Report on stakeholder update meetings

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Stronger evidence towards future scale-up of management of at-risk mothers and infants under six months (MAMI)

Cluster Randomised Trial in Ethiopia

Jimma 14 December 2020 | **Deder** 15 December 2020

Jimma University

London School of Hygiene & Tropical Medicine

GOAL an international humanitarian organisation

ENN

Eleanor Crook Foundation

Contents

Acronyms

RCT	Randomised control trial
CSB	Corn-soya blend
EBF	Exclusive breastfeeding
ECF	Eleanor Crook Foundation
EDHS	Ethiopian Demographic and Health Surveys
ENN	Emergency Nutrition Network
HAZ	Height-for-age z-score
LSHTM	London School of Hygiene and Tropical Medicine
NCD	Non-communicable disease
NGO	Non-governmental organisation
MAMI	Management of at-risk mothers and infants under six months
MAMI-SIG	MAMI Special Interest Group
MAMI GN	MAMI Global Network
MUAC	Mid-upper arm circumference
PLW	Pregnant and lactating women
UN	United Nations
U6m	Infants under six months of age
WAZ	Weight-for-age z-score
WHO	World Health Organization
WLZ	Weight-for-length z-score

MAMI
Management of small & nutritionally At-risk Infants under six months & their Mothers

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For the latest information on the research, visit: **https://www.ennonline.net/ourwork/research/mamiriseethiopia**

Meeting overview

Two meetings were held virtually in December 2020 to provide stakeholders in the upcoming cluster randomised control trial (RCT), ***Stronger evidence towards future scale-up of management of at-risk mothers and infants under six months (MAMI),*** with an update on research progress to date and to discuss plans and engage with participants to identify potential opportunities and risks for the implementation of the MAMI RCT in Ethiopia.

The meetings were hosted by Jimma University, the London School of Hygiene and Tropical Medicine (LSHTM), GOAL and the Emergency Nutrition Network (ENN). The research is funded by the Eleanor Crook Foundation (ECF). Two meetings with similar agendas were held with the focus on the different study sites as follows (an open invite was extended to all including national and international level stakeholders):

- December 14th: Jimma
- December 15th: Deder

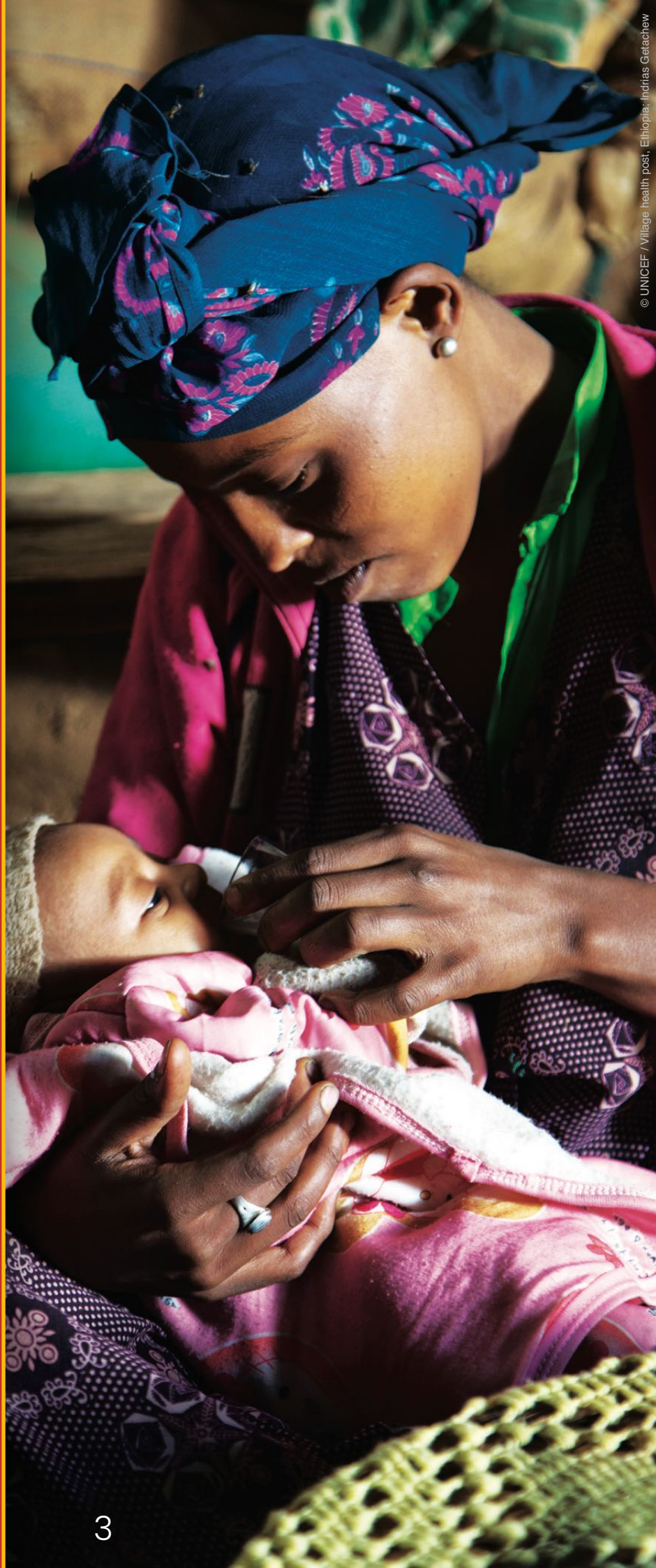
More information on the RCT is available **online**

Attendees and meeting format

A total of 89 participants joined the Jimma meeting and 52 participants joined the Deder meeting. Participants represented a range of organisations including Ethiopian ministries of health and agriculture, non-governmental organisations (NGOs), academic institutions and United Nations agencies (UNICEF, World Food Programme (WFP)).

Each meeting lasted approximately two and a half hours and consisted of seven sessions including a welcome and introductions, an overview of MAMI efforts to date, a progress update on MAMI research in Ethiopia thus far, plans for the RCT, a group discussion, an overview of key upcoming activities and closing remarks. The meeting agenda can be found in **Annex 1**.

See **Annex 2** for participant lists.



