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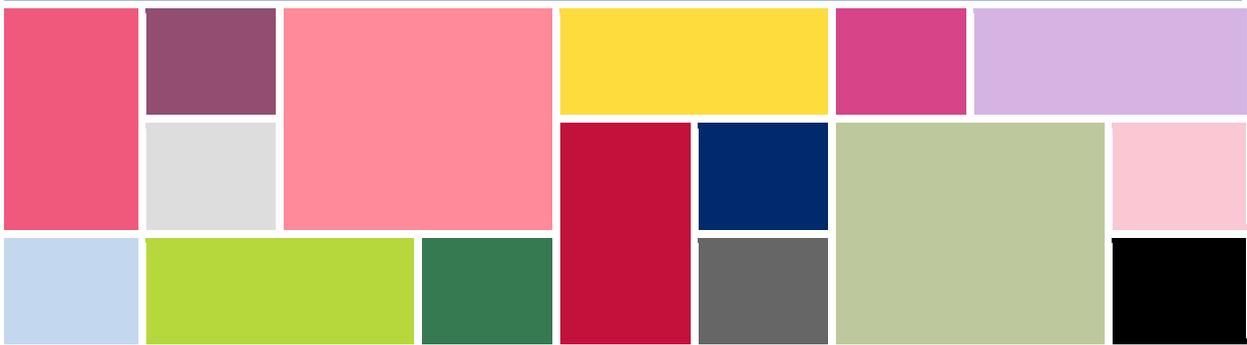


Review of Policies and Guidelines Related to the Nutrition of Ill and Undernourished Children at the Primary Health Care Level

To inform discussions at the workshop: Improving Nutrition Services in the Care of the Ill and Vulnerable Newborn and Child

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The Maternal and Child Survival Program (MCSP) is a global United States Agency for International Development (USAID) initiative to introduce and support high-impact health interventions in 25 priority countries to help prevent child and maternal deaths. MCSP supports programming in maternal, newborn, and child health, immunization, family planning and reproductive health, nutrition, health systems strengthening, water/sanitation/hygiene, malaria, prevention of mother-to-child transmission of HIV, and pediatric HIV care and treatment. MCSP will tackle these issues through approaches that also focus on household and community mobilization, gender integration, and digital health, among others.

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Acronyms and Abbreviations

CHW	community health worker
CMAM	community-based management of acute malnutrition
CORTASAM	Council of Research & Technical Advice
EML	Essential Medicines List
HMIS	health management information system
iCCM	integrated community case management
IMAM	integrated management of malnutrition
IMCI	integrated management of childhood illness
IMNCI	integrated management of newborn and childhood illness
IYCF	infant and young child feeding
LBW	low birthweight
M&E	monitoring and evaluation
MAM	moderate acute malnutrition
MCSP	Maternal and Child Survival Program
MUAC	mid-upper arm circumference
NGO	nongovernmental organization
ORS	oral rehydration salts
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
SFP	supplementary feeding program
SUN	Scaling Up Nutrition
UN	United Nations
USAID	United States Agency for International Development
WFA	weight-for-age
WFH/L	weight-for-height/length
WHO	World Health Organization

Introduction and Background

Preventing morbidity and mortality in children under 5 years of age is an important shared priority for child health and nutrition stakeholders. While pneumonia, diarrhea, and malaria remain the leading immediate global causes of child death, the vulnerability to and the severity of these illnesses are exacerbated by undernutrition, which is a contributing factor in 45% of all under-5 deaths.¹ The early years of a child's life are particularly critical, and inadequate nutrition, suboptimal management for feeding problems and/or malnutrition, and poor feeding practices during this time period increase a child's risk of falling ill or dying.

Among the global health community, the importance of nutrition throughout the life course of a child, from infancy through early childhood and adolescence, is gaining more attention. In the 5 years since the Maternal and Child Undernutrition Series was published in *The Lancet*, there has been a substantial increase in commitment to reduction of malnutrition at global and national levels.² This includes the launching of the United Nations (UN) secretary-general's Global Strategy on Women's, Children's and Adolescents' Health (2016–2030); the Sustainable Development Goals; and the adoption of six global nutrition targets.³

Despite the growing focus on nutrition, there is significant concern about the level of integration of interventions focusing on nutrition and the treatment of childhood illness. More specifically, there is a concern that many primary health care providers or community health workers (CHWs) fail to recognize malnutrition—including stunting, wasting, micronutrient deficiencies, and overweight/obesity—in children while diagnosing and treating illness, or fail to provide appropriate nutritional care to children and counseling to caregivers of children with illnesses, therefore increasing the risk of malnutrition, mortality, or morbidity. In addition, there are concerns about the poor optimization of opportunities to strengthen the counseling and follow-up of high-risk newborns and infants to promote breast milk and appropriate feeding.

The United States Agency for International Development (USAID)'s Maternal and Child Survival Program (MCSP) commissioned the current review based on the premise that the lack of adequate attention of nutrition at the sick-child encounter is at least partly due to continued fragmentation of global and national policies and guidance (guidelines, training, and counseling packages on nutrition practice for ill or vulnerable newborns, infants, and children). As such, the goal of this effort is to review relevant policies and guidelines in order to assess the availability and consistency of nutrition guidance at the encounter between a service provider and a sick or at-risk/vulnerable child, and to identify ways this could be improved.

This review recognizes the complex, multifactorial nature of the persistent gap of adequate attention to nutrition in the health care setting, from the national/policy level to the individual/provider level. Even when policies are in place, there can be barriers to their implementation. The review is intended to inform discussions at the Improving Nutrition Services in the Care of the Ill and Vulnerable Newborn and Child Workshop in October 2018 in Accra, Ghana, where participants will include frontline workers, government officials, implementing partners, donors, and other experts in the fields of newborn and child health and nutrition.

Methodology

This review collected and examined policies and guidelines related to the encounter between a sick child under 5 years of age and either the first-level health facility provider or a lay CHW. The most widespread of

¹ Black RE, Alderman H, Bhutta ZA, et al. 2013. Maternal and child nutrition: building momentum for impact. *The Lancet*. 382(9890): P372–75. doi: 10.1016/S0140-6736(13)60988-5.

² Black RE, Alderman H, Bhutta ZA, et al. 2013. Maternal and child nutrition: building momentum for impact. *The Lancet*. 382(9890): P372–75. doi: 10.1016/S0140-6736(13)60988-5.

³ Global nutrition targets, 2025: 40% reduction of the global number of children under five who are stunted; 50% reduction of anemia in women of reproductive age; 30% reduction of low birth weight; no increase in childhood overweight; increase the rate of exclusive breastfeeding in the first 6 months up to at least 50%; reduce and maintain childhood wasting to less than 5%.

these encounters are through integrated management of childhood illness (IMCI)⁴ or integrated community case management (iCCM).

This review examined policies and guidelines related to the encounter between a sick child under 5 years of age and a service provider at the first-level facility or in the community. Barriers related to the use of these policies and guidelines will be important to explore during country-level program implementation reviews.

Information was gathered through reviewing relevant global and country documents and through interviews with key informants. Global documents were identified in collaboration with MCSP, on recommendations by key informants, and through Web searches. Documents were requested for review from the six countries that would be sending delegations to the workshop: Ethiopia, Ghana, Kenya, Mali, Mozambique, and Nigeria. The list of documents comprised national child health policy, national newborn health policy (if separate), national treatment guidelines or chart booklets for IMCI/integrated management of newborn and childhood illness (IMNCI) and iCCM, national nutrition policy, national guidelines related to management of acute malnutrition, and any national nutrition guidelines for health workers or community-based providers on breastfeeding counseling and support for the sick child. Sources for the documents included USAID, MCSP, the World Health Organization (WHO), UNICEF, and selected key informants. Due to language limitations, materials from Mozambique were reviewed through additional specific discussion and correspondence with key informants.

The reviewers carried out interviews with 28 key informants, 13 at the global level and 15 from countries (two to three informants per country). Interviews were conducted using predefined questionnaires and aimed to identify perceived gaps or inconsistencies in both global and national policies and guidelines, identify perceived barriers to implementing national policies and guidelines, and clarify any questions raised during this review of national guidelines. Key informants represented implementing partners, donors, UN organizations, ministries of health, nongovernmental organizations (NGOs), bilateral agencies, and academia. The primary criterion for inclusion at the national level was knowledge and experience with the development and/or implementation of policies and guidelines related to improving nutrition services in care of ill and vulnerable newborns and children. Every effort was made to balance institutional representation with the perspectives of professionals in the fields of child health, newborn health, and nutrition. A list of organizations interviewed can be found in Annex A.

For the purpose of this review, nutrition interventions at the sick-child encounter were defined as assessment and treatment of severe acute malnutrition (SAM), moderate acute malnutrition (MAM), anemia, feeding and breastfeeding problems, and low weight-for-age (WFA), as well as counseling of caregivers about feeding the sick child. “Child” is defined as 0–59 months of age. For this review, “primary health care level” refers to where sick children make an initial approach to a care provider, including both CHWs and professionals posted at frontline health facilities. The review examined infant and young child feeding (IYCF) only as it pertained to advice for the sick child; interventions concerning prevention, micronutrient supplements, deworming, or vitamin A were not included unless indicated as treatment for one of the above. The review excluded difficult circumstances, such as orphaned children or emergency situations.

Limitations of the Review

The principal limitation of this review is the small number of national key informants, only two to three per country. It is recognized that newborn/child health and nutrition are tremendously large fields with many players. This review thus presents a sampling of opinions, observations, and issues intended to stimulate discussion with global and country delegations at the workshop and beyond. Additionally, because the review

⁴ Many countries have integrated care for the newborn into IMCI guidelines; the acronyms IMCI and IMNCI are used interchangeably in this review.

was by definition about policy and guidelines, information was not collected on the quality or coverage of implementation. Finally, in several cases, since relevant national policies are currently under revision or validation, the latest available policies were used for this review. Many of the outstanding questions may be best answered by in-depth reviews of implementation, which were not included in the present exercise. In-depth reviews will be able to inform gaps and opportunities to strengthen implementation.

Findings of Desk Review

This section highlights findings from the review of documents at the global level and from Ethiopia, Ghana, Kenya, Mali, Mozambique, and Nigeria. The subsection on Global Policies and Guidelines presents guidance for nutritional care at the sick-child encounter found in global nutrition documents, child health documents, and guidance specific to the newborn. The subsequent subsection, National Policies and Guidelines, follows a similar outline covering nutrition, child health, and newborn documents, and includes a comparison with the relevant global and national guidelines for IMCI and iCCM for both the sick child and newborn.

With the exception of managing acute malnutrition, nearly all guidance on nutritional care for ill and vulnerable newborns and children was found in materials concerning the management of childhood illness, in particular IMCI and iCCM. In general, global nutrition and child health policies are in line with each other, and national policies mirror those at the global level. **Global guidance on feeding during and after illness aligns between the nutrition and child health documents, although the guidance is for the most part limited and unspecific.**

Global Policies and Guidelines

Global Nutrition Policies and Guidelines

This review focused specifically on policies and guidelines related to nutritional care of ill and vulnerable newborns and children.

Global policies and guidelines for IYCF are widely available, with a focus on breastfeeding and adequate complementary feeding. In these IYCF documents, most guidance is aimed at preventive and promotive activities, whether in the health facility, the community, or the home. Very little guidance was found specifically for the encounter between a health worker and an ill and vulnerable newborn or child unless it concerned the assessment and management of SAM/MAM, micronutrient deficiencies, or the prevention of nutrition-related illnesses later in life.

Fifteen global nutrition documents, including but not limited to strategies, essential nutrition actions, guidelines on feeding, and technical guidance on SAM and MAM, were examined for information related to nutritional care of ill or vulnerable newborns and children at sick-child encounters. The list of global documents reviewed, date of publication, organizational authorship, and relevant advice are presented in Annex D. The main points relevant to the current review are as follows:

SAM in children 6–59 months: A 2007 joint statement by WHO, the World Food Programme, the UN Standing Committee on Nutrition, and UNICEF endorsed outpatient care of children 6–59 months of age with SAM, no medical complications, and good appetite.⁵ These cases can be managed in the community with regular visits to a health center. The statement also recognizes that a CHW can assess SAM with mid-upper arm circumference (MUAC) and bilateral pitting edema.

⁵ World Health Organization (WHO), World Food Programme, United Nations System Standing Committee on Nutrition, UNICEF. 2007. *Community-Based Management of Severe Acute Malnutrition: A Joint Statement by the World Health Organization, the World Food Programme, the United Nations System Standing Committee on Nutrition and the United Nations Children's Fund*. Geneva: WHO.

Global guidance recommends the use of a cutoff for weight-for-height (WFH) of below -3 standard deviations of the WHO standards to identify infants and children as having SAM. Children with bilateral pitting edema are also considered as having SAM. MUAC can be used as an independent criterion for identification of children 6–59 months old with SAM, with a cutoff point of 115 mm.⁶

The 2013 document *Guideline: Updates on the Management of Severe Acute Malnutrition in Infants and Children* reflects the latest global consensus and recommendations for outpatient treatment:⁷

- Children with SAM with appetite can be managed as outpatients with ready-to-use therapeutic food (RUTF) and given amounts adjusted to their weight to provide recommended energy intakes for recovery.
- Because RUTF does not contain water, children should also be offered safe drinking water to drink at will. Breastfeeding should be continued and offered ad libitum.
- Children with SAM should be provided with vitamin A daily, either as an integral part of therapeutic foods or as part of a multimicronutrient formulation.
- Children should be given a course of oral antibiotics, such as amoxicillin.
- Follow-up, including monitoring of response to treatment and provision of the next supply of RUTF, should be done, ideally weekly, by a skilled health care worker in a nearby clinic or in the community.

Infants under 6 months of age with SAM: In infants who are under 6 months of age, SAM is defined by a very low weight for length or the presence of bilateral pitting edema. SAM is increasingly being recognized in infants under 6 months of age and is often associated with higher mortality in young infants than in older infants and children.⁸ Despite the lack of empirical evidence on the management of SAM in this age group and “diversity of opinions on the feeding strategy for the rehabilitation phase,”⁹ the guideline group that developed the 2013 updates document recognized the need to provide programmatic guidance for health care workers.

