

Executive Summary

Reducing Stunting in Ethiopia: “From Promise to Impact”

+ Included:

- Description of a problem
- Viable options for addressing this problem
- Strategies for implementing these options

× Not included: recommendations

This policy brief does not make recommendations regarding which policy option to choose



EPHI

Who is this evidence brief for?

Policymakers, their technical & support staff, and other stakeholders with an interest in the problem addressed by this evidence brief

Why was it prepared?

To **inform deliberations** about health policies and programmes by **summarizing the best available evidence** about the stunting and viable solutions

What is an evidence brief for policy?

Evidence briefs for policy bring together **global research evidence** (from systematic reviews*) and **local evidence** to inform deliberations about health policies and programmes

***Systematic Review:** A summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise the relevant research, and to collect and analyse data from this research

Full Report

The evidence summarised in this Executive Summary is described in more detail in the [Full Report](#)

Key messages

The problem:

Stunting is a severe public health problem in Ethiopia leading to huge economic loss every year (16.5 percent of the GDP)

Ethiopia is among countries with the highest number of stunted children (child who is too short for their age) in the world. About two out of every five (38.4 percent) children under five years are stunted. To end child malnutrition including stunting, the country has signed different global initiatives and made national commitments. However, the current investment levels are inadequate to drive the progress that is needed to meet these targets.

Causes of the Problem:

The causes of stunting are multi-sectoral and multifactorial, including food, health, and care practices, and are classified as underlying (maternal, household and regional characteristics), intermediate (individual/household level) and immediate (individual level).

Policy options:

Nutrition-specific interventions, nutrition-sensitive interventions, and well-coordinated and fully authorized multi-sectoral approach in the form of consolidated independent government entity are the potential strategies to address the contextual problems of stunting in Ethiopia based on the current best available evidence.

- ❖ The ten nutrition-specific interventions can make a substantial difference for poor segments of the population who are at greater risk
- ❖ nutrition-sensitive interventions might help to accelerate progress in improving nutrition by increasing the effectiveness, coverage, and scale-up of nutrition-specific interventions
- ❖ Shifting the current multi-sectoral approach to a consolidated independent entity might improve the nutritional status of the nation
- ❖ Given the limitations of the currently available evidence, there is a need for rigorous evaluative research prior to widespread implementation for all the options.

Implementation strategies:

A combination of strategies is needed to effectively implement the options. Barriers to implementing all three options include complexity in coordinating different sectors, lack of rigorous monitoring and evaluation (M&E) systems, budget constraints, technical capacity, and sustainability. The strategies to implement the options include:

- Developing clear manuals or guidelines for the three options
- Develop nationally standardized M & E tools with Key indicators for each sector
- Pool all the existing nutrition-related funds from all sectors and form government budgetary line
- Capacity building of implementing sectors through training, mainstreaming, mentorship, experience sharing, and best practice

The problem

Stunting is defined as the percentage of children aged 0 to 59 months whose height for age (HAZ) is below minus two standard deviations (moderate and severe stunting) from the median of the 2006 WHO Child Growth Standards (WHO, 2018a). Stunted children are too short for their age. Stunting is a manifestation of severe, irreversible physical, physiological and cognitive damage caused by chronic malnutrition during a child's first 1,000 days or from the beginning of pregnancy until the age of two years (UNICEF, 2018; World Bank Group, 2016).

Globally, about 151 million (22 percent) under five children were stunted in 2018. Low-income and lower-middle-income countries account for almost all (91 percent) stunted children worldwide whereas more than one in three exists in Sub-Saharan Africa including Ethiopia (UNICEF/WHO/World Bank, 2018). Although the prevalence of stunting is decreasing in all regions of the world, Africa is the only region with a rising number of stunted children. In view of this, the absolute number of stunted children in Africa is expected to increase from 56 million in 2010 to 61 million by the year 2025 (Black et al., 2013; UNICEF/WHO/World Bank, 2018). Ethiopia is among countries with the highest number of stunted under-five children in the World (IFPRI, 2016; WHO, 2016).

Size of the problem

In Ethiopia, about two out of every five (38.4 percent) children under five years are stunted (CSA and ICF, 2016; UNICEF/WHO/World Bank, 2018). Though the recent Ethiopian Demographic Health Survey (EDHS 2016) highlighted that the prevalence of stunting among children under five is decreasing, the prevalence remains unacceptably high with wide regional variations (CSA and ICF, 2016).

The high stunting rate in Ethiopia has resulted in subsequent life course impact on the long-term health of individuals and the socioeconomic development of the nation (FMOH, 2015). When a child is stunted, he or she will have an increased chance of experiencing various health problems, reduced cognitive capacity and are more likely to repeat grades in school.