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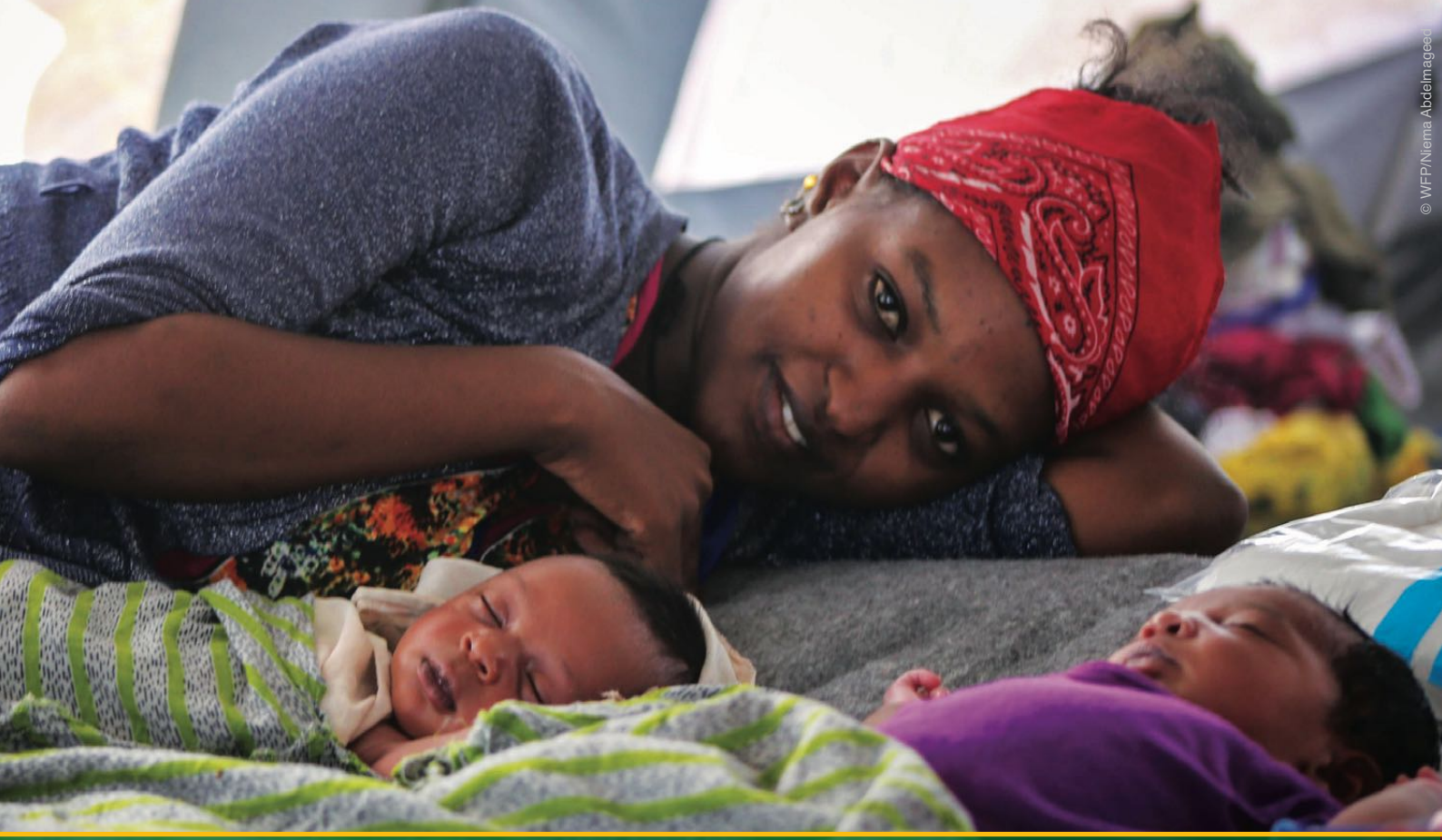


SESSION 1 Welcome & introductions

Facilitators

Jimma meeting: Dr Marko Kerac, Principal Investigator, LSHTM and Prof Tsinuel Girma, Senior Co-investigator, Jimma University.

Deder meeting: Dr Marko Kerac and Prof Alemseged Abdissa, Senior Co-investigator, Armauer Hansen Research Institute, Ethiopia.

Session overview

This session included a welcome from senior researchers and participant introductions in the Zoom chat box.

Presentation 1
Overview of the afternoon

Jimma meeting

Dr Marko Kerac opened the meeting for Jimma stakeholders by welcoming the meeting participants and introducing Professor Tsinuel Girma. Tsinuel acknowledged study partners, ENN, ECF and GOAL and reviewed the meeting agenda. He also emphasised the importance of collaboration and the co-creation of research along with the engagement of key stakeholders throughout the study process for the effective translation of research findings.

Deder meeting

Opening remarks were similar to the Jimma meeting. Dr. Alemseged Abdissa of the Armauer Hansen Research Institute in Addis Ababa welcomed participants and reviewed the meeting agenda. Marko Kerac then expressed appreciation for the study partners and outlined the purpose of the meeting.

SESSION 2 MAMI overview

Facilitator & presenter

Marie McGrath, Co-investigator, ENN.

Session overview

Marie gave an overview of MAMI in the global context including the **MAMI Global Network** activities to date, plans and how critical evidence for the MAMI approach is being generated in Ethiopia to inform international policy and practice.

Presentation 2
MAMI in the global context

The MAMI Global Network

Marie began by introducing the MAMI Special Interest Group (MAMI-SIG), an informal international network of researchers, practitioners and experts co-led by ENN and LSHTM and coordinated by ENN. The MAMI-SIG was formed in 2010 to harmonise efforts and collaborate on policy, research and programming around MAMI. This is now being scaled up into a **MAMI Global Network**.

What is MAMI?

MAMI focuses on small and nutritionally at-risk infants under six months of age (u6m) (e.g., infants born small, infants who are wasted or stunted) along with the wellbeing of their mothers in order to reduce the risk of short-term mortality and poor long-term health and development outcomes.

What is the global burden of at-risk infants?

An estimated 8.5 million infants u6m are wasted globally.[1] There is a large number of infants born with low birthweight or who are stunted or underweight who are also at risk of adverse outcomes.

Why is MAMI important?

Supporting small and nutritionally at-risk infants u6m to grow and develop well is a critical action in the life cycle approach to ensuring children survive and thrive, to breaking the intergeneration cycle of undernutrition and poverty and to achieving the Sustainable Development Goals.

MAMI vision

The MAMI vision is that every infant u6m at every community/health service contact is nutritionally assessed and appropriately supported to survive and thrive. This vision is currently undergoing an update as discussed in Session 6.

The MAMI Care Pathway

An integrated pathway of care for small and nutritionally at-risk infants u6m has been collectively developed to guide MAMI programme planners and implementers through the steps to screen, assess, classify and provide support for at-risk infant-mother pairs. The MAMI Care Pathway Package contains resource materials to inform and support implementation. They are expected to be adapted to local contexts and to take advantage of existing systems and services (e.g., mental health, social services). This approach aims to make the most of opportunities when we have contact with mothers such as during antenatal visits, immunisation visits and when infants present as sick at health centres. It links prevention and treatment, focusing on secondary preventive care. It will be tested in the RCT in Ethiopia.

MAMI 10-year progress

Over the past decade, the MAMI-SIG has brought attention to the issue of small and nutritionally at-risk infants u6m. With regards to policy, the World Health Organization (WHO) 2013 guidelines for the treatment of severe malnutrition included the recommendation of community-based care for infants u6m for the first time. MAMI programming has been implemented in different countries and contexts and operational research has informed programming and resource development.

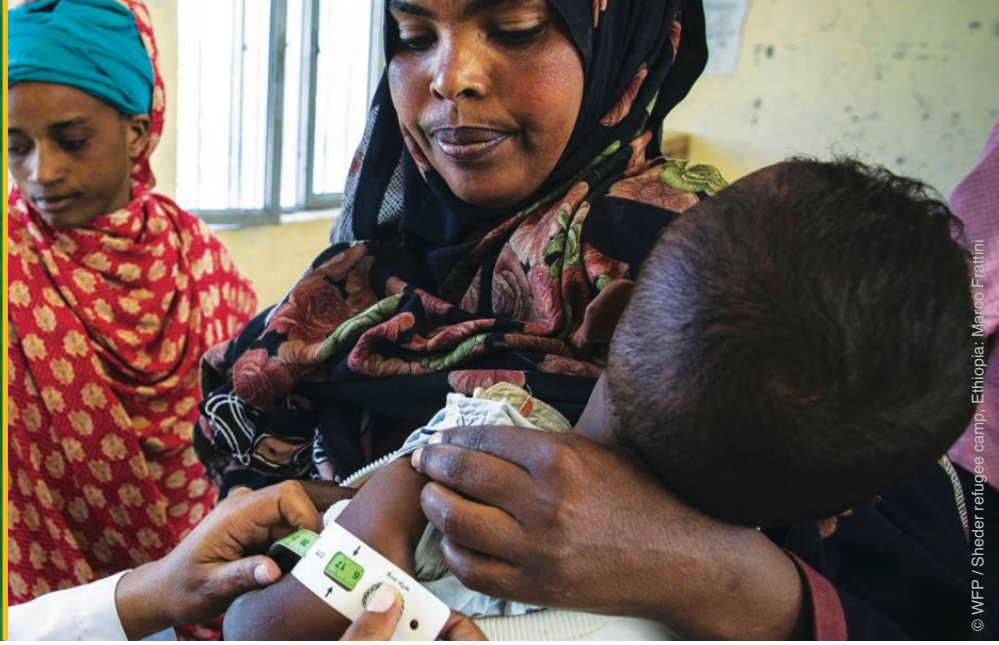
MAMI state of play and direction

There has been limited national uptake of the 2013 WHO guidance on community-based management of infants u6m. We have learned that governments are demanding more robust evidence to answer critical questions around community-based care before instituting national policy changes and this approach is widely implemented.

