maintains

Research supporting social services to adapt to shocks

Rapid Literature Review: Nutrition

COVID-19 Series

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About Maintains

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1 Introduction

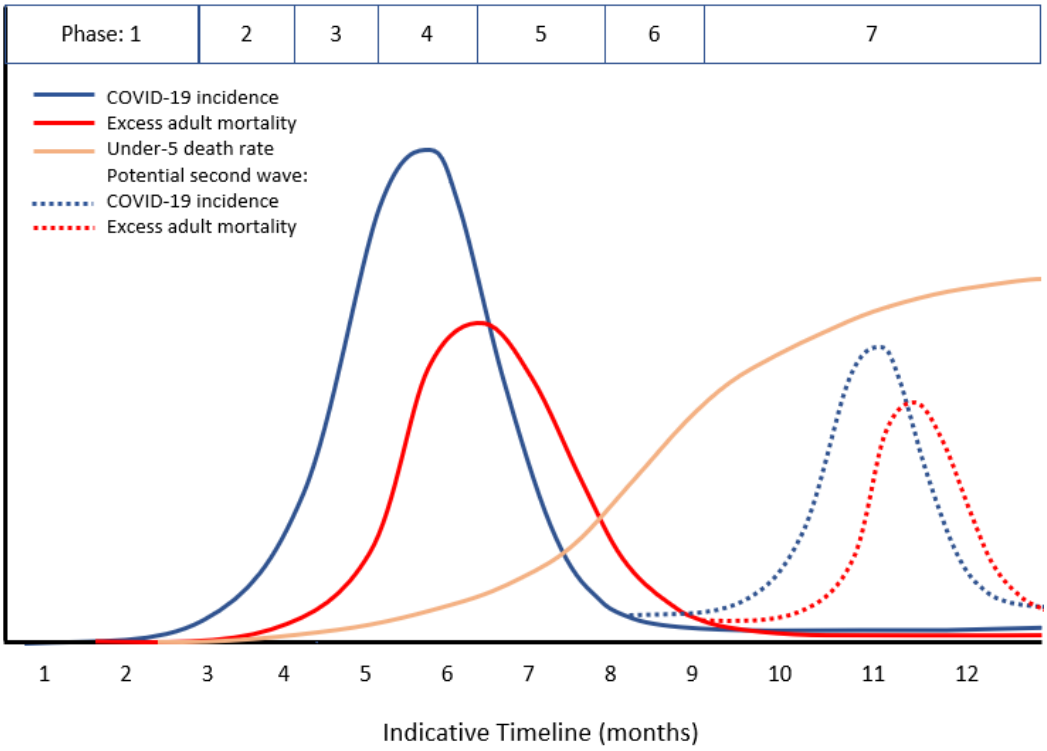
Beyond the immediate health impacts, the COVID-19 pandemic will stretch already weak health systems, exacerbate existing food crises globally and driving worsening rates of poverty. More than 820 million people – one in every nine – do not have enough to eat. Of these, 113 million are coping with hunger so severe that it poses an immediate threat to livelihoods and life. The pandemic's economic impact will cause these numbers to rise.[1] Predictions suggest that 265 million people[2] could be pushed into acute food insecurity by COVID-19. Early estimates predict that it will result in an increase of between 14 and 22 million people living in poverty,[3] which is linked to both the cause and the consequences of undernutrition.

The global burden of malnutrition prior to COVID-19 was already considered unacceptably high and progress to address this burden unacceptably slow,[4] with malnutrition responsible for more ill health than any other cause. In 2018, more than 150.8 million children under five were stunted, 50.5 million wasted, and 38.3 million overweight. The pandemic is predicted to result in both short- and long-term disruptions to health and nutrition services. The resultant rise in the global prevalence of malnutrition, including micronutrient malnutrition, will ultimately undermine progress against the Sustainable Development Goals and the UN Decade of Action on Nutrition 2016–2025.

Malnutrition is a social and economic problem, holding back development across the world with dire human consequences. It costs billions of dollars each year and imposes high human capital costs – direct and indirect – on individuals, families, and nations. Cognitive development can be impaired by malnutrition; this affects performance in school, future income prospects, and ultimately a country's GDP. Worsening rates of malnutrition risk negatively impacting multiple aspects of development, including poverty, environmental sustainability, and peace and stability.

