NUTRITION COUNSELING AND CARE DURING AND AFTER CHILDHOOD ILLNESS

Literature Review: Evidence from African Countries

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ACRONYMS

ADRA	Adventist Development and Relief Agency
AIM	African Index Medicus
AJFAND	African Journal of Food, Agriculture, Nutrition and Development
ANC	Antenatal care
ARI	Acute respiratory infection
A&T	Alive & Thrive
BCC	Behavior change communication
CCM	Community case management of childhood illness
CHW	Community health worker
CI	Confidence interval
C-IMCI	Community-Integrated Management of Childhood Illness
DALY	Disability-adjusted life year
DDS	Dietary Diversity Score
DHS	Demographic and Health Survey
DoPHER	Database of Promoting Health Effectiveness Review
DPT	Diphtheria, pertussis, tetanus
DRC	Democratic Republic of Congo
EBF	Exclusive breastfeeding
ENN	Emergency Nutrition Network
FANTA	Food and Nutrition Technical Assistance III Project
GDP	Gross domestic product
GMP	Growth monitoring and promotion
HEW	Health extension worker
HFP	Health facility promotion
HSA	Health Surveillance Assistant
iCCM	Integrated Community Case Management
IMCI	Integrated Management of Childhood Illness
IMNCI	Integrated Management of Newborn and Childhood Illnesses
IYCF	Infant and young child feeding
LGA	Local government area
LNS	Lipid-Based Nutrient Supplementation
MAD	Minimum Acceptable Diet
MCGL	MOMENTUM Country and Global Leadership
MCH	Maternal and Child Health
MCSP	Maternal and Child Survival Program
MDD	Minimum Dietary Diversity
MICS	Multiple Indicator Cluster Survey
MIS	Malaria Indicator Survey
MMF	Minimum Meal Frequency
MUAC	Mid-upper arm circumference

ORS	Oral rehydration solution
ORT	Oral rehydration therapy
PHC	Primary health care
PICO	Populations, Interventions, Comparisons and Outcomes
PNC	Postnatal care
RCT	Randomized control trial
RHF	Recommended homemade fluids
SAM	Severe acute malnutrition
SBCC	Social and behavior change communication
SPA	Service Provision Assessment
SUN	Scaling up Nutrition
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VAS	Vitamin A supplementation
WDDS	Women's Dietary Diversity Score
WHO	World Health Organization
WHZ	Weight-for-Height Z-Scores

EXECUTIVE SUMMARY

BACKGROUND

Optimal infant and young child feeding (IYCF) is key for child survival, growth, and development. Within IYCF, nutrition counseling and services during and after illness are vital, and therefore integrated into child survival policies, strategies, and programs such as the Integrated Management of Childhood Illness (IMCI) and Integrated Community Case Management (iCCM). Many African countries have been implementing infant IYCF counseling as part of their child health services, particularly iCCM and IMCI, for many years. However, some evidence suggests that the quality of feeding counseling and services during sick child visits remains poor in many contexts. There is a dearth of information on nutrition care services and practices during and after common childhood illness over the last two decades in Africa. This review provides synthesized information on nutrition counseling and care during and after childhood illness in Africa, reports trends for feeding and care practices over the last 15 years (2005–2020), and investigates caregivers' practices and health providers' support for nutrition counseling during and after childhood illness.

METHODOLOGY

A mix of quantitative and qualitative data sources and analysis were used to inform this literature review. The literature review was guided by targeted research objectives and questions on trends in feeding and care practices, and support for nutrition counseling and care during and after childhood illness (see Table 1). The review used a combination of quantitative data sources and analysis as well as qualitative literature reviews of key documents. We identified the timeframe (2005–2020), type of entry point for caregivers' practices and health care providers' support (community and facility), and 16 countries for the trend analysis as selection criteria for the literature search. A total of 47 studies fulfilled our criteria and were included in this literature review. To understand trends in feeding and care practices during and after childhood illness from 2005–2020, we used quantitative data from 16 selected African countries.[1] The quantitative data was used to observe trends of childhood illnesses, IYCF, and fluid intake practices to identify high-level correlations. The quantitative indicator data was analyzed from the available population-based surveys: Demographic and Health Surveys (DHS), Malaria Indicators Surveys, and Multiple Indicator Cluster Surveys. The trend analysis was limited by the indicators available within these population-based surveys, such as feeding practices for children with fever and acute respiratory infection (ARI), during recovery of child illnesses, and specific data on IYCF counseling and coverage. In addition, there was no data or study to answer the trend on the impacts of health providers' provision of IYCF counseling and support on the change in feeding practices during and after illness (research question 1.3).

To understand health provider support, caregiver practices, and barriers and enablers of feeding practices during and after illness, the review looked at a number of quantitative and qualitative research studies including peer-reviewed literature, peer-reviewed journal articles, systematic reviews, meta-analysis,

[1] East Africa: Ethiopia, Kenya, Tanzania, and Uganda; West Africa: Burkina Faso, Ghana, Mali, Niger, Nigeria, Sierra Leone, and Senegal; Central Africa: Democratic Republic of Congo (DRC) and Rwanda; and Southern Africa: Malawi, Mozambique, and Zambia.

strategic reviews, cross-sectional studies, case studies, evaluations, and grey literature (study protocols for uncompleted studies). The studies were systematically searched from a number of data sources[2] according to these criteria.

TABLE 1: RESEARCH QUESTION TOPICS FOR NUTRITION COUNSELING AND CARE DURING AND AFTER CHILDHOOD ILLNESS

1. Trends in Feeding and Care Practices During and After Childhood Illness, Over the Last 15 Years in Africa	
1.1	What are the changes in proportion of children who received treatment or counseling services?
1.2	What are the changes in breastfeeding and complementary feeding practices including during and after common childhood illness?
1.3	What are the changes on the impacts of health providers provision of IYCF counseling and support on the change in practicing feeding during and after illness?

2. Caregivers' Practices and Health Care Providers' Support	
2.1	What are the proportion of caregivers counseled on how to **feed during and after illness**?
2.2	What are the caregivers' uptake of recommended IYCF practices/behaviors, especially feeding and increased fluid intake?
2.3	From the caregivers' perspective, what are the enablers for practicing and barriers for not practicing optimal breastfeeding **during and after illness**?
2.4	From the caregivers' perspective, what are the enablers for practicing and barriers for not practicing optimal complementary feeding **during and after illness**?
2.5	From the caregivers' perspective, what are the enablers for increasing fluid intake and barriers for not providing more fluids during and after illness?
2.6	Who are community influencers of IYCF practices for sick children? How do they influence positively or negatively optimal feeding practices?
2.7	2.7. a. Do health providers and community workers provide quality counseling and support on feeding of sick children? 2.7. b. If not, what are the reasons from providers' perspective for not providing quality IYCF counseling during and after illnesses? 2.7. c. What are the barriers and enablers of provider counseling and feeding during and after illness?