The need to answer critical questions is what has prompted us to scale up the MAMI-SIG into a MAMI Global Network: we want to do more together to galvanise and support collective, collaborative, harmonised efforts on research and policy to inform best practice that is scalable and sustainable. We want to co-create and co-deliver robust, relevant research that is driven by country agendas and informs national and global policy development. We have turned to Ethiopia to lead the way with the first RCT of the MAMI Care Pathway Package.

[1] Kerac M, Blencowe H, Grijalva-Eternod C, et al. Prevalence of wasting among under 6-month-old infants in developing countries and implications of new case definitions using WHO growth standards: a secondary data analysis. Arch Dis Child. 2011;96(11):1008-1013. doi:10.1136/adc.2010.191882

SESSION 3
Progress on MAMI research in Ethiopia



Facilitators

Jimma meeting: Dr Melkamu Berhane, Principal investigator, Jimma University.
Deder meeting: Prof Tsinuel Girma, Senior Co-investigator, Jimma University.

Session overview

This session included a series of short presentations from researchers involved in MAMI work in Ethiopia. Abstracts of research findings have been included to summarise presentations.

Presentation 3
Qualitative research

Presenter: Nega Jibat, Co-investigator, Jimma University

Title: Carers' and health workers' perspectives on malnutrition in infants under six months: a qualitative study.

Background: This qualitative study was intended to inform the MAMI RCT in Ethiopia. It was carried out in Jimma Zone and Deder Woreda in Oromia, Ethiopia.

Objectives:

- To understand the perceptions of carers on the wellbeing of infants u6m
- To explore feeding practices among carers
- To examine how malnutrition in infants u6m is viewed and detected (community vs health workers)
- To understand how malnutrition in infants is currently being treated.

Methods: This study included 31 key informant and in-depth interviews among mothers, fathers and health workers at different administrative levels. Interviews were analysed thematically using ATLAS.ti software. Ethical approval was granted by the Jimma University Institutional Review Board.

Results under each objective:

To understand the perceptions of carers on the wellbeing of infants u6m, caregivers were asked to describe the 'ideal infant':

- *Physical growth and appearance:* fat and attractive infants were considered healthy and well.
- *Behavioural manifestations:* regular feeding and sleep, not crying persistently, burping, smiling and engaging with the people around them
- *Maternal conditions:* some carers also considered maternal conditions in their descriptions of the ideal infant including whether they received adequate care and support in pregnancy, whether delivery occurred in a safe setting, whether feeding is successful and whether the mother is in a healthy condition
- *Circumstances:* antenatal and postnatal care, support for exclusive breastfeeding (EBF) and vaccination services are available for the infant.

Feeding practices among carers

- *Health workers:* promote EBF unless in exceptional cases, had similar awareness of EBF practices, strongly valued the practice of EBF and made efforts to make it a reality among carers
- *Carers*: good awareness of EBF, many have positive perceptions of EBF but others challenge the practice based on cultural values – this leads to mixed practices even among health workers as parents, EBF for six months is challenged by the need for women to work with little support for maternity leave, social views and pressures and gaps in policy, formula feeding is emerging in some sectors of society.

Maternal health and feeding practices

- *Health workers:* there is increasing awareness and concern for maternal diet among health workers, health workers advise pregnant women to eat a variety of foods and to eat at least one extra meal per day, health extension workers (HEWs) demonstrate to women how to prepare a balanced diet.
- *Carers:* carers are well-informed about maternal diet but take it less seriously than EBF, women are reluctant to eat a great variety or amount of food during pregnancy as it is not culturally acceptable to eat different food from their husbands, many women cannot eat a nutritious diet for economic reasons, mothers sell nutritious foods like eggs to buy cheaper, less nutritious foods in the market (e.g., biscuits)

Views and detection of malnutrition among infants u6m

- Failure to meet the expected behavioural and physical manifestations of an ideal infant is a general indicator of a health problem in infants.
- Thinness, persistent crying (irritation), oedema and inability to suckle are considered the most salient signs of malnutrition in infants u6m among carers. Health workers rely more on standard measurements (e.g., weight-for-length/age) than clinical signs.
- Mid-upper arm circumference (MUAC) for infants u6m is preferred due to ease of use but some health workers have reservations about its diagnostic power compared with weight-for-length/age.

Treatment of malnourished infants u6m

- Standard treatment is given at health centres and hospitals, HEWs identify and counsel carers at health posts.
- Carers' care-seeking behaviour for infants u6m has improved, largely positive response to referral orders unless they are economically constrained.
- Most carers prefer to bypass the health post and visit health centres for the treatment of malnourished infants u6m because they know that this service is not available at community level. However, they would prefer to access the service at a nearby health post or at home.
- There are several treatment challenges: mothers are not willing/able to stay in health facilities while infants are receiving treatment and sometimes leave the infant alone at the facility to attend to livelihood activities, lack of commitment among some health workers, inadequate training among new health workers with regards to providing nutrition care for infants u6m, lack of essential treatment supplies at health centres, COVID-19-related challenges to providing treatment.

Conclusions: There is a growing understanding among carers and health workers on matters of infant health; however, there are also persistent challenges. Policy makers, implementers and users should collaborate and actively engage to reduce risk for infants u6m and their mothers. Men should be involved in efforts to improve maternal conditions and thereby infant health.

Presentation 4
Quantitative research

Presenter: Carlos Grijalva-Eternod, Co-investigator, LSHTM

Title: Health centre survey to estimate the prevalence of anthropometric deficits among infants u6m: preliminary results

Background: This survey of health centres was conducted to estimate the prevalence of anthropometric deficits in infants u6m attending clinics in Jimma and Deder, the study areas of the upcoming MAMI RCT in Ethiopia.

Objectives:

- Assess the anthropometric deficit prevalence
- Assess the anthropometric deficit overlap
- Evaluate the utility of MUAC and weight-for-age z-score (WAZ)
- Assess infant feeding practices.

Methods: 71 health centres were visited (63 Jimma + 8 Deder) and ranked according to these eligibility criteria: distance, ease of access and patient load. Ten health centres were randomly selected for survey in Jimma and eight in Deder. A two-week period of data collection was completed in Jimma; preparations are ongoing for Deder data collection.

Results: Among infants with complete data (n = 614), the Composite Index of Anthropometric Failure showed that 16.5% of infants u6m attending clinics present with some form of anthropometric failure. The prevalences of anthropometric failure were 7.5% stunted, 8.1% wasted, 11.4% underweight and 14.2% low MUAC (defined as less than 11cm). Analysis of anthropometric failure overlap showed the following key findings: 10% of infants u6m were concomitantly wasted and stunted, around 60% of infants who are stunted and wasted would be identified using underweight as an indicator, many children who are wasted and stunted would not be identified by low MUAC and, conversely, many children with low MUAC do not qualify as wasted or stunted, there is little overlap between low MUAC and underweight, there are few children who are wasted or stunted who would be identified by low MUAC but not by WAZ. When analysis of anthropometric failure overlap was divided into infants 0-10 weeks and 11-25 weeks, several key patterns emerged: infants with low MUAC who are neither wasted nor stunted largely fall in the 0-10 week age category, infants identified as stunted or wasted who are not being identified using underweight are usually in the younger age category. Low MUAC may be less useful in identifying infants with anthropometric deficits because it identifies many children who are not underweight, stunted or wasted. Among children 11-25 weeks, underweight seems to be the better indicator for identifying infants who are stunted, wasted or have low MUAC.

The median duration of exclusive breastfeeding is 8.7 weeks. Water is introduced early; by 11 weeks about half of infants are receiving water.