Consequently, 16 percent of all primary school repetitions in Ethiopia are associated with stunting. The cost of hunger report estimated that about 67 percent of the adult population in Ethiopia suffered from stunting as a child. As a result, Ethiopia losses 16.5 percent of its GDP each year due to long term effects of child undernutrition (African Union Commission, 2013).

Cause of the problem

Different studies have established various determinants of stunting for children under the age of five years. However, there is lack of agreement about the relative importance of factors affecting the nutritional status of children (Wondimagegn, 2014). A conceptual framework by *Fenske et al, 2013* was considered to conceptualize the causes of stunting in this evidence brief. This framework was used mainly because it is a result of systematic review specific to lower and middle income countries and focuses on causes of stunting within the first 1000 days of life. Accordingly, the causes of stunting are multi-sectoral and multifactorial, including food, health, and care practices, and are classified as underlying (maternal, household and regional characteristics), intermediate (individual/household level) and immediate (individual level) (Fenske et al, 2013). Where found appropriate, UNICEF malnutrition framework was used as a supplementary document.

1. Underlying causes

1.1. Maternal Undernutrition

Maternal undernutrition contributes to fetal growth restriction, which increases the risk of neonatal deaths and, for survivors, of stunting by 2 years of age (Black et al., 2013; Gluckman & Pinal, 2003). A number of studies in Ethiopia have shown a significant association between maternal nutrition and child stunting (Behailu et al., 2014; Berihun, 2013; Medhin et al., 2010; Mulugeta et al., 2010).

1.2. Short Birth Spacing

Short-spaced births do not allow women's bodies to recuperate and replenish essential nutrients and lead to poor nutritional outcomes; and it has been associated with increased

prevalence of stunting among children under-five (Naik, 2015). Studies conducted in Ethiopia (Asfaw et al, 2015; Berhanu et al, 2018) and elsewhere also found that short birth spacing played an important role in increasing stunting prevalence (Sudfeld et al, 2014).

1.3. Poor Parental education

Parental education and particularly maternal education is associated with lower rates of child stunting (Semba et al., 2008). Various studies in Ethiopia have also shown that maternal education has a significant influence on the reduction of child stunting (CSA and ICF, 2016; FMoH, 2016b; G.Woldemariam, 2002; Gebreyesus et al, 2015; Woodruff et al., 2016).

1.4. Inadequate food production and distribution

Five major kinds of cereal which are the staple food of the country (teff, wheat, maize, sorghum, and barley) are the core of Ethiopia's agriculture accounting for about three-fourths of the total area cultivated, and 64 percent of calories consumed (Taffesse, Dorosh, & Asrat, 2017). The yields of cereals are low by international standards, and overall production is highly susceptible to weather shocks, particularly droughts with 26.4 percent drought-prone farm (Taffesse et al., 2017). The diet in Ethiopia is often lacking in animal-source foods (meat, fish, eggs, and dairy) and the availability of fruits and vegetables is also exceedingly below the average (COMPACT, 2016). On top of this, there are significant postharvest losses ranging from 30 to 50 percent (Kitinoja & Kader, 2015). Food prices are also a major factor affecting food choices (Ghattas & FAO, 2014).

1.5. Food Insecurity

Studies conducted in developing countries including Ethiopia have shown that food insecurity and stunting has a direct association. A study done in Ethiopia showed children among moderately food insecure households were more likely to be stunted than children living in food secured household (Gebreyesus et al., 2015).

In 2015, about 10 percent of Ethiopian citizens were chronically food insecure and this figure raised to more than 15 percent during subsequent drought years(Endalew et al, 2015).

In 2016, 10.2 million people (435,000 children under five) were in need of emergency food assistance as a result of El Niño global climatic event and this number remains largely unchanged due to the significant spike in internal displacement since April 2018 (OCHA, 2018).

1.6. Low Household Income

A stunted child is more likely to have been borne into a low-income household; hence, intergenerational transmission of poverty and of childhood stunting is a possibility and may become a vicious cycle (Martorell & Zongrone, 2012). According to the recent Situation Analysis of the Nutrition Sector (SITAN) study in Ethiopia, there is an association between poverty and stunting, hence, children from lowest wealth quintile were found to be stunted (FMoH, 2016b).

1.7. Socio-Cultural beliefs and Practices

Within Ethiopian society, cultural practices that affect nutritional outcomes have been identified. For instance, in some communities, it is taboo for the mother to eat meat and eggs during pregnancy, believing that it will lead her to have a big baby, which can cause problems during delivery. Similarly, some communities believe that pregnant mothers should not consume milk because the baby could have a whitish covering over its head when it is born. There is also a belief that food should not be given to a child who is suffering from measles or diarrhea. Some of the cultural factors that may affect child stunting in Ethiopia include societal beliefs that children and women should eat last i.e., usually leftovers and poor quality of food (FMOH, 2013).