While the primary impact of national epidemics is being seen on the health and mortality of adults, this will later **shift to the secondary effects on economies and food security, including the increasing risks of malnutrition and other infectious disease.** These secondary effects will have an impact on child morbidity and mortality through numerous mechanisms, including the degradation of key public health services such as vaccination and water, sanitation, and hygiene (WASH). One analysis[5] predicts that there will be a substantial rise in the under-five mortality rate around September 2020, due to a spike in childhood malnutrition followed by increasing outbreaks of vaccine-preventable diseases such as measles and diseases such as cholera that are associated with degradation in WASH systems and services. At this phase of the epidemic it is likely that the adult mortality rate will be falling but the under-five death rate will continue to rise (see Figure 1).

Figure 1: Schematic representation of the timeline of the epidemic in low-income and fragile states



*A description of the phases of the epidemic is provided in a Table 2 in the annex.

This rapid literature review is limited by the following constraints:

- For the purpose of this review, nutrition has been reviewed under a broad framework rather than focusing on guidance for the treatment of malnutrition, which can be found in technical briefings such as 'The management of child wasting in the time of COVID-19'.[6]
- The scale and speed of the onset of COVID-19 is unprecedented and as such the literature focuses on the emerging picture and, where applicable, experiences during Ebola and the 2008 global economic crisis. However, due to limited sources of data the review does not explore aspects such as the ability of services to maintain core delivery, how sectors have recovered or scaled up, or the potential long-term impacts of COVID-19.
- Given that this was a rapid literature review, it will need to be expanded as learning emerges.