As with older children, SAM in infants can be uncomplicated or complicated and should be managed in outpatient or inpatient settings, respectively. Clear guidance was established for complicating factors indicating admission for an infant with SAM. Recommendations for outpatient treatment include the following:¹⁰

- Feeding approaches for infants who are less than 6 months of age with SAM should prioritize establishing, or re-establishing, effective exclusive breastfeeding by the mother or other caregiver.
- Infants who are under 6 months of age with SAM should receive the same general medical care as infants with SAM who are 6 months of age or older, including a weight-adjusted dose of antibiotic.
- Infants who are less than 6 months of age with SAM and who do not require inpatient care or whose caregivers decline admission for assessment and treatment should be managed through counseling and support for IYCF and weekly follow-up to monitor weight gain and refer if not adequate.

MAM: MAM is defined by a weight-for-height/length (WFH/L) z-score between -3 and -2 or a MUAC reading of 115–125 mm (yellow). *Essential Nutrition Actions and Essential Hygiene Actions: Reference Manual: Health Workers and Nutrition Managers* provides specific guidance for feeding a child with MAM at home.¹¹ This

⁶ WHO. 2013. *Essential Nutrition Actions: Improving Maternal, Newborn, Infant and Young Child Health and Nutrition*. Geneva: WHO.

⁷ WHO. 2013. *Guideline: Updates on the Management of Severe Acute Malnutrition in Infants and Children*. Geneva: WHO.

⁸ WHO. 2018. Management of infants under 6 months of age with severe acute malnutrition. WHO website. http://www.who.int/elena/titles/sam_infants/en/.

⁹ WHO. 2013. *Guideline: Updates on the Management of Severe Acute Malnutrition in Infants and Children*. Geneva: WHO.

¹⁰ WHO. 2018. Management of severe acute malnutrition in infants and children. WHO website. http://www.who.int/elena/titles/full_recommendations/sam_management/en/index7.html.

¹¹ Guyon A, Quinn V, Nielsen J, Stone-Jimenez M. 2015. *Essential Nutrition Actions and Essential Hygiene Actions: Reference Manual: Health Workers and Nutrition Managers*. Washington, DC: CORE Group.

include frequent breastfeeding for children 0–24 months; one extra meal per day for children 6 months and up, with supplementary foods if available; and being patient, encouraging the child to eat, and choosing favorite foods.

Feeding advice for sick children, found in global nutrition policies and guidelines: Most of this guidance focuses on preventive and promotive activities. Guidance specifically for the encounter between a health worker and an ill and vulnerable newborn or child was rare unless it concerned the assessment and management of SAM/MAM, micronutrient deficiencies, or the prevention of nutrition-related illnesses later in life. Global nutrition policies and guidelines do highlight the importance of optimal IYCF practices and emphasize the need to increase fluid intake, continue feeding during illness, and increase food intake during convalescence.

During illness, “nutrients are diverted from growth and development toward the immune response. Children’s poor appetite induced by illness can contribute to perpetuate the vicious cycle of infection and stunting.”¹² Additionally, the need for fluids during illness is often higher than normal, as both diarrhea and fever can increase water loss. After illness, extra food is needed until the child has regained any weight lost and is growing well again.

Global Health Policies and Guidelines for Children 2–59 Months

Most interactions between a sick child and a first-level or CHW are based on IMCI or iCCM. Selected points relevant to nutritional care are described below.

IMCI

IMCI provides an integrated protocol for facility-based health workers to assess, classify, and treat the five major causes of morbidity and mortality for children under 5 years of age (pneumonia, diarrhea, measles, malaria, and malnutrition). It also includes identification of those needing referral. One danger sign indicating the need for urgent referral is the inability to drink or breastfeed. The guidelines include the assessment and treatment of SAM (uncomplicated), MAM, and anemia. Children younger than 2 years old who have MAM, are anemic,¹³ or are HIV exposed or infected should be assessed for feeding problems.

Caregivers of all sick children are advised to increase fluids and breastfeeding during illness. The only guidance related to feeding children after illness was found in the follow-up instructions specific to dysentery.

The global IMCI generic chart booklet includes a section on feeding counseling and provides recommendations related to feeding for all children during sickness and health. It is organized in six columns by age grouping, with three to six messages per age grouping. Additional recommendations are provided for specific target groups, including feeding HIV-exposed children on infant breast milk substitute and guidance on how the mother can stop breastfeeding.

Detailed guidance can be found in Annex B.

iCCM

iCCM is a community-based adaptation and simplification of IMCI that provides a means for extending frontline care in communities where access to facility-based health services is poor. An essential philosophy underpinning the creation of the iCCM process was that one observation would lead to one action. As in IMCI, the global iCCM guidance includes “Not able to drink or feed anything” as a danger sign for children

¹²WHO. 2005. *Guiding Principles for Feeding Non-Breastfed Children 6–24 Months of Age*. Geneva: WHO.

¹³ Note: While the global guidance indicates that anemia is an indication for assessing feeding problems in the sick-child recording form, the chart page on anemia prompts assessment of feeding only in the absence of palmar pallor for a child under 2 years of age.

2 months to 5 years of age. Additionally, for children referred for any danger signs who can drink, the iCCM provider is instructed to advise the caregiver to give fluids and continue feeding.

According to the standard protocol, the iCCM worker assesses every sick child over 6 months of age with a MUAC strap and assesses for bilateral pitting edema. Red MUAC and bilateral pitting edema are danger signs, and the CHW refers the child to a health center for immediate care. When a child has a yellow reading on MUAC, the caregiver should be counseled on feeding or referred to a supplementary feeding program if one is available. Since the MUAC cannot be used below 6 months of age and iCCM providers are generally not trained to weigh children, iCCM does not provide guidance on nutrition assessment for children in this younger age group at the community level.

The CHW advises the caregiver to give more fluids and continue feeding after illness. Advising is differentiated from counseling, which is indicated in IMCI. Counseling implies listening, reflecting back, and using a problem-solving process, while advising involves simply providing a message. Although more specific information was not found on the iCCM sick child recording form or chart booklet, the training materials include four messages on feeding during and after illness.¹⁴

Global Health Policies and Guidelines for the Newborn 0–2 Months

IMCI guidelines include specific nutrition guidance for 0- to 2-month age bracket, while iCCM does not. Guidance for a community-based provider can instead be found in materials related to postnatal care.

IMCI

In the global IMCI guidelines, there is a separate recording form and chart guideline specifically concerning the 0- to 2-month-old infant. “Difficulty in feeding” is a basic danger sign for this age group.

Every infant without danger signs is assessed for feeding problems, low WFA, thrush, and any difficulties with breastfeeding. If a feeding problem or low weight is determined, the provider is instructed to provide the appropriate counseling. This concerns breastfeeding positioning, cup feeding of expressed breast milk, and frequency of feeds. Separate guidance is provided for the breastfed and HIV-exposed nonbreastfed infant.

Guidelines for Postnatal Care

The *WHO Recommendations on Postnatal Care of the Mother and Newborn*¹⁵ address the timing, number, and place of postnatal contacts, as well as the content of postnatal care for all mothers and babies during the 6-week period after birth. *Caring for the Newborn at Home*¹⁶ operationalizes this recommendation with counseling cards to support home visits by a community-based provider. These visits include two during pregnancy, three in the week following birth (days 1, 3, and 7), extra visits for small babies (days 2 and 14), and a follow-up visit for any baby referred (day after referral).

National Policies and Guidelines

Nutrition Policies and Guidelines

Most of the national nutrition policy documents available for review concern the treatment of acute malnutrition, nutrition in general, child nutrition (including the prevention of malnutrition), and/or IYCF.

¹⁴ (1) For all children, increase fluids and increase frequency of breastfeeding, even if the mother is ill. (2) For children under 6 months of age or for all children not exclusively breastfed, give clean water and more fluid foods (soup, rice water, and yogurt drinks; oral rehydration salts if diarrhea). (3) For children 6–23 months, promote more frequent feeds in small amounts, with soft and appetizing foods, like porridge. Avoid spicy or fatty foods. (4) After recovery, promote one additional meal of solid food each day during the following 2 weeks.

¹⁵ WHO. 2013. *WHO Recommendations on Postnatal Care of the Mother and Newborn*. Geneva: WHO.

¹⁶ WHO. 2015. *Caring for the Newborn at Home*. Geneva: WHO.

Country-specific guidance on treatment and referral for children with SAM and MAM is described in detail in the section on IMCI and iCCM.

Guidance on Treating Acute Malnutrition

Although at the global level, established and vetted guidance was only found for managing SAM, many countries are developing their own policies on integrated management of malnutrition (IMAM), covering both SAM and MAM. For example:

- In Ethiopia, the *Guidelines for the Management of Acute Malnutrition*¹⁷ states that “this guideline replaces previous separate guidelines on SAM, MAM, and Nutrition and HIV/AIDS with one protocol.” It further states that “a harmonized treatment algorithm has been developed mapping the treatment of SAM and MAM children with or without communicable diseases.”
- Nigeria reported that it was currently reviewing its guidelines to update SAM treatment and incorporate MAM treatment.
- Kenya has national guidelines for IMAM that cover treatment and prevention. It states, “The National Guideline for Integrated Management of Acute Malnutrition brings forth a new approach in the management of SAM for effective care and rehabilitation. It also addresses management of MAM and management of SAM in the context of HIV and AIDS. The guideline provides an opportunity for all health care providers to realize the importance of proper management at health facility and community levels, and to ensure successful diagnosis and treatment.”¹⁸
- Mozambique has a broad program on nutritional rehabilitation (*Programa de Reabilitação Nutricional*) that covers SAM with complications, SAM without complications, and MAM.

Several country policies expressed hopes for global and national guidelines on MAM management to be available in the near future.

- “It is expected that the management of MAM will be addressed in separate guidelines or that this will become part of these guidelines in the future.”¹⁹
- “Protocols have changed little over the years, however, currently management of MAM is attracting considerable review and operational research with ongoing initiatives aimed at improving the dietary management of MAM through adjusting the nutrient composition of food supplements used and emphasizing more preventative measures.”²⁰

Guidance on Feeding Sick Children in National IYCF Policies

All six countries in this review have IYCF policies or nutrition policies with a component on IYCF, and all nutrition-related documents promote increased fluids and feeding for the sick child. A few examples of relevant information have been extracted from the IYCF policies of Ethiopia and Nigeria.

Ethiopia’s *National Guideline on Adolescent, Maternal, Infant and Young Child Nutrition*²¹ addresses increased fluids and feeding for the sick child in multiple places in the document. Breastfeeding guidance states, “Counsel and support the mothers to continue or even increase the frequency of breastfeeding when the mother or the child is sick.” Complementary feeding guidance states, “Sick infants and children need to be fed more frequently than usual in order to meet their nutritional requirements.” Health care service actions to be promoted include training health workers on feeding children during illness and on managing malnutrition, enabling mothers to remain with their hospitalized children to ensure continued breastfeeding and adequate

¹⁷ Ethiopia Federal Ministry of Health (FMOH). 2016. *Guidelines for the Management of Acute Malnutrition*. Addis Ababa, Ethiopia: FMOH.

¹⁸ Kenya Ministry of Health (MOH). 2009. *National Guideline for Integrated Management of Acute Malnutrition*. Nairobi, Kenya: MOH.

¹⁹ Ghana MOH. 2014. *National Guidelines for Community-Based Management of Severe Acute Malnutrition in Ghana*. Accra, Ghana: MOH.

²⁰ Ethiopia FMOH. 2016. *Guidelines for the Management of Acute Malnutrition*. Addis Ababa, Ethiopia: FMOH.

²¹ Ethiopia FMOH. 2016. *National Guideline on Adolescent, Maternal Infant and Young Child Nutrition*. Addis Ababa, Ethiopia: FMOH.

complementary feeding, and, where feasible, allowing breastfed children to stay with their hospitalized mothers.

The *National Policy on IYCF in Nigeria*²² states that sick infants, mothers, and caregivers should be counseled and encouraged to increase fluid intake, and that the child with persistent diarrhea should be breastfed at a greater frequency day and night (and mothers should be supported). For sick infants and young children, mothers and caregivers shall be counseled and encouraged to increase the frequency of breastfeeding; increase fluid intake; continue to provide soft, appetizing, and nutritionally adequate favorite foods; and give at least one extra meal per day for 1 month after illness. Similar guidance is also provided under the heading of persistent diarrhea related to both breastfeeding and no-longer-breastfeeding mothers.

IMCI and iCCM National Guidelines

The nutritional care guidance in national IMCI and iCCM materials from the six countries was carefully assessed against the global guidelines. In general, all country guidance mirrored that at the global level. This section includes similarities and differences for children 2–59 months and infants 0–2 months. Annex C provides a comparison of global and national policies in table form.

IMCI, Children 2–59 Months

Information for IMCI was taken from chart booklets, implementation guides, and sick-child recording forms. The depth of detail for assessing and treating nutrition in IMCI/IMNCI in each country is significant. This review includes the assessment and treatment of SAM and MAM, anemia, feeding problems, and general nutritional assessment or advice. It is noted that all countries reviewed included the inability to drink or breastfeed as a danger sign indicating urgent referral for children 2–59 months of age.

The global sick-child recording form includes the following areas related to nutrition: checking for acute malnutrition and anemia, assessing for SAM complications, assessing feeding, and asking about the mother's own health. The sick-child recording form serves as a job aid for the health care provider to prompt specific assessments and classifications. While the provider may not refer regularly to the chart guidelines in sick-child consultations, the sick-child recording form should be used during each interaction.

While there was some slight variance in questions and organization across countries, all included these same assessment areas.

Assessing and treating SAM: The global guidance related to assessment and treatment for SAM is mirrored in the guidelines for all six countries. All countries differentiated between complicated and uncomplicated SAM. Complicated SAM was always urgently referred following the initial dose of antibiotic and treatment for low blood sugar. Uncomplicated SAM was treated at home with oral antibiotics, RUTF, counseling on feeding, and advice on follow-up. Slight national variations include the anthropometrics used, age brackets, additional treatments, and what to do in the absence of RUTF.

