



WFP/Ranak Martin; Bangladesh

Wasting and Stunting Technical Interest Group Meeting

12 – 13 May 2020



Participants

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Apologies: Liesel Tally, Kevin Phelan, Silke Pietzsch, Jonathan Wells.

ENN WaSt TIG Coordinators: Carmel Dolan, Tanya Khara.

ENN Support Team: Natalie Sessions, Laura Delfino.

Meeting Objectives and Introductions

The meeting began with a reflection of the impact of COVID-19 on the current work environment and a special thanks to everyone for taking time to attend the remote discussions. Three objectives for the meeting were noted:

1. To present and discuss the Wasting and Stunting (WaSt) workstreams.
2. To reflect on WaSt Technical Interest Group (TIG) Ways of Working.
3. To identify potential WaSt activities for Phase 4 of the WaSt Project.

Specific thanks were made to the WaSt project donors, the Office of U.S. Foreign Disaster Assistance (OFDA) of the United States Agency for International Development (USAID) and Irish Aid for their continued support.



WFP/Ranak Martin, Bangladesh

DAY 1

Presentation 1

Overview of Phase 3 activities. What has been achieved?

Tanya Khara

Full presentation slides can be found [here](#).

Tanya noted that the work of the WaSt TIG was triggered in 2013 when Emergency Nutrition Network (ENN) explored the landscape of scaling up Community Management of Acute Malnutrition (CMAM) financing and highlighted the separation between funding for wasting and stunting. Subsequent conversations focused on the separation between these two forms of undernutrition; not only in financing but also in terms of policy, programming and research. The Wasting Stunting (WaSt) Technical Interest Group (TIG) was therefore established to bring together a wide range of expertise (currently 41 members) to deepen our understanding of the relationship between wasting and stunting, and explore whether this separation was justified and effective in addressing both manifestations of undernutrition.

As a first step, the group conducted and discussed the findings of [a \(non-systematic\) literature review in 2014](#). The review indicated a crossover in aetiology between wasting and stunting and evidence of a direct relationship between the two manifestations of undernutrition,

indicating that being both wasted and stunted may carry a high risk of mortality. The review remains one of the most-cited publications developed through the WaSt project. A subsequent [research-prioritisation exercise](#) identified many evidence gaps and has informed the focus of the WaSt TIG ever since; albeit the work has been conducted in an iterative way that could be characterised as a winding journey of discovery.

Phase 3 was the longest phase to date (over 28 months) and in it much has been achieved on a small budget (approx. £51,000 pa). The focus in it was on:

1. Analysis – Adding additional databases to existing analysis work, publishing and consolidating previous analysis, and determining how to take certain aspects of analysis further.
2. Influencing – Exploring ways to shift thinking based on the results of the group's reviews and analyses.
3. Testing – Exploring ways to test the implications of the group's findings at the programmatic level.

Various sub-working groups (SWGs) (namely, a study SWG, mortality analysis SWG, viewpoint SWG, MRC Gambia analysis SWG, sex differences SWG) have driven this work forward. In particular, Phase 3 saw the completion and publication of the [analysis of longitudinal data in the Gambia](#) exploring the relationship of wasting and stunting over time, and the [SMART/mortality analysis](#) (utilising cross-sectional data and subsequently longitudinal data from Senegal to explore the epidemiology of concurrent wasting and stunting in children and how it can best be identified. At the beginning of Phase 3 the question arose of the replicability of the Senegal data-analysis finding that a combination of mid-upper arm circumference (MUAC) and weight-for-age Z-score (WAZ) measurements was able to identify children at most risk of dying, including those concurrently wasted and stunted. At the last WaSt TIG meeting it was therefore decided that, in Phase 3, the group would replicate the analysis using more mortality cohorts and it accordingly set about sourcing and getting permissions. The same findings led to the development of a study concept to test the implications of using these criteria at programme level. Funding was secured from USAID (OFDA and Global Health Bureau) and study development commenced. Progress on these workstreams was presented by Mark Myatt, Kate Sadler and Jeanette Bailey in the subsequent sessions (see below).