Religious beliefs and practices can also affect nutrition outcomes. For instance, the fasting practices (220 days per year for the Orthodox Church) in which no animal products consumed exacerbate maternal and child undernutrition in Ethiopia. Based on the study from the ENGINE project in Ethiopia, although pregnant women and children under the age of seven are excused from fasting, it was observed that many still fast in solidarity with the rest of the family (ENGINE, 2014) because of fear of inter-contamination of kitchen

utensils. Another spiritual practice is the case of the Afar community, where the newborn should wait until the morning sunrise before initiating breastfeeding (Sabit et al, 2013).

1.8. Poor Maternal Decision-Making Power

A cross-country study that analyzed DHS datasets from 12 low and middle-income countries found that mothers' greater decision-making power was positively related to children's height-for-age (Desai & Johnson, 2005). In most parts of Ethiopia, women have less access to money, land and other resources, and less control over family decisions than men (FMOH, 2013).

2. Intermediate causes

2.1. Poor Water, Sanitation and Hygiene Practices (WASH)

Unsafe drinking water, poor sanitation, and hygiene results in undernutrition and stunting in children (Dangour, 2013; Lin et al., 2013). Likewise, poor water, sanitation, and hygiene (WASH) services were identified as one of the main risk factors for child stunting in Ethiopia (Bitew et al, 2016; FMOH, 2016b; Tariku et al, 2014).

2.2. Inappropriate Infant and Young Child Feeding Practice (IYCF)

Ideally, infants should be breastfed within one hour of birth, breastfed exclusively for the first six months of life and continue to be breastfed up to 2 years of age and beyond with appropriate complementary feeding. However, only 58 percent of mothers exclusively breastfeed, while 67 percent of children under two years of age are receiving age-appropriate breastfeeding in Ethiopia and only seven percent of Ethiopian children fed according to the minimum acceptable diet (MAD) (FMOH, 2016; Motbainor et al, 2015).

2.3. Micronutrient deficiencies

Adequate intake of minerals and vitamins are essential for proper growth and development (WHO, 2018). In Ethiopia, among children aged 6-59 months, only nine percent have taken iron supplement while 45 percent took vitamin A supplementation (CSA and ICF, 2016).

2.4. Poor access to healthcare services

The WHO framework of childhood stunting by context, causes and consequences illustrate access to health care, qualified healthcare providers, availability of supplies and infrastructure, health care system and policies as a community and societal (contextual) factors that are related to stunted growth and development(Stewart et al, 2013). Similarly, studies in Ethiopia show low healthcare utilization for childhood illnesses might contribute to child nutritional losses(Alene et al, 2019; Sheikh et al., 2017).

3. Immediate determinants

Infection, Inadequate Caloric and Nutrient Intake and Uptake

Nutrient intake and uptake of a child is affected by infection; decreasing food intake, impairing nutrient absorption, causing nutrient losses due to vomiting, diarrhea, poor digestion, increased metabolic requirements, impaired transport of nutrients to tissues and also altered long bone growth (Stephensen, 1999).

In Ethiopia, childhood illnesses and a heavy burden of multiple infections have been recognized as important risk factors negatively affecting linear growth in children (Asfaw et al, 2015; Bitew et al, 2016; Senay et al, 2016; Tariku et al, 2014). In addition, different studies also showed that the presence of diarrhea (Asfaw et al, 2015; Teshomee et al, 2010; Wirth et al., 2017) and malaria were highly associated with stunting.

Poor Multi-Sectoral Collaboration

Even though, poor multi-sectoral collaboration could not be listed as one of the causes of stunting in Fenske et al 2013/UNICEF/WHO framework, evidences show that stunting is a multi-causal problem which needs a well-functioning multi-sectoral platform for its reduction. These platforms function at their best where there is an agreement on common results and objectives, membership and terms of reference, organizational framework(s) and working procedures(Horton et al, 2010). However, current Ethiopia's approach to multi-sectoral collaboration is characterized by lack of accountability, authority line being parallel, unclear structure from national to local level, and sectors failing to see their

intervention with nutrition lens as highlighted in the multi-sector implementation assessment reports by the Federal Ministry of Health. The Ministry's report indicates 46 percent sectors did not establish structure and did not develop a strategic document, 38.4 percent did not have a plan, and only 30 percent had government budget line. The scorecard assessment findings indicated majority sectors fell below expectations and there were no continuous efforts to track changes (FMoH, 2017).

Policy options¹

Ethiopia has endorsed major global and national commitments and envisioned to see children free from undernutrition including stunting. As part of the national commitments, key targets include the “Seqota Declaration” to end stunting in children under two by 2030 and the Health Sector Transformation Plan to Reduce childhood stunting in under-five years from 40% to 26% by the end of the year 2020 (FMOH, 2015).

Despite the above commitments, the country is off-track and needs a proven high impact evidence-based and integrated interventions to achieve the ambitious targets. For instance, according to the global progress report, Ethiopia requires 6 percent average annual reduction rate (AARR) to achieve the World Health Assembly 2025 target of 26.8 percent prevalence. But the current reduction rate is only at 2.8 percent which is far below the expected annual reduction rate (WHO, 2015).

