

Wasting in South Asia

Consultation on building the evidence base
for the policy and programme response



UNICEF House, 3 UN Plaza, New York

16 November 2018

The one-day consultation was organized by UNICEF in support of the No Wasted Lives Coalition mission and priorities. The organizers thank Saul Guerrero (Action Against Hunger USA) for facilitating the meeting; the two guest presenters, H.P.S. Sachdev (Sitaram Bhartia Institute of Science and Research) and Andrew Mertens (University of California, Berkeley); and Action Against Hunger UK and USA for logistic support. The meeting was supported by the UNICEF Regional Office for South Asia.

The views and opinions expressed in this report are those of the presenters and participants in the meeting and do not necessarily reflect the position of UNICEF.

Suggested citation: UNICEF (2018). *Wasting in South Asia: Consultation on Building the Evidence Base for the Policy and Programme response*. UNICEF Regional Office for South Asia: Kathmandu, Nepal.

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Acronyms

ASHA	Accredited Social Health Activists
CMAM	Community-based management of acute malnutrition
CORTASAM	Council of Research and Technical Advice on Acute Malnutrition
DHS	Demographic and Health Survey
ENN	Emergency Nutrition Network
HBGD-Ki	Healthy Birth Growth and Development Knowledge Initiative
ICDS	Integrated Child Development Services
LBW	Low birth weight
MAM	Moderate acute malnutrition
MoHFW	Ministry of Health and Family Welfare
MoWCD	Ministry of Women and Child Development
MUAC	Mid-upper arm circumference
NNS	National Nutrition Strategy (India)
ROSA	Regional Office for South Asia
RUTF	Ready to use therapeutic food
SAM	Severe acute malnutrition
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WHZ	Weight for height z-score

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Executive summary

A one-day consultation was held in New York on 16 November 2018 to examine the evidence on wasting in South Asia and guide the direction of future collaborative efforts of the No Wasted Lives coalition in the region. The consultation was organized by UNICEF with the following objectives: (1) to share the status of policy and programme action to care for severely wasted children in South Asia; and (2) to identify evidence gaps, research priorities and way forward to build the evidence base to inform the policy and programme response in South Asia. Members of No Wasted Lives and the Council of Research and Technical Advice on Acute Malnutrition (CORTASAM), researchers and academics were invited to join the consultation. There were 32 participants, including 13 participants who joined the meeting remotely.

In the morning, presentations examined the status of and response to wasting in South Asia, with a specific focus on India, which carries about 80 per cent of the region's wasting burden and where the government is developing national guidelines on the community-based management of acute malnutrition (CMAM). In the afternoon, the participants discussed the data and evidence presented, the implications for the design of policies and programme to prevent and manage severe wasting, and follow-up actions needed.

Based on the information and evidence shared during the one-day consultation, the following conclusions were drawn.

First, the South Asia context for wasting has several unique characteristics, compared to sub-Saharan Africa where the prevalence is also high. These characteristics require further exploration because they may warrant nuanced approaches to the prevention and treatment of wasting and severe wasting. Contrary to countries in other regions, the prevalence of wasting is highest at birth in South Asia, which suggests that poor maternal nutrition is a key driver and should be considered in preventive efforts. Most infants in South Asia experience their first wasting episode by three months of age, and a higher proportion of children have prolonged episodes of wasting, hereafter referred to as 'persistent wasting'¹, than in sub-Saharan Africa. In India, severely wasted children respond lower and slower to treatment in India for reasons that are not fully understood. There are also questions concerning the mortality risks of severe wasting and child survival benefits of treatment in South Asian countries. The 'very high' prevalence of wasting (15.9 per cent) and severe wasting (5.1 per cent) in South Asia exceeds all other regions, yet the post-neonatal mortality rate is relatively low. However, these comparisons need careful interpretation and more research is needed to understand the relationship between mortality and wasting in South Asia. Furthermore, the mortality risks are not low enough to ignore, particularly in the first six months of life, and there are potentially long-term impacts of wasting on cognition and learning.

Second, the draft India CMAM guidelines and the country level adaptations build on the relatively strong community platforms for early case detection, community-based management and referral in India. With these guidelines, the government seeks sustainable and scalable solutions that focus on both the prevention and treatment of wasting, including during the first six months of life. The current draft of the India CMAM guidelines does not promote the use of mid-upper arm circumference (MUAC) to identify wasted children or the use of ready-to-use therapeutic food (RUTF) to treat severely wasted children, even though these are supported by the World Health Organization's 2013 recommendations for treatment of children with severe acute malnutrition (SAM). Instead, children will be identified using

¹In this report, 'persistent wasting' refers to a prolonged episode of wasting in an individual child. Another terminology used by participants in the consultation was 'chronic wasting'. It is not to be confused with 'persistent global acute malnutrition' at the population level, which refers to contexts in which the prevalence of global acute malnutrition exceeds 15 per cent repeatedly over several years. 'Persistent wasting' is distinguished from 'acute wasting', which refers to an episode of wasting that is of recent onset and/or short duration for the purposes of this report.

weight-for-height and/or bilateral oedema, and severely wasted children without medical complications will be treated with local foods in the form of take-home rations or hot cooked meals that are energy dense, micronutrient-rich and safely produced. Participants in the consultation concluded these approaches are likely to be adequate if the intervention provides a quality product that complies with WHO specifications, and systems are in place to identify and refer severely wasted children with medical complications for inpatient care. The draft guidelines provide an opportunity for a learning agenda including the cost-effectiveness of this alternative model of care for severely wasted children.

Third, research in South Asia can contribute to global and regional efforts in optimizing and innovating care and treatment approaches for children with severe wasting. Areas of research include modifications in the quantity, duration and formulations of RUTF use in nutritional rehabilitation; the use of home-based foods or home-augmented foods to treat severe wasting; and transitioning from treatment foods to family diets. This research could facilitate the development of a greater range of treatment options that are tailored to specific contexts that have the potential for greater coverage, quality and sustainability of care and treatment for severe wasting.