Anthropometrics: Globally, the WFH/L z-score is used under 6 months, and MUAC or the WFH/L z-score is used for 6 months and older. All countries reviewed include the same assessment criteria with a few additions. Several countries establish specific weights, stating that children 6 months and older weighing less than either 3.5 kg or 4 kg are considered to have SAM. Other additions include:

- Visible severe wasting for children 2–6 months
- Visible signs of malnutrition, both kwashiorkor and marasmus
- Infant not gaining weight on breast milk

²² Nigeria FMOH Department of Family Health. 2010. *National Policy on Infant and Young Child Feeding in Nigeria*. Abuja, Nigeria: FMOH.

Treatment for children under 6 months of age: Countries reviewed diverged on their policies related to this age group. Ethiopia, Kenya, and Mozambique differentiated complicated and uncomplicated SAM, and provided counseling on breastfeeding and care for uncomplicated cases; Ghana, Mali, and Nigeria urgently referred all children 6 months and under with SAM. Most countries separated their chart guidelines to clearly show the pathway for children younger than or older than 6 months. Ethiopia alone added a component to “undertake appropriate counseling and feeding advise in cases where a child is orphaned with no other option for breastfeeding.”

Additional national adaptations: Recognizing that RUTF is not always available, a number of countries add instructions in chart guidelines for referral of uncomplicated SAM cases when RUTF or outpatient therapeutic program services are not available. A number of countries add guidance related to other interventions, including deworming, vitamin A, folic acid, and testing for HIV, TB, and malaria.

Assessing and treating MAM: All countries follow the global guidance to assess MAM with WFH/L z-score between -3 and -2 or a MUAC of 115–125 mm (yellow). Several countries add additional criteria, including “no visible severe wasting,” “edema of both feet,” or “medical conditions.”

All countries instruct the provider to assess the child’s feeding and counsel the mother on feeding recommendations. The global recommendation for follow-up in the case of a feeding problem is 7 days; national guidelines varied from 5 to 14 days. Follow-up for MAM without a feeding problem is indicated in 30 days in the global guidelines and ranged from 7, 14, or 30 days in the national guidelines.

Global guidelines indicate assessment for possible TB infection. National guidelines varied between those not specifying additional assessments and those indicating TB and/or HIV.

Additional interventions indicated included plotting the weight and advising on routine growth monitoring, referral to supplementary feeding program (SFP) if available, and deworming medication. Kenya has an additional “green” box in the IMNCI chart booklet that indicates, for specific cutoffs of WFH or MUAC, that the child is “at risk of malnutrition.” Actions for this category include assessing and addressing feeding problems, giving albendazole, screening for TB and HIV, and advising the mother on when to return.

Anemia: All countries mirror the global guidance of urgent referral to a hospital for severe anemia versus home treatment for anemia. In all countries, iron is indicated. Albendazole or mebendazole is also indicated in all countries with a slight variance in age indications (1 year or older versus 2 years or older). Countries incorporated national adaptations based on their levels of malaria and sickle cell anemia.

Feeding problem: All national guidelines include the assessment of feeding problems, both on the sick-child recording form and in the chart booklet under the section on Counsel the Mother. Questions asked are the same, with slight national variations. In the global guidance, while nutritional status has to be assessed for all sick children, specific action on “assessing feeding” (including breastfeeding practice; number, quantity, and type of food and fluid; who feeds the child and how; and any changes in child’s feeding during illness) is only indicated for the child who is under 2 years old, has MAM, has anemia, or is HIV exposed or infected. In general, national forms followed the same guidance, but some added assessment of feeding for children with uncomplicated SAM or underweight.

Feeding advice for sick children: All countries mirrored the global guidelines to encourage increased fluids and continued feeding during illness. Special guidance is given for children with persistent diarrhea. Kenya included guidance to add oil for the child with HIV and add one additional meal for the child with opportunistic infection. Ghana provides additional guidance on the types of fluids to give.

Feeding advice after illness: For the global chart booklet, feeding after illness was found only in the follow-up section related to dysentery, where it states, “Ensure the mother understands ... the need for an extra meal each day for a week.” Country advice varied slightly in duration, relevance to different diseases,

and placement within the chart booklet. Nigeria mirrored the global advice. Mali advises one extra meal per day for 2 weeks for a child with persistent diarrhea. Ghana includes guidance both in the follow-up section and in the counseling section, advising one to two extra feeds per day for 2 weeks for the child recovering from diarrhea or dysentery. Kenya advises extra feeding for any sick child, with an extra meal per day for 2 weeks.

All countries include similar guidance for counseling caregivers, with national adaptations. There are variations in the version of the feeding recommendation charts with different countries, including guidance in four, five, or six age groupings. (The global IMCI guidance has evolved, so the number of groupings may reflect the date at which the country guidelines were last updated.) A number of countries include guidance tailored for the HIV-positive mother. Several countries also included a chart on counseling the mother about feeding problems. Recommendations to the mother include “plan small, frequent meals, give milk rather than other fluids except where there is diarrhea with some dehydration, give snacks between meals, give high energy food, and check regularly.”

The chart booklet for Ghana includes a page with healthy foods, snacks, and fruits specific to the diet in Ghana. A key informant in Nigeria indicated that a comparable food table was developed for IMCI with age- and tribe-specific recommendations, but current national guidance includes only the global table.

IMCI, Newborns 0–2 Months

Within IMCI, the national guidelines reviewed generally mirrored those at the global level. All countries reviewed included difficulty in feeding as a danger sign for 0–2 months; Kenya added an assessment of whether the child is suckling effectively. All countries reviewed included an assessment (for infants without danger signs) of feeding problems, low WFA, thrush, and any difficulties with breastfeeding.

Assessment and treatment for feeding problems or low WFA: All countries reviewed mirrored the global guidance in assessment of feeding problems or low WFA in all children 0–2 months. In all cases, counseling materials related to breastfeeding or cup feeding are included in the IMCI chart booklets. The global guideline for follow-up of low WFA is 14 days. National guidelines included 5, 7, or 14 days.

Globally, the provider classifies a newborn as having a “feeding problem or low weight” if he/she is not well attached to the breast, is not suckling effectively, is breastfeeding fewer than eight times in a 24-hour period, receives other foods or drinks, has a low WFA, or has thrush. All countries used the same or similar indicators with a few additions:

- Using a feeding bottle
- Switching breast frequently
- Not increasing frequency of breastfeeding during illness
- Having features suggesting possible TB

Anthropometrics: The global guidelines state that providers should determine the WFA for children 0–2 months. “Low WFA” is an indicator of “feeding problem or low weight,” and feeding counseling is indicated. Several countries provide different guidelines with greater specificity on measurements and indications for urgent referral.

- Ghana specifies referral for any child under 1 month with a WFA z-score below –3.
- Nigeria indicates urgent referral for any child who weighs less than 1.5 kg or has a WFA z-score below –3.
- Ethiopia has a section at the beginning of the chart booklet on assessing newborn birthweight and gestational age. The provider is instructed to ask the gestational age and then ask for birthweight or weigh the baby (within 7 days of life). All babies are then classified based on weight and gestational age into “very low birthweight and/or preterm,” “low birthweight and/or preterm,” or “normal birthweight

and/or term.” The first category is advised to continue breastfeeding and start kangaroo mother care, receives vitamin K, and is urgently referred to the hospital. Specific counseling, treatments, and follow-up are indicated in the second two categories based on weight or gestational age.

- In Mozambique, although IMCI guidelines indicate that the children’s WFH/L should be assessed started at 1 month of age, they may not actually be weighed unless there is obvious growth faltering or visible signs of malnutrition. The introduction of new child health registers that require anthropometric indicators to be measured for all children 1 month and older is intended to make this routine practice.

iCCM, Children 2–59 Months

iCCM chart booklets and sick-child recording forms were reviewed for Ethiopia, Kenya, Mali, Mozambique, and Nigeria. In Ghana, the chart booklet for iCCM was not available for review. Ethiopian iCCM guidelines have recently been revised, but the updated version was only available in Amharic.

Danger sign: All countries reviewed included “not able to drink or feed anything” as a danger sign for children 2 months to 5 years. For those countries where CHWs are not tasked to treat uncomplicated SAM, red MUAC and bilateral pitting edema are also danger signs indicating urgent referral.

Acute malnutrition: There were variances across countries based on the type of provider using iCCM guidelines and the level of services they are allowed to provide. All countries reviewed follow the global guidelines, with the CHW assessing MUAC and bilateral pitting edema for children 6 months and older. Ethiopia and Mozambique added “visible signs of wasting” as an indicator of acute malnutrition for children 2–6 months.

Ethiopia and Mali have a cadre of CHWs trained in iCCM who can treat for uncomplicated SAM at the community level. In both countries, there is also a cadre of CHWs focused on health promotion. In Ethiopia, the Health Development Army, which plays this health promotion role, is not trained to screen and refer with MUAC except in emergency responses. In Mali, these promotional and supportive tasks are carried out by a cadre of “community relays” and nutrition support groups. Kenya and Mozambique currently have pilots underway to evaluate the potential of SAM treatment with CHWs.

Table 1: Guidance Indicated for Red MUAC in iCCM by Country

	Global	Ethiopia	Kenya	Mali	Mozambique	Nigeria
Red MUAC	Urgently refers	Health extension worker refers complicated SAM and treats uncomplicated SAM	Urgently refers	Agent de Santé Communautaire refers complicated SAM and treats uncomplicated SAM	Urgently refers	Urgently refers

The recommended actions following a yellow MUAC reading have greater variability. Table 2 adds country information from a previous review of iCCM materials in 10 African countries.²³

Table 2: Examples of Policies for Yellow MUAC Reading

Country	Policy
Global	Counsel on feeding; refer to supplementary feeding program if available.
Democratic Republic of the Congo*	Refer moderate malnutrition cases to a health facility.
Ethiopia*	Refer to targeted supplementary feeding program; assess the children’s feeding, counsel the mother, and follow up in 5 days (or 30 days if no feeding problem detected).
Guinea*	Training materials show only red or green on the MUAC strip, but community health workers have mebendazole and vitamin A to use if instructed to do so by the health worker.
Kenya	Refer to supplementary feeding program if available.
Mali	The community health worker treats moderate malnutrition at the health facility; guidelines also include albendazole, iron, folic acid, vitamin A, Plumpy soup or supercereal, and follow-up.
Mozambique	Patients with moderate acute malnutrition are referred to the health center for treatment with ready-to-use therapeutic food or Corn Soy Blend Plus, depending on what is available; the follow-up is carried out during the “at-risk child” consultations.
Nigeria	“Home treatment” indicated on chart, but no specific guidance provided; follow-up in 3 days.
Rwanda*	Training materials suggest the use of iron folate supplements for moderate malnutrition, but refer the child to the health facility until this becomes available at the community level.
South Sudan*	Advise caregivers on infant feeding and follow up to see if the recommendations have been applied appropriately.
Zambia*	Advice to give for a yellow MUAC reading is in the training manual, but not on the recording form.

Starred countries were included in the review indicated in the footnote.

Feeding advice for sick children: All countries reviewed mirrored the global guidelines to advise the caregiver to increase fluids and continue feeding during illness.

²³ Maternal and Child Health Integrated Program (MCHIP). 2013. *Review of Integrated Community Case Management Training and Supervision Materials in Ten African Countries*. Washington, DC: MCHIP.

Feeding advice after illness: This advice was found in the iCCM chart booklet for Mozambique and Mali (one extra meal per day for 2 weeks). Where training materials were reviewed (Nigeria), this advice mirrored global guidance.

iCCM, Newborns 0–2 Months

Globally, the iCCM guidance is for 2 months to 5 years. Several countries have adapted their iCCM guidance to include this younger 0–2 months age range.

For Nigeria, Mali, and Mozambique, the CHW is instructed to refer all sick newborns.

In Ethiopia, iCCM includes a section on the 0- to 2-month age group with assessment and treatment protocols. Ethiopia is currently in the process of revising child health guidelines to incorporate iCCM and community-based newborn care for health extension workers into a new “ICMNCI guideline.”

In Kenya, the newborn checklist (to be used during home visits on days 1, 3, and 7) has as its first danger sign “not able to feed since birth, or not feeding well.” Any newborn with a danger sign is to be referred.

Newborn and Child Health Guidance Outside of IMCI and iCCM

While the most relevant guidance related to the sick-child encounter was found in the IMCI and iCCM guidelines, all countries had additional policies related to newborn or child health.

A sample of policy guidance related to newborns includes the following:

- Ghana’s *Under Five’s Child Health Policy: 2007–2015*²⁴ states that “Standard guidelines for the management of neonatal illness at first-level health facilities will be IMNCI.” Strategies supported in its national newborn health strategy and action plan include supporting the global Every Newborn Action Plan, expansion of the Mother/Baby Friendly Facility Initiative, and kangaroo mother care.
- Ethiopia’s 2016 *National Guideline on Adolescent, Maternal, Infant and Young Child Nutrition*²⁵ has a section on feeding of low-birthweight (LBW) infants. Infants of about 32 weeks gestational age or more who are able to suckle can be cared for in the home using kangaroo mother care. All LBW babies should be followed up with and weighed regularly to make sure that they are getting all the breast milk they need for adequate growth.
- The *Reproductive, Maternal, Newborn, Child, Adolescent Health and Nutrition Strategy for Nigeria, 2018–2022* (draft) states that, “The essential newborn care package is an integrated package of newborn care at the primary health care level mainly focusing on skilled health workers, and incorporates an essential package of care for all newborns as well as a number of other interventions, including Emergency Newborn Care, Helping Babies Breathe (for birth asphyxia), and Kangaroo Mothers’ Care (for LBW babies, which is to be initiated at the health facility and then continued at home).”

²⁴ Ghana MOH. 2007. *Under Five’s Child Health Policy: 2007–2015*. Accra, Ghana: MOH.

²⁵ Ethiopia FMOH. 2016. *National Guideline on Adolescent, Maternal Infant and Young Child Nutrition*. Addis Ababa, Ethiopia: FMOH.

Findings and Discussion: Gaps in Current Global and National Policies

In most instances, country key informants considered that their national policies and guidelines were satisfactory and technically consistent with global policy. Since national guidelines are largely based on global guidelines with some country adaptations, most perceived gaps are the same as those found at the global level.

Several informants brought up the challenges of frequent updates at the global level and the difficulties with updating national guidelines accordingly. The national update process requires time, funding, and labor, and can only be conducted periodically. One informant stated, “[Revised] global guidelines, including those for nutrition, come too frequently and can’t be changed in the chart guidelines at the national level. It is expensive to revisit and reprint on a regular basis.”