In relation to influencing work, a [policy brief](#) was developed at the beginning of Phase 3 by the full WaSt TIG, drawing on all the analysis conducted thus far. As early as Phase 1, the WaSt TIG drafted a *Lancet Viewpoint* piece calling for a shift in thinking around wasting and stunting. This paper received mixed peer reviews (including the view that there was insufficient evidence to substantiate the shifts it called for) and was therefore rejected for publication. Drawing on the stronger body of evidence built by the group and others in the interim period, during Phase 3 a sub-group drafted a new [opinion piece](#) calling for a major shift in thinking regarding how we assess child undernutrition, and how prevention and treatment programmes can best address the diverse causes and dynamic biological processes that underlie undernutrition. This time the group was successful. A number of other activities were carried out to expand the reach of the work of the WaSt TIG. These included a [podcast with members of the group](#), developing content for the 2018 and 2020 Global Nutrition Reports on prevalence and burden of concurrent wasting and stunting. WaSt TIG members and ENN coordinators also presented WaSt work in additional fora, including the IAEA Symposium on the Double Burden of Malnutrition, the Global Hunger Today meeting, and during the WHO technical consultations on the prevention and treatment of wasting. At the end of last year, a [Stories of Change evaluation](#) was conducted on the WaSt TIG and its work. This highlighted the significant body of work achieved on a modest budget.

Presentation 2

Mortality Analysis

Mark Myatt

Full presentation slides can be found [here](#).

This analysis of 11 cohort datasets (from 11 countries collected from 1977-1997¹) explores which anthropometric case definitions best identify children at high, short-term risk of mortality (including those concurrently wasted and stunted). Three of these cohorts include measurement of MUAC alongside weight, height and age measurements.

It was noted that assessment of the 'best' anthropometric measure needs to include consideration of the following:

sensitivity, specificity, 'informedness' (how much better the measures are than chance), face validity (in this case, the extent to which the measure reflects a severe deficit), inclusivity (the ability to identify all or nearly all children with severe deficits most likely to die in the short term (critical given the concern that current MUAC-only programmes exclude children who are wasted based on weight-for-height Z-score (WHZ) criteria and who may go on to die)), and compatibility with existing practices and tools (practicability).

¹ Niger 2014 cohort data will shortly be added as permissions have recently been negotiated.

Ten case definitions were used in the analysis: height-for-age Z-score (HAZ) <-3 , WAZ <-3 , WHZ <-3 , WHZ <-2 , MUAC <115 mm, MUAC <120 mm, MUAC <125 mm, WHZ <-2 and HAZ <-2 (i.e., concurrent wasting and stunting), MUAC <115 mm and/or WHZ <-3 , MUAC <115 mm and/or WAZ <-3). Kwashiorkor was not included in the analysis. It was found that the case definition of MUAC <115 and/or WAZ <-3 predicted all, or nearly all, deaths associated with WHZ <-3 and WaSt. WAZ <-3 alone was also found to predict most of these deaths.

Taking this one step further to explore programme implications when examining children based on MUAC <115 and/or WAZ <-3 , three possible groups emerge:

1. MUAC <115 mm AND WAZ <-3 : These children would already be admitted to therapeutic care.
2. MUAC <115 mm AND WAZ >-3 : These children would already be admitted to therapeutic care.
3. WAZ <-3 AND MUAC >115 mm: The question of what to do with these children remains. Should they be admitted onto supplementary feeding programmes (SFPs), outpatient therapeutic feeding programmes (OTPs), or treated with combined protocols? This is the group of focus for the WaSt study.