Way forward

1. There is a need for a new narrative on wasting in South Asia (and globally) that positions prevention as a first priority, and ensures children have access to treatment when prevention fails; that links wasting with stunting; and that frames the functional consequences of wasting on cognition and learning as well as the mortality risks.
2. CORTASAM is committed to supporting further exploration on severe wasting in South Asia through a sub-working group of the CORTASAM. Potential areas of focus include: the identification and prioritization of evidence gaps, building on the CORTASAM Research Agenda; the design and/or review of protocols for secondary data analysis and implementation research; and the review, interpretation and dissemination of research findings.
3. Additional analysis and publication of the Healthy Birth Growth and Development Knowledge Initiative datasets would be informative, for example, to understand the percentage of children who are 'acutely' versus 'persistently' wasted by age group; and to explore the relationship between anthropometric indices and child mortality in South Asia.
4. The January 2019 WHO meeting on "Research priorities to prevent, identify and manage young infants with growth failure in the first six months of life" will benefit from incorporating evidence on wasting in early infancy in South Asia within global discussions. In addition, the forthcoming Field Exchange edition of the Emergency Nutrition Network (ENN) on the continuum of acute malnutrition, which is due for release in June 2019, is an opportunity to share knowledge on India's thinking and progress.

Introduction

The South Asia Region has the highest prevalence and burden of wasting (15.9 per cent, 27 million) and severe wasting (5.1 per cent, 8.7 million) in the world (UNICEF et al., 2018)². Over half of the world's wasted and severely wasted children live in the region, with almost all these children concentrated in five countries: India, Pakistan, Bangladesh, Afghanistan and Nepal.

Despite increasing political support to address undernutrition in the region, wasting has not attracted sufficient policy and programme attention, and less than five per cent of severely wasted children receive treatment. Only three countries in the region (Afghanistan, Nepal and Pakistan) have national policies that include the use of ready to use therapeutic food (RUTF) to treat uncomplicated cases of severe wasting at community level. The programmes in these three countries began as an emergency response and have struggled to secure the resources needed to integrate treatment as a routine health service at scale. In other countries, including India and Bangladesh, the policy and programme response to severe wasting is contested and the coverage of interventions to prevent and manage severe wasting are at limited scale.

The context for wasting in South Asia has several unique aspects compared to other regions where the wasting prevalence is also high, such as sub-Saharan Africa. They include the very high prevalence of wasting at birth and in early infancy, the relatively low post-neonatal mortality rate, and the relatively stronger health systems. In the case of India, there is evidence that children with uncomplicated severe wasting have lower mortality and slower and lower response to treatment, including with RUTF, than is observed in sub-Saharan African countries. These issues are influencing the design of national policies to care for severely wasted children that differ from the globally recommended approaches of the World Health Organization (WHO).

A one-day consultation with global experts and researchers on acute malnutrition was organized on 16 November 2018 by UNICEF to examine the evidence in South Asia, and to guide the direction of future collaborative efforts of the No Wasted Lives Coalition in the region. The consultation had the following objectives:

- To share the status of policy and programme action to care for severely wasted children in South Asia, and ongoing hypotheses and policy/programme debates.
- To identify evidence gaps, research priorities and way forward to build the evidence base to inform the policy and programme response in South Asia.

Members of the No Wasted Lives and Council of Research and Technical Advice on Acute Malnutrition (CORTASAM), researchers and academics were invited to join the consultation. There were 32 participants in total, including 13 participants who joined the meeting remotely. In the morning, presentations examined the status of and response to wasting in South Asia and the context in India, including an in-depth look at the data on wasting, the evolution of the policy and programme response over the last 10 years, and the perspectives of the research community in India. In the afternoon, the participants discussed the data and evidence presented, the implications for the design of policies and programme to prevent and manage severe wasting, and follow-up actions needed. The agenda is provided in Annex 1 and the participant list in Annex 2.

²A child with wasting is too thin for his or her height, as defined by a weight-for-height less than -2 z-score below the median of the WHO child growth standards. Wasting can be classified as either severe (<-3 z-scores) or moderate (≥-3 and <-2 z-scores). A child with acute malnutrition is too thin for his or her height as defined by weight-for-height less than -2 z-scores below the median of WHO child growth standards, and/or mid-upper-arm circumference (MUAC) and/or bilateral pitting oedema. Acute malnutrition can be classified as either severe acute malnutrition (SAM) or moderate acute malnutrition (MAM).

Session 1: Childhood wasting in South Asia: overview of context and the policy and programme response

Harriet Torlesse, Regional Advisor on Nutrition with the UNICEF Regional Office for South Asia (ROSA), set the scene for subsequent discussions by describing the scale of the public health problem of wasting in South Asia, the contextual issues that set the region apart from other regions, and a broad overview of the policy and programme response to wasting at country level.

Prevalence and burden of wasting:

The South Asia Region has the highest prevalence and burden of wasting (15.9 per cent, 27 million) and severe wasting (5.1 per cent, 8.7 million) in the world (UNICEF et al., 2018). In addition, the region is disproportionately affected by wasting; while the number of stunted children in South Asia and sub-Saharan Africa is similar (accounting for 39 per cent and 38 per cent, respectively, of the global burden), South Asia has a much greater share of the global burden of wasting (53 per cent) than sub-Saharan Africa (26 per cent). The wasting prevalence is considered 'very high' (>15 per cent) or 'high' (10-14 per cent) in four countries (Bangladesh, India, Maldives, Sri Lanka) and is just below the 10 per cent cut-off for a high prevalence in Afghanistan and Nepal³.

