Blind to prevent wasting: Data gaps exist to identify factors that drive decline in acute malnutrition

EXECUTIVE SUMMARY

The prevention of wasting should be a public health priority as the global burden of acute malnutrition remains high. Gaps still exist in our understanding of context-specific factors and interventions that can be implemented to prevent acute malnutrition. This brief describes the patterns of acute malnutrition and identifies factors that have contributed to the change in acute malnutrition among children under five years of age between 2000-2016. Using data from the four rounds of the nationally and regionally representative Ethiopia Demographic and Health Survey (2000, 2005, 2011 and 2016), we find that the sharpest increase in acute malnutrition occurred from birth to six months of age. While economic inequities in acute malnutrition still exist, there has been a decline in the difference in wasting prevalence between the poorest and wealthiest households over time. Additionally, urban-rural inequities were less prevalent. Factors that were associated with acute malnutrition differed across different age groups (0-5 months, 6-23 months and 24-59 months) highlighting the need to design and implement age specific interventions. Change in perceived low weight at birth and recent diarrhea accounted for some of the decline in acute malnutrition. An improvement in wealth score contributed to 15 to 30 % of the total decline in acute malnutrition. Reduction in diarrhea and an increase in birth weight contributed to 15% and 7% of the decline in acute malnutrition, respectively. Less than 50% of the change in acute malnutrition was explained using available data. Our findings emphasize the importance of interventions to reduce low birth weight, diarrhea, and interventions that address income inequities to prevent acute malnutrition

Photo credit: UNICEF/Ethiopia/ 2014/Bizuwerk

THE PROBLEM

Ethiopia has a high burden of acute malnutrition; 10 % of children under five years of age are wasted[1]. Additionally, in contrast to the significant declines in stunting, wasting rates have stagnated over the past two decades[1,2]. If the current trend continues, Ethiopia will not achieve the World Health Assembly (WHA) target of reducing and maintaining wasting to less than 5% by 2025[3]. The estimated economic burden of treatment of acute malnutrition in Ethiopia is between 150-225 million USD annually[4]. The cost of supplies and human resources allocated to treat acute malnutrition are the main contributors to the economic costs associated with the treatment of acute malnutrition[4]. The high burden of acute malnutrition, coupled with the slow progress in the reduction, warrants the implementation of evidence-based preventive interventions[5]. Children with acute malnutrition have compromised immunity and have a higher risk of mortality as it increases the risk of death from childhood illnesses such as diarrhea[6]. To achieve WHA targets, evidence-based policies that address context-specific risk factors

of acute malnutrition are needed. However, gaps still exist in our understanding of the risk factors.

This brief aims to summarize the findings of an analysis done to describe the patterns of acute malnutrition and Identify risk factors that have contributed to the change in acute malnutrition among children under five years of age between 2000-2016.

BOX 1: METHODOLOGY

Data sources

We used data from the four rounds of the nationally and regionally representative Ethiopia Demographic and Health Survey (2000, 2005, 2011 and 2016) to explore the patterns and risk factors of acute malnutrition. A total of 21,923 children aged 0-59 months were included in the analysis.

Data analysis

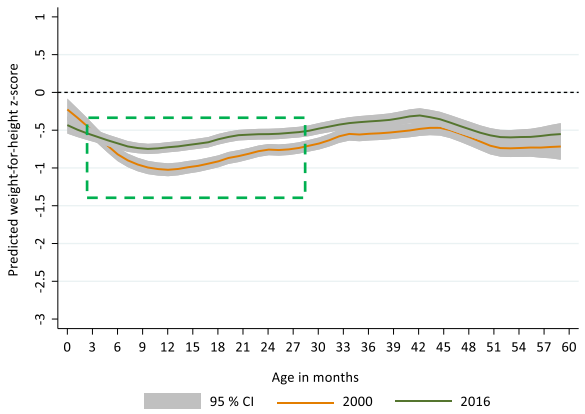
We pooled data from 2000-2016 to identify risk factors that are associated with acute malnutrition and quantified the estimated contribution change in these factors to the change in acute malnutrition between 2000 and 2016.