[2] Data sources included: African Index Medicus https://indexmedicus.afro.who.int/; African Journal of Food, Agriculture, Nutrition and Development (http://ajfand.net/#gsc.tab=0); Alive and Thrive (https://www.aliveandthrive.org/), BiblioMap - EPPI-Centre database of health promotion research (eppi.ioe.ac.uk/webdatabases/Intro.aspx?ID=7); Community Health Worker (CHW) Central: A global resource for and about CHWs (https://chwcentral.org/resources-search/?wpv_post_search=nutrition&wpv_aux_current_post_id=3162&wpv_view_count=3161-TCPID3162); clinicaltrials.go (https://clinicaltrials.gov/); Cochrane Reviews (https://www.cochranelibrary.com); Database of Promoting Health Effectiveness Reviews (http://eppi.ioe.ac.uk/webdatabases4/Intro.aspx?II=9); Demographic and Health Surveys (https://dhsprogram.com/data/DHS-Survey-Indicators-Maternal-and-Child-Health.cfm); The Emergency Nutrition Network (https://www.ennonline.net/); Google Scholar (https://scholar.google.com/); Ministry of Health websites in respective countries; PROSPERO-National Institute for Health Research International prospective register of systematic reviews (https://www.crd.york.ac.uk/prospero/); PubMed including Medline (https://pubmed.ncbi.nlm.nih.gov/); Scaling up Nutrition (https://scalingupnutrition.org/); United Nations Children's Fund (UNICEF) Multiple Indicator Cluster Surveys (https://mics.unicef.org/); USAID Experience Development Clearinghouse (https://dec.usaid.gov/dec/home/Default.aspx); USAID/ Food and Nutrition Technical Assistance III Project (FANTA) (https://www.fantaproject.org/); USAID Advancing Nutrition (https://www.advancingnutrition.org/); USAID/ Maternal and Child Survival Program (MCSP) (https://www.mcsprogram.org/); World Health Organization International Clinical Trials Registry Platform (https://www.who.int/clinical-trials-registry-platform); World Health Organization Guidelines (www.who.int)

KEY FINDINGS BY RESEARCH QUESTIONS

1. TRENDS IN FEEDING AND CARE PRACTICES DURING AND AFTER CHILDHOOD ILLNESS, OVER THE LAST 15 YEARS IN AFRICA

KEY TAKEAWAYS:

- Data from 16 countries on health-seeking patterns, care, and treatment for diarrhea and ARIs were varied—with both increases and decreases seen across countries.
- Very limited data is available to assess changes in breastfeeding and complementary feeding during and after illness.
- Four countries showed an increasing trend whereas seven countries showed a decreasing trend in the percentage of caregivers who increased the amount of food given to children during diarrhea. The review on trends in the percentage of children who were offered more than usual foods during an episode of diarrhea revealed that no countries are on track with increasing trends. Less than 20% of the children were offered more food during an episode of diarrhea in all countries.
- Six countries showed an increasing trend in the percentage of caregivers who gave increased fluids to sick children with diarrhea whereas nine countries displayed a decreasing trend.
- Limited evidence from programmatic review documents highlight inconsistences—with both positive and negative feeding practices by caregivers reported during episodes of illness. Generally, caregivers did not follow the recommended feeding care during sickness.

SUB-QUESTION 1.1: WHAT ARE THE CHANGES IN PROPORTION OF CHILDREN WHO RECEIVED TREATMENT OR COUNSELING SERVICES?

The changes in the proportion of children with common childhood illnesses taken to health facilities for care and treatment showed varied trends among the 16 countries. The following countries showed increases in treatment of diarrhea at health facilities: Democratic Republic of Congo (DRC), Ethiopia, Ghana, Kenya, Mali, Niger, Nigeria, Senegal, Sierra Leone, Rwanda, and Zambia. Treatment of diarrhea decreased in four countries: Malawi, Mozambique, Tanzania, and Uganda. Burkina Faso is not included as it only had one year of data available.

SUB-QUESTION 1.2: WHAT ARE THE CHANGES IN BREASTFEEDING AND COMPLEMENTARY FEEDING PRACTICES INCLUDING DURING AND AFTER COMMON CHILDHOOD ILLNESS?

Trends in breastfeeding, complementary feeding practices, and food and fluid intake during and after common childhood illness were analyzed; however, limited data was available. The data available from normative population-based surveys was limited to DHS data, which focuses only on feeding practices during diarrhea and reports breastfeeding and complementary feeding practices of children irrespective of the status of their illness. The data does not include breastfeeding and complementary feeding practices during and after illness nor does it include feeding practices for ARI and fever. DRC, Ethiopia, Ghana, Kenya, Malawi, and Sierra Leone showed increasing trends in the percentage of children exclusively breastfed during the review period. On the other hand, Mali, Niger, Rwanda, Tanzania, Uganda, and Zambia showed decreasing trends.

The percentage of caregivers who increased the amount of food given to children during diarrhea showed an increased trend in four countries (Ethiopia, Malawi, Senegal, and Mali), and this trend decreased in seven countries (Ghana, Kenya, Mozambique, Niger, Nigeria, Sierra Leone, and Tanzania). Uganda and Zambia had a mix of decreasing and increasing trends, which were not consistent. In almost all countries, less than 20% of the children were offered more food during an episode of diarrhea, which is concerning and needs attention. The percentage of children with diarrhea who were given both increased fluids and continued feeding showed increasing trends in Ethiopia, Malawi, Nigeria, Niger, Sierra Leone, Uganda, and Zambia, whereas there was a decreasing trend in Kenya, DRC, and Ghana. Mali, Uganda, Senegal, and Zambia showed inconsistent trends.

The percentage of caregivers who gave increased fluids to sick children with diarrhea showed an increased trend in six countries (Ethiopia, Malawi, Mozambique, Nigeria, Senegal, and Uganda) while this trend showed a decrease in nine countries (DRC, Ghana, Kenya, Mali, Niger, Rwanda, Sierra Leone, Tanzania, and Zambia).

The review on trends in the percentage of children who were offered more than usual foods during an episode of diarrhea revealed that no countries are on track with increasing trends, except a slight increase in DRC from 11.4% in 2007 to 14.9% in 2014. Some countries have either completely decreased offering more foods during diarrhea for children (Mali, Niger, Nigeria, Sierra Leone, and Zambia) or increased one survey year only to subsequently decrease the following survey years (Ethiopia, Ghana, Rwanda, Senegal, and Uganda). In addition, the percentage of children 6–59 months of age with diarrhea for whom caregivers provide the recommended increased amount of food are low (under 10%) among all age groups (<6 months, 6–11,12–23, 24–35, 36–47 and 48–59) in most countries.

Although there are a limited number of publications and program review documents that looked at trends in the feeding practices of children during and after illness in Africa, studies from Botswana, Ethiopia, and Nigeria did have these reports. Studies from Ethiopia showed 45–54% of mothers fed their sick child more frequently at a time of illness than when they were healthy, 27% of sick children had minimum dietary diversity score, 2% were given vitamin A source foods, and 84% of breastfed children were fed with age-appropriate meal frequency. A study in Botswana reported 86% of caregivers gave less food than usual. Studies in Nigeria showed that most caregivers (60.5%) do not stop breastfeeding when their child has diarrhea, and the majority (62.4%) give sugar and salt solution to the child with diarrhea.