Contextual issues:

Globally, severe wasting is considered a life-threatening disease, and the estimates of the costs per life saved for management of severe wasting are highly competitive with other nutrition interventions (Bhutta et al., 2013). However, the post-neonatal mortality rates (children 1-59 months) in South Asia are considerably lower than sub-Saharan Africa, despite the region having a much higher prevalence of wasting and severe wasting. While this may suggest that wasting and severe wasting carry a lower risk of mortality in South Asia than it does in sub-Saharan Africa, such comparisons need careful interpretation and more research is needed to understand the relationship between mortality and wasting in South Asia.

The age distribution of wasting in South Asian countries also differs to that in countries in other regions. Figures extracted from recent Demographic and Health Survey (DHS) reports for Bangladesh, India, Nepal and Pakistan show that the prevalence is highest or very high at birth (small size at birth) and declines with age. In contrast, similar figures extracted from DHS reports for Burkina Faso, Niger and Guinea show that the prevalence of wasting starts relatively low at birth but increases in infancy and reaches a peak at around 12 months of age, declining thereafter.

These findings suggest that a substantial proportion of wasting in South Asia is attributable to poor maternal nutrition in the region. Over 20 per cent of women of reproductive age in South Asia are thin (body mass index <18.5 kg/m²), 11 per cent of women in India have a low stature (<145 cm) and low birth weight (LBW) affects about 25 per cent of infants in the region. Thinness, low stature and LBW predict wasting and severe wasting in South Asian countries (Harding et al., 2018a; Harding et al., 2018b).

Breastfeeding and complementary feeding practices also predict wasting in South Asia (Harding et al., 2018a). Only 60 per cent of South Asian children are breastfed within one hour of birth, 48 per cent of infants aged less than six months are exclusively breastfed and 79 per cent of children 6-23 months are not fed diets with at least four food groups (UNICEF, 2018).

³ Source: Afghanistan National Nutrition Survey (2015), Bangladesh Demographic and Health Survey (DHS) (2014), Bhutan National Nutrition Survey (2015), India National Family Health Survey-4 (2015-6), Maldives DHS (2009), Nepal DHS (2016); Pakistan DHS (2017-8), Sri Lanka DHS (2016).

Policy and programme response:

There is a considerable gap between the estimated number of severely wasted children and the number of children who are admitted for treatment in South Asia, and the gap is larger in South Asia than any other region in the world (UNICEF, 2017). Key challenges in South Asia include: (1) a lack of policy consensus, particularly concerning the outpatient treatment of severely wasted children with no medical complications; (2) wasting is not positioned on the national development agenda and/or is not prioritized within the health sectors; (3) lack of sustainable funding both to maintain current programmes and scale-up; (4) inadequate integration of wasting into health systems; and (5) community-based platforms for service delivery are lacking or sub-optimally used. Only three countries in the region – Afghanistan, Nepal and Pakistan – have policies for CMAM that largely follow the globally-recommended guidelines. Elsewhere, treatment models include only inpatient care or inpatient care together with alternative approaches for community-based care.

In May 2017, UNICEF and the South Asian Association for Regional Cooperation (SAARC) jointly organized a regional conference on “Stop Stunting | No Time To Waste”. This land-mark event brought together countries from across South Asia for the first time to discuss the challenges, lessons learned, and actions needed to scale-up the care of severely wasted children. The Conference culminated in a 10-point Call for Action, which provides the future direction for all countries and was endorsed at the SAARC Health Ministers' annual meeting in Colombo in July 2017 (Box 1).

Box 1: Call to Action agreed at the UNICEF and SAARC Regional Meeting on “Stop Stunting | No Time To Waste”, May 2017 (UNICEF & SAARC, 2017)

- 1 Wasting must be addressed with greater urgency across all countries in South Asia
- 2 Wasting and stunting reduction should be addressed as two interconnected priorities in all contexts
- 3 Programmes should deliver essential nutrition actions to prevent wasting and stunting, and to treat severe wasting when preventive actions fail
- 4 Health system actors have a primary role in delivering actions to prevent wasting and stunting, together with other sectors
- 5 Community-based platforms are needed to identify and refer wasted children as early as possible
- 6 Community-based care and treatment of wasting is needed to maximize the number of children successfully treated
- 7 Inpatient care is essential for severely wasted children with medical complications
- 8 Therapeutic foods should conform to WHO specifications and can be produced in most countries
- 9 Policies and guidelines on the care and treatment of severe wasting should align with latest WHO guidelines
- 10 Quality programme data are essential to track progress and inform scale-up of programmes

While progress has been made, it is uneven across the region. Further work is needed to position wasting high on the national development agenda, including within the health sector; address the lack of policy consensus, where it exists; leverage financing to scale-up programmes sustainably; strengthen systems and the design of programmes to ensure preventive and treatment services are integrated into health and community systems and reach children; and generate knowledge to inform all of these areas.

Session 2: Understanding childhood wasting in South Asia – spotlight on India

The consultation had a specific focus on India, which carries about 80 per cent of the regional burden of wasting and where CMAM guidelines are currently under development. Session 2 began with an overview of the evolution of the policy and programme actions to care for severely wasted children in India, and then explored the data and evidence on wasting and its implications for the policy and programme response.

Evolution and current status of policy and programme actions in India: looking back on the last 10 years

Abner Daniel, Nutrition Specialist with UNICEF India, provided an overview of the last decade of policy and programme actions for the care of severely wasted children in India, the context in which the proposed CMAM guidelines are being developed, and how these draft guidelines⁴ might differ from global recommendations.

In 2008 and 2009, the Government of India communicated officially that the use of RUTF is not an accepted policy for the care of severely wasted children in India. Government efforts at that time were focused on scaling-up access to inpatient treatment for severely wasted children with medical complications. In 2011, the National Guideline on Facility-Based Management were released, and between 2011 and 2017 there was a rapid scale-up in the number of Nutrition Rehabilitation Centres to treat severely wasted children; approximately 180,000 children received inpatient care during the period April 2017 to March 2018.