The third 'new' group (those WAZ <-3 but MUAC >115) was found in analysis to have a lower risk of mortality than the

other groups. This indicates that it might be possible to treat these children with a less intensive programme than the other two groups. When broken down further into age groups, the patterns emerging are very similar. Mark noted that growth-monitoring programmes (GMPs) are still widespread and therefore offer an opportunity to identify children in the 'new' group. Often, however, 'GMPs are simply measuring children for the sake of measuring them'; thus using them to identify children at most risk and linking them with CMAM services could leverage an underutilised service. Linking CMAM and GMPs, however, will have caseload and workload implications. Preliminary estimation suggests that caseloads could increase by a factor of 2.7, but additional cases can likely be treated with less intensive protocols, reflecting their lower mortality risk. The resulting workload may therefore be manageable, depending on the context. In terms of the types of additional children being admitted to programmes, they would likely be older, more underweight and slightly more wasted.

In summary, Mark concluded that MUAC <115 and/or WAZ <-3 measurements met the standards and are practical to measure. WAZ <-3 Z-score alone does pretty well. Once the additional cohort is added, the analysis presented will be written up for publication in collaboration with the mortality SWG.

Presentation 3

CompAS Analysis

Jeanette Bailey

Full presentation slides can be found [here](#).

Jeanette presented analysis conducted to explore the extent to which the 'new' group identified in the above analysis (MUAC >115 mm and WAZ <-3) respond to existing treatment in a combined approach (the CompAS study). This secondary analysis consisted of approximately 4,000 children (data from Kenya and South Sudan). Due to the programme admission protocols, all children in the cohort had a MUAC <125 mm; therefore children who might have had a WAZ <-3 and MUAC >125 mm were not captured. The protocol received by all children in the 'new' group was one sachet of ready-to-use therapeutic food (RUTF) or ready-to-use supplementary food (RUSF) per day (500kcal).

Approximately half the children in the CompAS trial were either severely underweight (WAZ <-3) and/or severely wasted (MUAC <115 mm) at admission. Three groups were explored: Group 1. MUAC <115 mm and WAZ ≥-3 ; Group 2. MUAC 115mm <125 mm and WAZ <-3 (the 'new' group); and Group 3. MUAC <115 mm and WAZ <-3 . Of the three groups, children in group 2 had the highest recovery (53.9%) and shortest length of stay (72.6 days). Recovery in group 1 was 19.6% and this group had the longest median length of stay (94 days). Children in group 3 had the lowest recovery (16.7%), despite being five months older on average than group 1. Children in group 3 also had the

highest proportion of defaulters (39.4%) and deaths (1.9%). Although defaulting and non-response were high in all groups studied, group 2 had lower non-response rates than the other two groups (8.9%). In all three admission groups and in both standard and combined protocols, WAZ and MUAC improved during treatment. These findings highlight that children with WAZ<-3 but who are not already included in therapeutic admission protocols based on MUAC<115mm do respond to

treatment as provided by the ComPAS protocol and have better outcomes in terms of recovery than the other admission groups studied. Finally, there was no evidence of a difference between the combined and standard protocols in terms of outcomes or response to treatment. Jeanette further noted that the main paper outlining the findings from the ComPAS study will be published shortly² and that the above analysis will be written up for publication over the next months.

Presentation 4

WaSt Study

Kate Sadler

The full paper was published in July and can be found [here](#).

Kate presented the objectives of the study. Broadly speaking, it aims to bring the evidence generated by the WaSt TIG in relation to mortality risk and anthropometric deficits outlined above into practice. Specifically, the cohort study will describe and compare, during treatment, at discharge and in post-discharge follow-up, the nutrition and health outcomes for children with MUAC \geq 115mm and WAZ<-3 admitted to one of two treatment arms that vary in intensity and frequency of contact with CMAM service providers. The study aims to determine appropriate intensity and duration of treatment for this group. Children will be randomised into one of the two treatment cohorts: a high-intensity cohort in which a higher dose of RUTF rations is given with weekly contact (two sachets of RUTF per day), with vitamin A, amoxicillin, antimalarials, measles immunisation and deworming provided; and a low-intensity cohort in which a lower-dose RUTF ration with fortnightly contact (one sachet of RUTF per day), with vitamin A, amoxicillin, antimalarials, measles immunisation and deworming provided. One objective of the study is to determine and test appropriate discharge criteria in the group of children not currently treated by CMAM therapeutic programmes. The sample size calculated based on the proportion of expected cured (85%) with a non-inferiority margin of 10% and appropriately powered is calculated to be n=158 in each cohort. Other outcomes that will be investigated include: relapse, length of stay,