This evidence brief, therefore, tries to address the contextual problems based on the current best available evidence. The options are: 1) Nutrition-specific interventions, 2) Nutrition-sensitive interventions, and 3) Shifting the current multi-sectoral approach to a consolidated independent government entity. These three options and their potential impacts on reducing child stunting in Ethiopia are described below.

¹ Policy Options here refers to possible interventions for the reduction of stunting which could be applied independent of each other, or in combination or all.

Option 1

Nutrition-specific Interventions

Nutrition-specific interventions or programs address the immediate and some intermediate determinants of stunting (Black et al., 2013). According to the lancet maternal and child nutrition series, ten proven nutrition-specific interventions can make a substantial difference for poor segments of the population who are at greater risk.

The following are the ten nutrition-specific interventions addressing immediate and some intermediate causes:

- Management of severe acute malnutrition (SAM)
- Management of moderate acute malnutrition (MAM)
- Maternal and child micronutrient supplementation
 - Maternal calcium supplementation
 - Periconceptual folic acid supplementation
 - Vitamin A administration in children aged 6-59 months
 - Preventive zinc supplementation in children aged 6-59 months
 - Maternal balanced energy protein supplementation
 - Multiple micronutrient supplementation in pregnancy
- Infant and Young Child Feeding Practice (IYCF)
 - Optimum breastfeeding
 - Appropriate complementary feeding

Impacts of nutrition-specific interventions

We could not find a systematic review dealing with the impacts of nutrition-specific interventions in reducing the level of stunting in children less than five years. However, based on the lancet maternal and child nutrition series, nutrition-specific interventions have a direct impact on the prevention and treatment of undernutrition, in particular, the 1,000 days covering pregnancy and child's first two years. If these ten proven nutrition-specific interventions were scaled up from existing population coverage to 90 percent, the prevalence of stunting could be reduced by 20 percent and that of severe wasting by 60 percent (Black et al., 2013).

Current Practice in Ethiopia

Though Ethiopia has undertaken various initiatives to implement nutrition-specific interventions, the implementation status of these interventions has not been well documented and the current national coverage status is *unknown*²(one can find in the [Full Report](#) of the brief).

²Unknown- indicates the current national coverage of the ten nutrition-specific interventions as a package

Option 2

Nutrition-sensitive Interventions

Nutrition-sensitive refers to interventions or development efforts that, within the context of sector-specific objectives, aim to improve the underlying determinants of nutrition (adequate food access, healthy environments, adequate health services, and care practices), or aim at least to avoid harm due to the underlying or intermediate causes, especially among the most nutritionally vulnerable populations and individuals. Various actions that contribute to addressing the determinants of malnutrition are possible in many sectors' different programs and interventions.

Nutrition-sensitive interventions or programs include:

- Agriculture and Food Security
- Schooling (Education)
- Water, sanitation, and hygiene (WASH)
- Health and Family Planning services
- Women's empowerment
- Social Protection and Safety nets (women & children)
- Early Childhood Development (ECD)

Impacts of nutrition-sensitive interventions

We could not find systematic reviews showing the impact of nutrition-sensitive interventions on stunting reduction. However, reviews and program evaluations showed nutrition-sensitive interventions might help to accelerate progress in improving nutrition by

enhancing the household and community environment in which children develop and grow, and by increasing the effectiveness, coverage, and scale-up of nutrition-specific interventions (Black et al., 2013; Hossain et al., 2017).

Current Practice in Ethiopia

Ethiopia as clearly stipulated in the NNP II has developed various nutrition-sensitive initiatives for various sectors to strengthen the implementation across sectors for the years 2016-2020. However, the initiatives lack clear and key indicators with no or poor progress tracking mechanisms (*one can find in the [Full Report](#) of the brief*). As a result, we were not able to clearly state the current status of nutrition-sensitive interventions.

Option 3

Shifting the current multi-sectoral approach to a consolidated independent government entity

The current multi-sectoral coordination and integration of nutrition program implementations in Ethiopia are not strategic to bring about sought-after changes to the long-lasting public health problem, mainly because of lack of commitment, clear structure, accountability, leadership and responsibility at all levels and in all sectors (FMoH, 2018).

Therefore, this evidence brief proposes a need for a shift in the current multi-sectoral approach to a consolidated independent government entity that is committed and accountable to planning, programming and organizing across sectors at national, regional and local levels. By consolidated independent government entity, it is to mean that to establish an autonomous federal government office where its powers and duties are vested by proclamation and having its own legal personality.

Impact of establishing an independent government entity

We could not find a systematic review dealing with the impact of an independent organization for this policy option. However, country experiences (success stories) from different countries especially from Peru (Levinson et al, 2013) showed this approach has an impact in improving the nutritional status of their nation.