2. CAREGIVERS' PRACTICES AND HEALTH CARE PROVIDERS' SUPPORT

KEY TAKEAWAYS:

- Evidence from population-based and household surveys on caregiver uptake of IYCF practices is limited and a large gap identified in this literature review, specifically feeding practices after illness or during recovery.
- Findings from several published and unpublished studies in Africa have reaffirmed the findings from the trend analysis that most caregivers did not follow the recommended feeding care during sickness.
- Low percentage of caregivers were counseled on feeding during illness, which ranged from 10–50%. Most studies reported poor quality of counseling as well.
- Key enablers to optimal feeding practices during illness included counseling that is responsive to maternal/family beliefs and cultural considerations, health workers explaining the reasons behind the feeding recommendation, availability of job aids, individual personalized counseling, quality counseling by trained health providers, and facility counseling complemented with community-based peer counseling and home visits.
- Barriers that limited caregivers from practicing optimal feeding practices during illness included caregivers' lack of knowledge and misperceptions, poor quality counseling by health providers, failure to attend follow-up visits, and limited access to quality complementary foods.
- More barriers than enablers were identified for increasing fluid intake during and after illness. Misconceptions around increasing fluid intake, as well as poor information and misbeliefs from influential family members, and conflicting advice from health care providers advising caregivers to restrict fluid intake during diarrhea.
- There are multiple community influencers of IYCF practices for sick children including community health workers (CHWs), husbands, grandmothers, mother-in-law, community leaders, and women leaders.
- In general, there was limited evidence about health providers and community workers providing counseling and support for the feeding of sick children. IMCI-trained health workers were more likely to provide quality counseling to families about what to feed a sick child. However, the quality of counseling was poor, and many health providers ignored feeding assessments and counseling during sick child visits.
- Health workers identified these key barriers to providing quality counseling on feeding during and after illness: limited in-service and pre-service training in counseling for malnutrition and IYCF, lack of space and private rooms for individual counseling, and a time pressure and workload to counsel all messages including feeding.

SUB-QUESTION 2.1: WHAT ARE THE PROPORTION OF CAREGIVERS COUNSELED ON HOW TO FEED DURING AND AFTER ILLNESS?

When looking at caregiver uptake of IYCF practices, there is a shortage of evidence from population-based or household surveys. Most evidence focused on home or community management of diarrhea. Although there was scarcity of data on the proportion of caregivers counseled on feeding their sick children, the limited studies showed it ranges from as low as 10% to as high as 50%. A study that used data from Service Provision Assessment (SPA) surveys of seven countries in sub-Saharan Africa found that only 10% of caregivers reported they were counseled on feeding for their sick children. In Malawi, a study on the quality of care for

community case management of childhood illness found that 55% of caregivers of children with uncomplicated diarrhea were advised to give extra fluids and to continue feeding the child during the illness episodes. Another study from the DRC revealed that only 4–6% of caregivers reported increasing the amount of food after illness or recovery. A study from Tanzania revealed that the quality of the IMCI counseling was poor, especially as it related to counseling on feeding recommendations and follow-up care. A study of IMCI-trained health providers in Uganda showed that health providers performed poorly in asking feeding questions and explaining feeding problems, but they performed well in giving feeding advice. Therefore, overall the quality of counseling is poor.

SUB-QUESTION 2.2: WHAT IS THE CAREGIVERS' UPTAKE OF RECOMMENDED IYCF PRACTICES/BEHAVIORS, ESPECIALLY FEEDING AND INCREASED FLUID INTAKE?

There is currently a shortage of evidence from population-based or household surveys as it relates to caregiver uptake of IYCF practices. Most evidence focused on feeding and increased fluid intake for children with diarrhea. The findings from several published and unpublished studies in Africa have reaffirmed the findings from the trend analysis that most caregivers did not follow the recommended feeding care during sickness. A study in Kenya found that 90% of caregivers withheld milk including breastmilk with the notion that it enhanced diarrhea. Another study in Botswana reported that 86% of caregivers gave less food than usual during an episode of diarrhea. A formative assessment in DRC discovered that 46% of mothers reported not giving semi-solid and solid foods to their infants during illness. In Ghana, 62% of caregivers reported feeding the sick child as they normally would, and only 7.4% of them increased feeding frequency. Studies from Ethiopia showed 54% of mothers fed their sick child more frequently during illness, whereas 46% fed their children a sub-optimal amount. Additionally, 96% of caregivers fed sick children with cereals and roots, but only 2% were given vitamin A source foods. A study from northwest Nigeria demonstrated that most of the caregivers (60.5%) did not stop breastfeeding when their child had diarrhea.

Limited information was found on feeding practices after illness from small-scale studies in DRC, Mozambique, and Ghana. A formative research in DRC reported that 40% of caregivers reported feeding more breastmilk during illness and 4–6% reported increasing the amount of food during recovery. In Kenya, it was reported that less than 10% of mothers increased food after illness. In Mozambique, mothers said that children often lost their appetite and they therefore did not push the child to eat their regular meals. A study from Ghana reported that force feeding rather than the recommended responsive feeding practices were preferred for a child recovering from illness.

SUB-QUESTIONS 2.3 AND 2.4: FROM THE CAREGIVERS' PERSPECTIVE, WHAT ARE THE ENABLERS FOR PRACTICING AND BARRIERS FOR NOT PRACTICING OPTIMAL IYCF DURING AND AFTER ILLNESS?

Evidence on enablers and barriers to feeding children during and after illness is limited. Enablers for practicing optimal breastfeeding during and after illness were identified after a review of studies and program documents that assessed enablers/barriers common to general IYCF practices (breastfeeding and complementary feeding). These enablers focused on multiple aspects of counseling support to caregivers, including: counseling that included maternal/family beliefs and cultural considerations, individual personalized counseling adapted to each mother-child pair during sick child consultations, and counseling being provided by a trained health provider. The timing of counseling was also important; specifically, counseling the mother on IYCF at prior antenatal care (ANC) and child health contacts. Mothers who received

quality counseling on sick child feeding were three times more likely to feed their child appropriately than those who were not counseled.

The review identified several barriers that limited caregivers from practicing optimal breastfeeding during and after illness. These barriers include caregivers' lack of knowledge and misperceptions. For example, there is a perception that breastfeeding causes or worsens diarrhea in babies. In addition, mothers reported diminished quantity and quality of breastmilk linked to child illness. Support services provided by health providers were found to be of poor quality, with health care providers advising mothers to restrict or stop breastfeeding, or not informing mothers of the need to continue breastfeeding when the child is sick.

The main enablers for optimal complementary feeding during illness included: caregivers who are counseled in facilities with IMCI, counseling sessions that address caregivers' concerns on feeding and illness of sick children, the availability of job aids on sick child feeding, and health workers that provide caregivers with information on the reasons behind employing feeding practices during periods of sickness and recovery. The specific barriers for not practicing optimal complementary feeding during and after illness included: poor awareness among caregivers about the feeding needs of sick children, failure to attend follow-up visits to get correct counseling, lack of discussion between health workers and caregivers on the available options that could be adopted in order to improve feeding practices, and limited availability and accessibility of energy and nutrient-dense complementary foods.

The general enablers to complementary feeding and breastfeeding (sick and non-sick child) included: caregiver and community knowledge on IYCF; caregivers' access to health services, especially facilities with IMCI services including community outreach services; and caregivers being counseled in facilities with trained health providers who provide quality and individual personalized counseling adapted to each mother-child pair. Other enablers included: responses to mother's questions and concerns about child feeding; intensity and exposure of counseling sessions; and counseling that is complemented with community-based peer counseling and home visits.