rate of weight and MUAC gain, and cause of death. Good progress has been made in setting up the study tools and data collection including WAZ calculation tools and non-responder checklists. The Senior Researcher, Edna Ogada, has been designing the data-entry systems in consultation with Mark Myatt. The ENN study team has also been working closely with Action Against Hunger (ACF) Nigeria and has been able to secure buy-in from the state Ministry of Health, United Nations Children's Fund (UNICEF) and UK Department for International Development (DFID) in-country teams. The project plan is likely to be delayed in light of COVID-19, but the team has been working hard to develop innovative mitigation strategies.

² The full paper was published in July and can be found [here](#).

Discussion

There was rich discussion in relation to the four presentations. In response to Mark's presentation, it was suggested that a further breakdown of the analysis by age groups would be useful and this will be taken up for the next iteration. It was also noted that in Phase 4 of the WaSt TIG there could be opportunities to further explore the six-months-and-below age category; specifically in a limited number of the cohorts where this data is available.

A number of questions were posed to Jeanette in relation to her presentation. These included the definition of non-response cut-offs (16 week cut-off was used, although the study continued to allow children to stay in treatment after that time). Jeanette also noted in response to questions that the data includes information on relapse as well as body composition and a follow-up analysis of this will be submitted for publication shortly. She also explained that data for children under six months of age was not included, but the 6-12-month-old age category could provide useful analysis as some children would likely be five months old. Compliance and how the CompAS trial tried to capture this was discussed. Jeanette noted that an intention-to-treat methodology was used and further highlighted the high defaulter rates and numbers of missed visits. A number of contextual factors were driving

these, including a national nurses strike accompanied by clinic closures in Kenya, national elections in both countries and the rainy season in South Sudan affecting ability to travel.

It was noted in discussion that these factors are the realities of operational research and programming. This led to the suggestion that the WaSt study implementation consider issues around staffing, mothers' time and misinformation. An interesting broader discussion was had in relation to treating children with supplementary feeding and the concern (highlighted in the recent Lancet series on the double burden and elsewhere) of the potential risk of creating overweight children or future adults at high risk of non-communicable diseases linked to overweight/obesity. Participants noted that previous studies in Malawi, Kenya, Burkina Faso and Sierra Leone found that this concern was ill-founded. However, it was noted that the WaSt study should consider measurement of fat mass increase in order to address this concern. Another discussion point focused on ongoing questions of the role of antibiotics in treatment, including which antibiotic to use (amoxicillin versus azithromycin or cefdinir) and the need to test which children (at what level of mortality risk) really need them.





DAY 2

Presentation 1 WaSt Systematic Review

Susan Thurstans

Full presentation slides can be found [here](#).

Susan presented preliminary results from the in-progress WaSt systematic review. This builds on the 2014 narrative review of the relationship between wasting and stunting that the group compiled. Susan noted that the review aims to explore new evidence that has been generated on the relationship between wasting and stunting, the burden and implications of their concurrence, and how they interact with each other over time. The review will be submitted for publication (journal to be determined) and aims to inform a technical brief and future work of the group and others in continuing to fill gaps in our understanding and evidence. The methodology has been guided by PRISMA guidelines and the review SWG. A preliminary search (which will be repeated) has identified 37 relevant studies from 11 countries, with 10 studies covering multiple countries. Some of the emerging findings presented were:

Pathways to wasting and stunting – Only three additional studies were identified since the previous review that included analysis of risk factors for both wasting and

stunting or multiple anthropometric deficits. The strongest associations with both wasting and stunting were low birthweight (LBW), infectious disease and socio-economic status. The importance of maternal nutrition was also emphasised.

