

THE INTEGRATED MANAGEMENT OF SMALL AND NUTRITIONALLY AT-RISK INFANTS UNDER 6 MONTHS AND THEIR MOTHERS IN SOUTH SUDAN, A PILOT STUDY.

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BACKGROUND AND AIMS

Maternal and child undernutrition remains a major health concern in South Sudan and globally. Small and nutritionally at-risk infants under 6 months (u6m) are at high risk of mortality and morbidity¹. Evidence underpinning their care is sparse and of low quality. Policies have focused on the first 1,000 days from pregnancy through the child's 2nd birthday ("the window of opportunity") but more needs to be done for the critical gap in the first six months for infants to survive and thrive.

We pilot the 2021 management of small and nutritionally at-risk infants u6m and their mother (MAMI) Care Pathway² in South Sudan adapted to the country context. Implementation of the integrated Care Pathway and accompanying operations research will generate information on the burden of small and nutritionally at-risk infants u6m, understand risk factors, and consolidate learning on feasibility, acceptability and viability of implementing MAMI.

METHOD

The prospective longitudinal cohort study to pilot the MAMI Care Pathway enrolls study subjects for 12 months. Mixed methods collect quantitative data on a continuous basis and qualitative data at key points to explore feasibility and viability of the integrated approach. The study population consists of all infants u6m and their mothers in the catchment area of five health facilities who are routinely screened in the community and at any contact with health services. Risk pairs are assessed, and moderate risk pairs are enrolled for health management and support. Table 1 shows the characteristics of the target population, and Box 1 shows the classification of infant-mother pairs.

RESULTS

Collaborative learning and adapting crosscuts all activities and invite participating actors to learn together by doing.

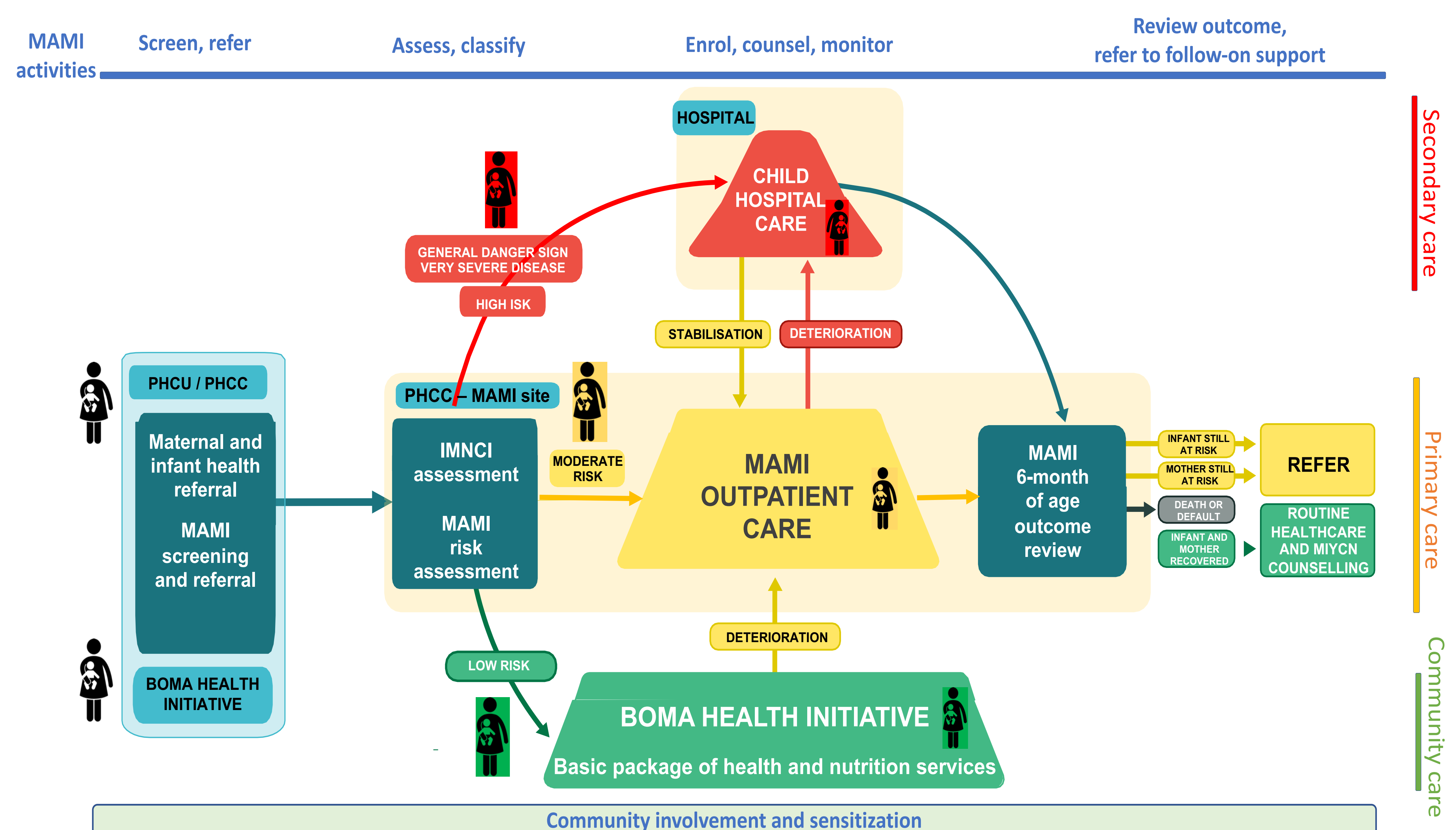
In a first step, a 2-day stakeholder meeting was held with senior health and nutrition partners from the Ministry of Health, UNICEF and implementing partners. It was followed by a 2-day orientation and training for healthcare providers of the respective pilot sites. Both events created the opportunity for participants to come to know the approach and its tools and adapt the Care Pathway implementation materials to national guidelines, strategies and country context. Next, an advisory board and technical implementers group will engage implementers on continuous learning and adaptive management.