Conclusions:

- The anthropometric deficit prevalence was between 16.5% and 22.5%.
- There is great overlap between anthropometric deficit indicators.
- WAZ < -2 overlaps with stunted and wasted more than low MUAC.
- Exclusive breastfeeding is low and falls rapidly with age.
- Water provision to infants appears to be an important target for intervention.

Presentation 5
DHS analysis

Presenter: Vasundhara Bijalwan, LSHTM

Title: Weight-for-age versus weight-for-length in identifying at-risk infants u6m in Ethiopia

Background: Worldwide, wasting affects about 8.5 million infants u6m. The WHO recommends weight-for-length z-scores (WLZ) to identify at-risk infants. However, this recommendation is underpinned by "very low" quality evidence. Recent evidence shows WAZ is better at identifying infants u6m at-risk of mortality. Finding a better case definition to identify at-risk infants is imperative to improve the initial part of the care pathway.

Objectives: 1) To explore the data quality of anthropometric measurement, (2) To estimate the prevalence of undernutrition among infants u6m and changes in the trend over time, (3) To explore the strength of association between established risk factors of undernutrition with WLZ and WAZ

Methods: We carried out secondary data analyses of infants u6m from four Ethiopian Demographic and Health Surveys (EDHS). The weighted analysis was used to account for the complex design of the surveys. We assessed the quality of the anthropometric measurements by looking at missing values, outliers and flagged z-scores. To estimate the prevalence of undernutrition, the WHO growth reference (2007) and cut-offs were used. Bivariable and multivariable analyses to explore the associations between WLZ, WAZ and plausible risk factors were carried out.

Results: Length had more missing values due to refusals (7-11%) than weight (5%) and had consistently more outliers in all EDHS. WLZ had more flagged data than WAZ, with an exception in 2005. Besides, WLZ leaves out about 3% of the infants <45cms due to no international WLZ scores. The prevalence of undernutrition among infants u6m declined between 2011 and 2016. In 2016, 14.6% (95% C.I: 11.7; 18.1), 10.9% (95% C.I: 8.1; 14.7) and 14.9 (11.3; 19.3) of the infants were wasted, underweight and stunted, respectively. WAZ was more and strongly associated with the established, plausible risk factors – size at birth, childhood illnesses, breastfeeding practices, maternal body mass index and wealth-index compared to WLZ.

Conclusions: Firstly, WAZ is better than WLZ in identifying at-risk infants u6m based on its quality and strength of association with known, plausible risk factors. However, more prospective evidence is required to validate the WAZ criteria for permanent policy change. Secondly, infant anthropometric deficit is complex and multifactorial. Therefore, a comprehensive management package addressing the underlying factors of undernutrition is needed with a greater focus on family and social environment and not just limited to breastfeeding support.

Presentation 6
Guidelines overview in Ethiopia

Presenter: Mubarek Abera, Co-Investigator, Jimma University

Title: Policies and guidelines supporting MAMI in Ethiopia

Background: Research, policies, programmes and guidelines shall support each other to continuously improve the health and wellbeing of the community. Thus, the MAMI research team reviewed policies and guidelines including the strengths and weakness related to malnutrition in infants and children in Ethiopia.

Methods: The following documents were reviewed:

- **2019:** National guideline for management of acute malnutrition
- **2019:** National OTP guideline
- **2020:** National Nutrition Program (NNP)
- **2016:** Adolescent, maternal, infant and young child nutrition guideline
- **2016-2020:** National strategy for newborn and child survival
  - **Focus:** These policies and guidelines have clear focus on early breastfeeding initiation, exclusive breastfeeding, feeding during difficult circumstances, feeding infants in the context of HIV/AIDS, infant feeding during emergency conditions and feeding for low birth weight infants.
  - **Gap:** Less emphasis for young infants (<6mo) and evidence gaps for <6m infant nutrition.
- **2021-2025:** National mental health strategy of Ethiopia: 2021-2025
  - **Focus:** Helps to improve health, nutrition and development of the infant
  - **Gap:** Needs a culturally relevant approach to effectively integrate maternal wellbeing support with young infant nutrition and health outcomes.
- **2021-2025:** National Childcare, Development and Education Policy Framework
- **2021-2025:** National Early Childhood Development Strategy in the health sector
  - **Focus:** Nutrition in the first six months of life, stimulation since pregnancy/birth throughout early life, safety and security, maternal wellbeing and responsive care from birth throughout childhood
  - **Gap:** Lacks evidence for an effective way of providing integrated service for optimal care, nutrition, stimulation and mental health.

Conclusions:

- There are a number of relevant policies/guidelines related to MAMI in Ethiopia
- Almost all have some gaps regarding young infants
- The current study will definitely fill the observed gaps.

Presentation 7 Communications/ stakeholder mapping

Presenters:

Jimma meeting: Marko Kerac, Principal investigator, LSHTM

Deder meeting: Rosie Cowper, SDG2 Advocacy Hub

The SDG2 Advocacy Hub has helped support communications for the RCT in Ethiopia with the following objectives:

1. Identify and assess how the research team should be communicating with various stakeholders.
2. Gather available communications material for any and all MAMI-related areas in the given context for future communication efforts.

For the first objective, attendee lists from MAMI stakeholder meetings, grey literature on maternal and infant health in Ethiopia, among other frameworks, were used to map key stakeholders – from community health workers to large NGOs or UN agencies – who are working or have interest in the MAMI space, with a specific focus on Ethiopia, from a communications angle. A summary of MAMI stakeholders in Ethiopia is in **Table 1**.

To determine how the MAMI team should be engaging and communicating with these stakeholders, a stakeholder matrix was used to assess stakeholders by power and interest. The term 'power' assessed the extent to which actors can influence the core activities of the programme. The term 'interest' gauged actors for whom the MAMI work is directly relevant. While all stakeholders are important, the matrix helps to build an effective communications strategy, distinguishing between stakeholders who need to be fully engaged with close communications from those who only require occasional updates. This matrix also accounted for two timeframes – the short-term, as the implementation of the pilot stage, and the long-term, as the possible scale-up of this tool in the future. The stakeholder matrix is shown in **Table 2**.

To build on the ongoing communications efforts in the RCT's context, stakeholders were contacted to identify communications material for MAMI-related areas – from growth monitoring to the role of positive fathering. By collating this material, it was possible to paint a picture of the ongoing communication efforts in MAMI-related fields. This exercise aimed to help the MAMI research team to avoid duplication of existing resources and instead distribute and reinforce existing messaging as well as identify communication gaps to address.

Table 1 Summary of MAMI stakeholders in Ethiopia at different administrative levels

Level	Examples
Ethiopia – Woreda	• Communities • Local leaders • Health development army, community health workers • Health centre staff (nurses, clinical officers) • FBOs (churches, mosques)
Ethiopia – Zonal	• Zonal health offices • Local NGOs/civil society organisation
Ethiopia - Regional	• Universities (e.g. , Jimma University, Oromia – also national significance) • Regional health offices
Ethiopia - National/ Federal	• Ministry of Health • Professional associations (e.g., Midwives Association, paediatricians) • National Nutrition Technical Committee (NNTC)
International	• UN bodies (UNICEF/ WHO/WFP) • NGOs • Donors

Table 2 Stakeholder matrix for MAMI RCT activities in Ethiopia

HIGH POWER[1]	***SATISFY*** Opinion formers Keep them satisfied with what is happening and review your analysis of their position regularly.	***MANAGE*** Key stakeholders who should be fully engaged through communication and consultation
LOW POWER	***MONITOR*** Occasional updates	***INFORM*** Patients often fall into this category. May be helpful to take steps to increase their influence by organising groups or taking active consultative work.
	Low interest[2]	**High interest**

[1] Power = Ability to influence the core structure/activities of the programme

[2] Interest = Is it directly relevant to them?

Thanks were extended to the research team and to the many stakeholders who participated in this process. Both the stakeholder matrix and the MAMI communications depositary are being managed as live documents to be continually updated.