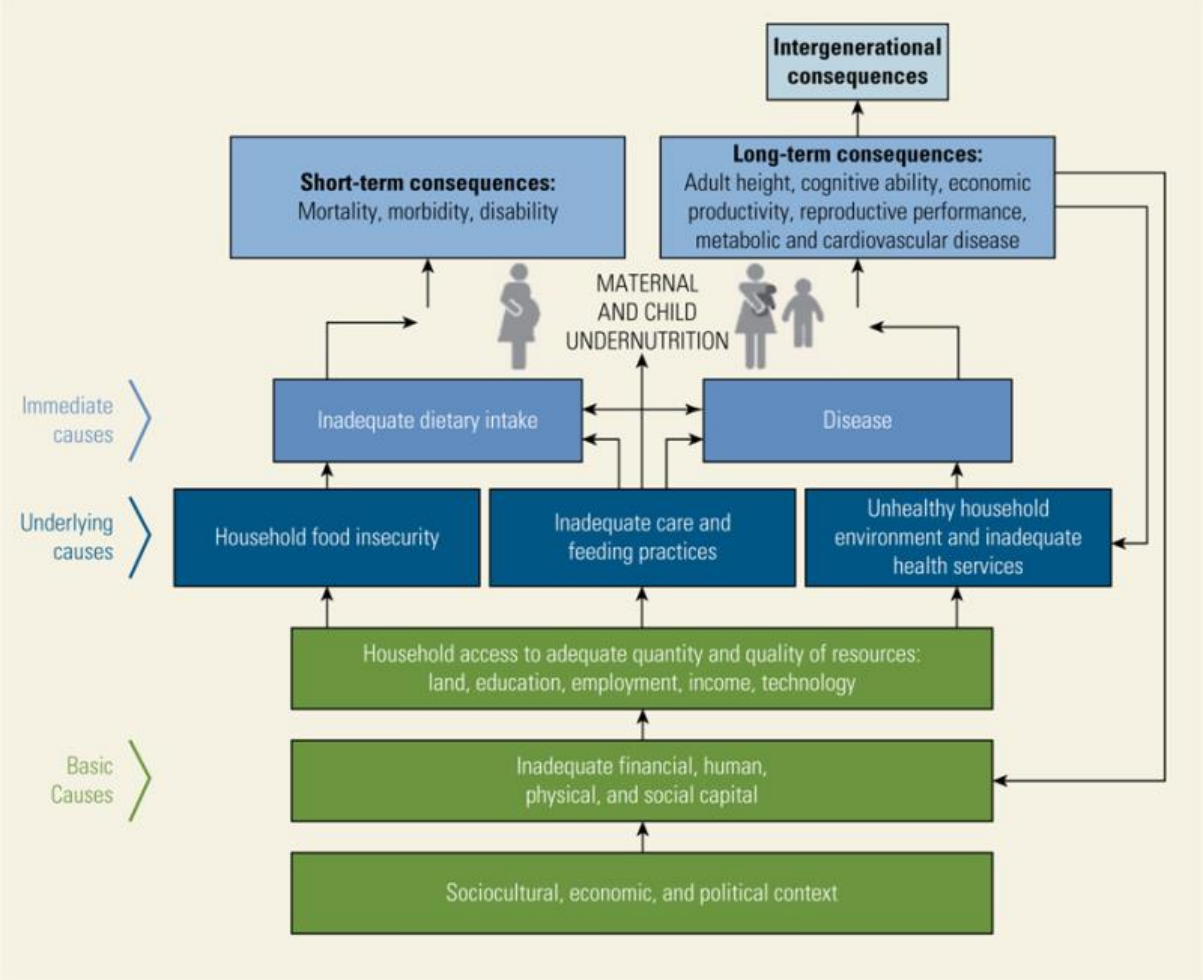
2 Framing of nutrition

2.1 Causal framework for malnutrition

According to the causal framework for malnutrition that has been developed by UNICEF (see figure 2), malnutrition occurs when dietary intake is inadequate and health is unsatisfactory. COVID-19 will have a significant impact on the **immediate** causes of malnutrition, which affect individuals, but appropriate programme and policy interventions can reduce this impact by intervening at the **underlying** causes level, which relates to families, and the **basic** level, which relates to communities and nationally.

The underlying causes are heavily impacted by the intersectoral dependencies outlined in section 2.2 below.

Figure 2: Causal framework outlining immediate, underlying, and basic causes of malnutrition.



Source: UNICEF (United Nations Children's Fund). 2013. Improving Child Nutrition: The Achievable Imperative for Global Progress.

2.2 Intersectoral dependencies

The COVID-19 crisis is creating shocks across sectors that are essential to nutrition. This is part of a vicious cycle, in that shocks to nutrition will increase vulnerability to COVID-19.

Gender: The gendered impact of this pandemic may play out in different ways. While the outbreak is predicted to have significant effects on many economic sectors that employ both men and women, there may be a disproportionate increase in the burden on women's time through additional unpaid domestic labour and care work. Men are more likely than women to get sick and suffer adverse outcomes[7] and this may impact more severely on households where the main income earner is an adult male. Conversely, as women form 70% of the healthcare workforce[8] they are more likely to be on the front lines of the response and may therefore be at increased risk of infection.

Additionally, the rise in domestic violence in periods of quarantine can affect prenatal risk behaviour and delivery care, foetal growth and pregnancy outcomes, and post-natal care, which can have severe consequences in terms of early childhood growth and nutrition.[9] As in other situations, the risk of undernutrition and mortality are expected to be higher for males than females, and the difference is likely to increase as a situation deteriorates.[10,11]

Work is required to understand the complex and varied ways in which sex and gender may affect the outcomes of COVID-19 infection and the indirect consequences on morbidity and mortality.

WASH: The Sustainable Development Goals envision that 'all people should have access to safe water and sanitation and to safe, nutritious and sufficient food', emphasising that development challenges are numerous and interacting, underlining the need for integrated solutions. Nutrition cannot be considered in isolation from WASH, especially in the context of a pandemic. For example, many low-income informal settlements in cities such as Dhaka and Nairobi lack basic infrastructure and services and face unsafe water, inadequate sanitation, open drainage, and refuse dumps; in combination with high levels of food insecurity, malnutrition, and co-morbidities such as HIV/AIDS, these factors increase the vulnerability of residents to both the primary and secondary impacts of COVID-19.

Food security: Prior to the COVID-19 pandemic, food insecurity was already alarmingly high in many low- and middle-income countries (LMICs) due to climatic shocks, economic challenges, high food prices, outbreaks of livestock pests and disease, conflict/insecurity, and population displacement. Social distancing and self-isolation measures have an impact in terms of the availability of food and access to it, which has further implications for the utilisation of food and the ultimate stability of systems. Food prices are expected to increase, due to panic buying, transport restrictions, rising global prices, and reduced purchasing power of countries reliant on imports. Price hikes of nutritious foods could result in higher consumption of cheaper, more unhealthy, processed foods.[12]

Education: Closure of schools has disrupted the education of children who normally rely on school feeding programmes. Removing the one meal per day that many families rely on will put vulnerable school-aged children at greater risk of food and nutrition insecurity.

Health: The immense pressure on health services and their staff in countries where the systems are already overstretched means that non-COVID-19 services will be reduced, which

puts sick and vulnerable members of the community at greater risk. In countries where health services are not free at the point of contact, there is a risk that, as lockdown reduces the opportunity to engage in livelihoods activities, then vulnerable households will not have the means to access healthcare and treatment for malnutrition.