General limiting factors influencing complementary feeding and breastfeeding included: mothers' lack of knowledge, cultural beliefs, habits on IYCF, mothers' workload, poor access to quality IYCF counseling, lack of financial means to provide appropriate and sufficient food for complementary feeding, and having a one-way conversation with caregivers during counseling.

SUB-QUESTION 2.5: FROM THE CAREGIVERS' PERSPECTIVE, WHAT ARE THE ENABLERS FOR INCREASING FLUID INTAKE AND BARRIERS FOR NOT PROVIDING MORE FLUIDS DURING AND AFTER ILLNESS?

From the caregivers' perspective, the enablers for increasing fluid intake during and after illness include when they are counseled by health workers on nutritional management of diarrhea, and increased household income. There were more barriers than enablers identified for increasing fluid intake during and after illness. Misconceptions contributed to the lack of uptake, including the belief that withholding food during childhood diarrhea will decrease the frequency of watery and loose stools, and that fluid intake will impact a child's diarrhea episode leading to the restriction of fluids. Additional barriers included poor information and misbeliefs from family members, particularly elderly relatives and conflicting advice from grandmothers and health care providers advising caregivers to restrict feeding during illness. Furthermore, mothers often feed children less during illness because children/infants refuse to eat, are crying, or have decreased thirst and it is difficult to force a sick child to increase fluids during this time. Caregivers often preferred alternative

treatment to oral rehydration therapy (ORT), such as antibiotics, anti-diarrheal treatments and water or soft drinks; incorrectly used ORT; or ORT was not available. Mothers' perceptions of feeding practices and in-home management of childhood diarrhea were influenced by culture, religion, and socio-demographic factors. Finally, income was a huge barrier to seeking and accessing timely care.

SUB-QUESTION 2.6: WHO ARE COMMUNITY INFLUENCERS OF IYCF PRACTICES FOR SICK CHILDREN? HOW DO THEY INFLUENCE POSITIVELY OR NEGATIVELY OPTIMAL FEEDING PRACTICES?

There are multiple community influencers of IYCF practices for sick children including CHWs, husbands, grandmothers, mother-in-law, community leaders, and women leaders. Grandmothers play a key role in influencing IYCF practices since they tend to provide advice on caring for and feeding the sick child. They strongly influence what is cooked—including recipes used—and fed to young children. They also advise mothers on breastfeeding and sometimes help to finance the care of sick children in health facilities and overall. Their provision of social support to mothers improved some targeted infant feeding practices, such as feeding the infant the minimum number of meals, and dietary diversity. Grandmothers could have a negative influence on feeding practices by reinforcing traditional norms and cultural beliefs, such as restricting foods during diarrhea and encouraging mixed feeding for young infants. Additionally, mothers-in-law often opposed mothers in continuing to breastfeed their baby when it is sick.

Generally, there was limited evidence and findings on the influence of husbands and fathers on sick feeding practices, although there is evidence on their influence on IYCF practices more broadly. For example, studies in Kenya and Mozambique showed fathers' social and financial support improved targeted infant feeding practices, such as feeding the infant the minimum number of meals and improving dietary diversity. Husbands were reported to be the primary source of support for exclusive breastfeeding during pregnancy and after childbirth. Fathers often provided social support to mothers with some targeting deeply held beliefs. Traditional views held by husbands negatively affected practices and influenced: the types of foods/preparation methods that are "healthy" or "unhealthy" for sick children, when and what types of complementary foods are given to children, and how to feed children who are sick and/or do not want to eat.

CHWs positively influence mothers with nutrition education to improve caregiver feeding practices, children's dietary diversity and the frequency at which they are fed. Both the *Lancet Series on Maternal and Child Nutrition* 2008 and 2013 recommend community-based platforms for nutrition education and promotion that includes community workers' development of skills in behavior change communication and community mobilization strategies to promote optimal feeding practices. Furthermore, the introduction of the iCCM program from CHWs led to a significant decline in care sought from private providers, signifying the success of this platform.

Recommendations to better reach community influencers for sick children include developing a comprehensive communication strategy aimed at health care providers and CHWs, as well as tailored messages for mothers, grandmothers, fathers, and other caregivers, to strengthen and reinforce optimal breastfeeding and complementary feeding practices. It is also important to carefully design and implement behavior change strategies, based on understanding barriers using community-based platforms (including mother support groups) that work with CHWs. Exclusive breastfeeding counseling among mothers at the community level should involve important key players such as community leaders, husbands, and mothers-in-law.

SUB-QUESTION 2.7A: DO HEALTH PROVIDERS/WORKERS AND COMMUNITY WORKERS PROVIDE QUALITY COUNSELING AND SUPPORT ON FEEDING OF SICK CHILDREN?

Evidence demonstrates that using community-level nutritional counseling can greatly improve nutritional status and feeding practices of children under five years of age. However, in general, there was limited evidence or documentation about health providers and CHWs providing counseling and support for the feeding of sick children. A systematic review on IMCI training skills and other studies indicate that IMCI-trained workers were more likely to provide quality services by correctly classifying illnesses and showing greater improvements counseling families on adequate nutrition. In a study looking at the quality of sick child care delivered by CHWs in Tanzania, 69% of community workers counseled caregivers to give extra fluids and continue feeding their sick child for children with uncomplicated diarrhea. This review also found that health promotion activities, such as counseling on feeding practices, were consistently ignored by health providers during sick child visits—with fewer than half of evidence-based actions completed by health workers on average. Inadequate quality of primary care services such as ANC and sick child care included poor counseling due to low adherence to national health care guidelines and improper choice of treatment during care.

SUB-QUESTION 2.7B: IF NOT, WHAT ARE THE REASONS FROM PROVIDERS' PERSPECTIVE FOR NOT PROVIDING QUALITY IYCF COUNSELING DURING AND AFTER ILLNESSES?

Health care providers' reasons for not providing quality IYCF counseling during and after illnesses included inadequate supervision and infrequent visits by supervisors that was constrained by heavy workloads and limited transport. Supervision is associated with quality of sick child care only when provided jointly with ANC. Furthermore, there was a lack of understanding of the complex set of behaviors for complementary feeding by frontline health workers, including timing of introduction of complementary food, dietary diversity, feeding frequency, responsiveness to child cues, and safe preparation/storage of foods. Another noted barrier was a lack of counseling training in pre-service training because health workers are also better in advising caregivers on how to handle a sick child at home. Recommendations to improve include: investments to adequately train and equip health facility personnel and CHWs with the required skills and supportive job aids to support and guide caregivers on responsive feeding and problem solving; and scaling up trained CHWs to implement iCCM, which had substantial results on counseling caregivers with sick children.

SUB-QUESTION 2.7C: WHAT ARE THE BARRIERS AND ENABLERS OF PROVIDER COUNSELING AND FEEDING DURING AND AFTER ILLNESS?