Although the perception of conflicting policies within the same country was rare, two examples arose. One concerns the treatment of dehydration in a severely malnourished child with complications, where one ministry recommends oral rehydration salts (ORS) in all cases, and another claims this is not appropriate. The other example concerns the definition of “early breastfeeding”: One department promotes “as soon as the baby is born,” while another says “in a span of 30 minutes.” These types of discrepancy are clearly confusing for health workers.

The main gaps identified related to the current research needs, technical issues for consideration, and issues related to integration.

Research Needs; Perceptions of Key Informants

There was a high level of consistency among key informants at global and national levels concerning perceived gaps in global guidance. These gaps generally reflect areas where the evidence base is lacking for the development of adequate guidance. The three areas mentioned most frequently were treating MAM, treating both SAM and MAM in a child under 6 months, and guidance for the newborn (in particular, malnutrition and/or failure to thrive of the infant 0–2 months of age).

Two of the global key informants mentioned the research agenda recently released by No Wasted Lives and the Council of Research & Technical Advice (CORTASAM).²⁶ This agenda was developed after significant background research. It includes effective approaches to detect, diagnose, and treat acute malnutrition in the community; appropriate entry and discharge criteria for treatment of acute malnutrition to ensure optimal outcomes; optimum dosage of RUTF for treatment of acute malnutrition; effective treatment of diarrhea in children with SAM; rates and causal factors of post-treatment relapse across contexts; identification and management of at-risk mothers and of infants under 6 months of age; and alternative formulations of RUTF for acute malnutrition.

The need for research is supported by other documents, such as the findings of a 2014 Child Health and Nutrition Research Initiative exercise that generated and systematically ranked research questions for iCCM. Among the research questions examined, “research questions concerning ... adding additional responsibilities including counselling for IYCF and treatment of severe acute malnutrition (SAM) ranked highly.”²⁷ In addition, it is in line with research needs expressed in the 2014 community-based management of acute malnutrition (CMAM) forum technical brief on MAM management.²⁸ Empirical evidence remains scarce in

²⁶ No Wasted Lives (NWL). 2017. The Research Agenda. NWL website. <https://www.nowastedlives.org/researchagenda>.

²⁷ Wazny K, Sadruddin S, Zipursky A, et al. 2014. Setting global research priorities for integrated community case management (iCCM): Results from a CHNRI (Child Health and Nutrition Research Initiative) exercise. *J Glob Health*. 4(2):020413. doi: 10.7189/jogh.04.020413.

²⁸ Annan RA, Webb P, Brown R. 2014. *Management of Moderate Acute Malnutrition (MAM): Current Knowledge and Practice*. CMAM Forum.

several key areas, including the effectiveness of nutrition counseling and the nutrient requirements for children with MAM. Other research needs mentioned in the brief include a comparison of cost-effectiveness of various program approaches and the definition of clear guidance on cutoffs for admission and discharge from MAM management.

Gap: Treating MAM

Global guidance for treating MAM (“what to do when the MUAC is yellow”) is a significant gap identified by a large proportion of key informants. At present, some countries indicate counseling to improve feeding the MAM child at home, and others refer to feeding centers. It was noted that in many places, only extreme forms of malnutrition are treated.

Friedman and Wolfheim (2014),²⁹ noting this variability of response to yellow MUAC, stated, “This may imply the need for a globally-vetted protocol on the treatment of MAM, or it may reflect the context-specificity of using locally-available diets. Further information would be useful on what happens when a MUAC reading is yellow, and the successes and challenges of MAM treatment.”

The CMAM forum technical brief states, “Although there are still gaps in current understanding of prevention and treatment of acute malnutrition, there is a greater level of consensus around the management of SAM than of MAM. There are too few studies, and numerous inconsistent findings, on the effectiveness of MAM management.” It goes on to explain, “A variety of definitions and classifications are still used across different MAM management programmes. For example, some SFPs include underweight (low WFA) or stunted (low height for age), children in MAM programmes, while others use MUAC. This leads to confusion over inclusion and exclusion criteria, and difficulty in evaluating the effectiveness of MAM programmes and associated products.”

Key informants noted that there is a tendency to bundle guidelines for SAM and MAM to have some action for health workers to follow, but there is no evidence to support this. Country and global informants cautioned that there was also an issue of feasibility for implementing any guidance based on the large numbers of children affected by MAM. The Combined Protocol for Acute Malnutrition Study is currently evaluating the potential of simplifying and unifying the treatment of uncomplicated SAM and MAM for children ages 6–59 months into one protocol using one product (e.g., RUTF) at variable doses.³⁰

Gap: Treating SAM

For all children with SAM, a clear global directive is needed on whether community-level treatment is supported and, if it is, which levels of health workers and competencies are appropriate and necessary.

²⁹ Friedman L, Wolfheim C. 2014. *Linking Nutrition & (integrated) Community Case Management: A Review of Operational Experiences*. London: Children's Investment Fund Foundation.

³⁰ Bailey J, Chase R, Kerac M, et al. 2016. Combined protocol for SAM/MAM treatment: The CompAS study. *Field Exch.* 53:44.

Research on SAM Treatment by CHWs in Mali (supported by Action Against Hunger)

A limited-scale research project in Mali explored the effects of adding SAM treatment to the responsibilities of existing CHWs. CHWs with 6 months of classroom training plus 1 month of practical training deliver services in health posts located at least 5 km from the nearest health facility, covering about 1,500 people. These CHWs are a paid cadre of the Ministry of Public Health and are assisted by “community relays,” volunteer community members largely responsible for health promotion and behavior change activities.

The research project trained and followed 18 CHWs. Results indicate that coverage of SAM treatment was doubled during the year of implementation. All cases were correctly classified, and the ability of the trained CHWs to carry out the appetite test is promising. RUTF was correctly provided, but some issues arose around the correct dosages of amoxicillin, albendazole, and vitamin A. The overall quality of managing uncomplicated cases of SAM was nearly 80%.

No issues of logistics, security, or supply chain were noted, but this was a small-scale study with an NGO providing careful supervision and support to the CHWs. Nonetheless, based on this very positive experience, the Government of Mali took steps to integrate SAM management into national policy for the training and responsibilities of CHWs nationwide.

Whereas guidance is perceived as clear for SAM among children 6–59 months, guidance is needed for those under 6 months of age. According to key informants, the focus of most global guidance for this age group is currently on inpatient treatment, whereas there is a perceived need for an adequate community-level approach. The primary focus for outpatient care is on re-establishing exclusive breastfeeding. Additional work is needed to prepare health providers to effectively counsel and support mothers with breastfeeding, especially in a situation where a weak, malnourished infant is not suckling strongly enough to stimulate adequate milk production.

Gap: Treating the Malnourished Newborn

Key informants maintained that the distinction between a newborn who is malnourished and one who is “failing to thrive” is not clear. The differentiation would allow more accurately targeted treatment options. They stated that clear evidence and guidance beyond breastfeeding are needed for the malnourished infant under 2 months of age. There is a similar need to clarify the nuances between nutrition for a preterm infant and one of LBW.

Evidence and guidance for nutritional care of the newborn who is sick, small for gestational age, or LBW are perceived as gray areas.

Additional Evidence Gaps

Several other issues emerged related to gaps in the current evidence base:

- There is no good policy on treating stunting. Diet alone will not help linear growth. In fact, there is a general misconception that equates malnutrition with poor diet, when instead many factors may be at play, including concomitant illnesses and the ability of the gut to absorb certain foods.
- There is significant postdischarge mortality that is often missed due to lack of guidance for or implementation of adequate follow-up. Currently there is no means to address this; even verbal autopsies do not reveal malnutrition as the cause of death of a child at home.
- What are effective ways of identifying children at risk and intervening early to prevent MAM and SAM?
- What should be done with a child who is both stunted and anemic? Or stunted and wasted?
- Should iron dosage be based on weight or on age?
- What are the predictors of moderate wasting?

Research will be required to address the issues raised. It is significant to note the overlap between research questions raised by key informants and those identified by CORTASAM.

Summary of Perceived Gaps in Evidence

- Managing malnutrition under 2 months of age
- Treating MAM (yellow MUAC) for all children
- Treating SAM and MAM in a child under 6 months of age
- Treating SAM at the community level
- Catching at-risk children early
- Preventing postdischarge mortality

Technical Issues Raised

This review brings to light several technical issues to consider for review or for research. These concern harmonizing age brackets for newborn guidelines, simplifying anthropometry, assessing and treating feeding problems, and clarifying advice related to feeding and fluids during and after illness.

Harmonizing age brackets: Age groupings for very young infants vary among guidelines that cover child health and nutrition; this applies to both global and country levels. Some guidelines address children 0–2 months, others give advice for children 0–6 months, and still others address ages 2 weeks–6 months. Mozambique has chosen to have two separate chart booklets for IMCI, one for the newborn 0–7 days, and a second for 7 days–2 months and 2–59 months. An additional very minor issue concerns the expression of age ranges, including whether “under 6 months” is interpreted as 0–5 months or 0–6 months.

Simplifying anthropometry: Key informants raised questions about current anthropometry and the potential for clear guidance and future simplification. MUAC is seen as a major advance, but many challenges still exist related to assessing severe malnutrition, low WFH, or WFA. For the child under 6 months, for whom MUAC is not appropriate, this challenge is further exacerbated. National informants raised the need for guidance on which anthropometric measurement is better to use: MUAC or WFH. MUAC is seen as good for measuring status and risk but is not useful in assessing recovery.

The complexity of current anthropometric measurement and calculations is also seen as a possible barrier to ensuring that nutrition assessments take place in every sick-child encounter. In addition to the challenge of ensuring access to the current age-appropriate scales, there are difficulties in accurately measuring length or height and calculating WFH/L z-scores. Innovations and research around effective methods for simplifying anthropometry were seen as an opportunity.

Assessing and treating feeding problems: The IMCI chart booklet contains a significant section on assessing and treating feeding problems. Providers are instructed to ask a number of questions, assess feeding (and observe breastfeeding for infants who have not fed in the previous hour), compare the mother’s answers to the feeding recommendations for the child’s age, and provide appropriate counseling.

Key informants raised the concern that these assessments did not take place and expressed that many providers may not have the knowledge or skills to effectively carry out either the assessment or counseling prescribed.

“What we see in practice is that this assessment [feeding problems] is not done.”

—Key Informant

It is recognized that this issue may be due to many factors, including knowledge, skills, available time, workload, and the value placed on nutrition. However, there may also be an opportunity to explore ways to simplify the guidance and provide effective job aids during the sick-child encounter.

Additionally, one key informant raised a question about the guidance for follow-up of failure to thrive in the first 2 weeks. “The baby is weighed and the caregiver is told to come back in 2 weeks; is this too much time?”

Feeding advice for sick children: The generalized guidance to “increase feeding and fluids” during and after illness was seen by a number of key informants as too unspecific and was even labeled “vague.” The Paintal and Aguayo study³¹ echoes these perceptions: “there seem to be important policy, guidance and capacity-building gaps ... with respect to IYCF when children are sick or convalescent.”

There is a call for feeding recommendations to be clearer and more specific—to include food density and frequency of feeds—to help caregivers increase caloric intake for a child whose appetite has decreased. Several countries do include counseling messages related to children with feeding problems or decreased appetite in national guidance.

Placement of this advice in the caregiver-health provider interaction may also be a concern. Advice to increase feeding and fluids is included in the counseling section related to all sick children, but with the exception of diarrhea, it is generally not included in disease-specific treatment guidelines.

Informants also raised concerns about whether counseling related to continued feeding actually takes place when sick children are urgently referred. “In the hurry for referral, counseling for sick babies doesn’t happen. In reality, the family goes home first and figures out how to get to the referral point. There is a lot of lost time,” said one. This may be due to logistics, poor access, or the perceived inadequacy of referral facilities. It may also be due to the underlying perception by families that malnutrition is not a health issue, thus help is sought from other types of healers.

The guidance to “increase feeding and fluids during and after illness” was seen as vague.

Feeding children after illness: Feeding after illness to promote catch-up growth was even more problematic. In iCCM global materials, the message to add one additional meal of solid food each day during the 2 weeks after recovery was only found in training materials and not in the chart booklet or sick-child recording form. In IMCI, the only reference to this message was specific to dysentery and not clear to the reviewers on whether it related to feeding during or after illness. In the IMCI national materials reviewed, one country included a statement related to all sick children, and three included statements focused on children with diarrhea or dysentery. This guidance may exist in other country materials but was not apparent in this review and would presumably be easy to miss by a provider in a sick-child encounter. Nutrition guidance in countries reviewed generally recommends one extra meal per day for 2 weeks after illness (1 month in Nigeria). It may be useful to consider the degree to which this message should be promoted within iCCM and IMCI materials.

Addressing underlying causes of malnutrition: Several key informants expressed the concern that only severe forms of malnutrition are currently being addressed, and there was a need for a process to help the health worker identify and solve upstream problems. In fact, the encounter with the sick child may not be the

³¹ Paintal K, Aguayo VM. 2016. Feeding practices for infants and young children during and after common illness: Evidence from South Asia. *Matern Child Nutr.* 12 Suppl 1:39–71. 10.1111/mcn.12222.

right moment and is most certainly too late. In addition, there is no means to address the issue of follow-up; even verbal autopsies often do not reveal malnutrition as a cause of death of a child at home.

Issues Related to Integration

This review raises key questions about whether nutrition is adequately addressed in the sick-child encounter and what level of integration between child health and nutrition is desirable.

Atun et al.³² defined “integration” as the “extent, pattern, and rate of adoption and eventual assimilation of health interventions into each of the critical functions of a health system, which include governance, financing, planning, service delivery, M&E, and demand generation.”

Key informant definitions of “adequate integration” of nutrition in the sick-child encounter fall into two categories: systemic and point of care.

Systemic integration means that nutrition is incorporated into needs assessments for the health system, basic packages of services, health worker training, supply chain, the health management information system (HMIS), and pre-service training. It is basically how a health system defines itself. One key informant expressed the need for a value chain or pathway from illness to wellness and sustained recovery. This pathway would clarify where, when, and what nutrition interventions are needed in each situation. National key informants raised similar concerns about needing to incorporate nutrition at critical points along the spectrum, from pre-service training to supervisory checklists.