Peru, under the Prime Minister's leadership (supra-sectoral), implemented the strategy at national, regional and district levels and involved various sectors. Through this organizational structure, Peru has more than halved stunting among children under-five from 28 percent in 2008 to 13.1 percent in 2016 (World Bank, 2018). There is also local experience of having consolidated independent government organization with successful multi-sector coordination in the fight against HIV/AIDS through Federal HIV/AIDS prevention and control Office (FHAPCO). Lessons from this coordinating organization can be used as a benchmark for this option.

Current practice in Ethiopia

The Government of Ethiopia has demonstrated policy commitment to nutrition by developing a National Nutrition Strategy (NNS), a five-year National Nutrition Programs (NNP I & II) and also the recent National Food and Nutrition Policy in 2018. Moreover, the government of Ethiopia has established an implementation platform; the National Nutrition Coordination Body (NNCB) and National Nutrition Technical Committee (NNTC), through which nutrition interventions are mainstreamed into sectors, integrated and coordinated to bring about the desired changes. Nevertheless, current Ethiopia's approach to multi-sectoral collaboration is lacking many aspects of these attributes according to the scorecard assessment of the multi-sectoral implementation of National Nutrition Program II (NNP-II) (FMoH, 2017).

Implementation considerations

Nutrition-specific and sensitive interventions together with an independent entity coordinating different multi-sectors are the three potential options to address the problem of stunting and to meet the global and local commitments. Strategies for implementing the options should take advantage of factors that enable their implementation as well as addressing barriers.

Enablers of improving the nutritional interventions in Ethiopia include:

- ✚ The recent National Food and Nutrition Policy
- ✚ Various Global and National Initiatives (SDGs, GTPII, HSTP, NNS, NNP I & II, SUN, “Seqota Declaration”, NIPN)
- ✚ The Development of Sector-specific policy, Strategic Plans and Programs (Nutrition- sensitive Agriculture Strategic Plan, Reproductive Health Strategy, Nutrition Strategy for Child Survival, Protective Safety Net Program IV, National School Feeding Program, National Social Protection Policy)
- ✚ The presence of Health Extension Programs with more than 40000 HEWs and Agriculture extension program
- ✚ Development army (Women Development Army and Health Development Army)
- ✚ Improved school access
- ✚ Willingness and acceptance of religious leaders by the community
- ✚ Presence of farmers training center (FTC) at lower level.
- ✚ Strong political commitment at the National level
- ✚ Improvements in public health infrastructure in both rural and urban areas
- ✚ A number of global and local partners and civil society organizations working on nutrition
- ✚ Major funding opportunities, initiatives and strong public-private partnership at a national and global level

The potential barriers and implementation strategies to address those barriers are summarised in Tables 1 and 2.

Table 1: Barriers and implementation strategies for options one and two

<i>Barriers</i>	<i>Descriptions</i>	<i>Implementation strategies</i>
Complexity by its Nature	Complexity in coordinating different sectors (stakeholder), setting key indicators and evaluating its impact in stunting reduction (FMoH, 2018).	An independent government entity committed to its overall operations
Owning responsibilities and accountabilities	The absence of a working platform that gives specific responsibilities & accountabilities to an implementing sector	Establish systems that clearly assigns responsibility and accountability to responsible sectors
Lack of budget allocation	Due to lack of prioritization for nutrition-sensitive activities; sectors may be reluctant to allocate budget	Regulatory imposition on sectors implementing nutrition sensitive interventions to establish budgetary line and to request accordingly
Sustainability	Sustainability might be affected by changing structures and strategies of the sectors	Incorporate clear nutrition-related targets and indicators in the working documents of concerned sectors.
Cultural and Social belief	Cultural and social beliefs may affect acceptance of agreed upon and standardized nutritional interventions	<ul style="list-style-type: none"> • Design community oriented and culturally acceptable intervention approaches • Community Engagement and awareness creation
Lack of Rigorous Monitoring and evaluation (M&E) systems	Many sectors lack well established M & E tools and systems specific to nutrition interventions that can measure progress and impact (FMoH, 2018)	<ul style="list-style-type: none"> • Develop nationally standardized M & E tools with Key indicators for each sector • Conduct impact assessment for each and combinations of nutrition-specific & sensitive interventions
Technical Capacity	Knowledge and skill gap may exist across the various sector to execute nutrition-related interventions	Capacity building of implementing sectors through training, mainstreaming, mentorship, experience sharing, best practice, and other methods
Lack of awareness at community/household level	There might be food and nutrition related knowledge gaps within the community	Nationwide advocacy and awareness creation platforms