One barrier health care providers face in providing counseling on feeding during and after illness is a lack of space and private rooms for individual counseling. Additionally, it has been identified that the longer duration of counseling is a challenge as health workers have a time pressure that could limit counseling messages to those that are most essential. A review of experiences and evidence on linkages between iCCM and nutrition revealed that iCCM's nutrition components need to be strengthened to improve the coverage and quality of services for sick children and optimize the preventive aspects of iCCM. There was a lack of training in counseling for CHWs in malnutrition and IYCF. Another contributing factor to the low training coverage of IMCI-trained health workers is inadequate pre-service training and the absence of a counseling component. It is suggested that lower-level cadres, such as health care assistants, should be trained in IMCI as a form of task shifting to boost the number of health workers capacitated to deliver IMCI and counseling. It is also recommended to scale up community-based monitoring and evaluation tools for the sick child since this will assist with supervision.

STRENGTHS AND LIMITATIONS OF THE LITERATURE REVIEW

A strength of the review was the ability to examine a number of quantitative indicators from population-based surveys (i.e., DHS) to ascertain trends. From small-scale studies and program documentation in Africa, the review has also identified current feeding practices and enablers, barriers, and challenges to optimal feed children during illness. Finally, there was very little or no prior research on looking at IYCF practices including counseling of a sick child during or after illness. The review identified new gaps in the prior literature and a need for further development in this area of study.

Limitations of the literature review include:

- There is limited quantitative, population-based data for trend analysis across countries for nutrition counseling and feeding of the sick child other than diarrhea. Currently, there are limited indicators tracked across countries on IYCF counseling, which is limited to antenatal and postnatal counseling and feeding practices during diarrhea. There is no data on feeding practices for other common childhood illnesses and it is nonexistent on feeding practices after illness. There is currently a global movement by United Nations Children's Fund (UNICEF) and the World Health Organization (WHO) to add nutrition counseling indicators as standardized indicators as part of routine health management information systems.
- Evidence on feeding practices during childhood illnesses other than diarrhea—for example, malaria, ARIs, and other fever—were not available. In addition, there is limited formative or observational research from Africa that looked at barriers and enablers of feeding and counseling during and after childhood illness. The limited information came from limited program experiences or documentation.
- There was limited research on influencers such as fathers, husbands, grandmothers, in-laws, and neighbors on children's feeding during sickness. Most of the research mainly looked at influencers of IYCF practices in general rather than on feeding of sick children during and after illnesses.
- While we were able to find some evidence of feeding practices during childhood illness, there was a lack of systematic reviews and cross-country formative research.

RECOMMENDATIONS

Based on the review findings, we propose the following recommendations to improve caregivers' practices, strengthen the quality of feeding counseling during illness, and address evidence gaps related to feeding care during illness as well as enablers and barriers to caregivers and health providers providing optimal feeding counseling and support after illness or during recovery.

Strengthen skills and workload of health providers: Health providers need more than training on IMCI/iCCM to provide quality feeding counseling. Training should be complemented with supportive supervision on feeding counseling and support, incorporating feeding counseling in IMCI/iCCM supervision checklist and availing appropriate IYCF counseling materials and tools. Facilities and district managers need to manage the workload for health providers so that they have enough time to understand specific needs of caregivers and provide quality counseling on feeding.

Caregivers need individualized counseling and support: The review showed caregivers improved feeding practice of sick child during illness when they receive individualized and quality feeding counseling and support that considers their misconception and cultural beliefs and perceptions of family/community influences to feeding sick children. In addition to telling caregivers the optimal feeding messages, facility

group educations and iCCM/IMCI assessing and treating feeding problems tools and counseling materials should also consider these factors and explain reasons behind employing feeding practices during illnesses. CHWs need to counsel or educate community influencers during household and follow-up visits and through community-based platforms such as mother support groups, growth monitoring, and promotion platforms.

Community IYCF SBC strategies and materials address community, family, and social barriers to feeding of sick child: Currently, community IYCF strategies, promotions, and messages focus on general IYCF behaviors and their determinants. It is important to implement a community IYCF SBC strategy, tools, and materials that address community influencers and family barriers to feeding of sick children, and promote feeding of sick children messages to caregivers before they become sick.

Support countries to adapt the global behavioral profile for feeding of sick children: USAID supported development of the global behavioral profile for feeding during illness, which can be adapted by countries using local information. The analysis will help them to: identify the structural and societal factors and caregivers' knowledge, skills, beliefs, and attitudes to feeding during and after illness; identify institutional, community, and household supporting actors and actions; and design strategies to improve feeding practices during sick child visits and community contacts.

Advocate for better source of data to track feeding of sick child: There is a need for population-based data to track trends in optimal IYCF practices, especially breastfeeding and complementary feeding practices for all common childhood illness including after illness. There are current initiatives by DHS (DHS-8 and DHS-SPA) to introduce nutrition counseling and coverage indicators for infants and sick children and by WHO and UNICEF to modify the core set of IYCF counseling indicators to measure counseling at health facility and community levels during ANC, postnatal care, and child health services. There is a need to advocate to DHS countries and development partners to include indicators that will help countries to assess quality of counseling and track progress of feeding care of sick children both during and after illness.

Need for additional research: The review found few enablers and barriers to sub-optimal feeding for children with diarrhea. It is nonexistent for feeding after illness or during recovery. More multi-country systematic assessments are needed to deep dive on barriers and enablers of feeding during and after common childhood illnesses. We recommend a demonstration project in two to three countries as part of IMCI to shade light on challenges to feeding counseling, and to implement comprehensive interventions recommended from this review to strengthen feeding counseling during and after illness.

1. BACKGROUND, RESEARCH OBJECTIVES, AND METHODOLOGICAL APPROACH

1.1 BACKGROUND

Infant and young child feeding (IYCF) is key for child survival, growth, and development. There is global guidance on IYCF including the World Health Organization's (WHO's) *Global Strategy for Infant and Young Child*[3] and the Guiding Principles for Complementary Feeding (WHO/UNICEF 2003). The current recommended IYCF practices included in the WHO Global Strategy include: early initiation of breastfeeding within one hour of birth, exclusive breastfeeding (EBF) for the first six months of life, complementary feeding, and introduction of nutritionally adequate and safe complementary (solid) foods at six months together with continued breastfeeding up to two years of age or beyond. In addition, IYCF is integrated in child survival policies, strategies, and programs such as Integrated Management of Childhood Illnesses (IMCI) and Integrated Community Case Management (iCCM).

In 1997, WHO and the United Nations Children's Fund (UNICEF) developed the IMCI strategy, which focuses on the right to health and the wellbeing of the whole child. IMCI aims to reduce death, illness, and disability, and to promote improved growth and development among children under five years of age. The strategy includes three main components: improving case management skills of health care staff, improving overall health systems, and improving family and community health practices.[4] IMCI includes nutrition screening and counseling as a key component as well as: assessment of the nutritional status of sick children; identification, referral, and treatment of severe acute malnutrition (SAM); and counseling mothers on increased breastfeeding and fluid intake and continued feeding of sick children. There are a number of WHO materials that support the global guidelines for caring for the sick child in the community, including a participant manual,[5] facilitator guide,[6] facilitator notes,[7] planning handbook,[8] chart booklet,[9] and a photo book.[10] In 2017, updated IMCI guidance was issued from WHO that included a flow chart on anthropometric assessment and classification of nutritional status (Figure 1).[11]

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[3] World Health Organization. *Global Strategy for Infant and Young Child Feeding*. 2003. https://www.who.int/publications/i/item/9241562218

[4] World Health Organization. *Integrated Management of Childhood Illness*. Accessed December 13, 2020. https://www.who.int/teams/maternal-newborn-child-adolescent-health-and-ageing/maternal-health/about/child-health-and-development.