Social protection: Non-contributory social transfers are a key mechanism for meeting a proportion of the immediate needs of the poorest and most vulnerable members of society: most countries in the world have planned, introduced, or adapted social protection measures to respond to COVID-19. However, the additional 14–22 million people who will be newly living in poverty due to COVID-19 will place a huge pressure on these social protection systems, which are often not well developed in LMICs.

2.3 Context of nutrition in the Maintains countries

Table 1 below outlines the prevalence of malnutrition in the six Maintains countries and highlights in red where the prevalence exceeds the developing country average for stunting (25%) and wasting (8.9%). This shows that every single Maintains country has stunting rates higher than the average for developing countries. Bangladesh and Ethiopia also have wasting rates higher than average.

It would be wise to consider stunting a relevant risk factor in responding to the pandemic given the crossover between stunting and wasting, and considering that all of the Maintains countries have stunting levels that exceed the developing country average. In Ethiopia and Bangladesh – where both stunting and wasting exceed the developing country average – then there is an even greater need for such a focus.

Table 1: Malnutrition prevalence in the six Maintains countries[13]

Countries	Age	Key nutrition indicators	Percentage
Kenya	Under 5 years	Stunting	26.2%
		Wasting	4.2%
Ethiopia	Under 5 years	Stunting	38.4%
		Wasting	10%
Uganda	Under 5 years	Stunting	28.9%
		Wasting	3.5%
Sierra Leone	Under 5 years	Stunting	37.6%
		Wasting	7.1%
Pakistan	Under 5 years	Stunting	37.6%
		Wasting	7.1%
Bangladesh	Under 5 years	Stunting	36.2%
		Wasting	14.4%

3 Impacts of epidemics on nutrition

3.1 Experience from previous crises

The COVID-19 pandemic presents both immediate and long-term nutrition challenges. The pandemic immediately threatens food systems, particularly for vulnerable populations, and in the long run will challenge the world's ability to reach the Sustainable Development Goals. In response to COVID-19, governments have taken swift, drastic, context-specific actions to protect public health. The urgency of the pandemic is forcing the international community to act while building evidence and at the same time collecting, sharing, and interpreting data on the pandemic to inform and fine-tune the future response. This is a worthwhile approach to consider for combating the malnutrition crisis as well.[14] The focus should be on devising appropriate programme and policy measures – including maintaining and upscaling humanitarian health and food and nutrition security interventions – and protecting access to these services, particularly those in food crisis contexts.[15] There is also evidence that economic support can be effective in the longer term: 'short term instrumental social protection during the vulnerable period post-discharge can pay positive dividends with respect to wellbeing and food security two years later'.[16]

During the food prices crisis in 2007/08, as well as the 2014 West African Ebola outbreak (and related containment measures), disrupted agricultural market supply chains hindered crop and livestock activities and caused breaks in the food systems across the region. The economic impact of the outbreak had a strong negative effect on the purchasing power of the most vulnerable households, and consequently on their access to food. These secondary impacts of the crisis were accompanied by a deterioration of non-Ebola related health status.[17]

In the Ebola outbreak in Guinea in 2016,[18] it was found that the complex social dimensions of health, response unpreparedness, and market disruptions were perceived to be major determinants affecting the nutrition situation, especially among infants and young children (IYC). At an underlying level, household food security was negatively impacted, along with weakened care-seeking practices, IYC feeding practices, and coping strategies. Consequently, treatment coverage for childhood illnesses and IYC diets were negatively impacted during the outbreak. Underlying levels of community distrust, misinformation, fear, and confusion around the Ebola outbreak limited the acceptability of nutrition messaging, but by using the traditional health community, including community health agents and midwives, alongside mass media, some of these barriers were surmounted.

Similarly, in Sierra Leone malnutrition screening rates reduced during the outbreak, and there was an increased prevalence of acute malnutrition post-outbreak. Malnutrition rates increased due to a decline in agricultural food production and growing food insecurity, loss of parents or caregivers to Ebola, and lack of access to under-five services, including immunisation, leading to an increased risk of preventable childhood illness, particularly measles.[19]

The global food price crisis of 2007/08 led to a sharp rise in food prices mainly caused by a combination of reduced cereal stocks, increased demand, and the rising price of oil. By 2008, the significant growth in world food prices increased the number of

undernourished people in the world by 14% in two years (from 848 million people to 963 million)[20] and populations already affected by crisis were hardest hit. Other affected groups included slum dwellers, pastoralists, and subsistence farmers, who were forced to reduce their quality and volume of food intake and spend less on basic goods such as healthcare and education. Learnings[21] from this crisis pointed to the need to combine responses to meet immediate food needs and to increase resilience through long-term investment in agriculture, market infrastructure, and social protection.