Table 2: Barriers and implementation strategies for Option three

<i>Barriers</i>	<i>Descriptions</i>	<i>Implementation strategies</i>
Absence of working document (guidelines)	There are no manuals or guidelines in place to implement the option	Develop working guidelines
Budget constraints	Additional costs would be incurred in improving the management, monitoring and evaluation, training and capacity building and program-relevant research	Pool all the existing nutrition-related funds from all sectors and form government budgetary line
Sustainability	The issue of sustainability may come into existence due to resource constraints and dynamic government structures and systems	<ul style="list-style-type: none"> • Ensuring ownership at all level • decentralization of the approach to the lowest institutional structures • forge government entity by proclamation
Conflict of interests among stakeholders	Different stakeholders may have overlapping duties and responsibilities resulting in a conflict of interest in allocating and managing resources	<ul style="list-style-type: none"> • Direction should be given from the prime minister office • Collocation of resources • indicate clear mandates and roles stated in the proclamation
Weak monitoring and evaluation(M&E)	Since the option is new the existing M & E system may affect the approach.	Develop/adopt strong and rigorous M&E systems with validated indicators
Motivation to change	Sticking to the existing approach may affect the adoption and implementation of an independent government entity approach to tackle the problem	Undertake nationwide advocacy and awareness creation
Human Resource Capacity/tech capacity	The Human resource of the entity may face knowledge and skill gap since they are from various sectors with different professional and organizational backgrounds	Continuous capacity building efforts to close the gap

Next steps

The aim of this evidence brief is to foster dialogue and judgements that are informed by the best available evidence. The intention is not to advocate specific options or close off the discussion. Further actions will follow from the deliberations that the evidence brief is intended to inform.

These might include, for example:

- Careful consideration of the need for nutrition-specific intervention
- Careful consideration of the need for nutrition-sensitive intervention
- Careful consideration of the need for consolidated independent government entity coordinating multi-sector efforts
- Monitoring and evaluation of the suggested policy options and implementation strategies
- Consideration of appropriate implementation strategies for each of the three options

Authors

Dagmawit Solomon¹, MPH

Zelalem Kebede¹, MPH

Firmaye Bogale¹, MPH

Sabit Ababor¹, MPH

Desalegn Ararso¹, MPH

Ermias Woldie¹, MPH

Tsegaye Getachew¹, MPH

Samson Mideksa¹, PhD

Yosef Gebreyohannes¹, MPH

Tesfaye Hailu², MSc

Aweke Kebede², MSc, PhD

¹Knowledge Translation Directorate, Ethiopian Public Health Institute

²Nutrition and Food Science Directorate

Address for correspondence

Dagmawit Solomon, Assistant Researcher, Knowledge Translation Directorate,

Ethiopian Public Health Institute (EPHI)

P.O.Box 1242/5654, Addis Ababa, Ethiopia

Email: dagmawit_solomon@yahoo.com Tel: +251912100978

References

- African Union Commission. (2013). The Cost of Hunger in Ethiopia: The Social and Economic Impact of Child Undernutrition in Ethiopia Summary Report.
- Alene et al. (2019). Health care utilization for common childhood illnesses in rural parts of Ethiopia: Evidence from the 2016 Ethiopian demographic and health survey. *BMC Public Health*, 19(1), 1–12. <https://doi.org/10.1186/s12889-019-6397-x>
- Asfaw et al. (2015). Prevalence of undernutrition and associated factors among children aged between six to fifty-nine months in Bule Hora district, South Ethiopia. *BMC Public Health*, 15(1), 1–9. <https://doi.org/10.1186/s12889-015-1370-9>
- Berhanu et al. (2018). Prevalence of stunting and associated factors among preschool children : A community based comparative cross sectional study in Ethiopia, 1–15.
- Berihun and Azizur. (2013). Prevalence and Determinants of Chronic Malnutrition Among Under-5 Children in Ethiopia. *International Journal of Child Health and Nutrition*, (August 2013). <https://doi.org/10.6000/1929-4247.2013.02.03.5>
- Bitew et al. (2016). Prevalence of malnutrition and associated factors among children 6 – 59 months in rural communities of Jabie Tehinan woreda, west Gojam zone, Northwest, Ethiopia. Abstract Book of the 27th EPHA Annual Conference, Feb 22 – 24.
- Black et al. (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. *The Lancet*, 382(9890), 427–451. [https://doi.org/10.1016/S0140-6736\(13\)60937-X](https://doi.org/10.1016/S0140-6736(13)60937-X)
- COMPACT. (2016). compact 2025: Ending hunger & undernutrition in Ethiopia: challenges & opportunities, (March).
- CSA and ICF. (2016). Central Statistical Agency (CSA) [Ethiopia] and ICF. Ethiopia Demographic and Health Survey 2016: Key Indicators Report. Addis Ababa, Ethiopia, and Rockville, Maryland, USA.
- Dangour, A. (2013). Interventions to improve water quality and supply, sanitation and hygiene practices, and their effects on the nutrition status of children. *Cochrane Database of Systematic Reviews* (Online). 8, CD009382., (8). <https://doi.org/10.1002/14651858.CD009382.pub2.www.cochranelibrary.com>
- Desai, S., & Johnson, K. (2005). Women’s Decision Making and Child Health: Familial and Social Hierarchies. *A Focus on Gender*, 55–68. Retrieved from <https://dhsprogram.com/pubs/pdf/OD32/4.pdf>
- Endalew et al. (2015). Assessment of food security situation in ethiopia: A Review. *Asian Journal of Agricultural Research*, 9(2), 55–68. <https://doi.org/10.3923/ajar.2015.55.68>
- ENGINE. (2014). Empowering New Generations to Improve Nutrition and Economic Opportunities (ENGINE), Ethiopia: External Mid-Term Performance Evaluation Report, (September 2014).
- Fenske et al. (2013). Understanding Child Stunting in India : A Comprehensive Analysis of Socio-Understanding Child Stunting in India : A Comprehensive Analysis of Socio-Economic , Nutritional and Environmental Determinants Using Additive Quantile Regression, (March 2015). <https://doi.org/10.1371/journal.pone.0078692>
- FMOH. (2016b). Situation Analysis of the Nutrition Sector in Ethiopia 2000-2015. *Ethiopian Federal Ministry of Health, UNICEF, and European Commission Deligation, Addis Ababa, Ethiopia.*
- FMOH. (2017). ScoreCard: Multisectoral Implementation of NNPII. Addis Ababa.
- FMOH. (2018). NNP Monitoring & Evaluation Situation and Framework analysis.
- FMOH. (2013). Nutrition: Blended Learning Module for the Health Extension Programme: HEAT in Africa. *Two Oxen Ahead: Pre-Mechanized Farming in the Mediterranean*, 259–328. https://doi.org/10.1007/SpringerReference_300857
- FMOH. (2015). Federal Democratic Republic of Ethiopia Ministry of Health. HSTP: Health Sector Transformation Plan (2015/16-2019/20).