Interconnecting physiological processes – The review noted an increase in understanding of the possible physiological mechanisms underlying wasting and stunting and their interaction. Key findings noted included that fat-mass loss was associated with survival and muscle-mass loss occurs in both manifestations of undernutrition, particularly when they occur alongside infection. Low muscle mass in infants is found to make them especially vulnerable to malnutrition and associated mortality. Reduced leptin might restrict linear growth and depress immunity.

Interaction between wasting and stunting – Longitudinal evidence supports the bi-directional and direct relationship between wasting and stunting, although cross-sectional data shows inconsistent results. While the

prevalence of stunting far outweighs that of wasting, there is evidence that wasting leads to stunting, that weight faltering slows or halts linear growth until weight is regained, and that season and age modulate this relationship. These findings highlight the need to intervene early in the process of wasting to avoid long-term effects. In relation to stunting leading to wasting, it was found that there is a direct relationship with population-level data denoting strong and significant associations (the proportion of children who are stunted in the severe acute malnutrition (SAM) group of children is much higher than in the overall population). The mechanisms for the relationship in this direction (and therefore whether it is direct or a result of common drivers) remain less clear.

Identification of mortality risk – Studies suggest that MUAC and WAZ are good measures for identification of mortality risk (including that associated with concurrent wasting and stunting and with severely low WHZ). As noted in the discussion on day 1, evidence does not support the concern that nutritional treatment for wasting might lead to excess fat in children who are also stunted, leading to future overweight, obesity and non-communicable disease.

Origins of wasting and stunting – Evidence suggests that a child's experience of undernutrition is often established before birth, indicating the need for greater coordination between interventions targeting adolescent girls and mothers and those aiming to prevent child undernutrition.

Susan noted that the sum of the findings suggests that the separation of wasting and stunting treatment and prevention programmes is not justified and that integrated programming needs to become part of programme and policy design. The results of the systematic review suggest that the strength of the evidence has come a long way in recent years, but there is still a long way to go and continuation of robust research – particularly in relation to maternal factors, physiological understanding, prevention and treatment approaches, and risk factors – is needed.

Discussions following the presentation reflected the need to explore further the implications of nutritional status at birth and the extent to which this contributes to the patterns seen in wasting and stunting and their interrelation. The next draft of the systematic review will be shared with the SWG for comment within the next week and redrafted for submission to a journal (to be determined) by the end of the year.

Presentation 2

Sex Differences

Susan Thurstans

Full presentation slides can be found [here](#).

The pattern of greater male vulnerability to wasting and stunting was a key but surprising finding in the WaSt work. It is also an important one as (for example) a higher proportion of male admissions to nutrition treatment programmes is often viewed as an indication that females have disadvantaged access to the service and this may not be the case. Susan presented research which aims to try and understand sex differences in undernutrition by:

1. Reviewing the evidence for male/female differences in the risk of developing anthropometric deficits.
2. Exploring the mortality implications of those differences.
3. Reviewing current perceptions of sex differences in undernutrition and the reasons for them.

As a first step, as part of Susan's PhD and with inputs provided by an SWG of the WaSt TIG, a systematic review and meta-analysis were conducted. Seventy-six relevant studies were identified, with 46 studies having extractable data (42 of these were cross-sectional and four were longitudinal). In 17 of the 20 studies related to wasting, more boys were wasted than girls, with a significant difference in 11/17 of the studies. In the remaining three studies, more girls were wasted than boys, with a significant difference in 1/3 of the studies. In 33 of the 39 studies related to stunting, more boys were stunted than girls, with a significant difference in 29/33 of the studies. In the remaining six studies, more girls were stunted than

boys, with a significant difference in 3/6 of the studies. In 20 of the 25 studies related to underweight, boys were more underweight than girls, with a significant difference in 20/25 of the studies. Pooled odds of being malnourished was found nearly always to be higher for boys. When organised by age group, the odds of boys being wasted, stunted or underweight were higher in all age categories than for girls.