[5] World Health Organization and United Nations Children's Fund. *Caring for Newborns and Children in the Community: Caring for the Sick Child in the Community: A Training Course for Community Health Workers: Participant's Manual*. 2011. https://apps.who.int/iris/bitstream/handle/10665/44398/9789241548045_Manual_eng.pdf?sequence=1&isAllowed=y&ua=1.

[6] World Health Organization. *Caring for Newborns and Children in the Community: Facilitator Guidelines for Conducting a Planning Workshop*. 2015. https://apps.who.int/iris/bitstream/handle/10665/204456/9789241508582_eng.pdf?sequence=1.

[7] World Health Organization and United Nations Children's Fund. *Caring for Newborns and Children in the Community: A Training Course for Community Health Workers: Caring for the Sick Child in the Community: Facilitator Notes*. 2011. https://apps.who.int/iris/bitstream/handle/10665/44398/9789241548045_Facilitator_Notes_eng.pdf?sequence=2&isAllowed=y&ua=1.

[8] World Health Organization. *Caring for Newborns and Children in the Community: Planning Handbook for Programme Managers and Planners: Planning Handbook*. 2015. https://apps.who.int/iris/bitstream/handle/10665/204457/9789241508599_eng.pdf?sequence=1.

[9] World Health Organization and United Nations Children's Fund. *Caring for Newborns and Children in the Community: A Training Course for Community Health Workers: Caring for the Sick Child in the Community: Chart Booklet*. 2011. https://apps.who.int/iris/bitstream/handle/10665/44398/9789241548045_Chart_Booklet_eng.pdf?sequence=4&isAllowed=y&ua=1.

[10] World Health Organization and United Nations Children's Fund. *Caring for Newborns and Children in the Community: A Training Course for Community Health Workers: Caring for the Sick Child in the Community: Photo Book*. 2011. https://apps.who.int/iris/bitstream/handle/10665/44398/9789241548045_Photo_Book_eng.pdf?sequence=3&isAllowed=y&ua=1.

[11] World Health Organization. "IMCI Flow Chart on Anthropometric Assessment and Classification of Nutritional Status." From *Guideline: Assessing and Managing Children at Primary Health-Care Facilities to Prevent Overweight and Obesity in the Context of the Double Burden of Malnutrition. Updates for the Integrated Management of Childhood Illness (IMCI).* 2017. https://www.ncbi.nlm.nih.gov/books/NBK487907/figure/theintegrated.f1/.

ICCM is a strategy to identify and treat the major diseases affecting mortality in children under five years of age at the community level by community health workers (CHWs). It is based on an interaction during a sick child encounter at the community level and works in parallel with the approach of IMCI at the health facility level. UNICEF/WHO released a training package on caring for the sick child in the community for iCCM.[12] [13] ICCM takes a holistic approach in reviewing all danger signs and providing needed treatment, prevention, and follow-up for the child's condition(s). In most countries, the iCCM protocol includes the identification of acute malnutrition and immediate referral of children with SAM. It also includes strengthening IYCF practices on continuing breastfeeding and complementary feeding and increasing frequency of feeding and fluid intake during and after illness.

Most African countries have adapted IMCI and iCCM training curricula and materials to their context and integrated IYCF into IMCI and iCCM. Countries have been implementing IYCF through IMCI over the last two decades and iCCM over the last decade. Despite IMCI and iCCM guidelines—including an assessment of nutritional status of sick children and counseling caregivers on how to feed their children during and after illnesses—counseling skills of health providers at the community and facility levels on IYCF are weak.

The USAID-funded Maternal and Child Survival Program (MCSP) conducted a review in 2019 on "Linking Nutrition & (Integrated) Community Case Management: A Review of Operational Experiences."[14] This review included a literature review and key informant interviews to identify key barriers and opportunities for strengthening nutrition services delivered to children during sick child visits. The review gathered evidence on best practices to improve nutritional care of sick and vulnerable newborns and children in Africa. It also identified gaps in assessing and treating feeding problems in IMCI and iCCM. This review found that while every CHW implementing iCCM is supposed to advise the sick child's caregiver to continue feeding during illness, data demonstrated this is limited and does not show the quality or quantity of feeding-related counseling.

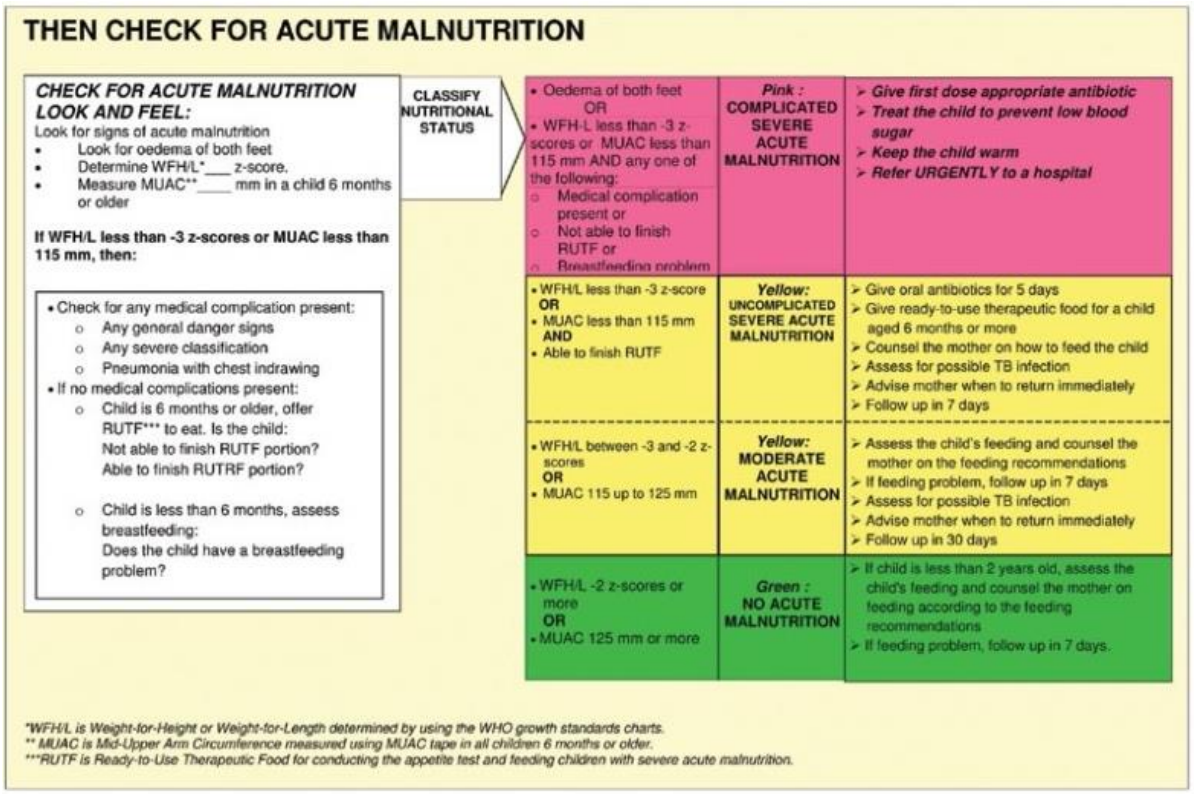
Despite these efforts and limited country reviews, there is a shortage of information on nutrition care/services and practices during and after common childhood illness, particularly fever, diarrhea, and acute respiratory infections (ARIs)/pneumonia over the last decades in Africa. Limited information exists on what can improve approaches and how to build health providers, communities', and caregivers' capacity to provide quality nutrition counseling, care, and support during and after illness. This literature review aims to build upon the existing information base by reviewing existing literature available to identify additional evidence and remaining gaps.