In 2015, the Ministry of Health and Family Welfare (MoHFW) approved a pilot study on CMAM in selected states. A year later, the responsibility for CMAM shifted from the MoHFW to the Ministry of Women and Child Development (MoWCD), which formed a committee to draft the CMAM guidelines. In 2017, several states that were implementing the CMAM pilots took the initiative to roll-out the CMAM on a larger scale than originally intended for the pilot. This caught the attention of activists and concerned citizens who opposed the use of RUTF to treat severe wasting in India. Subsequently, the debate on the use of RUTF for outpatient treatment peaked within the media. The issue was discussed in Government and MoWCD dispatched a circular to states in early 2018 to inform states that the decision to use RUTF to treat severely wasted children is a decision that can be taken by states, in consultation with the newly launched POSHAN Abhiyaan (National Nutrition Mission). During 2018 the newly formed Technical Board worked on the technical guidelines on CMAM guideline; this process was concluded at the end of 2018⁵ and release of the guidelines is awaited.

Meanwhile, over the past 18 months, the political leadership in India has demonstrated its staunch support and commitment to addressing malnutrition in the country. The government launched a National Nutrition Strategy (NNS) and POSHAN Abhiyaan to improve nutrition outcomes. Key elements

⁴ The Draft India CMAM guidelines have not been publicly shared and the specific details are not available. However, public statements by Government officials and the minutes of the technical Board and its Sub-Committee that are working on the guidelines, provide information on the direction of the guidelines. The discussions at the one-day consultation were based on this publicly available information.

http://niti.gov.in/writereaddata/files/Minutes%20of%20Second%20NTBN%20Meeting_SG_11%2009%202018.pdf
<http://niti.gov.in/writereaddata/files/Minutes%20of%20the%20first%20meeting%20of%20the%20SSC%20-NTBN%20%282%29.pdf>

⁵ Minutes of Meeting of National Council on India's Nutrition Challenges held on 14th November, 2018 at Pravasi Bhartiya Kendra, New Delhi https://www.icds-wcd.nic.in/nnm/Events/NationalCouncil/Minutes_NationalCouncil-14112018.pdf

of the POSHAN Abhiyaan include the focus on convergent approaches, a people's movement to influence behaviour change, and the use of technology for real-time monitoring. These developments have significantly transformed the enabling environment for nutrition in the country.

Following these developments, there have been three important national-level commitments to CMAM. First, the POSHAN Abhiyaan guidelines mention that the government will develop CMAM guidelines. Second, the integrated package of health and nutrition interventions that was developed for implementation in 115 aspirational districts includes CMAM. And third, the convergent action plans that each district and block will develop will include an indicator on the number of severely wasted children who receive inpatient/outpatient treatment.

The CMAM guidelines have been drafted and reviewed by the Technical Board. The guidelines describe a comprehensive approach to CMAM involving active case finding, facility-based treatment and community-based management, and focus on both prevention and treatment. The draft guidelines have two deviations from WHO recommendations. First, the guidelines do not promote RUTF; instead the guidelines recommend that children be treated with local foods in the form of take-home rations or hot cooked meals that are energy dense, micronutrient-rich and safely produced. Second, the guidelines mention that only weight-for-height (and not MUAC) should be used to identify children with severe wasting, as opposed to using both options to identify children for treatment.

As there is a high prevalence of wasting in early infancy in India (more than one in three children have wasting (WHZ <-2 SD) during the first three months after birth, the government has also taken steps to prioritize the management of wasting in infants less than six months. A protocol for the facility-based management of severe wasting in infants under six months has been developed by MOHFW and is being tested for operational feasibility. Currently, there is no community-based programme for these infants. However, there is a host of existing community-based programmes and guidelines on newborn, child health and nutrition that target the care of infants less than six months (e.g. home-based care of newborns and young children, the feeding of LBW infants, kangaroo mother care, and the protection, promotion and support of breastfeeding). In moving forward, it will be important to review these guidelines and examine whether and how to fill gaps in the guidance for the community-based care of severely wasted infants aged less than six months. In addition, it is necessary to ensure that these national guidelines translate the programs and services into actions that reach all infants that require them.

In India, there are mature community-based systems that can provide platforms to deliver CMAM services at scale, nationwide. The Integrated Child Development Services (ICDS) Scheme provides for Anganwadi Centres in every village (400-1000 population), which are served by Anganwadi Workers and Helpers. Further, National Health Mission provides for incentivized community volunteers called Accredited Social Health Activists (ASHA) in every village. ASHA and Auxiliary Nurse Midwife (ANM) organize monthly Village Health and Nutrition Days to provide nutrition and health education, growth monitoring and promotion, supplementary nutrition, and health (including immunization) services. As part of a new home-based young child care initiative under POSHAN Abhiyaan, ASHAs will now visit every household with young children every three months from the age of three months to provide a set of health and nutrition monitoring, promotion and care interventions.

Children are weighed every month as part of growth monitoring and promotion at Anganwadi Centres. All children six months to six years receive supplementary nutrition in the form of a take home ration (six months to three years) or hot cooked meals (three to six years), while children aged six months to five years who are severely underweight are given an additional ration and are assessed for severe wasting and medical complications. Children who have severe wasting and medical complications are referred to a higher-level health facility for inpatient care. In the proposed CMAM guidelines, the weight of every child will be assessed monthly, and the weight for height of every child will be assessed every three months. Under the POSHAN Abhiyaan, the government is also designing a real-time

monitoring system to track the nutritional status of children. The 'supplementary nutrition' comprises a take home ration of fortified blended supplementary food or hot cooked meal. There are separate ration sizes for severely underweight children (6-72 months), other children (6-72 months), and pregnant and breastfeeding women. In some states, rations are also given to adolescent girls. The quality of these foods varies greatly between states; however, the government is currently looking at ways to enhance the nutritional content of these foods. This provides an opportunity to also increase the nutrient density.

In conclusion, there is unprecedented commitment from Government of India to address needs of children with severe wasting holistically. The government is developing a response to severe wasting that builds on the local community infrastructure and systems and provides sustainable solutions that focus on both prevention and treatment. This CMAM program, once launched, could potentially reach out to all children with severe wasting rapidly because of the extensive nature of the existing community-based systems and platforms that already exist in the country.