3.2 Key factors

This section is adapted from the Scaling Up Nutrition (SUN) 'COVID-19 and Nutrition' information note[22]:

Malnutrition and immunity

- Adequate nutrition is critical for a strong immune system. Globally, malnutrition is one of the leading causes of morbidity, including infection and mortality among children under five years of age.[23,24] Those with weakened immune systems are more susceptible to COVID-19 infection and complications, making it paramount to reinforce the message that good nutrition is essential to build resilience and immunity.[25]
- Additional susceptibility is noted in people with pre-existing conditions such as heart disease, diabetes, and respiratory conditions, resulting in more severe COVID-19 symptoms, including bilateral viral pneumonia, and higher healthcare needs.[26]
- A combination of malnutrition, other infectious diseases, overcrowded living conditions, poor access to WASH and quality healthcare, and misinformation about COVID-19 could aggravate the crisis among the poorest and most vulnerable people and communities (including internally displaced persons (IDPs), refugees and returnees, host communities, asylum seekers, and economic migrants).[27]
- Although there is a clear association between breastmilk and a strengthened immune system, messaging needs to address the fear of COVID-19 transmission during breastfeeding, which may lead to decreased breastfeeding and uptake of infant formula or other milk/food substitutes. There is currently no guidance for the nutritional support of breastfeeding COVID-19 patients. However, CDC, UNICEF, and WHO have issued clear statements about COVID-19 and breastfeeding.[28] Based on the known benefits of breastfeeding and considering that there is currently no evidence that COVID-19 can be transmitted through breastmilk, continuation of breastfeeding is advised regardless of COVID-19 status.[29] Some flexibility in the use of guidelines may be required if dealing with large numbers of orphaned young children.

Strained health systems

- The pandemic risks overwhelming health systems, which can lead to higher mortality from COVID-19 and also interrupt other life-saving services, including treatment of malnutrition, care during pregnancy and childbirth, vaccinations, and treatment for diarrhoea, malaria, and other infectious diseases.
- With overwhelmed health systems, the delivery of essential nutrition actions[30] – including the promotion and protection of breastfeeding and the management of acute malnutrition – will be affected. Furthermore, supply chain disruptions can lead to low stocks of essential nutrition commodities.[31]
- Limited availability of personal protective equipment and basic infection prevention materials increases the risk of COVID-19 infection among health workers, which severely affects the health system's management and response capacity, especially in LMICs.

- Universal health coverage remains central to combating malnutrition. In the context of COVID-19, there is an increased recognition around the critical and urgent need to maintain and boost access to quality and affordable services.[32]

Risks to nutrition services and food security

- Prior to the COVID-19 pandemic, food insecurity was already alarmingly high, with over 821 million people[33] (one in nine persons) defined as food insecure globally. Key drivers of this food insecurity include climatic shocks (such as drought or flooding), economic challenges/high food prices, outbreaks of livestock pests and diseases, conflict/insecurity, and population displacement. Given the additional economic shock resulting from the COVID-19 crisis, the magnitude and severity of food insecurity and malnutrition could increase significantly and therefore needs to be closely monitored in the most vulnerable areas.[34]
- COVID-19 response measures such as quarantines and border and business closures will disrupt the production, supply, and importing of produce and reduce access to markets. This impact on the economy, food systems, and health systems will affect household and individual food security, nutrition, and care. Affordability will likely affect access to safe, adequate diverse foods, especially fresh produce, at an individual level, with trade in perishable food products affected disproportionally. Ultimately this will exacerbate basic, underlying, and immediate contributors to malnutrition (see Figure 2 for the causal framework of malnutrition), further undermining already struggling national systems.
- With the COVID-19 pandemic spreading, there is a risk that aid budgets and domestic budgets for nutrition may be diverted from interventions to prevent and treat malnutrition to instead respond to the pandemic. Even short-term disruptions to nutrition financing and humanitarian or development programmes could have irreversible adverse effects on optimal child survival, health, and development.[35]

Implications for vulnerable groups and fragile contexts

The poorest and most vulnerable populations have fewer resources to cope with loss of incomes, increases in food prices, irregular food availability, or reduced mobility for food access. Among these groups are nutritionally vulnerable young children, adolescents, pregnant and lactating women, older people, and people who are ill or immuno-compromised.