National policies reviewed demonstrate efforts to coordinate across child health, newborn, and nutrition boundaries by mandating inclusion of various groups and divisions at all levels of government to carry out national policies. Nigeria, for example, is in the process of validating a new reproductive, maternal, newborn, child, and adolescent health and nutrition strategy, and will be creating a national Partnership on Reproductive, Maternal, Newborn, Child, and Adolescent Health and Nutrition.

At the **point of care**, key informants identified the need for a holistic approach, where nutrition is seen as an integral part of the child’s health. It is important to distinguish between true integration in the sick-child encounter versus simple colocation of health and nutrition services. In true integration, guidance would prompt a provider to do a nutrition assessment, including anthropometrics, and assessment of feeding practice for all children at every visit. This would be reinforced in training, accreditation, and core competencies. IMCI includes this in theory, but the level and quality of implementation are not clear.

Integration may require that nutrition and health guidelines not be in separate documents. Several key informants posited that the adaptation of national IMCI guidelines and the inclusion therein of acute malnutrition ensured that the nutrition guidelines related to management of acute malnutrition were correctly integrated.

“IMCI is a successful example of integration. It has brought the main causes of morbidity and mortality together; the inclusion of SAM in IMCI is a success.”

—Key Informant

³² Atun R., de Jongh T, Secci F, Ohiri K, Adeyi O. 2010. Integration of targeted health interventions into health systems: a conceptual framework for analysis. *Health Policy Plan.* 25(2):104–111. doi: 10.1093/heapol/czp055.

“At the health facility, workers use the IMCI chart. They have separate nutrition guidelines on IYCF, but these tend to stay on the shelf.”

—Key Informant

Integration of nutrition within the sick-child encounter may need to be further broken down by the type of assessment and treatment to be integrated, based on whether it concerns the management of acute malnutrition integrated into IMCI, the assessment and counseling for feeding problems into IMCI, or the management of acute malnutrition into iCCM.

There are some issues relevant to the integration of **management of acute malnutrition in IMCI**. There are very clear advantages related to the identification of cases, home-based treatment, and decreased case fatality. There are also some challenges related to the complexity of acute malnutrition interventions. These include the need to manage and track treatment on a regular basis over an extended period of time, and the complexity and importance of caregiver behavior and support related to exclusive breastfeeding and other IYCF behaviors.³³ While beyond the purview of this review, key informants raised concerns about the integration of inpatient treatment for children with acute malnutrition and/or other childhood diseases between pediatric and malnutrition wards.

A second example is the **possible integration of treating uncomplicated SAM in iCCM**. According to Friedman and Wolfheim (2014), the biggest potential advantage is the health of the child. The children most likely to die of diarrhea, pneumonia, or malaria are those who are mal/undernourished. There is substantial evidence that children respond better to treatment (example: for malaria) if their nutritional status is addressed. The counterarguments, especially related to iCCM, include concerns about overwhelming the health worker and the familiar related issues of sustainable quality of care and overloading the CHW.

Finally, IMCI guidelines include an additional lengthy section on **assessment and counseling for feeding problems** that is specific for every child under 2 and children with MAM, anemia, or HIV exposure. To decrease morbidity and mortality, it is important to intervene when the child is having feeding problems or low WFA or height but is not yet severely malnourished. In addition to addressing feeding problems, nutrition counseling is a critical component involved in current options for MAM treatment and all options related to children under 6 months, for whom re-establishing exclusive breastfeeding is essential.

As mentioned earlier, key informants questioned whether these assessments actually took place and expressed concerns that many providers did not have the knowledge or skills to carry out the assessment or counseling prescribed. This raises an important question:

Does effective nutrition counseling take place in the sick-child encounter?

Effective integration of assessment and counseling may be greatly influenced by the complexity of the task. While key informants felt that nutrition should be on a par with child health, they also warned that “nutrition cannot necessarily be adapted to the medical model,” as it requires different types of problem-solving skills and covers a greater range of cultural and economic issues. This issue may be a direct challenge within the IMCI and iCCM guidelines.

Other diseases covered by IMCI have relatively straightforward actions. Malaria, for example, uses rapid diagnostic tests for definitive diagnosis, antimalarials for medication, and bed nets for prevention. Clearly, implementation even of straightforward actions can be complicated, particularly at scale; nonetheless, the actions are clearly defined. Nutrition, on the other hand, involves issues that range from the complexity of the anthropometric assessment to the importance of identifying the underlying cause of the malnutrition, and that

³³ Deconinck H, Hallarou ME, Pesonen A, Gerard JC, Criel B, Donnen P, Macq J. 2016. Understanding factors that influence the integration of acute malnutrition interventions into the national health system in Niger. *Health Policy Plan.* 31(10):1364–73.

affect the behaviors and patterns that can change the outcome. One look at the IMCI food box provides insight into the difference between the complex, individualized nutrition counseling and relatively straightforward actions, such as taking a course of medication.

Research may be needed to further explore both effective messaging and placement of the advice in guidance for health providers. Additionally, Paintal and Aguayo suggest collecting “qualitative and quantitative information on caregivers’ behaviors and health workers’ practices related to IYCF during and after common childhood illnesses to identify the most important drivers of current behaviors/practices and bottlenecks to optimal IYCF when children are sick/convalescent.”

Potential questions for formative research include:

- Are health care providers able to navigate the age-appropriate guidance in the food box to identify the messages they should promote in the specific situation? If not, would there be another way of visually structuring this assessment to facilitate better use?
- Can the nutrition messaging be simplified to increase ease of use without losing essential usefulness? Will too much simplification lead to a decrease in individual applicability?
- Do providers go beyond the Assess and Classify the Sick Child section in the chart booklets and use the Counsel the Mother materials? Is there any knowledge about how these sections are or are not used that would be useful for informing future instructional design to encourage greater provider use?
- Are health care providers competent and comfortable (both technically and culturally) in assessing and counseling on breastfeeding and attachment? Does this happen?
- Can health care providers develop the needed skills to effectively counsel mothers with undernourished children?

An assessment of existing evaluations of quality of care may shed some light on some of these questions and help inform design and decision-making.

Along similar lines, an unpublished MCSP review of the UNICEF Africa community case management survey concluded that there is a need for an in-depth analysis of implementation of nutrition activities in the context of iCCM.

Findings and Discussion: Barriers to Adequate Attention to Nutritional Care

Perceptions of key informants converged to say that policies and guidelines play an essential role, that the presence of a good policy allows work to advance, and that the absence of such a policy creates challenges. The review of documents indicates that, with the few exceptions and gaps mentioned previously, guidance for nutritional care of the ill and vulnerable newborn and child is relatively satisfactory at both global and national levels. Perceptions and experience of key informants interviewed support this finding and suggest that policies and guidelines are readily available.

In fact, most key informants focused their responses on the global and country barriers to providing adequate attention to the nutritional care of the ill and vulnerable newborn and child. The barriers brought up most frequently and passionately were implementation quality and coverage (due to a number of health system-related factors), perceptions of nutrition and its relationship to health, and the silo-fashioned configuration of global and national structures.

The types of comments made by virtually all key informants are shown in Box 1.

Box I. Converging Comments from Key Informants

“Policies are not the issue.”

“Policy is good, translating into action is difficult.”

“Policies are good; implementation is lacking.”

“On paper, it looks good for implementation, but implementation is a gap.”

“Guidance is good, but the link to implementation is weak.”

Coverage and Quality of Implementation

It was striking that there was near-universal agreement that the main barriers to adequate nutritional attention are the low coverage of appropriate interventions and the variable quality of implementation. Because the current review did not examine implementation reports or national coverage surveys, the information presented and discussed here is based on discussions with a small sample of knowledgeable and experienced people, combined with a review of relevant literature.

Given that much of the guidance for the interaction among a sick child, the caregiver/mother, and a health provider is based on IMCI (and the simplified version, iCCM), it is useful to examine the implementation of that strategy. Numerous studies, including the IMCI multicountry evaluation published in 2005³⁴ and the more recent review, *Towards a Grand Convergence for Child Survival and Health: A Strategic Review of Options for the Future Building on Lessons Learnt from IMNCI*,³⁵ conclude that this global strategy has not been implemented at sufficient scale. The latter further states that IMNCI “suffers uneven implementation between and within countries.”

There are similar coverage questions related to outpatient therapeutic program services for treatment of uncomplicated SAM, and recently available evidence from a 21-country review shows that treatment services reach an average of less than 40% of cases.³⁶

In addition to coverage, the quality of implementation remains an outstanding question. Related studies reiterate this concern. The 2018 joint report by the Organisation for Economic Co-operation and Development, WHO, and the World Bank, *Delivering Quality Health Services: A Global Imperative for Universal Health Coverage*,³⁷ indicates that health care workers in seven low- and middle-income African countries were only able to make accurate diagnoses one-third to three-quarters of the time, and clinical guidelines for common conditions were followed less than 45% of the time on average. Research in eight high-mortality countries in the Caribbean and Africa found that effective, quality maternal and child health services are far less prevalent than suggested by just looking at access to services, and just 21% of sick-child care across these countries qualified as “effective.”

Friedman and Wolfheim (2014) found that “Although every CHW implementing iCCM is supposed to advise the caregiver of a sick child to continue feeding and fluids, the review found little data about the quality or quantity of feeding-related counseling. No data was found on the effect of this advice on the health status of

³⁴ Bryce J, Victora CG, Habicht JP, Black RE, Scherpbier RW, MCE-IMCI Technical Advisors. 2005. Programmatic pathways to child survival: results of a multi-country evaluation of Integrated Management of Childhood Illness. *Health Policy Plan.* 20 Suppl 1:i5–i17. doi: 10.1093/heapol/czi055.

³⁵ WHO. 2016. *Towards a Grand Convergence for Child Survival and Health: A Strategic Review of Options for the Future Building on Lessons Learnt from IMNCI*. Geneva: WHO.

³⁶ Rogers E, Myatt M, Woodhead S, Guerrero S, Alvarez JL. 2015. Coverage of community-based management of severe acute malnutrition programmes in twenty-one countries, 2012-2013. *PLoS One.* 10(6):e0128666. doi: 10.1371/journal.pone.0128666.

³⁷ WHO, Organisation for Economic Co-operation and Development, World Bank. 2018. *Delivering Quality Health Services: A Global Imperative for Universal Health Coverage*. Geneva: WHO.

the child.” A 2016 Cochrane review to assess the effects of programs that use the IMCI strategy found “mixed results and very low-certainty evidence ... [about] whether IMCI impacts exclusive breastfeeding.”³⁸

Paintal and Aguayo found that “few published studies have investigated the quality of health providers’ counseling on IYCF to mothers/caregivers when children are sick. The evidence reviewed indicates that when mothers/caregivers seek advice/support in the primary health care system, health professionals provide little or no advice to mothers/caregivers on how to feed children when they are sick/convalescent.”

Health System Constraints

Health system constraints are pervasive. According to Travis et al.,³⁹ “Effective interventions exist for many priority health problems in low income countries, however, progress toward agreed health goals remains slow.” They go on to say that “some major barriers are shared by every programme: human resources, financing, drugs and supply systems, and the generation and use of information.” This assertion echoes the multicountry evaluation of IMCI: “It is clear that solutions to larger problems in political commitment, human resources, financing, integrated or at least coordinated programme management ... are essential underpinnings of successful efforts to reduce child mortality.”⁴⁰

As might be expected, similar constraints were identified by key informants in the present review. These focused on human resources (including training, types of personnel, and workload), health facilities, indicators, and commodities.

Human Resources Are Lacking

Key informants raised the issue that human resources are lacking in general. There may or may not be a doctor or IMCI-trained provider in a primary health center. In particular, there is a dearth of nutritionists and nutrition officers, and even when they are available, the division of responsibilities between them and the staff responsible for the child is not clear. It seems that nutritionists, when they are present, most often deal with prevention and IYCF, and are often overwhelmed.

As has been recognized in previous work, there is a great potential of overburdening health workers, especially CHWs. Ethiopia, for example, has a package of 17 health interventions. As is also known, there is often the problem of staff turnover, thus those people skilled in IMCI, SAM treatment, or IYCF may not be available where they were originally trained.

There is a need to identify the real issues and prioritize what the health worker and CHW can actually do. In the words of informants, “CHWs are already overloaded. Is adding nutrition the best thing?” “Everything seems to fall on the same person.” In their 2014 review of linking nutrition and iCCM, Friedman and Wolfheim (2014) put forward, “Given the complexity of actions needed to assess and treat a child, it may be postulated that there is a limit to how much the CHW can do and how much information a caregiver can absorb at one time.” These concerns need to be balanced with the goal of holistically treating the child and addressing the main causes of morbidity and mortality.

³⁸ Gera T, Shah D, Garner P, Richardson M, Sachdev HS. 2016. Integrated management of childhood illness (IMCI) strategy for children under five. *Cochrane Database Syst Rev.* (6):CD010123. doi:10.1002/14651858.CD010123.pub2.

³⁹ Travis P, Bennett S, Haines A, et al. 2004. Overcoming health-systems constraints to achieve the Millennium Development Goals. *Lancet.* 364(9437):900–6. doi: 10.1016/S0140-6736(04)16987-0.

⁴⁰ Bryce J, Victora CG, Habicht JP, Black RE, Scherpbier RW, MCE-IMCI Technical Advisors. 2005. Programmatic pathways to child survival: results of a multi-country evaluation of Integrated Management of Childhood Illness. *Health Policy Plan.* 20 Suppl 1:i5–i17. doi: 10.1093/heapol/czi055.

Even When Human Resources Are Available, Health Facilities and Services Are Often Inadequate

Across the board, time is a constraint in the sick-child encounter, with the provider needing to address the needs of a large number of children in an environment with “screaming children and stressed out parents.” The physical environment where a provider has both the privacy and the right equipment at the right time to carry out a quality conversation and assessment with caregivers and a child around feeding was identified as a constraint. Several informants discussed the challenges of identifying malnourished children or children with feeding problems in the context of other child health services, such as immunizations, which are designed to function in an assembly line structure without the opportunity for more individualized assessment.