SESSION 4
Plans for the randomised control trial

Presenter
Dr Marko Kerac, Principal investigator, LSHTM

Session overview
In this session, Marko gave an overview of the plans for the upcoming RCT in Ethiopia to test the MAMI approach. Key information on the study is summarised below and the study PICO is in Table 3.

Study title: Stronger evidence towards future scale-up of management of at-risk mothers and infants under six months (MAMI): cluster randomised trial in Ethiopia.

Study aim: To generate and disseminate quality evidence that outpatient care using a MAMI Care Pathway is effective, safe and cost-effective with potential for sustainable scale-up.

Primary research question: Does outpatient care using the MAMI Care Pathway improve the growth, health and development of small and nutritionally at-risk infants u6m?

Secondary research questions:
- What is the effect on maternal mental health/wellbeing?
- What are the costs and what is the cost effectiveness from a health system perspective and a societal/family perspective?
- What can we learn from the RCT process?
- Is there an impact on non-communicable disease (NCD) related biomarkers (blood, microbiome – linked to CHANGE study)?

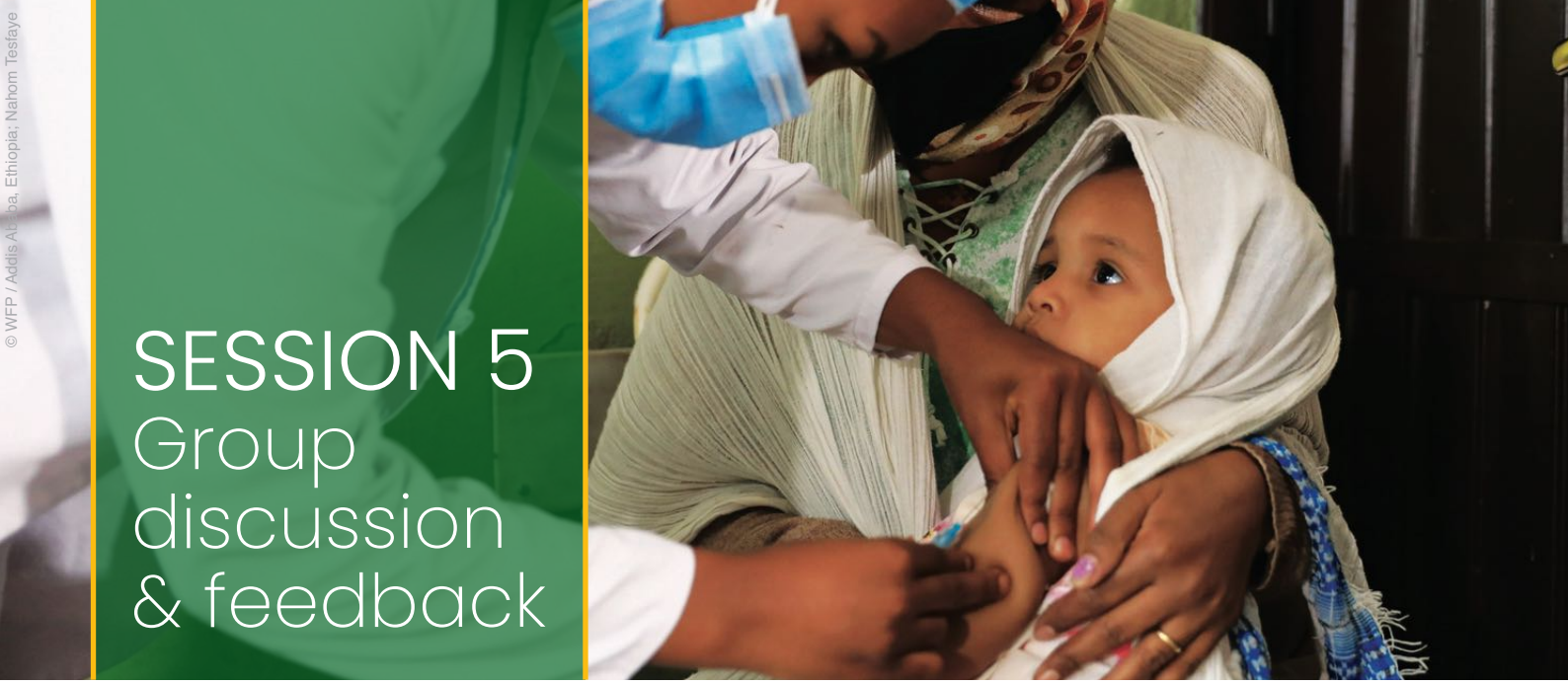
Study design: cluster randomised controlled trial
- Health centres matched (e.g., by size, location) and then randomised: one to intervention and one to control.
- Population and individual consent to participate
- Two study sites: Jimma (14 vs 14) and Deder Woreda (4 vs 4)

Marko closed the session by emphasising that a central theme in the MAMI approach is building bridges between sectors, for example, bridging between nutrition and health interventions, community-based activities and health centres, focusing on the infant alone and focusing on the mother within wider society and humanitarian and development programming.

More information on the RCT is available online.

Table 3 PICO for the MAMI RCT in Ethiopia

Population	Small (birthweight <2500g) and nutritionally at-risk infants u6m (WAZ <-2Z; MUAC <110mm for infants under six weeks; MUAC <115mm for infants between six weeks and six months)
Intervention	Support for at-risk infants u6m and mothers using the MAMI Care Pathway (a simple, scalable assessment checklist based on integrated management of childhood illness format). Responsive support is then provided based on risks identified during assessment using a phased intensity model: step down if infant is growing/improving and step up if infant is deteriorating. Predominantly a behavioural intervention (e.g., breastfeeding support, maternal relaxation)
Control	Standard care as per Ministry of Health guidelines (advice, referral to inpatient care) for at-risk infants with WLZ <-3 or other anthropometric criteria
Outcomes	*Primary outcome*: WAZ (mean) *Secondary outcomes*: • **Infant-specific:** MUAC, WLZ, height-for-age z-score (HAZ) (mean, % low); body composition, breastfeeding (duration), illness episodes, key behaviours (e.g., sleep), development, lab biomarkers for NCD • **Maternal-specific:** maternal mental health, maternal perception of social support score • **Other:** economic, process



SESSION 5
Group discussion & feedback

Facilitator (both meetings): Mubarek Abera, Co-investigator, Jimma University.

Session overview

In this session, stakeholders were invited to ask questions and give feedback on the various meeting presentations with a focus on potential strengths/opportunities as well as potential risks/problems for the implementation of the MAMI RCT in Ethiopia.

Jimma meeting discussion & feedback

Discussion point

In this session, stakeholders were invited to ask questions and give feedback on the various meeting presentations with a focus on potential strengths/opportunities as well as potential risks/problems for the implementation of the MAMI RCT in Ethiopia.

Responses

Nega Jibat, Co-investigator, Jimma University.

- An issue with blanket general food distribution programmes is that no screening is conducted to identify women with anthropometric deficits – it is assumed that PLW are more vulnerable and they are automatically prioritised over other beneficiaries. This is a missed opportunity to gather data and understand this population and to be more intentional in programme delivery moving forward. Working with health facilities in the community to conduct screenings (i.e., measure MUAC) would allow for follow up with vulnerable mothers and infants. This is a learning process for programme implementers as well.
- Supplementary feeding for PLW is not universal in Ethiopia – it is provided inconsistently by local programmes. Some communities screen children under five years and PLW for wasting and, if they fulfil entry criteria, they are provided with a three-month ration of corn-soya blend (CSB) and edible oil. Otherwise, there is no standardised large-scale programme targeting PLW. Furthermore, these programmes are only implemented in regions with historically high levels of food insecurity; for example, *there is no such programme in Jimma*. In the past, targeted supplementary feeding programmes were supported by the WFP in collaboration with local HEWs who conducted malnutrition screenings.