In-depth look at the data on wasting in India – what does it tell us?

Arjan de Wagt, Chief of Nutrition with UNICEF India, took a closer look at the data on wasting in India.

The age distribution of wasting in India is very different to that in some sub-Saharan countries such as Nigeria. In India, the prevalence of wasting is highest at birth and in early infancy (approximately 32 per cent during first six months of age) and declines with age. In Nigeria, the prevalence of wasting is relatively low at birth, but increases rapidly between the ages of 4 and 12 months as the child transitions to solid foods, becomes more mobile, and is exposed to health and dietary threats. These contrasting patterns of wasting suggest that poor maternal nutrition may play a larger role in the aetiology of wasting in infancy in India than it does in other settings.

The overlap between WHZ and MUAC is much lower in India than in other settings in sub-Saharan Africa. Preliminary analysis of data from surveys conducted in India that collected both WHZ and MUAC data for children under five years show that the estimates of severe wasting prevalence are about 70-80 per cent lower if they are based on MUAC (<11.5 cm) compared to WHZ (<-3 SD).

Current evidence from India suggest that severe wasting with no complications has lower mortality rates (<5 per cent for untreated children and <1 per cent for children admitted for treatment) compared to countries in sub-Saharan Africa (Bhandari et al., 2016; Burza et al., 2015; Sachdev et al., 2017; Taneja et al., 2018). Children also appear to have much slower and lower recovery rates with treatment using commercial or local RUTF in India (31-40 per cent at 8 weeks and 48-66 per cent at 16 weeks), even in contexts where intensified care and support was given to caregivers and it is unlikely that treatment outcomes were diminished by poor programme quality (Bhandari et al., 2016; Burza et al., 2015; and unpublished data). A study that compared the effectiveness of a commercial RUTF, a locally produced RUTF and augmented home prepared foods showed that the difference between the treatments are not as large as would be expected (35 per cent vs 41 per cent vs 27 per cent at 8 weeks; 48 per cent vs 57 per cent vs 43 per cent at 16 weeks) (Bhandari et al., 2016). The reasons for the lower and slower response to treatment are not understood. It has been suggested that children who have experienced severe wasting for a long period of time may respond less effectively to treatment than children who recently became severely wasted. However, there is currently no evidence to confirm this hypothesis.

Considering these contextual factors in South Asia, it could be considered that the Government of India is proposing a pragmatic response in its draft CMAM guidelines that recognizes (1) the importance of prevention and addressing wasting in the first six months of life, (2) the relatively strong community platforms for early case detection, community-based management (including existing supplementing feeding programmes) and referral, and (3) the relatively strong health system, which is able to care for

severely wasted children with medical complications. There is need to build the evidence on the effectiveness of the protocol to care for severely wasted children as they are being rolled out, and to further strengthen the capacity of the health and community systems to ensure that every child receives optimal care and treatment.

Perspectives from the research community in India

H.P.S. Sachdev, Senior Consultant Pediatrics and Clinical Epidemiology, Sitaram Bhartia Institute of Science and Research, Delhi, India made a case for the global community to take a different look at wasting and severe wasting in India. He presented his perspectives on what the wasting indicator measures, the current survival and recovery rates from severe wasting in India, and the use of RUTF as part of the treatment approach in India.

India was one of the countries that participated in the WHO Multicentre Growth Reference Study (MGRS) that led to the development of the 2016 WHO Growth Standards. In Professor Sachdev's opinion the WHO Growth Standards do not provide an appropriate standard of nutritional adequacy for 'mainstream' and underprivileged populations in India because they were constructed from elite subjects. He also argues that it is a 'leap of faith' to suggest that an undersized child (as indicated by WHZ, WAZ or HAZ indicators) is undernourished, based on these WHO Growth Standards. Professor Sachdev suggests that 'severe thinness' is a more appropriate term for WHZ <-3 SD than 'severe acute malnutrition', and that 'undersized' Indian are more 'hungry for development' than they are 'nutrition-starved'.

The trends in nutritional status in India show a steady decline in stunting and underweight but not wasting, which increased marginally between the last two national surveys (NFHS4 and NFHS3 2005-6 and NFHS4 2015-16). Therefore, child nutritional status in the country appears to be improving according to the trend in stunting, but deteriorating according to the trend in wasting, yet these two forms of malnutrition have similar predictors. This phenomenon is also observed in neighbouring South Asia countries, as well as in European populations where populations of children grew taller before they grew broader.

He concludes that aspiration to improve the growth of underprivileged populations must be balanced with realistic expectations that consider intergenerational constraints – and that it is reasonable to expect populations to grow taller before they grow broader.

Severe acute malnutrition (SAM) is often regarded as a medical emergency, requiring immediate treatment to prevent child deaths. Data from several studies that have tracked severely wasted children in India have shown that case fatality rates up to first six months of follow-up are in the range 0.7 per cent to 2.9 per cent in the absence of CMAM programmes (Burza et al, 2016; Sachdev et al., 2017; Taneja et al, 2018; CARING 2018 unpublished). According to Professor Sachdev, this data surprised the nutrition community in India because the case fatality of untreated SAM was assumed to be very high. Furthermore, the difference in the case fatality between untreated severely wasted children in these cohort studies and a CMAM trial in India (Bhandari et al., 2016) were not as high as expected. This CMAM trial recorded case fatalities of 0.35 per cent during the treatment phase (4 months) and 0.58 per cent including the sustenance phase (8 months).

Professor Sachdev also argues that spontaneous recovery from SAM occurs in the absence of CMAM. Sachdev et al. (2017) found that 13 per cent of children with SAM recovered within six months, and 27 per cent within 8 months. In CARING 2018 (unpublished), 19 per cent of children with SAM recovered within three months, and 25 per cent within 12 months. Whether children who spontaneously recovered from SAM went on to develop stunting and severe stunting is not known. While the Bhandari

et al. (2016) trial showed that early recovery after CMAM was higher (49 per cent at 4 months), but only 15 per cent were categorised as recovered at 8 months.