Indicators Are Needed in the HMIS for Nutrition Programming

Child health programming globally has very clear indicators for measurement at country level. Despite the adoption of the six global nutrition targets for 2025, it is perceived that for nutrition, a similar set of clear indicators, to be collected regularly, is lacking. This is partly contradicted by a recent landscape analysis of nutrition indicators carried out by the Food and Nutrition Technical Assistance III Project⁴¹ showing that all 16 countries reviewed had some nutrition-specific indicators in their government-led monitoring and evaluation (M&E) systems. On average, 20 nutrition indicators were identified per country. The fact that only about half of these were collected through HMISs, whether nutrition or HIV/TB, may imply that a significant number of nutrition indicators are maintained by parallel government-led M&E systems.

Key informants agree that to be useful and used, nutrition indicators need to be incorporated into a country’s HMIS. Paintal and Aguayo’s conclusions are similar: “expand the DHS and National Nutrition Surveys to include quantitative information on IYCF during and after common childhood illnesses, with appropriate geographic, socio-economic and gender disaggregation.”

This, in turn, converges with recommendations made at the recent Africa Regional Workshop on Improving Routine Data for Child Health in National Health Information Systems.⁴² One of the main takeaways from that workshop was: “The selection of child health and nutrition indicators within national health information systems should be harmonized across the health sector to reduce reporting burden and avoid duplication of efforts. New indicators may be required for international reporting and tracking in the era of Sustainable Development Goals and emerging interventions.”

Similar to the other barriers discussed, this is not news. In their 2014 report, Friedman and Wolfheim (2014) stated that, “Respondents brought up the challenges of integrating nutrition and health at the national level, related to coordination across MOH directorates, funding streams, and the challenge of ensuring that useful nutrition indicators were included in the Health Management Information System.”

Commodities Are Inconsistently Available

The availability and accessibility of commodities needed to assess and treat acute malnutrition are additional concerns.

Community-based assessment and treatment of SAM are based on the availability of both MUAC and RUTF. The supply chain for RUTF and ready-to-use supplementary food is generally supported by UN agencies and may or may not be integrated with the national health system.

Additionally, there is the question of whether RUTF is included in the Essential Medicines List (EML) for each country. While this review did not specifically collect information on this issue, it was mentioned in

⁴¹ Food and Nutrition Technical Assistance III (FANTA). 2016. *Landscape of Nutrition Indicators within Government-led Monitoring and Evaluation Systems in 16 PEPFAR-Funded Countries*. Washington, DC: FHI 360/FANTA.

⁴² Extracted from the workshop report dated May 2018.

several policies. For example, the introductory letter for Ethiopia's *Guidelines for the Management of Acute Malnutrition* states that RUTF is on the EML and is available at the service delivery point. The Nigerian iCCM Strategy⁴³ (March 2013) EML includes ORS, zinc, and antibiotics but does not include RUTF. It is also notable that multiple national guidelines provide alternative guidance prescribing referral of all uncomplicated cases of SAM when RUTF is not available.

The inclusion of RUTF as an essential medicine is an issue of current debate. In 2016, Action Against Hunger conducted a study on whether RUTF should be added on WHO's EML and on national lists. The results are presented in a report⁴⁴ that puts forward arguments for and against placing RUTF on the EML.

The jury is still out on this issue. Action Against Hunger since petitioned WHO to include it. Other partners, including USAID, argue against the inclusion: "We believe ... that if added to the EML as a medicine, pharmaceutical, or medicinal food, RUTF is more likely to be subject to increased regulation or regulation by entities who may be less familiar with the product, either in countries in which it is produced, regionally exported or imported to, or where it is ultimately distributed or used. ... if a decision is made to add RUTF to the EML, USAID reiterates [its] request that it be added as a 'miscellaneous' item or preferably given its own denomination as a 'therapeutic food' or a 'special dietary food.'"⁴⁵

Procurement of equipment for assessing acute malnutrition and low WFA was also raised as an important constraint. Scales may be available for the well-child clinic but not for sick-child encounters, and scales appropriate for measuring infants (scales with at least a 20 g precision) may not be available at all.

Perceptions of Nutrition and Its Relationship to Child Health

Weak implementation is exacerbated when nutrition is not perceived as a health issue. Key informants expressed that nutrition is often afforded a much lower priority than treatment of illness. One key informant said, "Focus is on the clinical condition; nutrition is 'by the way.'" Another perceived that nutrition interventions are "the poor relative" to treating childhood illness.

Several key informants talked about how this value plays out in the sick-child encounter. When caregivers seek medical help for a sick child, the focus of both the caregiver and providers at all levels is on assessing and treating the presenting medical condition. There is an expectation and demand from the parents that their child will receive medications; counseling and prevention are not valued.

Concerns were also expressed about the value that health providers themselves place on nutrition interventions, especially nutrition counseling. In many instances, counseling is done by lay health providers, whereas the more valued (medical) treatment is provided by more highly trained professionals.

The lower value results in less attention being paid to nutrition. The significant counseling materials included in the global and national IMCI guidelines are often seen as theoretical and may not show up in actual practice. Several key informants expressed the opinion that "nutrition is pretty much lost" in IMCI. One key informant stated that, "The nutrition assessment and treatment is in the chart guidelines, but it often doesn't happen." Additionally, several key informants expressed the opinion that, while the policy (for example, on exclusive breastfeeding) is very clear, "providers do what they are comfortable with," stating that sick babies and children are often provided with bottle feeding or sugar water, promoted by the health providers.

The lower value may also be reflected in training. Key informants raised questions about whether iCCM and IMCI training adequately addressed provider knowledge about the importance of nutrition and the role it

⁴³ Nigeria FMOH. 2013. *National Guideline for the Implementation of Integrated Community Case Management in Childhood Illness in Nigeria*. Abuja, Nigeria: FMOH.

⁴⁴ CMAM Forum. *Ready to Use Therapeutic Foods (RUTF) and the WHO Essential Medicines List*.

⁴⁵ Susan Bradley and Peter Morris to the secretary for the Expert Committee on the Selection and Use of Essential Medicines Innovation, Access and Use, February 20, 2017. http://www.who.int/selection_medicines/committees/expert/21/applications/USAID_RUTF.pdf

plays in health, and expressed the desire at the country level to strengthen national training materials. Many key informants stressed that in-service trainings, whether in IMCI or nutrition, were too late in the development of health professionals to incorporate adequate education about nutrition. Pre-service training in medical and nursing schools was seen as the appropriate venue to impart a strong understanding of nutrition and child health.

Nutrition Is Multisectoral

One principal reason for the complications of integrating “nutrition” and “child health” is that nutrition is linked to multiple sectors and crosses many sectoral boundaries. Whereas most interventions to prevent malnutrition or to improve a child’s nutritional status are presently focused on feeding and diet, nutrition is also linked to biology, food security, food safety, agriculture, trade, finance, water and sanitation, education, and culture.

In his commentary in *The Lancet*, “Global Child and Maternal Nutrition—The SUN Rises,”⁴⁶ David Nabarro says, “The 2013 *Lancet* Series on nutrition now explicitly shows that the solution to malnutrition relies on a collective effort in which all stakeholders—governments, academia, civil society, UN system organizations, foundations, development banks, and businesses—carry out specific roles in ensuring that interventions are delivered equitably and at scale.”

Partners and countries are becoming increasingly aware of the compelling need to work across sectors, including the private sector. Globally, USAID, WHO, NGOs, and partners have developed strategies and coordination plans that support nutrition-sensitive interventions and the integration of nutrition into programs that focus on water, sanitation, and hygiene; agriculture; environment; social protection; and food safety, among others.^{47,48,49}

The Government of Kenya has recently put forward an agenda with four main pillars (housing and infrastructure, food security and nutrition, universal health coverage including nutrition, and industrialization). Two of these pillars concern nutrition, creating additional opportunities for concerted or coordination action. In addition, *Kenya Health Policy 2012–2030*⁵⁰ mentions the importance or place of nutrition under legislation, collaboration with other sectors, health determinants, technical management at county level, and state actors. Some of this is being played out in the form of a multistakeholder platform working with the Scaling Up Nutrition (SUN) movement.

In Ethiopia, there is now a nutrition-sensitive agriculture policy, a new food and nutrition policy is being finalized, and other sectors are reportedly becoming more nutrition sensitive. Within the national transformation agenda, stunting is included as an indicator.

The Government of Mali, also with guidance from the SUN movement, has created a Technical Intersectoral Committee on Nutrition that brings together about 20 ministries and at least 15 focal points and directors of specific departments, plus civil society, academia, the private sector, and technical and financial partners. This and the Multisectoral Plan of Action for Nutrition will help ensure that nutrition-related decisions are based on more than simply the lack of food. The committee aims to make work on nutrition more coherent and coordinated, and to raise awareness within ministries not previously associated with the issue.

In Mozambique, the Council of Ministers approved the Multisectoral Action Plan for the Reduction of Chronic Undernutrition in September 2010. The Technical Secretariat for Food and Nutrition Security

⁴⁶ Nabarro D. 2013. Global child and maternal nutrition—the SUN rises. *Lancet*. 382(9893):666–7. doi: 10.1016/S0140-6736(13)61086-7.

⁴⁷ USAID. 2016. *U.S. Government Global Nutrition Coordination Plan 2016–2021*. Washington, DC: USAID.

⁴⁸ USAID. 2018. *U.S. Government Global Nutrition Coordination Plan 2016–2021: Annual Survey of Interagency Progress (June 2016–September 2017)*. Washington, DC: USAID.

⁴⁹ WHO. 2017. *Ambition and Action in Nutrition 2016–2025*. Geneva: WHO.

⁵⁰ Kenya MOH. 2014. *Kenya Health Policy 2012–2030*. Nairobi, Kenya: MPH.

coordinates the implementation. The plan includes all components of the package of interventions covered in the SUN road map.

Functioning in Silos

Whether or not “nutrition” and “health” are integrated, the omnipresent silos of implementing and supporting organizations have a detrimental effect. By far the most commonly mentioned functional barrier to adequate nutritional care is the organization of work of agencies and ministries that implement and support work on the ground. The silo mentality is widespread. It stretches across international organizations, donors, bilateral agencies, ministries, NGOs, and civil society.

Key informants agreed in general that health and nutrition are equally important for the well-being of the child. The concept of something being a “nutrition issue” (as distinct from a “health issue”) should not be part of the public health vocabulary. One key informant argued that in wealthy countries, nutrition-related conditions (rickets, goiter, wasting, obesity) are dealt with by doctors and expressed alarm that this approach should be different in development settings. In fact, there is a risk of supporting a completely separate vertical space, which leads to acute malnutrition being handled very differently from other child illnesses. The question was raised, “How come ORS is medical and zinc is nutrition? Where did this split happen?”

Conversely, it is interesting to recall that in the history of diarrhea disease control, zinc supplements were perceived as medicine, whereas ORS were not, and caregivers expressed greater satisfaction when zinc was introduced.

The two communities, child health-focused and nutrition-focused, have potentially opposing perspectives. Many of those who work in child health find it so evident that nutrition underlies everything to do with the child’s growth and development that they feel there is no need to call it out. Nutrition-focused people, on the other hand, find that this very importance means it should be called out and given additional attention. One informant argued that the distinction between the two fields is both necessary and unnecessary but that cross-fertilization is essential, especially between offices within a particular organization or agency.

There are also some diverging views among key informants. For example, whereas one feels that “nutrition and IMNCI did not grow up in the same neighborhood,” another claims that IMCI is the only child health delivery mechanism that adequately integrates nutrition guidance.

Clearly, the silos get in the way of coherence, potentially in policies, but, as this review reveals, mostly in implementation. Focal points are often not in the same ministry or division. There are problems noted in the relationships between people with different professional backgrounds, and training for child health is often carried out separately from nutrition. Several key informants reported good coordination at the national level but increasing challenges in coordination at the lower levels. Others reported the opposite.

The causes of the silos are also not news. One key informant observed that “nutrition and health are both partner-dependent and vertical.” International organizations, bilateral agencies, ministries of health, and others are nearly always organized with separate departments, often for reasons of accountability to their constituencies. Even some nutrition-focused NGOs see themselves as part of the problem and recognize that in the international community, each prioritizes its own main interest. At best, separate funding streams are problematic. A less kind analysis compares development aid to a business, meaning that breaking down the silos presents risks for jobs and the *raison d’être* of the organization or department itself.

In Mali, it is perceived that working together comes in second or even third behind working for specific programs and objectives. Along these lines, planning for production does not always take into account the nutritional needs of the population. Cash crops, such as cotton, grown for export may have a higher political and economic value than food animals raised for local consumption. This fits with the argument put forward

by Pinstrup-Andersen in the 2013 *The Lancet* series,⁵¹ whereby there are conflicting interests at stake: “goals other than improved nutrition are pursued by strong economic and political interests in both the agricultural sector and the postharvest value chain. Farmers and other economic agents in food systems aim to make money subject to reasonable levels of risk, and governments pursue policies that are compatible with the interests of politically powerful stakeholder groups. Malnourished populations are rarely among these interests.”

Conclusions

A rich body of information and perceptions has been presented in this review, and numerous questions have been raised for discussion. The most salient and ubiquitous themes can be summarized in the following conclusions:

1. Aside from the few exceptions noted in the report, **policies and guidelines are in place globally and in countries for IYCF and for the nutritional care of the ill and vulnerable newborn and child.** Most nutrition guidance for the encounter between the sick child and a health provider is found in IMCI and iCCM. This guidance is consistent with that found in other child health and child nutrition guidelines (for example, the treatment of SAM).
2. **A list of topics requiring further research was identified.** The most important of these seem to be assessing and treating MAM, treating SAM and MAM in children under 6 months of age, treating the malnourished newborn, and identifying children at risk of malnutrition to catch them earlier. These topics are consistent with a recent list put forward by CORTASAM.
3. A number of **technical issues were identified as needing more attention.** These include simplifying anthropometry, and assessing and treating feeding problems and advice related to feeding and fluids during and after illness.
4. A number of **issues were raised related to the degree to which nutrition can be adequately integrated in the sick-child encounter.** Issues concerned the management of acute malnutrition and the implementation of effective assessment and counseling by health workers. Additional formative research and innovation may be required to better understand providers’ challenges and what support is needed to overcome them.
5. **The most pervasive reason identified by key informants for inadequate nutritional attention during the sick-child encounter is the low coverage of appropriate interventions and the variable quality of implementation.** Most of the barriers to increasing both quality and coverage relate to health system constraints. Human resources are often insufficient, health facilities/services may be inadequate, and there is a need for stronger indicators in the HMIS and for commodities to be more consistently available. These constraints are clearly not new, nor are they limited to nutrition or to child health, and need to be addressed.
6. **Specific barriers to implementation vary country by country, as do the most appropriate actions to address them.** Defining actions and developing clear plans will require in-depth country reviews. The reviews, involving all stakeholders, will need to examine solutions to the health system constraints described above and identify the most appropriate means of crossing sectoral boundaries. This may imply joint activities (and joint funding) between “health” and “nutrition” programs, as well as with nonhealth actors. Such a review could also explore issues such as the significant autonomy of subnational units in a devolved health system, where certain guidelines may be selected and others not, or where strong and wealthy donors push specific projects.
7. **The conceptual distinction between “nutrition” and “health” that plays out in funding streams, organizational structures, and implementation is perceived by key informants as unhelpful.** The detrimental effects of working in silos are significant and detract from addressing the needs of the child. This should be reviewed at all levels and remedied when possible, especially within UN agencies and other partners. The health and nutrition communities need to work together, with the right technical and political representatives at the table.