A qualitative synthesis of the studies identified in the review found that 58% of the studies discussed sex differences in the findings; most of the reasons provided for the differences found were conjectural. Biological reasons were suggested in 12% of studies (largely related to immune and endocrine differences); social reasons in 48% of studies (relating often to sibling order and son preference); and a combination of the two causes was suggested in 40% of studies. Evolutionary biology was also noted as a potential driver, linked to the fact that some childhood conditions are more common in boys. Other explanations offered included maternal nutrition status (male foetuses are associated with higher energy requirements for women than female foetuses); factors related to boys' placentas being more efficient than girls; that boys are slightly heavier and longer at birth and throughout infancy and specifically have more lean mass compared to girls; and that boys grow faster in utero but are more sensitive to maternal food shortage. Immune and endocrine factors and/or hormones (leptin, testosterone, luteinising hormone and follicle-stimulating hormone) are also proposed as playing a role. In particular, boys are more susceptible to infectious diseases and girls have stronger immune systems, with greater capacity to produce antibodies.

Infant and young child feeding (IYCF) factors are also hypothesised as playing a role in the sex difference

observed in the studies reviewed. Male infants have higher energy requirements than females and there is evidence that the quality and quantity of milk that a mother produces, or which an infant takes in, can vary between male and female infants. It is also suggested that weaning practices should be considered, as a number of studies have shown that boys often receive complementary food earlier than girls; either due to boys being perceived as hungrier (or not as satisfied with breastmilk alone), or because breastmilk was seen as inferior to complementary foods and boys were prioritised over girls as the 'superior option' in line with cultural and social values/norms.

Next steps in the project will include an analysis of the implications of these differences for the identification of undernutrition. Key research questions will examine: How do existing indices for the assessment of growth for boys and girls at different ages differ? and, How do treatment outcomes differ between boys and girls at different ages? Caseload estimates will then be explored using different scenarios/case-identification methods, including standard separate boy-girl charts and joint-sex charts, exploring existing and different scenarios. Separate analyses will be done for wasting, stunting and underweight, and the study will explore MUAC at various cut-off values. Mortality implications and cure rates will be explored and used to determine the feasibility of joint-sex charts. If appropriate, results will be taken forward to develop new and updated versions of the MOYO charts for WAZ, WHZ and HAZ.

Brief discussions following the presentation explored the need to recognise that more girls are identified through MUAC, as well as exploring whether COVID-19-related sex differences are related to nutrition.

Interactive Phase 4 discussions: Where do we want to take the WaSt TIG?

Carmel Dolan began the session by outlining the existing funding streams for Phase 4 of the project from Irish Aid and OFDA. She went on to highlight the recent 'Stories of Change' (SoC) evaluation (conducted by Linda Shaker Berbari) in which the experiences and outputs from the WaSt TIG work to date were explored by interviewing a total of 25 people from both inside and outside the WaSt

TIG. Key findings from the SoC included the finding that the WaSt TIG functions in an engaging, exploratory and task-oriented manner. The varied composition of the TIG, its participatory nature, flexibility in engagement and action-orientated approach were viewed as strengths and as supportive of the effectiveness of the work that has been produced. The need in the next phase of the group's

work to focus increasingly on the implications of its findings for programmes and policies was highlighted. Interviewees recognised the wealth of achievements of the WaSt TIG in the last six years and made a number of specific recommendations; including, but not limited to, the continuation of ENN as coordinator and an increased focus on dissemination to increase influence (particularly in relation to translating evidence into practice and increasing group membership to include country and regional representatives and more representatives from the stunting community).

The group went on to reflect on directions and activities for Phase 4. These were broadly structured into those related to further dissemination of key findings, influencing for future change, further research areas, linking with other ongoing research, and translating evidence into practice. Some ideas were presented by the ENN team for each area and discussion time was dedicated for the group to reflect and add additional suggestions.