Discussion point

Is there a strategy in place to adapt the RCT in the context of the COVID-19 pandemic?

Responses

- Researchers are planning to implement updated WHO and Ethiopian Ministry of Health guidelines to prevent the spread of COVID-19 during data collection and follow up of infants in the RCT. Activities are being planned in line with these considerations.

Discussion point

Data from Ethiopia indicates that different liquids are introduced to infants during the first six months of life with water being the most common. Why are liquids being introduced during this period? Or if not, what knowledge leads some mothers to withhold liquids other than breastmilk?

Responses

- Some mothers offer infants water in the first six months of life because they feel that breastmilk alone cannot meet the infants' liquid requirements. As part of the preliminary quantitative study, some mothers indicated the reverse: they do not give water to infants u6m because they know that breastmilk provides adequate water to meet infants'needs.
- Findings from the qualitative research indicate that mothers are aware that they should not give solid foods to infants u6m because infants' stomachs cannot yet digest them. With regards to water, some mothers are aware that breastmilk is sufficient to fulfil infants' requirements for liquids. However, most mothers responded that they did not give water to infants u6m because HEWs strongly discouraged them from doing so.
- While it is encouraging to see mothers adhere to the advice of health workers and avoid giving water to infants u6m, it is concerning that they do not necessarily understand why it is important. This is something that should be emphasised in communications with mothers as part of MAMI counselling. A surprising finding of the qualitative research was the lack of discussion around giving infants herbal medicines in the first weeks of life as this is common practice, especially in rural areas of Ethiopia. Carers believe that infants are exposed to illnesses and require protection from herbal medicines that are mixed in water. Another issue to examine is whether mothers who have difficulties breastfeeding or perceive that they are not producing sufficient breastmilk resort to offering alternatives such as water or dilute milk.
- Community members may feel conflicted at the idea of not offering water to infants u6m because drinking water is strongly associated with survival. It may even be considered immoral not to offer water to infants u6m because water is essential for life.

Discussion point

As part of RCT plans, infants and mothers will be followed up at multiple time points (6, 18 and 24 months of age). Are there any anticipated barriers to or previous experience with this type of long-term follow up, particularly for infants who may not be considered sick or unwell?

Responses:

- We can anticipate that common barriers to long-term follow up may arise during the RCT including community resistance and security/emergency issues. *Establishing effective communication and positive, trusting relationships with carers will be important factors in encouraging long-term participation in the RCT. Carers should understand their role in the study and the benefits to participation.* Providing carers with thorough follow up support and quality health advice will encourage participation without undue incentivisation.

Discussion point

In relation to the discussion point above, what needs to be emphasised during trainings for health workers charged with delivering MAMI care to enable them to build rapport with families and encourage participation in the research?

Responses

- As with all researcher-participant relationships, creating good rapport requires mutual understanding, clear communication of the purpose of the study and expectation management in terms of the benefits to participation. Respect for local culture and ensuring a 'human touch' in communications with participants is essential. Field staff should speak the local language, empathise with participants' circumstances and approach communications with a 'listening mind' (i.e., listen carefully to families' concerns and questions). Field staff should be encouraged to provide families with support for any issues that arise (provided they fall within their capacity and mandate) as this will be appreciated. Respect for participants' dignity is crucial.
- The *research outcomes should be shared with the wider community in future* – failure to communicate these in the past has led to low expectations among community members with regards to participation in research.
- Carers' lack of time should be highly emphasised in this regard. Qualitative research findings indicate that mothers are forced to leave health facilities where their infants are in inpatient care while they attend to livelihood activities. Mothers cannot leave their trade even for a few days as they rely entirely on day-to-day income for survival. This could be an important barrier to follow up.
- The qualitative study attempted to understand whether health workers perceive MUAC to be an appropriate tool for assessing infants u6m compared to more well-established measurements (e.g., WLZ). Findings indicate that health workers have some reservations about using MUAC in infants u6m as they are uncertain of its ability to identify wasting in this age group.

Deder meeting discussion & feedback

Discussion point
Although MAMI is still in the research stage, some organisations have already begun to implement MAMI programming. These organisations could benefit from clearer guidance so that programming can be implemented in a consistent and high-quality manner.

Responses
- Ritu Rana, MAMI advisor with GOAL, is leading efforts to improve coordination and shared learning among MAMI implementers in Ethiopia. GOAL has been implementing MAMI programming in Ethiopia since 2014 and has knowledge and data to share. The COVID-19 pandemic has prevented Ritu from travelling and meeting with stakeholders in person over the past year but these activities will resume as soon as possible.

Discussion point
There is a need for greater emphasis on the role of re-lactation as an important approach to managing nutritional risk in infants u6m given the reliance on therapeutic milks in stabilisation centres. Mothers may lose confidence in their capacity to prevent infant malnutrition or relapse through re-lactation and breastfeeding. This should be emphasised in MAMI guidance.

Responses:
None and point well-noted by the research team.

Discussion point
There is a need to engage national ministries of health throughout the process of developing and testing the MAMI approach to facilitate integration of MAMI into national guidelines and scale-up.

Responses
- Involving local administration is critical to the success of MAMI efforts in Ethiopia and globally. A stakeholder engagement meeting took place last year in Ethiopia to provide stakeholders with the opportunity to share their opinions and feedback regarding the upcoming RCT.

Discussion point
The MAMI approach has already been implemented in Bangladesh and several other countries. What are commonly identified barriers to the implementation of MAMI programming?

Responses
- The first MAMI report in 2010 revealed an important challenge to MAMI buy-in: the assumption that, because infants u6m are mainly breastfed, undernutrition would be rare in this age group. This is not the case as breastfeeding practices are frequently suboptimal and there is a range of underlying clinical issues that can contribute to undernutrition.
- Another past challenge is that guidelines previously focused on inpatient care for infants u6m without the option of community-based care. The 2013 WHO guideline on the management of severe malnutrition introduced the option of community-based care for clinically stable infants for the first time. However, national-level adoption of this guideline has been slow and most MAMI programmes have been implemented by NGOs at small scale. Much like the early days of CMAM, there is a need for further research to provide justification for implementing the MAMI approach at scale.

Discussion point
Will the RCT compare duration of treatment to recovery using the MAMI Care Pathway versus standard care to allow for a cost-effectiveness evaluation?

Responses
- A comparison of duration of treatment is not currently part of the RCT plans but this is something that could be considered for inclusion.

SESSION 6
GRIP: Getting Research into Policy/Practice

Facilitators:

Jimma meeting: Marie McGrath, Co-investigator, ENN Prof Tsinuel Girma, Senior Co-investigator, Jimma University.
Deder meeting: Marie McGrath, Co-investigator, ENN and Dr Melkamu Berhane, Principal investigator, Jimma University.

Session overview

In this session, key upcoming activities related to practice and policy around MAMI were presented to stakeholders.

Key upcoming activities

- The **WHO is in the process of updating guidelines on the management of wasting** with a view to publishing updated guidance by 2022. Wasting in infants u6m will feature in the update, described as growth failure or growth faltering in this age group. ENN, LSHTM and members of the MAMI Global Network conducted a scoping review to inform the updated guidance and participated in the scoping guideline development meeting in early December 2020. Systematic reviews and other forms of evidence will now be compiled based on the findings of the scoping review to inform the updated guidance. The research in Ethiopia will contribute to the evidence base that informs recommendations about approaches for managing small and nutritionally at-risk infants u6m globally.
- The MAMI Global Network is in the process of **updating the MAMI vision** and developing a vision for the network itself. A survey will be shared with stakeholders to gather feedback on drafts of the visions.
- There is the possibility of **developing a MAMI chapter with the Ethiopia Nutrition Leaders Network** and other key stakeholder groups in Ethiopia. This will serve to sensitise the wider nutrition community about the importance of MAMI and to inform MAMI efforts at international and local levels. Creating links with the Ethiopia Nutrition Leaders Network will be important for taking MAMI research into practice and policy in Ethiopia. This potential is being explored further by the MAMI research team and the MAMI Global Network Coordinator.