⁵¹ Pinstrup-Andersen P. 2013. Nutrition-sensitive food systems: from rhetoric to action. *Lancet*. 382(9890):375–6. doi: 10.1016/S0140-6736(13)61053-3.

Annex A: Key Informant Organizations

Action Against Hunger

Bill & Melinda Gates Foundation

Department for International Development

Federal Ministry of Health, Ethiopia

Federal Ministry of Health, Nigeria

Ghana University

Maternal and Child Survival Program

Ministry of Health, Ghana

Ministry of Health, Kenya

Ministry of Public Health, Mali

Save the Children

UNICEF

United States Agency for International Development

World Health Organization

Annex B: Nutrition Guidance Found in Global Guidelines for Integrated Management of Childhood Illness

Integrated management of childhood illness (IMCI) provides an integrated protocol for facility-based health workers to assess, classify, and treat the five major causes of morbidity and mortality for children under 5 years of age (pneumonia, diarrhea, measles, malaria, and malnutrition). Guidance for sick children is divided into two age groups: 2–59 months and 0–2 months.

Children 2–59 Months

Danger signs: One of the short list of danger signs indicating urgent referral is the inability to drink or breastfeed.

Assessing and treating severe acute malnutrition (SAM): The health provider is instructed to assess for acute malnutrition by looking for bilateral pitting edema, determining the weight-for-height/length (WFH/L) z-score, and measuring mid-upper arm circumference (MUAC) (for children 6 months and older). A child is classified as having SAM if he/she has a WFH/L z-score less than -3 or a MUAC less than 115 mm (red).

If the child with SAM is able to finish a ready-to-use therapeutic food (RUTF) portion or breastfeed, he/she is classified as uncomplicated SAM and treated at home with oral antibiotic for 5 days, RUTF (if 6 months or more), counseling on feeding, assessment for TB infection, advice on when to return, and follow-up in 7 days.

If the child with SAM has bilateral pitting edema, medical complications, or is unable to finish the RUTF or breastfeed, he/she is classified as complicated SAM and referred urgently to the hospital. Before referral, the first dose of appropriate antibiotic is administered, the child is treated to prevent low blood sugar, and the child is kept warm.

Assessing and treating moderate acute malnutrition (MAM): MAM is determined by a WFH/L z-score between -3 and -2 or a MUAC from 115–125 mm (yellow). The provider is instructed to assess the child's feeding and counsel the mother on feeding recommendations. If there is a feeding problem, the provider should follow up in 7 days. The child should be assessed for possible TB infection. Follow-up is indicated in 30 days.

Assessing and treating anemia: Anemia is assessed by whiteness of the palms (palmar pallor). Severe palmar pallor indicates severe anemia and is referred urgently to the hospital. Some pallor indicates anemia and is treated with iron (unless the child is receiving RUTF for SAM). Mebendazole is given if the child is 1 year or older and has not had a dose in the previous 6 months. Assessment for sickle cell anemia is indicated if it is prevalent in the area. Follow-up is indicated in 14 days.

Assessing and treating a feeding problem: According to the global guidelines, feeding is assessed if the child is under 2 years old, has MAM, has anemia,⁵² or is HIV exposed or infected. There is a box on assessing feeding problems on the sick-child recording form, but the guidance within the chart booklet is under the Counsel the Mother section and not within the Assess and Classify the Sick Child section. Questions include whether the child is breastfed; if so, the number of times in a 24-hour period; and whether breastfeeding is done at night. If the child takes in other foods or fluids, the provider is prompted to ask for the name of the

⁵² Note: While the global guidance indicates that anemia is an indication for assessing feeding problems in the sick-child recording form, the chart page on anemia prompts assessment of feeding only in the absence of palmar pallor for a child under 2 years of age.

food, frequency of feeding, how the child is fed, the size of servings, whether the child receives his/her own serving, who feeds the child and how, and whether and how the child's feeding has changed during the illness. Additional questions are provided for the caregiver of the HIV-exposed child. The provider is instructed to compare the mother's answers to the feeding recommendations for the child's age. If a feeding problem is determined, counseling should be provided according to the feeding recommendations, with follow-up in 7 days.

Counseling caregivers about feeding: The global IMCI chart guidance includes a box in the counseling section advising mothers to increase fluids during all illnesses. For all sick children, mothers are advised to breastfeed more frequently and for longer durations. If the child is taking breast milk substitutes, the amount given should be increased. Other fluids, such as soup, rice water, yogurt drinks, or clean water, are also recommended. Additional fluid and feeding recommendations are provided specifically for the child with persistent diarrhea.

The only guidance related to feeding children after illness was found in the follow-up instructions specific to dysentery, which states, "Ensure that the mother understands the oral rehydration method fully and that she also understands the need for an extra meal each day for a week."

The global IMCI chart booklet includes several pages on feeding counseling. A table of feeding recommendations provides recommendations related to feeding for all children during sickness and health. It is organized in six columns by age grouping, with three to six messages per age grouping. Additional recommendations are provided for specific target groups, including feeding recommendations for HIV-exposed children on infant breast milk substitute and guidance on how the mother can stop breastfeeding.

Children 0–2 Months

Danger signs: The global IMCI guidance includes difficulty in feeding as a danger sign for 0–2 months.

Assessment: Every infant without danger signs indicating urgent referral is to be assessed for feeding problems, low weight-for-age (WFA), thrush, and any difficulties with breastfeeding. If the child has not breastfed in the previous hour, the provider is asked to observe the breastfeeding for 4 minutes to assess for attachment (chin touching breast, mouth wide open, lower lip turned outward, more areola above than below the mouth) and effective sucking.

Feeding problem or low weight: If a feeding problem or low weight is determined, the provider is instructed to provide the appropriate counseling. If there is an issue with attachment or suckling, the provider is to teach the correct position or (if unable to attach well immediately) teach the mother to express breast milk and feed by a cup. If the infant is breastfeeding less than eight times in 24 hours, the mother is advised to increase the frequency of feedings and breastfeed as long as the infant wants, day or night. Separate guidance is provided for the breastfed and HIV-exposed nonbreastfed infant. Text boxes provide bullet points related to teaching correct positioning and attachment for breastfeeding, expressing breast milk, feeding by a cup, and keeping the low-weight infant warm at home.

Follow-up for any feeding problem or thrush should be in 2 days and for low WFA in 14 days.

Annex C: Comparison of Global and National Guidelines for Integrated Management of Childhood Illness

Nutrition-related assessments on sick-child recording forms							
	Global	Ethiopia	Ghana ⁵³	Kenya	Mali	Mozambique	Nigeria
Check for acute malnutrition	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Check for complications with red mid-upper arm circumference (MUAC)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Check for anemia	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Assess feeding	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Treating severe acute malnutrition (SAM)							
Countries	Global	Ethiopia	Ghana	Kenya	Mali	Mozambique	Nigeria
Treatment above 6 months	Refer complicated SAM. Treat uncomplicated SAM with oral antibiotics, ready-to-use therapeutic food (RUTF), counseling, and follow-up.	Same	Same	Same	Same	Same	Same

⁵³ Note: The sick-child recording form was not available for Ghana. Assessments for Ghana were collected from chart guidelines.

Treating severe acute malnutrition (SAM)							
Countries	Global	Ethiopia	Ghana	Kenya	Mali	Mozambique	Nigeria
Treatment for SAM in 2–6 months	Refer complicated SAM. Treat uncomplicated SAM with oral antibiotic, counseling, and follow-up.	Assess and counsel on breastfeeding and care (uncomplicated).	All SAM urgently referred.	Same as global	All SAM urgently referred.	Relactation is promoted ⁵⁴ (uncomplicated).	All SAM urgently referred.
Additional treatments indicated for uncomplicated SAM (beyond antibiotics)	None	<ul style="list-style-type: none"> • Single dose of folic acid in cases of anemia • Deworming on second visit 	Deworming (24 months or above)	None	None	<ul style="list-style-type: none"> • Iron and folic acid in cases of anemia • Deworming (week 2) • Vitamin A (week four if no supplement for the preceding 4 months) 	<ul style="list-style-type: none"> • Vitamin A • Deworming (12 months or above)
Additional disease assessments with uncomplicated SAM	TB	TB	HIV	TB and HIV	Malaria (rapid diagnostic test)	Malaria (rapid diagnostic test)	None

Treating MAM							
	Global	Ethiopia	Ghana	Kenya	Mali	Mozambique	Nigeria
Assess feeding and counsel mother	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional disease assessments	TB	TB	HIV	TB and HIV	TB	TB and HIV	None

⁵⁴ From *Programa de Reabilitação Nutricional's Tratamento e Reabilitação Nutricional*, volume 1.

Treating MAM							
	Global	Ethiopia	Ghana	Kenya	Mali	Mozambique	Nigeria
Additional interventions	None	Refer to supplementary feeding program if available.	Deworming (24 months or above)	<ul style="list-style-type: none"> Deworming (12 months or above with no dose in the previous 6 months) Vitamin A (if growth faltering for 2 consecutive months) 	<ul style="list-style-type: none"> Protocol for ready-to-use supplementary food or supercereal (enriched flour or porridge) Vitamin A Deworming (12 months or above with no dose in the previous 6 months) 	Chart has 2 "yellow" boxes. If MAM, give a small portion of RUTF to see if child eats, then counsel mother on how to go use it and how to prepare food. Follow up by "child at risk" consultation.	Plot weight on road to health chart and advise on routine growth monitoring.

Treating anemia							
	Global	Ethiopia	Ghana	Kenya	Mali	Mozambique	Nigeria
Iron indicated	Yes	Yes	Yes	Yes	Yes, iron and folic acid	Yes	Yes, iron and folic acid (only folic acid if sickle cell)
Deworming medication	Yes	Yes	Yes	Yes	Yes	Not found	Yes
Malaria indication	No	Test if malaria risk is high and treat if positive.	<ul style="list-style-type: none"> For severe anemia, give first dose of antimalarial before referral. For anemia, test for malaria and treat if positive. 	No	Test for malaria if palmar pallor.	Test for malaria if palmar pallor and fever.	Test for malaria and treat if positive.

Annex D: Global Policies and Guidelines

The following table summarizes global guidance that contains information related to nutritional care for an ill or vulnerable newborn and child at the sick-child encounter. Numerous additional global documents were also examined but excluded if no information relevant to the present review was found.

Policy/ guideline	Author	Year	Guidance found concerning nutritional care for the ill or vulnerable newborn and child
Newborns and young infants			
<i>Guiding Principles for Complementary Feeding of the Breastfed Child</i>	World Health Organization (WHO)/ Pan American Health Organization	2003	Principle 10/10: Feeding during and after illness: "Increase fluid intake during illness, including more frequent breastfeeding, and encourage the child to eat soft, varied, appetizing, favorite foods. After illness, give food more often than usual and encourage the child to eat more."
<i>Guiding Principles for Feeding Non-Breastfed Children 6–24 Months of Age</i>	WHO	2005	Principle 9: Guideline for feeding during and after illness: "Increase fluid intake during illness and encourage the child to eat soft, varied, appetizing, favourite foods. After illness, give food more often than usual and encourage the child to eat more."
WHO <i>Recommendations on Postnatal Care of the Mother and Newborn</i>	WHO	2013	"The guidelines address timing, number and place of postnatal contacts, and content of postnatal care for all mothers and babies during the six weeks after birth. The guidelines include assessment of mothers and newborns to detect problems or complications, but the management of these conditions is addressed in other WHO documents (e.g. management of a mother with postpartum hemorrhage – PPH – or infection, care of a preterm or low-birthweight newborn or a newborn with infection)." Recommendation 5: Exclusive breastfeeding: "All babies should be exclusively breastfed from birth until 6 months of age. Mothers should be counselled and provided support for exclusive breastfeeding at each postnatal contact." Recommendation 8 (partial): "Breastfeeding progress should be assessed at each postnatal contact."
<i>Guidelines on Optimal Feeding of Low Birth-Weight Infants in Low- and Middle-Income Countries</i>	WHO	2011	Presents and grades 18 recommendations for feeding low-birthweight infants, concerning the choice of milk (strong recommendation for mother's own milk, all other recommendations strong situational or weak), supplements (all recommendations weak), when and how to initiate breastfeeding (strong recommendation for as soon as possible), optimal duration of exclusive breastfeeding (6 months), how to feed (strong recommendation for cup feeding), and how frequently to feed/how to increase daily feed volumes (weak recommendations). The document states that none of the recommendations address sick low-birthweight infants and infants with birthweight under 1 kg.
<i>Neo-BFHI for Neonatal Wards</i>	Nordic and Quebec Working Group	2015	Benefits of breastfeeding (demand or semidemand) and kangaroo mother care for sick and/or premature infants