[12] World Health Organization. *Integrated Management of Childhood Illness: Caring for Newborns and Children in the Community*. 2011. https://apps.who.int/iris/handle/10665/44398

[13] Pelletier, D.L., E. A. Frongilo Jr., and J. P. Habicht. 1993. "Epidemiologic evidence for a potentiating effect of malnutrition on child mortality." *American Journal of Public Health* 83(8):1130-3.

[14] Wolfheim, Lynette and Cathy Friedman. *Linking Nutrition & (integrated) Community Case Management: A review of operational experiences*. London: Emergency Nutrition Network. 2014. www.ennonline.net/linkingnutritionintegratedcommunitycasemanagementareviewofoperationalexperiences.

FIGURE 1: IMCI FLOW CHART ON ANTHROPOMETRIC ASSESSMENT AND CLASSIFICATION OF NUTRITIONAL STATUS



Source: National Center for Biotechnology, U. S. National Library of Medicine. "Fig. 1, IMCI Flow Chart on Anthropometric Assessment and Classification of Nutritional Status." https://www.ncbi.nlm.nih.gov/books/NBK487907/figure/theintegrated.f1/. (From: World Health Organization. Guideline: Assessing and Managing Children at Primary Health-Care Facilities to Prevent Overweight and Obesity in the Context of the Double Burden of Malnutrition: Updates for the Integrated Management of Childhood Illness [IMCI]. 2017.)

1.2 RESEARCH OBJECTIVES AND QUESTIONS

The primary objective of this review is to provide a synthesis of information on *nutrition counseling and care during and after childhood illness* in support of national nutrition plans and advocating for the integration of nutrition counseling into national health systems, especially through IMCI and iCCM. This review outlines the common trends in child feeding and care practices during and after childhood illness over the last 15 years in Africa. It also examines common caregivers' practices and health care providers' support in regard to nutrition counseling during and after childhood illness. This review and analysis also intends to inform USAID's technical guidance on improving quality of nutrition counseling and services [15] in IMCI/iCCM as well as to help countries improve integration and quality of nutrition counseling for sick children in IMCI/iCCM or child care services. The results of this review will contribute to broader efforts to document the evidence base for *nutrition counseling and care during and after childhood illness* that can be used to inform program design and policy.

[15] For this review, nutrition counseling refers to IYCF (breastfeeding and combined feeding, continued and increased feeding, and fluid intake during and after illnesses). Nutrition care or services refer to weight monitoring, screening and treatment of malnutrition, vitamin A supplementation, and follow-up home care.

1.3 METHODOLOGICAL APPROACH

A combination of quantitative and qualitative data collection and analysis of existing data sources were used to answer the targeted research objectives and questions presented in Table 2. The objectives of this review focus on two key topics: 1) trends in feeding and caring practices during and after childhood illness; and 2) caregivers' practices and health providers' support for nutrition counseling and care during and after childhood illness. Each topic has multiple sub-questions that were explored. Existing data sources that were examined include Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), as well as qualitative literature review and trend analysis of key documents (studies, systematic reviews, formative research, and national strategies, policies, and plans).

TABLE 2: RESEARCH QUESTION TOPICS FOR NUTRITION COUNSELING AND CARE DURING AND AFTER CHILDHOOD ILLNESS

1. Trends in Feeding and Care Practices During and after Childhood Illness, over the last 15 years in Africa	
1.1	What are the changes in proportion of children who received treatment or counseling services?
1.2	What are the changes in breastfeeding and complementary feeding practices including during and after common childhood illness?
1.3	What are the changes on the impacts of health providers provision of IYCF counseling and support on the change in practicing feeding during and after illness?

2. Caregivers' Practices and Health Care Providers' Support	
2.1	What are the proportion of caregivers counseled on how to **feed during and after illness**?
2.2	What are the caregivers' uptake of recommended IYCF practices/behaviors, especially feeding and increased fluid intake?
2.3	From the caregivers' perspective, what are the enablers for practicing and barriers for not practicing optimal breastfeeding **during and after illness**?
2.4	From the caregivers' perspective, what are the enablers for practicing and barriers for not practicing optimal complementary feeding **during and after illness**?
2.5	From the caregivers' perspective, what are the enablers for increasing fluid intake and barriers for not providing more fluids during and after illness?
2.6	Who are community influencers of IYCF practices for sick children? How do they influence positively or negatively optimal feeding practices?
2.7	2.7. a. Do health providers and community workers provide quality counseling and support on feeding of sick children? 2.7. b. If not, what are the reasons from providers' perspective for not providing quality IYCF counseling during and after illnesses? 2.7. c. What are the barriers and enablers of provider counseling and feeding during and after illness?

The following inclusion criteria were used to identify studies and data:[16]

- ***Period:*** published within the last 15 years, i.e., 2005 to 2020 (with emphasis on 2015 and later). However, a few older studies were included if they were relevant.

- ***Geographic focus***:

  1. Trend analysis or research question 1:

     - **East Africa:** Ethiopia, Kenya, Tanzania, and Uganda
     - **West Africa:** Burkina Faso, Ghana, Mali, Niger, Nigeria, Sierra Leone, and Senegal
     - **Central Africa:** Democratic Republic of Congo (DRC) and Rwanda
     - **Southern Africa:** Malawi, Mozambique, and Zambia