SESSION 7 Summary & closing remarks

Facilitators

Jimma meeting: Prof Alemseged Abdissa, Senior Co-investigator, Armauer Hansen Research Institute.
Deder meeting: Marie McGrath, Co-investigator, ENN.

Jimma meeting

Alemseged thanked everyone for their participation and ECF for their generous funding of the study. Chytanya Kompala from ECF thanked the research team, LSHTM, ENN and other stakeholders. Marie noted that the meeting recording will be available on **ENN's website** and encouraged stakeholders to complete the meeting evaluation form.

Deder meeting

Closing remarks were similar to the Jimma meeting. Marie McGrath thanked participants and ECF for their support. Marko Kerac thanked field workers for their work thus far.

Annex 1 Meeting agenda

Management of At-Risk Mothers & Infants under six months (MAMI) RCT in Ethiopia

Dates – Monday 14th Dec (Jimma); 15th Dec 2020 (Deder)

Time (Ethiopia)	Session		Details of session	Facilitator
14:00 14:10	1	Welcome	Overview of the afternoon (Prof Tsinuel Girma, JU & Dr Marko Kerac, LSHTM)	Dr Marko Kerac, LSHTM
		Participant introduction	Please type the following into chat box: • Name & institution • Key roles/responsibility	All participants
14:10 - 14:20	2	MAMI overview	MAMI in the global context	Marie McGrath, ENN
14:20 - 15:15	3	Progress on MAMI research in Ethiopia	Overview of key subprojects • Qualitative research (Nega Jibat, JU) • Quantitative research - (Carlos Grijalva-Eternod, LSHTM) • DHS analysis (Vasundhara Bijalwan, LSHTM) • Communications/stakeholder mapping (Mubarek Abera, JU) • Q&A	Dr Melkamu Berhane, JU
15:15 - 15:30	Coffee break in small group breakout rooms			All
15:30 - 15:40	4	RCT plans	PICO for the RCT	Dr Marko Kerac, LSHTM
15:40 - 16:10	5	Group discussion & feedback	Plenary discussion & feedback (all research team) • Q&A • Potential strengths/opportunities • Potential risks/threats/problems	Mubarek Abera, JU
16:10 - 16:25	6	GRIP – Getting Research into Policy/Practice	Key upcoming activities (including Ethiopia Nutrition Leaders Network)	Prof Tsinuel Girma, JU & Marie McGrath, ENN
16:25 - 16:30	7	Summary & closing remarks	Final reflection & acknowledgements	Prof Alemseged, Armauer Hansen Research Institute

Annex 2 Participant lists

Participant list for Deder meeting

First Name	Last Name	Organisation	Job Title
Abdulhakim	Ali	GOAL	CMAMI Research Project Manager
Abdullah	Mujally	WFP	Nutrition Programme Policy Officer
AG	Minas	WFP	Nutrition Advisor
Alemayehu	Beri	GOAL	Senior CMAM Program Officer
Alemseged	*Abdissa*	Armauer Hansen Research Institute	Deputy Director
Anley	*Abate*	GOAL Ethiopia	Acting Assistant Country Director
Carlos	*Grijalva Eternod*	LSHTM	Research Fellow
Chytanya	Kompala		
Clare	Nalweyiso		
Abdoulaye	Diallo	Action Contre La Faim	Program Manager
Egnon K. Vivien	Dr Kouakou	Medecins d'Afrique	Project Manager
Eleanor	Rogers	ENN	
Frehiwot	Girma	Ministry of Health	Nutrition Officer
Frezer	Dulume	Ministry of Health, Ethiopia	Senior National Nutrition Expert
Gerardale Ann	Balintec		
Guadie	Abye	GOAL Ethiopia	Regional Programme Manager
Harpreet	Kaur		
Jessica	Bourdaire		
Kavita	Sharma	UNICEF	Nutrition Specialist
Kirui	Chelangat		
Liya	Assefa	Goal Ethiopia	Senior Nutrition Research Officer
Marie	*Marie McGrath*	ENN	Technical Director
Marko	*Kerac*	LSHTM	Associate Professor
Meheret	Tena	Save the Children	Nutrition Project Manager
Melkamu	Birhane	Action Against Hunger	Roving Health and Nutrition PM
Melkamu	Berhane	Jimma University	Pediatrician
Meron	Regu	Arsi University	Academic staff
Millicent	Lusigi	UNHCR	Nutrition Officer
Mitswat	Mulaw	Project HOPE	Child Health and Nutrition Officer
Mohammad Imteaz	Mahmud		
Mohamud	Mohamed	OWDA	Health and Nutrition Coordinator
Mubarek	*Abera*	JU	
Musie	Assefaw	Self	Nutrition Program Consultant
Muzemil	Muktar	WFP	IMAM Consultant
Muzemil	Kemal	USAID Transform PHC	Nutrition Regional Program Officer
Ndonita	ZOLA	Université Senghor	Étudiant en Nutrition
Nega	*Jibat*	Jimma University	Researcher
Nicki	Connell	ECF	Technical Director
Nina	Firas		
Rediet	Kassahun	People In Need	WASH Coordinator
Rita	Abi akar	DAI	Nutrition Advisor
Ritu	*Rana*	GOAL	Nutrition Research Advisor (MAMI)
Sara	Strout	LSHTM	Graduate student
Serag Mohammed	Hezam		
Shewangizaw	Ashenafi	International Rescue Committee	Nutrition Coordinator
Shiferaw	Fisseha	ABH Partners	Emergency Nutrition National Coordinator
Taye	Wondimu	Oromia Regional Health Bureau	Nutrition Program Coordinator
Tsinuel	Nigatu		Senior Researcher
Vasundhara	Bijalwan	WFP	Consultant
Vasundhra	Chand		
Wondayferam	Gemeda Guluma	UNICEF	Nutrition Specialist
Wundow	Oldman	Ghana Health Service	Nutrition Officer

Note: *Members of the MAMI Research Team*

Participant list for Jimma meeting

First Name	Last Name	Organisation	Job Title
Abay	Gosaye	ACF	HNPM
Abbas	Shukri	Mercy Corps	Regional Emergency Program Manager
Abdulrashid	Jattani	Ministry of Agriculture	Agriculture Officer
Aboubakar D.	Kone	URC-CHS	Regional Team Lead
Adamu	Abera	MCMDO	CMAM Coordinator
AG	Minas	WFP	Nutrition Advisor
Alemayehu	Beri	GOAL	Senior CMAM Program Officer
Alemayehu	Eshetu	World Vision	Emergency Nutrition Specialist
Alemseged	*Abdissa*	Armauer Hansen Research Institute	Deputy Director
Alessandro	Iellamo	Save the Children UK	Global IYCF-E Advisor
Alexandra	Beedle		Nutritionist
Alice	Burrell	Save the Children	Global MAMI Advisor
Alinoor	Farah	Save the Children	Health and Nutrition Specialist
Amare	Demsie	University of Gondar	Assistant Professor of Pediatrics Nutrition
Andualem	Agize	WFP	Programme Officer
Anley	Abate	GOAL Ethiopia	Acting Assistant Country Director
Anteneh	*Berhane*	Dire Dawa University	Lecturer and student (PhD fellow in Nutrition)
Ashebir	Simon	IMC	Nutrition Program Activity
Carlos	*Grijalva Eternod*	LSHTM	Research Fellow
Chytanya	Kompala	Eleanor Crook Foundation	Senior Program Officer
Dr Abdoulaye	Diallo	Action Contre La Faim	Health and Nutrition Program Manager
Egnon K. Vivien	Dr Kouakou	Medecins d'Afrique	Project Manager
Elena	Rivero	Independent Consultant	Independent Consultant
Ellyn	Yakowenko	Action Against Hunger	Associate Director of Research
Feleke Milikias	Asamo	Tearfund	Nutrition Advisor
Ferew	*Lemma*	MOH	Senior Advisor
Fitsum	Endale	Wachemo University	Lecturer
Frehiwot	Girma	Ministry of Health	Nutrition Officer
Frezer	Dulume	Ministry of Health, Ethiopia	Senior National Nutrition Expert
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Gerardale Ann	Balintec	Medair	Nutrition PM
Girma	Beressa	JU	Lecturer
Gobane	Dea	FMoH	Nutrition Expert
Guadie	Abye	GOAL Ethiopia	Regional Programme Manger
Habeneyom	Sisay	Fana Broadcasting Corporate	Journalist
Hari	Vinathan	UNICEF	Nutrition Specialist
Harpreet	Kaur	Doctors with Africa CUAMM	Assistant Program Manager
Hiwot	Darsene	MOH	Nutritionist
Israel	Hailu	Save the Children	National Lead- ECSC-SUN
Jemal	Hussien	FHI360	Regional MIAYCN Advisor
Jessica	Bourdaire	WFP	Nutrition Research Officer
Jules Maneraguha	Rugishi	Worked for IMC, Mercycops, World Vision, Caritas Congo	Former Nutrition Manager in South Sudan, Akobo East County Jonglei State