Professor Sachdev raises concerns that he shares with other public health experts regarding the use of RUTF to treat SAM in India including: (1) insufficient persuasive evidence to favour RUTF over home-based foods in terms of treatment outcomes, particularly in the long-term; (2) potentially unsafe fat, sugar, micronutrient and mineral content of RUTF, especially with prolonged consumption (up to 4 months); (3) very high cost of delivering CMAM at scale in India (ball-park estimates suggest that cost of RUTF at scale is equivalent to the annual budget of the POSHAN Abhiyaan, and 25 per cent of the National Health Mission).

In his concluding remarks Professor Sachdev reiterated that ‘severe acute malnutrition’ is a misnomer that magnifies pathology and inappropriately directs governments to primarily focus on product-based nutrition interventions when a broader approach is needed. He argues that ‘severe thinness’ is a more appropriate term, that case-fatality rates are not catastrophic in India and that spontaneous recovery occurs. He raised his concerns regarding the focus given to RUTF, when there is need to direct attention on the prevention of all forms of malnutrition, prevention and treatment of infections, and treatment with food and not products.

Longitudinal patterns of wasting in South Asia: Knowledge Integration analysis

Andrew Mertens, University of California, Berkeley, described the emerging findings of longitudinal analysis on the incidence of wasting, recovery from wasting, and risk factors of wasting in South Asia. This work of the “Healthy Birth Growth and Development Knowledge Integration” (HBGD-Ki) project is funded by the Bill & Belinda Gates Foundation to inform the design of strategies to prevent wasting. The research has not yet been published, and so the presentation cannot be shared publicly at this stage.

The HBGD-Ki project has a large collection of longitudinal and cross-sectional data, which currently includes 189 studies in 34 countries globally, covering over 11 million subjects. The analysis on wasting used a sub-set of these studies. All selected studies were conducted in low or middle-income countries, had a sample size of at least 200 children, were not restricted to acutely ill children, and collected measurements of weight and height at least monthly or at least quarterly. A total of 23 studies were included, including three studies in India that had monthly weight and height measurements, and four studies in India that had quarterly weight and height measurements.

The longitudinal analysis shows that children in South Asia are born with a low mean WHZ, and it stays low during the first year and beyond, whereas children in sub-Saharan Africa are born with a higher mean WHZ and falter during the first year. There is strong seasonality of WHZ in South Asia countries, and similarly in sub-Saharan Africa.

The incidence of wasting in South Asia is highest in the first three months when including or excluding wasting at birth or enrolment. Most infants in South Asia experience their first wasting episode in the first three months of life. In fact, the majority of wasting after the first year of life occurs among children who experienced wasting in early life. Data from the monthly-measured cohorts show that there is a group of children who fail to recover from wasting in early life and are ‘persistently’ wasted during the first two years of life, defined as children wasted during at least 50 per cent of measurements in the first five years of life. There is another larger group of children who are wasted in early life but recover. About 60 per cent of children who were ‘persistently’ wasted over the first two years of life had their first episode of wasting the first three months of life. Therefore, wasting in early life predicts ‘persistent wasting’. ‘Persistent wasting’ is more common in South Asia than in sub-Saharan Africa.

The proportion of children who recover from wasting⁶ is higher for infants aged 0-5 months than older children, and in addition, young children recover faster.

The co-occurrence of wasting and stunting increases with age. This is largely driven by the fact that the stunting prevalence is lower at birth and increases with age. However, the incidence of stunting and wasting is highest in the first six months of life. Children who experience wasting early in life are more likely to experience the concurrence of wasting and stunting at two years of life.

Analysis of datasets from all regions shows that low maternal weight, LBW, low maternal education and low household wealth predict 'persistent wasting'. Boys and children who were third born or later were also more likely to be 'persistently' wasted. Many of these exposures only had an association with wasting after six months, not in the first six months. The characteristics most strongly associated with wasting are not easily modifiable but could be used to identify children at high risk of wasting and 'persistent wasting' after six months.

The limitations of the data analysis included: the non-representative nature of the cohorts and randomized trials (including imbalanced geographic distribution of included studies); the anthropometry measurements were not adjusted for gestational age; the outcomes of interest were rare events (even with big data); and differential loss to follow-up and survival basis.

In concluding, this analysis provides novel estimates of age-specific incidence and coverage. It revealed high rates of early wasting onset at and immediately following birth. This pattern was strongest in India and other South Asian cohorts and emphasises the importance of prenatal nutrition and child vulnerability in the first six months of life.

Plenary discussion

Relationship between wasting and child mortality: Current evidence on the mortality risks of wasting is based on cohort studies conducted 20-30 years ago, when child mortality was considerably higher than it is today in South Asia. The risk relationships between wasting and post-neonatal mortality may now be different in South Asia. Sixty per cent of under-five deaths occur in the first month of life in the region, and most of these neonatal deaths are among full-term neonates who have fetal malnutrition (wasting at birth). This suggests that it is essential to address maternal malnutrition and infant malnutrition during the first month of age to make further gains in improving child survival in South Asia.

Approaches to address maternal malnutrition: Maternal underweight is a strong predictor of low LBW and wasting in South Asia. Studies in South Asia (e.g. MiniMat study in Bangladesh) show that food supplementation in early pregnancy and multiple micronutrient supplements can improve birth weights. However, systematic reviews have shown that multiple micronutrient supplements increase birth weight by only 30 g compared with iron-folate supplementation and food supplements by 70 g, and neither intervention impacted on birth length. While food and micronutrient supplements may be part of the solution, a boarder approach is needed to holistically improve maternal nutrition.