Particularly vulnerable people include those living in fragile and conflict-affected contexts, where there are already severe problems of logistics and distribution even without morbidity and social distancing, and those affected by natural hazards or other crises – for example due to droughts, the coming monsoon and hurricane seasons, and the current locust plague, the worst in decades, which is severely impacting food security in East Africa and beyond.

In such situations, the disruption in supply chains and movement restrictions will affect humanitarian programmes and impact the delivery of humanitarian operations, including the distribution of micronutrients to children and pregnant and lactating women, treatment of acutely malnourished children, and distribution of fortified foods.[36]

In the six Maintains countries there are more than 5 million refugees and around 4.26 million IDPs. Displaced populations are likely to be at greater risk from contiguous disease outbreaks due to:

- Higher transmissibility due to intense social mixing between the young and elderly, overcrowded living conditions, and specific cultural and faith practices such as mass prayer gatherings.
- Higher infection-to-case ratios and progression to severe disease due to the COVID-19 virus's interaction with highly prevalent co-morbidities such as tuberculosis.
- Extreme pressure on the already inadequate curative health services in the refugee/IDP settings, which could result in disrupted care for other health problems.
- High prevalence of malnutrition, which remains a key concern among displaced populations where an infectious disease outbreak such as COVID-19 can worsen the situation, increasing malnutrition sharply, leading to even higher mortality rates both as a result of the virus and as a secondary effect from reduced access to vaccinations and healthcare. Pregnant women, young children, the chronically ill, and the elderly often have compromised immune functions, making them vulnerable to infection and at risk of death.

Vulnerability in both urban and rural contexts

The urban poor are particularly vulnerable. Small and medium-sized enterprises are already closing down due to restricted movements of buyers and increasingly due to shortage of stocks of non-food items. Equally, labour opportunities for the urban poor (e.g. transportation, hospitality, tourism, domestic house help, etc.) are already on the decline and this is likely to continue as social distancing measures take effect and limit movement. These combined factors will likely drive a decline in household incomes and purchasing power for affected urban populations. Moreover, urban areas are likely to have higher rates of infection and therefore suffer greater strains on their health systems. Slum dwellers with very low incomes, who are also at the highest risk of co-morbidities, will likely be the most affected.

Rural areas, particularly remote ones, will also be badly affected. Market closures, trade disruptions, rising transportation costs, and a reduction in demand for certain commodities (particularly cash crops) could cause farmers and pastoralists to face marketing challenges that drive a decline in their income levels. For poorer households who are heavily reliant on labour work as a source of income, labour wages will fall, concomitantly reducing their purchasing power.

4 Strategies to address nutrition insecurity

4.1 Response, recovery, and reform

In the poorest countries, and those dealing with existing crises such as displacement, conflict, or climatic shocks, the additional impact of the pandemic threatens to create humanitarian catastrophes and reverse recent gains.[37] The UN estimates that around 40 countries require humanitarian support due to COVID-19.[38] The UN's global humanitarian response plan to COVID-19, which was launched on 25 March 2020, aims to address both the health and economic impacts of the pandemic on people in these countries, the latter by supporting the most vulnerable and affected people to meet their basic needs.[39] The Red Cross Red Crescent COVID-19 appeal has similar goals.[40]

Income shocks to families can very easily turn into a crisis of malnutrition across a country, especially at a time when the regular healthcare infrastructure is already under stress, disrupting support to breastfeeding, dietary diversification, food fortification, and treatment of severe and moderate malnutrition. **Even a 'flattened' COVID-19 transmissions curve may have a long tail with potential spikes,** especially for the under-fives who have missed Vitamin A and zinc supplementation and vaccinations such as MMR due to COVID-19.

The goal in any response is to address the immediate, underlying, and basic causes of malnutrition (see Figure 2), within which health and food security interventions are essential. The conceptual framework of the Maintains research envisages that to respond to COVID-19 there will be three phases: response, recovery, and reform. The following recommendations are aimed at governments and the international community and are intended to protect nutrition outcomes. However, each country will vary in terms of its level of preparedness, capacity, coordination, infrastructure, and financing for nutrition response, recovery, and reform. With the challenge posed by COVID-19 it is vital that there is a united response across governments, the international community, donors, researchers, and sectors to ensure a common purpose in responding to malnutrition and upholding nutrition systems.