Note: *Members of the MAMI Research Team*

Participant list for Jimma meeting *Cont'd*

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Liya	Assefa	Goal Ethiopia	Senior Nutrition Research Officer
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Mamadou	DIALLO	UNICEF	Supply Chain Specialist
Marie	*Marie McGrath*	ENN	Technical Director
Marko	*Kerac*	LSHTM	Associate Professor
Md. Abdul Mazid	Azad	Save the Children in Bangladesh	Coordinator - IYCFE
Meheret	Tena	Save the Children	Nutrition Project Manager
Melkamu	Birhane	Action Against Hunger	Roving Health and Nutrition Program Manager
Melkamu	*Berhane*	Jimma University	Pediatrician
Menberu	Kitila	Jimma City Administration, currently phD student at Jimma University	Coffee Development, Quality and Market Control Team Coordinator
Mhiret	Teshome	Action Against Hunger	Nutrition Expert
Michele	Goergen	n/a	Consultant
Mirkuzie	Woldie	Ministry of Health, Ethiopia	Senior Research Advisor
Mitswat	Mulaw	Project HOPE	Child Health and Nutrition Officer
Mohammad Imteaz	Mahmud	The Power of Nutrition	Consultant
Mohamud	Mohamed	OWDA	Health and Nutrition Coordinator
Mouhamed	Barro	.	Nutritionist
Mubarek		Jimma University	Lecturer and Researcher
Muzemil	Muktar	WFP	IMAM Consultant
Muzemil	Kemal	USAID Transform PHC	Nutrition Regional Program Officer
Naveed	Bhutto	PFA	Program Lead
Ndonita	Zola	Université Senghor	Étudiante Nutrition
Nebiyu	Ayalew	Mothers and Children Multisectoral Development Orgainzation	Nutrition Program Manger
Nega	Jibat	Jimma University	Researcher
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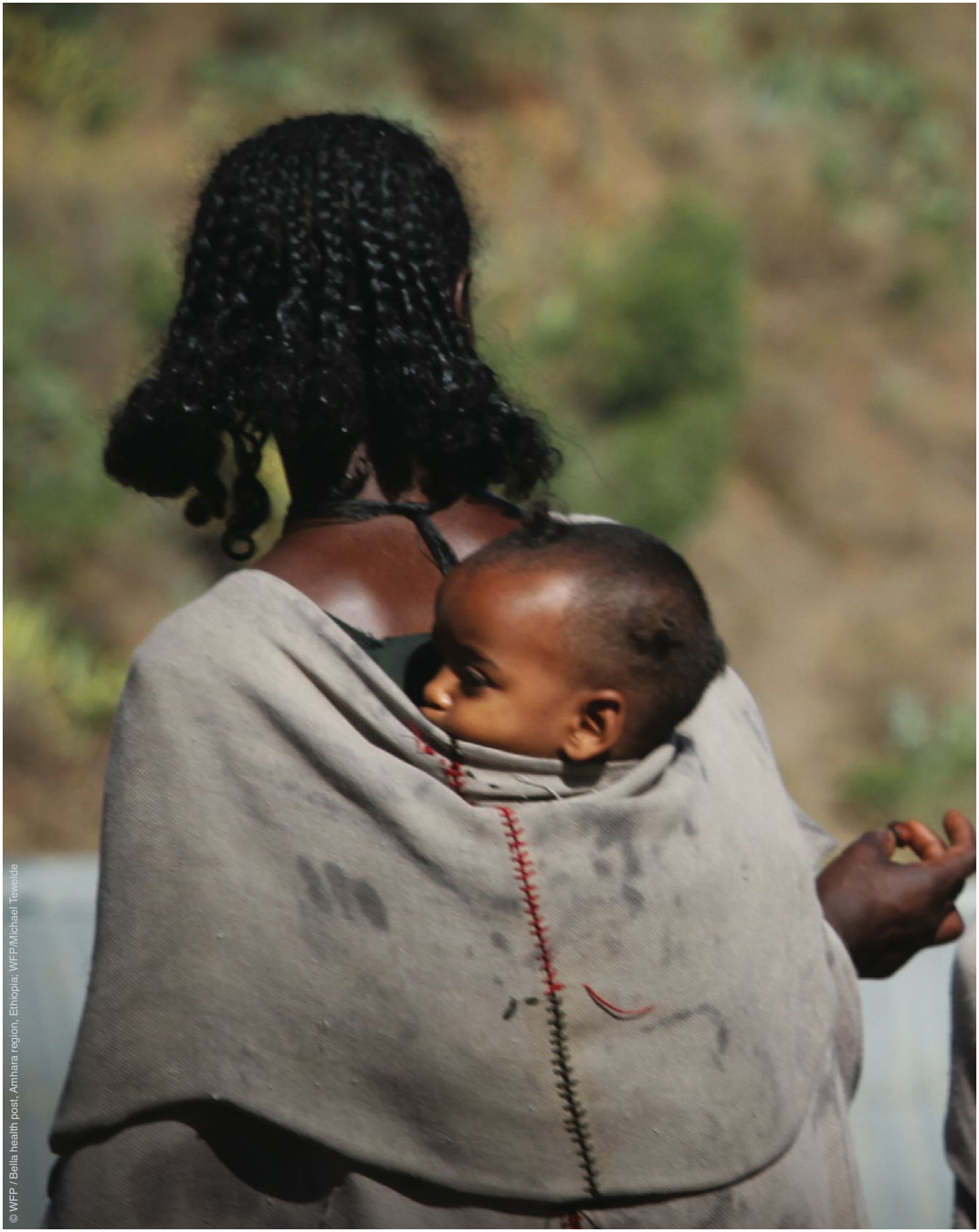
Sherin	Al Amo	Human Appeal	Health and Nutrition Coordinator
Shibru	Kelbessa	Ministry of Health	National Nutrition Program Officer
Shimels	HM	EPHI	Researcher
Silvia	Barbazza	ACF	Health and Nutrition Advisor
sultan	Ebrahim	Save the Children (SCI)	S. Health and Nutrition Specialist
Tabitha	van Immerzeel	LSHTM	MD and Phd student
Tijani	Abagodu	UNICEF	Zonal Emergency Nutrition Coordinator
Tsinuel	*Nigatu (Girma)*	JU	Senior Researcher
Vasundhara	Bijalwan	WFP	Consultant
Vasundhra	Chand	Lady Irwin college	Research scholar
Vijayata	Sengar	Dept of Foods and Nutrition, The Maharaja Sayajirao University of Baroda	Assistant Professor
Yasir	Arafat	Save the Children	Regional Health and Nutrition Advisor, Asia
Zakaria	Diallo	Action Contre la Faim	Coordinateur Adjoint Nut/Sante

Note: *Members of the MAMI Research Team*



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