- G.Woldemariam, G. T. (2002). Determinants of the Nutritional Status of Mothers and Children in Ethiopia. *Calverton, Maryland*, 1–36.
- Gebreyesus et al. (2015). Is the adapted Household Food Insecurity Access Scale (HFIAS) developed internationally to measure food insecurity valid in urban and rural households of Ethiopia? *BMC Nutrition*, 1(1), 2. <https://doi.org/10.1186/2055-0928-1-2>
- Ghattas, H., & FAO. (2014). Food Security and Nutrition in the context of the Global Nutrition Transition. *Food and Agriculture Organization of the United Nations*, (April), 1–15. Retrieved from <http://www.fao.org/economic/ess/ess-fs/voices/en/>
- Gluckman, P. D., & Pinal, C. S. (2003). Regulation of fetal growth by the somatotrophic axis. *The Journal of Nutrition*, 133(5 Suppl 2), 1741S–1746S. <https://doi.org/10.1504/IJWMC.2013.056548>
- Horton et al. (2010). Scaling Up Nutrition. *Scaling Up Nutrition*. <https://doi.org/10.1596/978-0-8213-8077-2>
- Hossain et al.(2017). Evidence-based approaches to childhood stunting in low and middle income countries: A systematic review. *Archives of Disease in Childhood*, 102(10), 903–909. <https://doi.org/10.1136/archdischild-2016-311050>
- IFPRI. (2016). Global Nutrition Report 2016: *From Promise to Impact: Ending Malnutrition by 2030*. International Food Policy Research Institute (IFPRI).
- Kitinoja, L., & Kader, A. A. (2015). Measuring postharvest losses of fresh fruits and vegetables in developing countries. *PEF White Paper 15-02*, (September), 26. <https://doi.org/10.13140/RG.2.1.3921.6402>
- Levinson et al. (2013). Addressing malnutrition multisectorally. What have we learned from recent international experience? Case studies from Peru, Brazil and Bangladesh., 1–64.
- Lin et al (2013). Household environmental conditions are associated with enteropathy and impaired growth in rural bangladesh. *American Journal of Tropical Medicine and Hygiene*, 89(1), 130–137. <https://doi.org/10.4269/ajtmh.12-0629>
- Martorell, R., & Zongrone, A. (2012). Intergenerational influences on child growth and undernutrition. *Paediatric and Perinatal Epidemiology*, 26 Suppl 1(SUPPL. 1), 302–314. <https://doi.org/10.1111/j.1365-3016.2012.01298.x>
- Medhin et al. (2010). Prevalence and predictors of undernutrition among infants aged six and twelve months in Butajira, Ethiopia: The P-MaMiE Birth Cohort. *BMC Public Health*, 10. <https://doi.org/10.1108/IJRDM-09-2016-0164>
- Motbainor et al. (2015). Stunting is associated with food diversity while wasting with food insecurity among underfive children in East and West Gojjam Zones of Amhara Region, Ethiopia. *PLoS ONE*, 10(8), 1–14. <https://doi.org/10.1371/journal.pone.0133542>
- Mulugeta et al. (2010). Factors Contributing to Child Malnutrition in Tigray , Northern Ethiopia. *East African Medical Journal*, 87(6), 1–10. <https://doi.org/10.4314/eamj.v87i6.63083>
- Naik, R. (2015). Impacts of Family Planning on Nutrition, (March). Retrieved from https://www.healthpolicyproject.com/pubs/690_FPandnutritionFinal.pdf
- OCHA. (2018). United Nations’ Office for the Coordination of Humanitarian Affairs: Weekly Humanitarian Bulletin: Ethiopia, (65/October 2015), 1–3.
- Semba et al. (2008). Semba RD, Pee S De, Sun K, Sari M, Akhter N, Bloem MW. Effect of parental formal education on risk of child stunting in Indonesia and Bangladesh: a cross-sectional study. *The Lancet*, 371(9609), 322–328. [https://doi.org/10.1016/S0140-6736\(08\)60169-5](https://doi.org/10.1016/S0140-6736(08)60169-5)
- Senay et al. (2016). *Assessment of risk factors of stunting among children aged 6 to 59 months in Aksum town, Tigray, North Ethiopia: Sex matched case control study*.
- Sheikh et al. (2017). Prevalence and Health Care–Seeking Behavior for Childhood Diarrheal Disease in Bangladesh. *Global Pediatric Health*, 3, 2333794X1668090. <https://doi.org/10.1177/2333794x16680901>
- Stephensen, C. B. (1999). Symposium : Causes and Etiology of Stunting Burden of Infection on Growth Failure 1, 534–538.