Indicators used to diagnose wasting in India: The government of India supports the use of WHZ, but not MUAC, to identify children with SAM under the proposed guidelines on CMAM. Several studies in other countries have shown that MUAC and WAZ are better predictors of mortality than WHZ, partly because WHZ is influenced by body shape. In infants under six months, WAZ identifies children who are born prematurely and those with LBW. Some participants in the consultation argued that MUAC and WAZ are more likely than WHZ to identify children who will most benefit from treatment, and the low

⁶ The researchers define 'recovery' as a WHZ exceeding -2 SD for at least 60 days

and slow response to treatment with RUTF and other food products in India may be because many children with WHZ <-3 SD do not need and will not benefit from treatment. India already assesses WAZ of children aged less than five years every month, and children who are severely underweight are also assessed for severe wasting and medical complications. Children with severe underweight, plus severe wasting and medical complications are referred for inpatient care; all other severely underweight children aged six months to five years receive an additional food ration compared to children who are not severely underweight. This combination of WAZ and WHZ could be considered to identify the most at risk malnourished children. However, under the proposed CMAM guidelines, all children will be assessed for WHZ, regardless of WAZ status.

Goal of CMAM programme in India – mortality reduction versus wasting reduction: The Government of India and some of its partners have not shared the same understanding regarding the goal of CMAM in India, which has inadvertently confused the policy debates. Some partners assumed that the purpose of CMAM in India was to reduce the mortality risk associated with severe wasting – as is the case in other settings – and advocated for RUTF as part of the treatment approach. However, the government considers that the very high prevalence of wasting is a greater public health problem than the relatively low post-neonatal mortality rate, and its primary aim is to lower the wasting prevalence. This ambition is reflected in the draft CMAM guidelines, which give a high priority to the prevention of wasting.

Wasting in the first six months of age: Within the first six months of age, there are several different subgroups of wasted infants: (1) infants who are wasted or LBW at birth; (2) infants who are normal weight at birth but become wasted in the first weeks after birth; (3) infants who become wasted at around 4 months of age. The profiles of these infants are different and yet by the time they reach six months of age they are often treated similarly. There needs to be a better understanding of how to identify these different subgroups of infants and to understand how the programmatic response both before and after six months should vary according to their specific needs.

Further data analysis needs and opportunities: Further data analysis needs were identified by the participants as follows:

- Can the HBGD-Ki project repeat its analysis for WAZ and MUAC?
- What percentage of children are ‘acutely’ versus ‘persistently’ wasted by age group?
- Which indicators (WHZ, WAZ, MUAC, body mass index etc) predict child mortality?
- Which indicators (WHZ, WAZ, MUAC, body mass index etc) predict ‘persistent’/‘acute’ wasting?

The HBGD-Ki datasets have the potential to run these analyses, accepted some caveats. The mortality data in the cohort datasets do not reflect the national mortality rates because the cohort subjects were closely monitored. In addition, only a few datasets include MUAC data.

Session 3: Reflecting on the data, policy and programme debates in the region

Harriet Torlesse summarized what we know and don't know about the context of wasting in the region and its policy and programmatic response:

High prevalence of wasting in early infancy in South Asia

What we know:

- Prevalence of wasting is highest at birth (LBW) in South Asian countries and generally declines thereafter.
- Wasting incidence is highest in first six months, even after excluding wasting at birth (India)
- Prevention efforts should focus on maternal nutrition and breastfeeding.
- Response efforts should give greater attention to management of at risk mothers and infants <6 months, including LBW infants.

What we don't know:

- How should 'at risk' infants <6 months be identified, both for inpatient and outpatient care?
- What is the package of care for infants and service delivery mechanisms in various contexts in South Asia?

Wasting occurs in a context of low child mortality in South Asia

What we know:

- Relatively low post-neonatal mortality in children in South Asia despite very high wasting prevalence.
- Evidence suggests that the mortality risk of uncomplicated SAM is lower than other contexts (India vs Africa).
- Mortality benefits of CMAM are contested (India).

What we don't know:

- Which indicators (WHZ, WAZ, MUAC, body mass index etc.) predict child mortality?
- Is CMAM (including treatment with RUTF) cost-effective in contexts of lower child mortality?
- What is the effectiveness of CMAM in reducing wasting and stunting and improving functional outcomes such as cognition?

Wasting may be 'persistent' in South Asia

What we know:

- Substantial proportion of children appear to be 'persistently' wasted in first years of life (India).
- Episodes of severe wasting are shorter in the first six months of life, and longer episodes in children >6 months (India), i.e. spontaneous recovery more likely to occur in first six months
- SAM children respond slower and lower to treatment with RUTF than in Africa (India).

What we don't know:

- To what extent does 'persistent' (severe) wasting explain the lower mortality, and lower and slower response to treatment in India compared to other regions?
- Does 'persistent' (severe) wasting require a different management approach to acute?
- What (combination of) indicators will identify (i) children at elevated risk of mortality and other harmful consequences, (ii) children experiencing a 'persistent' vs 'acute' episode?
- Are there alternative outpatient management approaches for children 6-59 months that are cost-effective and scalable in the context of South Asia? E.g. (therapeutic) foods with lower nutrient density, and/or given for shorter durations, and/or reduced daily ration sizes; and/or to a more targeted subset of SAM children, etc.

Participants reflected upon these issues, in the context of earlier discussions, and discussed follow-up actions, both of which were summarized in the subsequent Session 4.

Session 4: Summary and way forward

Summary

Based on the information and evidence shared during the one-day consultation, the following conclusions were drawn.