The reviews of the materials kickstarted the adaptation that were tested and further improved. Figure 1 shows the adapted MAMI Care Pathway Flow Chart. Table 2 unpacks the MAMI Care Pathway activities for integration into existing child health services, answering the question what is done where and by who.

CONCLUSION

Learning that has started will increase interest and unlock resources for generating national evidence. Moreover, findings will contribute to the Government of South Sudan's health and nutrition policy to be revised in 2025, and to broader health and nutrition strategies to adopt the MAMI Care Pathway in other countries.

Figure 1. MAMI Care Pathway for the MAMI pilot study in South Sudan adapted to the country context



Abbreviations: IMNCI = Integrated management of neonatal and childhood illness; MAMI = Management of small and nutritionally at-risk infants under 6 months of age and their mothers; MUAC = Mid-upper arm circumference; OPD = Outpatient department; PHCC = Primary healthcare centre; PHCU = Primary healthcare unit.

Box 1. Classification of infant-mother pair:

Low-risk infant-mother pair (green), referred to continued preventive community activities

Moderate risk infant-mother pair (yellow), enrolled for management and support in primary care

High-risk infant mother pair (red), referred to hospital

Table 1. MAMI Care Pathway Pilot Study Target Population

Infants u6m	Mothers of infants u6m
Screening criteria in the community or when in contact with health services, and referral of at-risk pairs to the OPD of the health facility :	
<ul style="list-style-type: none"> Clinically unwell, episode of illness now Difficulties in feeding Not breastfed Recent weight loss or poor growth Small newborn or with low birth weight Mid-upper arm circumference (MUAC) yellow or red <125 mm 	<ul style="list-style-type: none"> Clinically unwell or severe disease Absent or dead Adolescent mother <19 years Feeling unwell, risk behaviour Other health or social concern MUAC <230 mm
Assessment criteria for defining high-risk pairs and referral to hospital:	
<ul style="list-style-type: none"> IMNCI general danger sign or sign and symptom of severe disease, including nutritional oedema 	<ul style="list-style-type: none"> Health, mental wellbeing or social concern
Assessment criteria for defining moderate-risk pairs and enrolment in outpatient care :	
<ul style="list-style-type: none"> MUAC red, or Infant <7 weeks: MUAC <110 mm Infant ≥7 weeks: MUAC <115 mm Weight-for-age z-score (WAZ) <-2 (If known) born preterm <36 weeks (If known) low birth weight <2500 g Recent weight loss, no weight gain, poor growth Difficulty in feeding Not breastfed Cries excessively, sleep problems Other health concern or disability 	<ul style="list-style-type: none"> Absent or dead MUAC <230 mm First born Multiple births Adolescent mother <19 years Confirmed or suspected HIV, TB Enrolment in PMTCT Disability impairing feeding and care Mental wellbeing concern Other health or social concern
Exit criteria for ending enrolment in MAMI outpatient care:	
Infant	
<ul style="list-style-type: none"> Reached 6 months of age Died before 6 months of age Lost to follow up (after community inquiry) 	
Exclusion criteria for enrolment in MAMI outpatient care:	
<ul style="list-style-type: none"> Infant-mother pair at high-risk Infant-mother pair at low-risk Mother is not giving consent to participate 	

Table 2. MAMI Care Pathway Unpacked: what is done where by who in South Sudan

Activities per level	What	Where	Who
Community			
Community sensitization	Sensitization and discussions about infant-mother risk of poor growth and development through community activities, mother groups etc.	Community	Community health workers, supported by their supervisors
Community screening	Verify key indicators, and referral in case of identified risk.		
Community follow up	Follow up of risk pairs through household visits.		
Primary care health facility			
Rapid screening of all infant-mother pairs at any health service contact	Verify key indicators and referral for in-depth assessment in case of identified risk.	Health services frequented by mothers and infants (e.g., OPD, U5 clinic, maternity, ANC, PNC, EPI, maternal and child nutrition, family planning)	Health workers of the respective services, supported by their supervisors
Initial assessment of anthropometry	Anthropometric measurement of risk infant-mother pair: weight, length, MUAC, underweight classification, oedema check	Registration and waiting area, nutrition unit or OPD	Trained health worker
Initial assessment IMNCI and MAMI	IMNCI and MAMI risk assessment and classification, enrolment, or referral.	OPD U5 consultation	Clinical officer at U5 clinic
Initial counselling	Feeding counselling, early childhood development counselling, maternal mental wellbeing counselling.		
Follow up visit – assessment and monitoring (referral), and counselling	Health and nutritional risks monitoring, referral if needed, targeted counselling.		
Discharge at 6 months of age	Health and nutritional risk status and referral if needed.		

References:

- Black, R. E., Victora, C.G., Walker, S. P., et al. (2013). Maternal and child undernutrition and overweight in low-income and middle-income countries. The Lancet. Vol. 382, P427-451. DOI: [https://doi.org/10.1016/S0140-6736\(13\)60937-X](https://doi.org/10.1016/S0140-6736(13)60937-X)
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