Dissemination of key findings – New activities discussed included producing a guidance note on research methods based on the experiences of analysis of existing data which has been conducted by the group and a collation of the wasting prevention work done by ENN, bringing it together with the learnings from the WaSt TIG for dissemination. Additional points made in the discussions included the importance of face-to-face or one-to-one discussions with key stakeholders for disseminating findings, the importance of the WaSt TIG communicating its position on how much further research needs to go in exploring the relationship between wasting and stunting, and how the potential of existing research can be maximised to this end.

Influencing for future change – Members recommended the development in Phase 4 of an influencing agenda in relation to normative World Health Organization (WHO) guidance, the joint malnutrition estimates and the Global Nutrition Report. Group discussions focused on the potential to engage with individual donors to communicate the group's new narrative around risk, bringing together wasting and stunting (donors specifically mentioned included USAID, Power of Nutrition and the Bill and Melinda Gates Foundation). Discussion also focused on the need to advocate for longer-term research funding to truly understand long-term outcomes of nutritional interventions for both wasting and stunting; something that the work of the group has highlighted. Additional points explored the need to advocate around operational programmes to strengthen and share their M&E data so that we can move away from costly academic studies to high-quality monitoring and evaluation. A critical

point was raised in relation to engagement with advocacy agendas and retaining the value, focus and integrity of the group. As one member noted, "We don't want to erode the 'gem' that we have created". As the SoC attests, in its work to date the group has been very successful in highlighting the issue of the separation between wasting and stunting and in generating evidence to support more joined-up thinking and practice, rather than creating advocacy campaigns and promotion. It was agreed that, while maintaining that focus, we also have a role to play in ensuring that the excellent work of the group is effectively utilised.

Further research areas – The group reflected on a number of research areas for Phase 4 that directly follow on from the previous work. These include the research priorities outlined in the Lancet Viewpoint paper, further elaboration of sex differences, further research into the metabolic and physiological understandings of risk, and analysing the effect of duration of follow-up on quality of prediction of mortality risk (following on from the multi-cohort mortality analysis). Members also again highlighted the need for a review of evidence on supplementary feeding and risk of obesity (particularly related to concerns around wasting treatment for the child who is also stunted), which had been raised during the previous day's discussion. Heather Stobaugh also presented ACF's thinking in relation to collating more datasets of programme data to look further at WAZ trajectory and linear growth (an expansion of the work on the CompAS data presented by Jeanette on day 1) and noted that ACF is keen to collaborate with the WaSt TIG on this.

Linking with other ongoing research – The Management of At Risk Mothers and Infants (MAMI) SIG was flagged as an important collaborator, particularly in communicating a narrative around risk and prevention as well as the synergy of messaging around anthropometric indicators. Links between work on combined protocols being carried out by a number of nutrition actors in the broader community and the WaSt study and mortality analysis work was also flagged.

Translating evidence into practice – The WaSt study was noted as a key mechanism to explore the programmatic implications of our analysis work on mortality risk and its identification and the operationality, scalability and cost-effectiveness of the resulting programme adaptations. One member noted that, although there are still many outstanding questions, there are elements of the work of the WaSt that potentially can be translated into action sooner rather than later, despite not having ALL the evidence.



Next steps

The ideas explored by the collective will be developed into a proposed workplan, with certain aspects being further expanded by discussions in smaller working groups. Members of the WaSt TIG were asked to share any additional papers for the systematic review and add additional thoughts regarding priorities for Phase 4 online. Work will focus in coming months on developing the workplan and budget, as well as an updated terms of reference/governance document.

In closing, many thanks were extended to the WaSt TIG members from the ENN coordinators for their continued

active and enthusiastic participation in the group and specific workstreams. Thanks were also extended to all the presenters from the two days.

Finally, Tanya extended a special thank-you to Carmel, who will be stepping away from ENN in July, for all that she has done in her role as co-coordinator of the WaSt TIG over the last six years and noted how happy we are that she will remain an active member of the WaSt TIG.

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