There will need to be flexible, adaptive approaches that can respond to nutrition needs within different vulnerable groups across a country. These phased approaches could, for example, simultaneously address response for nutrition support while agreeing reformative policy change to strengthen preparedness measures that will enable a more robust response to a second peak of the pandemic in the under-fives. Wherever possible the intention is that interventions are supported through government systems strengthening rather than parallel responses. It is clear that, in order to meet food and nutrition security needs, LMICs will need to adopt reform measures that will not only stabilise the situation with respect to ensuring access and availability of nutritious food and nutrition support for malnutrition but also ensure preparedness in the event of another health disaster.

Nutrition support[41]:

- Where safe and feasible, maintain continuity of ongoing nutrition-specific and nutrition-sensitive programming[42] (including monitoring, vaccination programmes, micronutrient supplementation, treatments for moderate and acute malnutrition, etc.) and ensure contingency plans are in place to modify delivery modalities where required.

- Intensify nutrition screening and management of acute malnutrition (applying safe/adapted approaches as needed following the guidance from UNICEF, GTAM, and the Global Nutrition Cluster) to prevent a surge in cases and use the opportunity to promote best practices in infection prevention and control.
- Prioritise appropriate and timely infant and young child feeding in emergencies, following the Operational Guidance by the Infant Feeding in Emergencies Core Group – including for early initiation and exclusive breastfeeding – and modified as per COVID-19 guidance.
- Emphasise continued compliance with the International Code of Marketing of Breastmilk Substitutes and minimise the risks of artificial feeding.
- Evidence-based micronutrient interventions such as bio-fortification, food fortification, and supplementation need to be scaled up in specific contexts, as they are critical in supporting micronutrient nutrition, particularly for population groups with high needs and in contexts where the required dietary shifts are not available or accessible.
- Strengthen existing community health service structures to prevent a deterioration in caseload and severity of all forms of malnutrition. This may include expansion of the scope and coverage of community health interventions and service adaptations to minimise the risk of COVID-19 transmission.
- Support nutrition information management, surveillance, and monitoring to allow resource prioritisation.
- Ensure an integrated systems approach at country level that acknowledges the roles of the health, agriculture, food, WASH, social protection, and education systems in relation to nutrition.
- Leverage the commitment and momentum of existing multi-sectoral structures for coordinating action to reduce the risk of malnutrition.
- Ensure that the importance of malnutrition prevention and treatment is kept in mind during all phases of the epidemic and that the allocation of resources within the health system reflects the key role that nutrition has in preventing excess morbidity and mortality in children and other population groups.

Food systems support[43]:
- Monitor imports and exports of food to assess the impact on national and regional food security.
- Where necessary, provide direct food distributions or food subsidies to support affordable, adequate, safe, and diverse foods that contribute to healthy diets for poor households and the most vulnerable.
- Include food system and food supply chain actors (even domestic farmers) as essential services to ensure availability, while protecting workers with sanitary measures.
- Implement campaigns to encourage the safe selling of foods by retail outlets, including small shops and markets in informal settlements.
- Encourage civil society monitoring of markets to reduce the risk of stockpiling and speculation that may lead to reductions in supply and increased food prices.

Food quality support:
- Monitor food prices, food security, and malnutrition indicators.
- Continue food fortification programmes such as Vitamin A supplementation to complement vaccination campaigns.
- Support major food providers to undertake needs-based purchasing that ensures the availability of basic food items, including fresh fruits and vegetables, to ensure continued food diversity.

Social protection:
- Prioritise the continuity and expansion of social protection support to vulnerable households.
- Ensure that adjusted/expanded social protection programmes take into account the costs of an adequate household food basket and allow for any inflation.

- Strengthen and adapt social protection programmes in light of price fluctuations, income losses, and nutritional needs. For example, regular payments could temporarily be increased to cover income losses to existing and newly vulnerable beneficiaries (who may already be registered as previously eligible beneficiaries).
- Government support to workers who have been laid off and furloughed.

Market intervention and livelihoods support:

- Support and protect medium-sized and smallholder farmers and their value chains/ market access through, for example, subsidies, grants, cash transfers, fuel allowances, and tax reductions (e.g. preferential tax relief to domestic farmers/producers).
- Adopt subsidies and taxes that promote the availability of nutritious food and access to it.