- Stewart et al. (2013). Childhood Stunting : Context , Causes and Consequences WHO Conceptual framework, 9(September).
- Sudfeld et al. (2014). Scaling-Up Access to Family Planning May Improve Linear Growth and Child Development in Low and Middle Income Countries, 9(7), 1–9.
<https://doi.org/10.1371/journal.pone.0102391>
- Taffesse et al. (2017). Crop production in Ethiopia : Regional patterns and trends *Crop Production in Ethiopia : Regional Patterns and Trends*, (January 2013).
- Tariku et al. (2014). Prevalence and Risk Factors of Child Malnutrition in Community Based Nutrition Program Implementing and Non-implementing Districts from South East Amhara, Ethiopia. *Open Access Library Journal*, 1:
- Teshomee et al. (2010). Magnitude and determinants of stunting in children underfive years of age in food surplus region of Ethiopia: The case of West Gojam Zone. *Ethiopian Journal of Health Development*, 23(2). <https://doi.org/10.4314/ejhd.v23i2.53223>
- UNICEF. (2018). UNICEF Data:Monitoring the situation of Children and women. *Malnutrition*, 1. Retrieved from <http://data.unicef.org/nutrition/malnutrition.html>.
- UNICEF/WHO/World Bank. (2018). Levels and trends in child malnutrition: UNICEF/WHO/World Bank Group Joint Malnutrition Estimates. [https://doi.org/10.1016/S0266-6138\(96\)90067-4](https://doi.org/10.1016/S0266-6138(96)90067-4)
- United Nations. (2016). Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.
- WHO. (2015). Global target tracking tool. Retrieved from <http://www.who.int/nutrition/trackingtool>
- WHO. (2016). World Health Statistics Monitoring Health For The SDGs. *WHO.int*.
- WHO. (2018a). 2018 Global Reference List of 100 Core Health Indicators (plus health-related SDGs), (1779), 1–136. <https://doi.org/WHO/HIS/HSI/2015.3>
- WHO. (2018b). Malnutrition: key facts. Retrieved from <https://who.int/news-room/fact-sheets/detail/malnutrition>
- Wirth et al. (2017). Assessment of the WHO Stunting Framework using Ethiopia as a case study, 1–16. <https://doi.org/10.1111/mcn.12310>
- Wondimagegn, Z. T. (2014). Magnitude and Determinants of Stunting Among Children in Africa A Systematic Review -. *Current Research in Nutrition and Food Science Journal*, 2(2), 88–93. <https://doi.org/http://dx.doi.org/10.12944/CRNFSJ.2.2.05>
- Woodruff et al. (2016). Determinants of stunting reduction in Ethiopia 2000 – 2011, 2011, 1–17. <https://doi.org/10.1111/mcn.12307>
- World Bank. (2018). Fighting Malnutrition in Peru: Enhancing the demand for and supply and governance of health and nutrition services in three regions.
- World Bank Group. (2016). Reaching the Global Target to Increase Exclusive Breastfeeding: How Much Will It Cost and How Can We Pay for It? *Breastfeeding Medicine*, 11(8), 413–415. <https://doi.org/10.1089/bfm.2016.0128>