KEY FINDINGS

The sharpest increase in acute malnutrition occurs between birth to 6 months of life

For Ethiopian children, the sharpest decline by age in weight-for-height z score (WHZ), an indicator of acute malnutrition, was from birth to six months. As shown in figure 1, the relationship between age and acute malnutrition followed a similar pattern in both 2000 and 2016. Although mean WHZ at birth was lower in 2016 compared to 2000, the decrease from birth to 6 months was less marked in 2016. Mean WHZ was below the reference (WHO) from birth to 59 months in both 2000 and 2016.

Figure 1: Mean weight-for-height z-scores (an indicator of acute malnutrition) by child age in months. The dashed horizontal line at 0 represent the median of the WHO child growth standards.



Economic inequities in wasting exist. However, urban rural inequities are less prevalent

The difference in wasting prevalence between the poorest and wealthiest households has declined over time, however, significant economic inequities in wasting still exist (Figure 2A). Overall, urban-rural inequities in wasting were less prevalent with the absolute difference in wasting between children who reside in urban and rural settings decreasing between 2000 and 2016 (Figure 2B).

Figure 2A: Change in wasting by wealth quintiles over the period 2000-2016

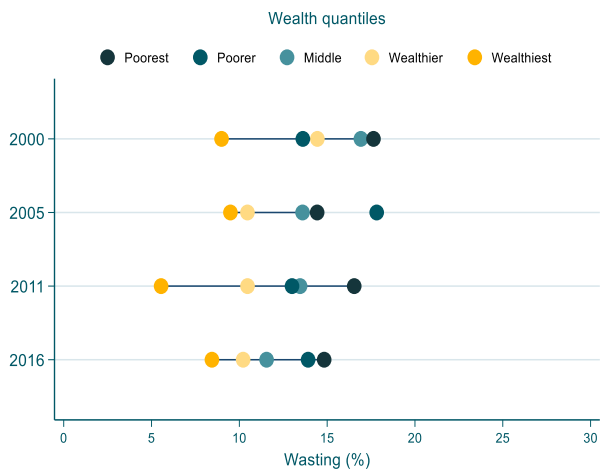
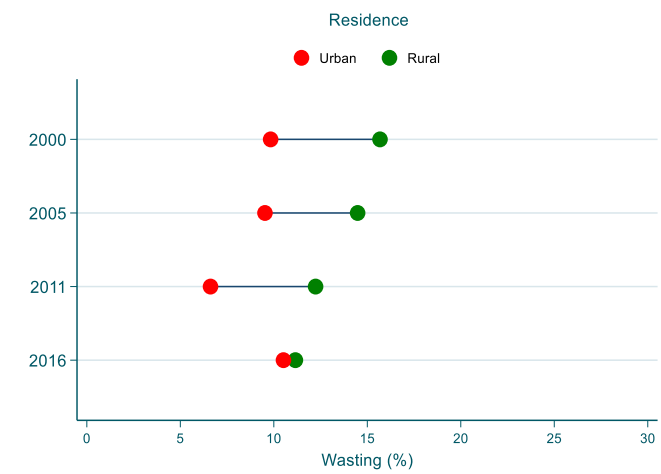