First, the South Asia context for wasting has several unique characteristics, compared to sub-Saharan Africa where the prevalence is also high. These characteristics require further exploration because they may warrant nuanced approaches to the prevention and treatment of wasting in South Asia. Contrary to countries in other regions, the prevalence of wasting is highest at birth in South Asia, which suggests that poor maternal nutrition is a key driver and should be considered in preventive efforts. Most infants in South Asia experience their first wasting episode by three months of age, and this wasting in early life predicts both 'persistent wasting' and the concurrence of wasting and stunting. In India, severely wasted children respond lower and slower to treatment in India for reasons that are not fully understood; possible explanations include the high incidence of wasting at birth and in early life, the higher prevalence of 'persistent wasting', and the use of WHZ <-3SD to identify severely wasted children for treatment. There are also questions concerning the mortality risks of severe wasting and child survival benefits of treatment in South Asian countries. The 'very high' prevalence of wasting (15.9 per cent) and severe wasting (5.1 per cent) in South Asia exceeds all other regions, yet the post-neonatal mortality rate is relatively low. However, these comparisons need careful interpretation and more research is needed to understand the relationship between mortality and wasting in South Asia. Furthermore, the mortality risks are not low enough to ignore, particularly in the first six months of life, and there are potentially long-term impacts of wasting on cognition and learning.

Second, the draft India CMAM guidelines and the country level adaptations build on the relatively strong community platforms for early case detection, community-based management and referral in India. With these guidelines, the government seeks sustainable and scalable solutions that focus on both the prevention and treatment of wasting, including during the first six months of life. The current draft of the India CMAM guidelines does not promote the use of MUAC to identify wasted children or the use of RUTF to treat severely wasted children, even though these are supported by the WHO 2013 recommendations for treatment of children with SAM. Instead, children will be identified using weight-for-height and/or bilateral oedema, and severely wasted children without medical complications will be treated with local foods in the form of take-home rations or hot cooked meals that are energy dense, micronutrient-rich and safely produced. Participants concluded that these approaches are likely to be adequate if the intervention provides a quality product that complies with WHO specifications, and systems are in place to identify and refer severely wasted children with medical complications for inpatient care. The draft guidelines provide an opportunity for a learning agenda including the cost-effectiveness of this alternative model of care for severely wasted children.

Third, research in South Asia can contribute to global and regional efforts in optimizing and innovating care and treatment approaches for children with severe wasting. Areas of research include modifications in the quantity, duration formulations of RUTF use in nutritional rehabilitation; the use of home-based foods or home-augmented foods to treat severe wasting; and transitioning from treatment foods to family diets. This research could facilitate the development of a greater range of treatment options that are tailored to specific contexts and have the potential for greater coverage, quality and sustainability of care and treatment for severe wasting.

Way forward

1. There is a need for a new narrative on wasting in South Asia (and globally) that positions prevention as a first priority, and ensures children have access to treatment when prevention fails; that links wasting with stunting; and that frames the functional consequences of wasting on cognition and learning as well as the mortality risks.
2. CORTASAM is committed to supporting further exploration on severe wasting in South Asia through a sub-working group of the CORTASAM. Potential areas of focus include:
 - Identify and prioritize evidence gaps relevant to South Asia, building on the previous efforts in the CORTASAM Research Agenda
 - Identify global and regional experts and researchers to support knowledge generation efforts in South Asia
 - Develop and/or review protocols for the secondary analysis of existing datasets in South Asia and for implementation research on the effectiveness and cost-effectiveness of alternative models of care for severely wasted children.
 - Support the review, interpretation and dissemination of the findings of secondary data analysis and research, and the implications on design of policies and programmes.
3. There are some clear areas where additional analysis of the HBGD-Ki datasets and publication of the findings would be informative. For example, to explore:
 - Percentage of children who are 'acutely' versus 'persistently' wasted by age group
 - Relationship between anthropometric indices (WHZ, WAZ, MUAC, body mass index etc.) and child mortality in infants <6 months and older children in South Asia to better target interventions
4. The January 2019 WHO meeting on "Research priorities to prevent, identify and manage young infants with growth failure in the first six months of life" will benefit from incorporating evidence on wasting in early infancy in South Asia within global discussions. In addition, the forthcoming ENN Field Exchange edition on the continuum of acute malnutrition care, which is due for release in June 2019, is an opportunity to share knowledge on India's thinking and progress.

Action points:

- ACF, IFPRI, UNICEF, WHO, WFP regional and India teams and others to draft concrete asks for CORTASAM, covering the evidence and tactical issues.
- UNICEF ROSA, working with No Wasted Lives, to draft a Terms of Reference for a sub-working group of the CORTASAM that will support evidence generation in South Asia and bring South Asia issues to the global debates.
- UNICEF Headquarters, with input from UNICEF ROSA and India, to give feedback to Bill & Melinda Gates Foundation on the value of existing HBGD-Ki analysis, to request to access pre-prints of existing analysis, and the value add of additional analysis and future publications to make this information publicly accessible.

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Annex 1: Agenda

Time	Session	Lead/presenter
09:00	Welcome and introductions	Diane Holland, Senior Advisor Nutrition, UNICEF New York
09:30	Childhood wasting in South Asia: overview of context and the policy and programme response	Harriet Torlesse, Regional Advisor Nutrition for South Asia, UNICEF
10:00	Understanding childhood wasting in South Asia – spotlight on India a) Evolution of and current status of policy and programme actions in India - looking back on the last 10 years b) In-depth look at the data on wasting in India – what does it tell us?	Abner Daniel, Nutrition Specialist, UNICEF India Arjan de Wagt, Chief of Nutrition, UNICEF India
10:45	Tea break	
11:00	c) Perspectives from the research community in India d) Longitudinal patterns of wasting in South Asia: Health Birth Growth and Development Knowledge Initiative (HBGD-Ki) Analysis e) Panel discussion with the four presenters	H.P.S. Sachdev, Senior Consultant Pediatrics and Clinical Epidemiology, Sitaram Bhartia Institute of Science and Research, Delhi Andrew Mertens, University of California, Berkeley
13:00	Lunch	
14:00	Reflecting on the data, policy and programme debates in the region	Saul Guerrero, Technical Director at Action Against Hunger, ACF-USA
16:00	Summary and way forward	Saul Guerrero and Harriet Torlesse
17:00	Closing	Diane Holland

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