5 Conclusions

This literature review has revealed a large number of **knowledge gaps and research needs**. These include:

- The interaction between COVID-19 and undernutrition, including the development and testing of a practical field-based case definition for COVID-19 in malnourished children, the impact of infection on treatment outcomes, and the impact of the epidemic within countries on the delivery and performance of nutrition-related treatment programmes.
- The interaction between malnutrition and HIV, TB, and COVID-19, including how these co-morbidities may influence the risk of developing malnutrition and subsequent treatment outcomes.
- Use of alternative service delivery models for the monitoring and treatment of malnutrition, including how best to integrate these services within other public health priorities such as child vaccination.
- The role of sex and gender in determining nutrition and health risks during different phases of national COVID-19 epidemics.

In terms of **recommendations for future action** to address nutrition challenges, it is clear that policy actors need to address not only the immediate but also the secondary impacts of the crisis and focus on policy changes that will both alleviate the strain on the health system and protect nutrition outcomes.

As the scale of this pandemic is unprecedented, predictions for how the effects of the virus are played out are probable scenarios rather than real-time experiences. Maintains can add to the thinking and influence programme and policy across the worst-affected countries by providing technical assistance to governments and donors to support nutrition-specific and nutrition-sensitive programmes that aim to address the immediate, underlying, and basic causes of malnutrition, while also being integrated, whenever possible, within the broader public health response.

Technical assistance could support work related to health and nutrition systems management and the interrelationship between this and other systems such as social protection related to COVID-19.

Most of the Maintains countries have social protection systems that currently transfer regular payments to vulnerable households. Maintains could look at the overlap between the beneficiaries for social assistance (both existing and new) and individuals affected by malnutrition in order to make a technical case for more nutrition-sensitive social protection programming.

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Key documents are captured here. The endnotes section includes other useful publications.

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Annex 1: Likely phases of the epidemic in LMICs and fragile states

Table 2: A categorisation of the likely phases of the COVID-19 epidemic in LMICs and fragile states

Epidemic phase	Examples of appropriate system responses to use for analysis of actual country-level actions[a]	Relative food security and malnutrition risk level
Phase 1 – Low prevalence of SARS-CoV2 infection in the population with sporadic detection of COVID-19 cases in clinical settings. Rapid transmission of infection largely undetected.	Rapid and large-scale health system preparedness planning and action; shut down of schools; stringent social distancing; hygiene promotion	Low
Phase 2 – High incidence and prevalence of SARS-CoV2 infection and increasing levels of COVID-19 cases.	Activation of surge response	Low
Phase 3 – High incidence and prevalence of SARS-CoV2 infection and surge in numbers of COVID-19 cases start to overwhelm health system capacity.	Scaling up to maximum capacity; use of mass casualty approaches; triaging of cases	Medium
Phase 4 – Peak prevalence of SARS-CoV2 infection and COVID-19 cases. Health system overwhelmed. Large-scale staff absenteeism due to sickness and exhaustion. Collapse of all routine services.	Strict triaging limited to cases most likely to survive; life-saving and palliative care interventions only; great majority of cases receive home-based care	High
Phase 5 – Incidence and prevalence of SARS-CoV2 infection starts to decline while number of COVID-19 cases remains elevated due to lag time between infection and severe illness.	Strict triaging limited to cases most likely to survive; life-saving and palliative care interventions only; home-based care predominates	High
Phase 6 – Incidence and prevalence of SARS-CoV2 infection continues to decline and number of COVID-19 cases starts to decline. Increasing numbers of health staff recovered and return to work. An increase in child morbidity and mortality is observed due to the secondary effects of the outbreak on household economies and the prior collapse in routine services.	Reestablishment of basic life-saving interventions and vaccination services	High
Phase 7 – As cases of COVID-19 fall the health system is faced with a spike in childhood and, in some contexts, adult malnutrition, followed over the coming months by increases in outbreaks of vaccine-preventable diseases such as measles and diseases associated with a degradation in WASH systems and services such as cholera. The adult mortality rate falls but the under-five death rate continues to rise.	Restructuring of health services to meet new emerging threats and contain likely rise in child mortality. Continued surveillance for a new epidemic of COVID-19	Very high

[a] Experiences in China, Italy, the UK, the US, and elsewhere have provided stark indicators of the impacts of timely or delayed responses during Phase 1 and 2.

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