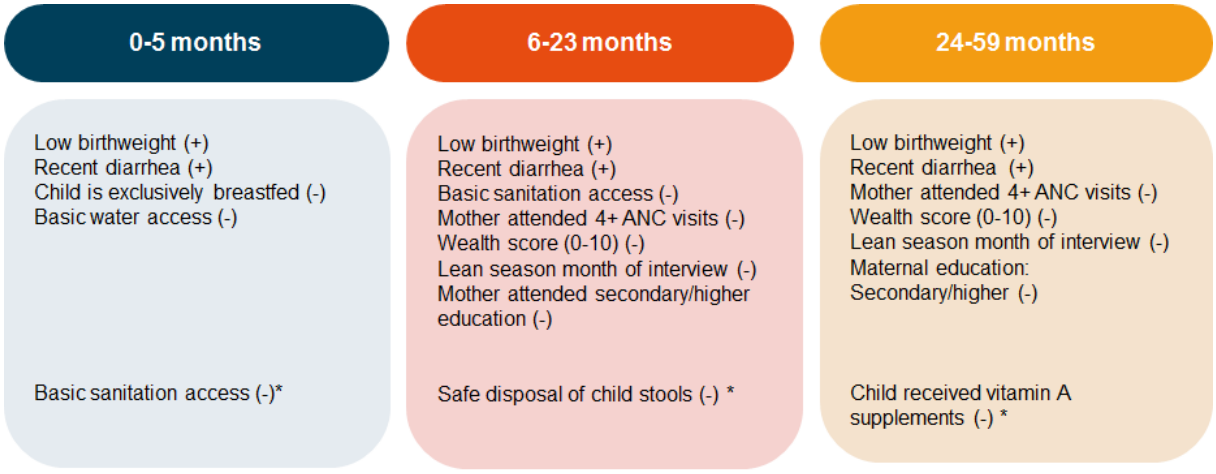
Figure 2B: Change in wasting by residence over the period 2000-2016



Factors that are associated with acute malnutrition were not the same across different age groups

Among children aged 0-5 months, significant predictors of acute malnutrition include perceived low weight at birth, recent diarrhea, exclusive breastfeeding, and access to basic water. In addition, perceived low weight at birth continues to be a significant predictor of acute malnutrition among children aged 6-23 months. Access to basic sanitation facilities, receiving at least four ANC visits, wealth, month of data collection, and maternal education were additional factors that were associated with acute malnutrition in this age group. In children aged 24-59 months, perceived low weight at birth, recent diarrhea, receiving 4 or more ANC visits, wealth, and maternal education were significant predictors of WHZ acute malnutrition.

Figure 3: Map of factors associated with acute malnutrition in children aged 0-5, 6-23 and 24-59 months in Ethiopia.

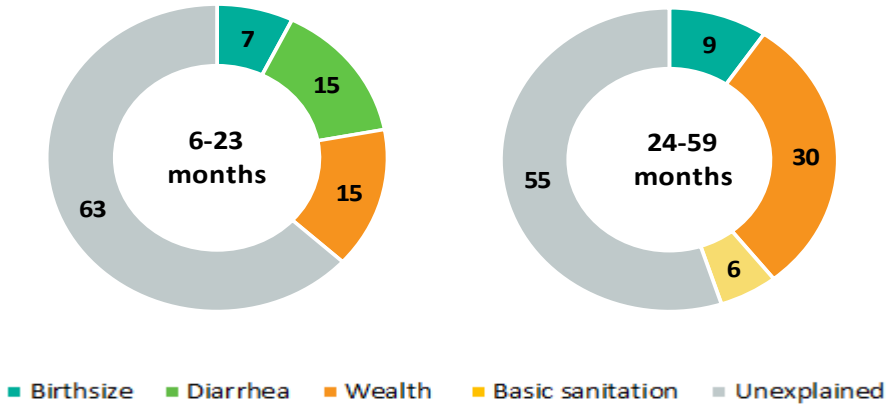


(+): positive association, (-): negative association * weak strength of evidence ANC: antenatal care

Perceived low size at birth and recent diarrhea were the main drivers of change in acute malnutrition

Risk factors included in our analysis contributed to the total decline in acute malnutrition between 2000 and 2016. In children aged 6-23 months, an improvement in wealth score contributed to 15% of the total decline in acute malnutrition. Reduction in diarrhea and an increase in birth weight contributed to 15% and 7% of the decline in acute malnutrition, respectively. Similarly, among children aged 24-59 months, a reduction in low birth weight and an increase in the coverage of basic sanitation facilities contributed to 9% and 6% of the decline in acute malnutrition, respectively. Acute malnutrition did not did not significantly change between 2000 and 2016 among children aged 0-5 months.

Figure 4: Contribution of risk factors to change in WHZ between 2000 and 2016



Less than 50% of the change in acute malnutrition was explained using available data.

For children aged 6-23 months only 37% of the decline in acute malnutrition was explained using available data on risk factors. Similarly, among children aged 24-59 month, only 45% of the decline in acute malnutrition was explained. However, more than 50% of the improvement in WHZ was unexplained highlighting data gaps to understand context-specific risk factors.