Policy/ guideline	Author	Year	Guidance found concerning nutritional care for the ill or vulnerable newborn and child
<i>Protecting, Promoting, and Supporting Breastfeeding in Facilities Providing Maternity and Newborn Services: The Revised Baby-Friendly Hospital Initiative</i>	WHO	2018	No guidance specific to a sick child; steps to be taken by institutions
Infant and young child feeding			
<i>Global Strategy for Infant and Young Child Feeding</i>	WHO/ UNICEF	2003	<p>High-priority actions for support through the health care system, including in- and outpatient services for sick children, such as:</p> <ul style="list-style-type: none"> • Ensuring effective therapeutic feeding of sick and malnourished children, including the provision of skilled breastfeeding support when required. • Training those health workers who care for mothers, children, and families to improve their skills on counseling and assistance needed for breastfeeding, for complementary feeding, for infant feeding in the context of HIV, and, when necessary, for feeding with a breast milk substitute. Training may also cover feeding during illness and health workers' responsibilities under the International Code of Marketing of Breast Milk Substitutes. • Revising and reforming pre-service curricula for all health workers, nutritionists, and allied professionals to provide appropriate information and advice on infant and young child feeding for use by families and those involved in the field of infant and young child nutrition. <p>Does not specify content.</p>
<i>Essential Nutrition Actions: Improving Maternal, Newborn, Infant, and Young Child Health and Nutrition</i>	WHO	2013	<p>Organized according to interventions targeted at young infants 0–5 months and children 6–23 months. Guidelines for treatment of severe acute malnutrition (SAM) and moderate acute malnutrition (MAM) are described in the body of this report.</p> <p>In cases of other illness:</p> <p>Vitamin A supplementation in children with measles: All children diagnosed with measles should receive one dose of a vitamin A supplement. Children from areas of known vitamin A deficiency or where measles case fatality is likely to be more than 1% should receive two doses of vitamin A supplements, given 24 hours apart, to help prevent eye damage and blindness. Vitamin A supplements have been shown to reduce the number of deaths from measles by 50% (<i>ed note: age-specific dosages included</i>).</p> <p>Zinc supplementation for diarrhea management: Mothers and other caregivers should provide children with 20 mg per day of zinc supplementation for 10–14 days (10</p>

Policy/ guideline	Author	Year	Guidance found concerning nutritional care for the ill or vulnerable newborn and child
			<p>mg per day for infants under 6 months of age).</p> <p>Anemia (partial text): Where the diet does not include fortified foods or prevalence of anemia in children at approximately 1 year of age is severe (above 40%), supplements of iron at a dosage of 2 mg/kg of body weight per day should be given to all children between 6–23 months of age.</p> <p>Actions to promote iron supplementation for children:</p> <ul style="list-style-type: none"> • Children under 2 years of age who are <u>diagnosed with anemia</u> should be targeted and treated with 3 mg of iron per kg of body weight daily supplementation until hemoglobin concentrations return to normal. • In <u>malaria-endemic areas</u>, the provision of iron supplements should be implemented in conjunction with adequate measures to prevent, diagnose, and treat malaria. • In <u>areas where hookworm prevalence is 20% or greater</u>, iron supplementation may be more effective when combined with anthelmintic treatment on an annual basis. • <u>In cases of severe undernutrition</u>, iron supplementation should be delivered in accordance with WHO guidelines, which state that supplementation be withheld until the acute problems related to infection have been effectively treated and growth has resumed. <p>Guiding principles for breastfed child (last on list): Increase fluid intake during illness, including more frequent breastfeeding, and encourage the child to eat soft, varied, appetizing, favorite foods. After illness, give food more often than usual and encourage the child to eat more.</p> <p>Guiding principles for nonbreastfed child (last on list): Increase fluid intake during illness and encourage the child to eat soft, varied, appetizing, favorite foods. After illness, give food more often than usual and encourage the child to eat more.</p>
<p><i>Essential Nutrition Actions and Essential Hygiene Actions: Reference Manual: Health Workers and Nutrition Managers</i></p>	<p>USAID, John Snow Inc., CORE Group, Helen Keller International</p>	<p>2015</p>	<ol style="list-style-type: none"> 1. Graphic that represents the relationship among illness, feeding, and recovery (document 37) 2. Nutritional care during and after illness (document 38) <ul style="list-style-type: none"> • Continued and more frequent breastfeeding during and for 2 weeks after illness for child 0–24 months. • Breastfeed even if mother is sick. • Frequent small feeds for child 6 months and up. • One extra meal per day. • Be patient, encourage child to eat, choose favorite foods. <p>Feeding a child who has MAM:</p> <ul style="list-style-type: none"> • Frequent breastfeeding for child 0–24 months. • One extra meal per day for child 6 months and up. • Supplementary foods if available. • Be patient, encourage child to eat, choose favorite foods.

Policy/ guideline	Author	Year	Guidance found concerning nutritional care for the ill or vulnerable newborn and child
			<p>Additional information document 46:</p> <ul style="list-style-type: none"> • Continue feeding and breastfeeding, even if child has diarrhea. • Enrich feeds with animal source foods if available. • Active feeding. • Encourage vaccination, vitamin A supplements and deworming. <p>Nutritional care of infants and children with diarrhea:</p> <ul style="list-style-type: none"> • Frequent breastfeeding for child 0–24 months. • One extra meal per day for child 6 months and up. • Supplementary foods if available. • Be patient, encourage child to eat, choose favorite foods. • Prevent dehydration with water, rice water, or oral rehydration therapy. • Give zinc supplements 10–14 days. <p>3. What health providers can teach parents or caregivers about feeding during and after illness (document 39)</p> <p>4. Sick-child visits and integrated management of neonatal and childhood illnesses (document 53)</p> <ul style="list-style-type: none"> • Check for danger signs and refer, if necessary. • Assess the child’s nutritional status. • Counsel on more frequent breastfeeding during and after illness. • Counsel on breastfeeding practices for children under 6 months. • Assess and counsel on adequate complementary feeding from 6 up to 24 months. • If the child has diarrhea. • Check for anemia in the child and treat. • Update the child’s vitamin A supplementation status. • Update the child’s deworming. <p>5. Community management of acute child malnutrition in an outpatient therapeutic program (document 54)</p> <ul style="list-style-type: none"> • Measure mid-upper arm circumference and weight-for-height and classify. • On admission, if severe acute malnutrition, provide counseling and medical treatment. • If MAM, refer to supplementary feeding program. • Counsel on more frequent breastfeeding during and after illness. • Counsel on breastfeeding practices for children under 6 months. • Assess and counsel on adequate complementary feeding from 6 up to 24 months. • Check on immunization status. • Check for child’s anemia and treat. • Update the child’s vitamin A supplementation status. • Update the child’s deworming.

Policy/ guideline	Author	Year	Guidance found concerning nutritional care for the ill or vulnerable newborn and child
<i>Essential Nutrition Actions and Essential Hygiene Actions: Reference Material on Key Practices: Community Workers</i>	USAID, John Snow Inc., CORE Group, Helen Keller International	2015	<p>Practice 13: Feeding Sick Children During and After Illness</p> <ul style="list-style-type: none"> Breastfeed more often and for longer, even if the mother is ill. Offer children aged 6 months and older additional food to help them recover faster. For 2 weeks after your child aged 6 to 24 months has recovered from illness, give one additional meal of solid food each day to speed recovery/small quantities throughout the day. <p>Practice 14: Nutritional Care of Infants and Children with Diarrhea or Moderate Malnutrition</p> <ul style="list-style-type: none"> Breastfeed more frequently. Moderate malnutrition, give one additional meal each day until the child recovers. After diarrhea, give an additional meal every day for 2 weeks. For diarrhea, give oral rehydration solution, ask health worker to provide zinc.
Counseling			
<i>Training Course on Child Growth Assessment: WHO Child Growth Standards (Module D, Counseling on Growth and Feeding)</i>	WHO	2008	<p>“When a child is sick, he or she should be fed according to the recommendations for his or her age group but given extra fluids and food as described below. If your child is sick, feed her according to the recommendations for her age group provided in this section. Also give more fluids (breastfeed more for a breastfed child) and encourage her to eat soft, varied, appetizing, favourite foods. After illness, give food more often than usual and encourage the child to eat more.” (page 54)</p>
<i>Caring for the Newborn At Home (counseling cards)</i>	UNICEF/ WHO	2015	<p>Two home visits in pregnancy; three home visits after birth (day 1, 3, and 7); extra visits for small babies (2 and 14); follow-up for referred babies (day after referral). At postnatal visits: Assess feeding, danger signs, and weight. Weight determined to be in green, yellow, or red zone for differential treatment/referral. Yellow = care of the small baby; observe breastfeeding, look for attachment and effective suckling; try to help positioning; refer to health worker if not suckling effectively counseling on breastfeeding and keeping baby warm.</p>
SAM			
<i>Community-Based Management of Severe Acute Malnutrition: A Joint Statement</i>	WHO, World Food Programme, United Nations System Standing Committee on Nutrition, UNICEF	2007	<p>“The community-based approach involves timely detection of severe acute malnutrition in the community and provision of treatment for those without medical complications with ready-to-use therapeutic foods or other nutrient-dense foods at home. If properly combined with a facility-based approach for those malnourished children with medical complications or below 6 months and implemented on a large scale, community-based management of severe acute malnutrition could prevent the deaths of hundreds of thousands of children.</p>

Policy/ guideline	Author	Year	Guidance found concerning nutritional care for the ill or vulnerable newborn and child
<i>Guideline: Updates on the Management of Severe Acute Malnutrition in Infants and Children</i>	WHO	2013	<p>This guideline presents the updated evidence and practice for key interventions, and will also serve to inform revisions of the manual <i>Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers</i>. This guideline does not reflect all WHO recommendations related to the management of children with SAM, only those related to areas that were prioritized by the guideline development group: the WHO Nutrition Guidance Advisory Group – Subgroup on Nutrition in the Life Course and Undernutrition 2010–2012.</p> <ol style="list-style-type: none"> 1. Admission and discharge criteria for children who are 6–59 months of age with SAM 2. Where to manage children with SAM who have edema 3. Use of antibiotics in the management of children with SAM in outpatient care 4. Vitamin A supplementation in the treatment of children with SAM 5. Therapeutic feeding approaches in the management of SAM in children who are 6–59 months of age
<i>Management of Moderate Acute Malnutrition (MAM): Current Knowledge and Practice</i>	CMAM Forum	2014	Description of current guidance on MAM management, including principles, recommended nutrient requirements, recommendations for counseling caregivers, admission and discharge criteria, routine medical care, referrals, and overview and analysis of specialized foods for MAM management.

Annex E: National Documents Reviewed

Ethiopia
<p>Food and Nutrition Policy, September 2017, 12th draft National Strategy for Newborn and Child Survival in Ethiopia, 2015/16–2019/20, June 2015 National Nutrition Program, 2016–2020, July 2016 National Guideline on Adolescent, Maternal Infant and Young Child Nutrition, May 2015 National Guideline on Adolescent, Maternal Infant and Young Child Nutrition, June 2016 Guidelines for the Management of Acute Malnutrition, June 2016 IMNCI Chart Booklet, 2015 Health Extension Worker Chart Booklet, 2010, 2013, and 2018 (Amharic only)</p>
Ghana
<p>National Nutrition Policy, July 2016 Under Five's Child Health Policy: 2007–2015, Ministry of Health, Ghana Ghana National Newborn Health Strategy and Action Plan, 2014–2018 National Guidelines for Community-Based Management of Severe Acute Malnutrition in Ghana, August 2014 Guidelines for Case Management of Malaria in Ghana, 3rd edition, July 2014 IMNCI Chart Booklet, 2016</p>
Kenya
<p>Kenya Health Policy 2012–2030 National Nutrition Action Plan, 2012–2017 National Framework and Plan of Action for iCCM, 2013–2018 National Guideline for Integrated Management of Acute Malnutrition, 2009 IMNCI Chart Booklet, 2017 Facilitators' Manual iCCM, 2014 ENC Guidelines for Facilitator ENC Guidelines for Participants Kangaroo Mother Care Guidelines Newborn Checklist Mother and Child Booklet, 2015 NFNSP Sessional Paper (Food Security)</p>
Mali
<p><i>Politique Nationale de Nutrition</i> (National Nutrition Policy) 2013 <i>Plan d'Action Multisectorielle de Nutrition</i> 2014–2018 <i>Decret de Cellule de Coordination de Nutrition</i> 2015 <i>Organes de la Politique Nationale de Nutrition</i> <i>Guide de Mise En Oeuvre Soins Essentiels Dans La Communauté</i> 2016 <i>Guide des Outils De Supervision</i>, 2016 <i>Manuel de Formation des Membres du Groupe de Soutien aux Activités de Nutrition</i> 2017 IMCI Chart Booklet 2015 Child Survival Booklet 2005 Recettes ANJE (IYCF Recipes)</p>

Mozambique

Guia PostNatal Versão final

IMCI Chart Booklet Newborn 0–7 days

IMCI Chart Booklet 7 days to 5 years

Manual: Tratamento e Reabilitação Nutricional Vol 1 (PRN: Programa de Reabilitação Nutricional)

Manual do Facilitador Community IMCI

Manual de Participante Community IMCI

Curso de Cuidadoes Essenciais ao Récem-Nascido, modulo 1–5

Nigeria

Health Sector Component of National Food and Nutrition Policy, National Strategic Plan of Action for Nutrition (2014–2019), May 2014

National Child Health Policy, Federal Ministry of Health, Nigeria, July 2013

National Policy on Infant and Young Child Feeding in Nigeria, November 2010

Task-Shifting and Task-Sharing Policy for Essential Health Care Services in Nigeria, Federal Ministry of Health, August 2014

Reproductive, Maternal, Newborn, Child, Adolescent Health + Nutrition Strategy for Nigeria: 2018–2022 (draft)

Revised Integrated Maternal, Newborn and Child Health Strategy 2013

National Guideline for the Implementation of Integrated Community Case Management of Childhood Illness in Nigeria, The Federal Ministry of Health in Nigeria, March 2013

Nigerian CMAM Guidelines, 2011

IMCI Chart Booklet, Nigerian Adaptation, July 2015 and October 2017

iCCM, Chart Booklet for the Community Health Extension Workers and Community Resource Persons, Nigerian Adaptation, June 2016

iCCM, Caring for Newborns and Children in the Community, Manual for the Community Health Extension Workers and Community Resource Persons, Nigeria Adaptation, June 2016

Essential Newborn Care Course – four modules with action plans and facilitator guides; provider guide