Box 2: Community Management of Acute Malnutrition in Ethiopia

Ethiopia has been implementing Community Management of Acute Malnutrition (CMAM) at scale in Primary health centers since 2008. The Federal Ministry of Health Developed the first guideline for the management of acute malnutrition in 2007[7]. In Ethiopia, children are screened for acute malnutrition in the community and health facilities. Children with severe acute malnutrition (SAM) that have complications such as edema and poor appetite are referred to inpatients stabilization centers (SC) located at Health Centers and Hospitals. Children with SAM and no complications are treated in outpatient therapeutic feeding programs (OTP) sites. Between 2008 and 2020 the program reached 3.6 million children, under five years of age, and averted more than 400,000 deaths[8].

In 2019 an updated guideline for the management of acute malnutrition was released by the Ministry of Health[8]. The new guideline added the management of moderate acute malnutrition as a focus of treatment. In the updated guideline, children with moderate acute malnutrition are referred to targeted supplementary feeding program (TSFP) which are integrated into routine health services in chronically food-insecure areas. Additionally, TSFP will be integrated with SAM treatment as a continuum of care for acute malnutrition. As of March 2021, a total of 17,309 OTP sites and 2,228 stabilization centers offer SAM management services.

ACTIONS TO PREVENT WASTING IN ETHIOPIA

ACTION 1: INCREASE THE COVERAGE OF INTERVENTIONS THAT ARE AIMED AT IMPROVING MATERNAL NUTRITION TO REDUCE LOW BIRTH WEIGHT

Our findings show that the first six months after birth are critical time points to prevent wasting. Additionally low birth weight is an important risk factor for wasting.

- Interventions that improve maternal nutrition are needed.
- Specific interventions that can be implemented at this stage include increased coverage of iron/folic acid supplementation during pregnancy and targeted supplementary feeding for vulnerable pregnant women.

ACTION 2: INCREASE COVERAGE OF INDIRECT INTERVENTIONS SUCH AS WASH SERVICES

Additionally, coverage of basic water, sanitation and hygiene (WASH) services should be scaled up along with coverage of oral rehydration solution and zinc treatment to manage diarrheal diseases.

ACTION 3: GENERATE MORE EVIDENCE TO FILL EXISTING DATA GAPS TO BETTER IDENTIFY RISK FACTORS FOR WASTING.

The current understating of Ethiopian specific factors that are causing acute malnutrition is limited due to two main factors; the lack of data on important risk factors and the lack of data over time.

ADVOCATE FOR THE INCLUSION OF MORE RISK FACTORS IN NUTRITIONAL SURVEYS:

The factors included in our analysis accounted for less than 50% of the change in acute malnutrition. Information on important risk factors such as drought, seasonal changes in food security, infection, food intake, and utilization of acute malnutrition treatment services is not collected in population-based surveys such as the Ethiopia Demographic and Health Survey (EDHS) A larger percentage of change in acute malnutrition would likely have been accounted for if more factors were included in this analysis.

ADVOCATE FOR THE IMPLEMENTATION OF LONGITUDINAL STUDIES, IMPLEMENTATION RESEARCH AND UTILIZATION OF ROUTINE DATA

Longitudinal studies that measure individual-level nutritional status overtime can better elucidate causal pathways and identify preventive interventions. Such data would enable us to take into account the relationship between factors over time and capture the seasonal patterns in exposure to risk factors.

More evidence can also be generated by utilizing routine monitoring data, collecting information and implementing well-designed program evaluations.

Limitations of the Analysis

This analysis relies on cross-sectional data which does not fully capture the interplay between multiple risk fac-tors over time. Additionally, information concerning important risk factors such as drought, and seasonal changes in food security was not available. Both these limitations may have reduced the percentage of change in wasting which likely could be accounted for with collection of these types of data.

Further Information

The manuscript from which information for this brief was drawn from is available on the NIPN website (http://www.nipn.ephi.gov.et/). Detailed descriptions of findings and statistical methods used are included in the manuscript.

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