  2. For research question 2:
     - All sub-Saharan African countries

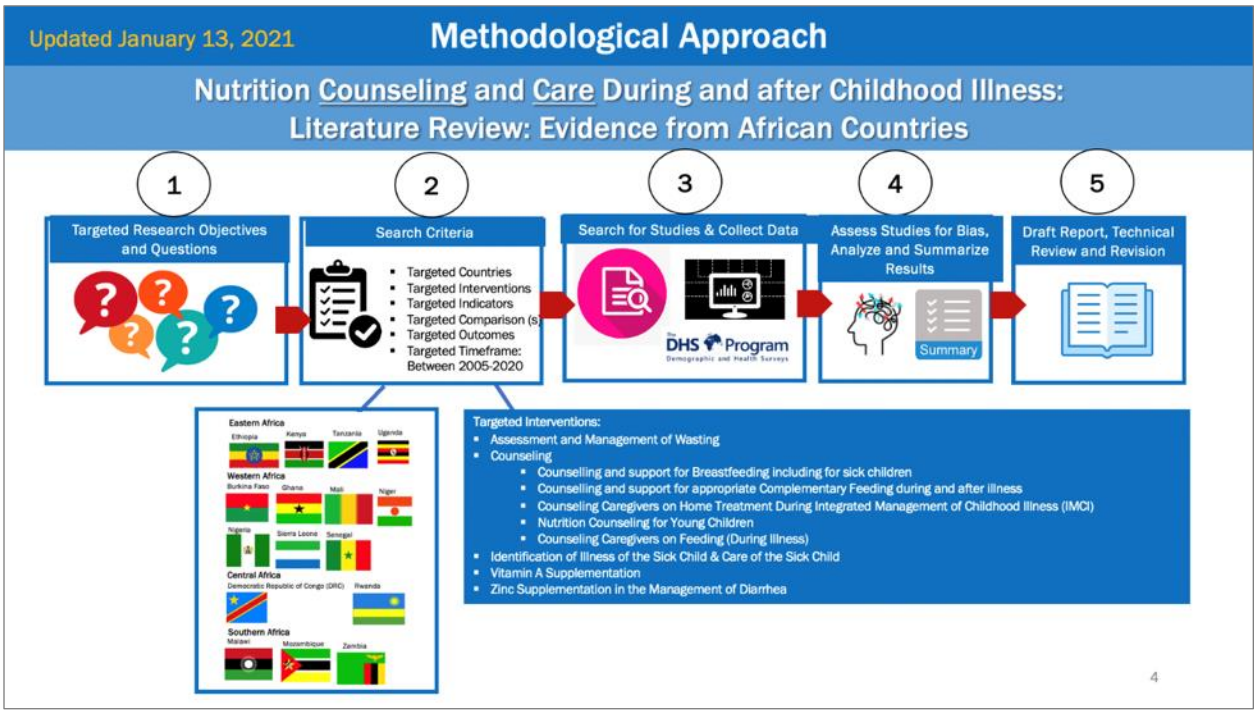
- ***Type of entry point for caregivers' practices and health care providers' support:***

     - Health facility (outpatient and inpatient)
     - Community level

The literature review examined a number of quantitative research studies including peer-reviewed journal articles, systematic reviews and meta-analysis, cross-sectional studies, case studies, evaluations, and grey literature (study protocols for uncompleted studies). A total of 47 studies fulfilled our criteria and were included in this literature review. In addition, data was collected from 16 targeted countries from population-based surveys (DHS and MICS). More information about the data search sources can be found in Annex 2: Data Sources used for the Data Searches for the Literature Review. After the studies were collected and catalogued, all information was assessed for risk of bias and analyzed and assessed for results. These results are summarized and presented in Table 8: Summary of the Literature Review Key Findings.

[16] Inclusion and exclusion criteria define who can be included or excluded from the study sample. The inclusion criteria identify the study population in a consistent, reliable, uniform, and objective manner. The exclusion criteria include factors or characteristics that make the recruited population ineligible for the study. These factors may be confounders for the outcome parameter.

FIGURE 2: PROPOSED METHODOLOGICAL APPROACH FOR LITERATURE REVIEW



Source: Noreen Mucha (author) 2020.

1.3.1 TARGETED GEOGRAPHIC FOCUS, POPULATIONS, INTERVENTIONS, COMPARISONS, AND OUTCOMES

To clearly define inclusion and help define the key variables for the literature review searches, Table 3 provides a clear description of the targeted **P**opulations, **I**nterventions, anticipated **C**omparison groups, and **O**utcomes of interest (PICO) that were relevant to this review.

TABLE 3: POPULATION, INTERVENTION, COMPARISONS, AND OUTCOMES (PICO) TABLE

P	Targeted **Populations**	*What are the characteristics of the targeted populations?*
		Infants and children under 5[17]
		• Infants and children under 5 years of age (2–59 months of age)
		• Disaggregated by:
		  • Infants 2–5 months of age
		  • Children 6–11 months of age
		  • Children 12–3 months of age
		  • Children 24–59 months of age
		Caregivers:
		Pregnant women
		  • Adolescent pregnant women (15–19 years of age)
		  • Pregnant women (all pregnant women)
		Parents
		  • Mothers
		  • Fathers
		Other child caregivers
		  • Grandparents
		  • Siblings
		  • Other child caregivers[18]
		Health care providers:[19]
		• Medical doctors
		• Nursing and midwifery professionals
		• Nursing professionals
		• Midwifery professionals
		• Traditional and complementary medicine professionals, dieticians, and nutritionists
		• Community health workers

I	Targeted **Intervention(s)**	*How do you wish to Intervene? What do you want to do with the targeted populations—treat, diagnose, observe, etc.?* • Assessment and management of wasting and growth monitoring and assessment • Counseling and support on breastfeeding including for sick children • **Main target: Counseling and support on appropriate complementary feeding during and after illness • Care of the sick child • Identification of illness of the sick child • Vitamin A supplementation • Zinc supplementation in the management of diarrhea
C	Targeted **Comparison(s)**	*What is the comparison or alternative to the intervention—placebo, different drug or therapy, surgery, etc.?* These will be determined as the literature review is conducted; however, few comparison studies are expected.
O	Targeted **Outcomes**	**Trends in feeding and care practices during and after childhood illness, over the last 15 years in Africa** • Changes in the proportion of children who received treatment or counseling services • Changes in breastfeeding and complementary feeding practices including during and after common childhood illness • Impacts of health providers IYCF counseling and support on practicing feeding during and after illness, disease recovery, and weight gain • Proportion of caregivers counseled on how to feed during and after illness • Caregivers' uptake of recommended IYCF practices/behaviors, especially feeding and increased fluid intake

[17] Given that iCCM and IMCI algorithms classify young infants (1 week–2 months) and children (2–59 months), it is better to limit the review to 1 week to 59 months.

[18] Caregivers can also include: child care workers, teachers' aides, and home-based personal care workers

[19] International Labor Office. *International Standard Classification of Occupations (ISCO - 08): Structure, group definitions and correspondence tables*. 2012. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_172572.pdf.

1.3.2 TARGETED GEOGRAPHIC FOCUS

This review prioritized the following USAID-selected geographic focus countries in Africa for the quantitative trend analysis:

- East Africa: Ethiopia, Kenya, Tanzania, and Uganda
- West Africa: Burkina Faso, Ghana, Mali, Niger, Nigeria, Sierra Leone, and Senegal
- Central Africa: DRC and Rwanda
- Southern Africa: Malawi, Mozambique, and Zambia

In addition, the qualitative review on caregivers' practices and health provider's support included additional sub-Saharan countries beyond the list above if relevant studies were found that involved other countries.

1.3.3 TARGETED POPULATIONS & TARGETED INTERVENTIONS

Two populations were the focus of this literature review: sick children under five years of age (2–59 months of age)[20] who were identified as ill and cared for, as well as their caregivers including parents (mothers and fathers) and other child caregivers (grandparents, siblings, and if possible, child care workers). For this review, we looked at the following interventions that directly relate to nutrition counseling and care during and after childhood illness, mainly focusing on feeding/caring practices and counseling and support (described in more detail in Table 4).

- Identification of illness of the sick child and care of the sick child including nutrition care, counseling support, and caring/feeding practices from the caregivers of children who are sick
- Assessment and management of wasting
- Counseling by health care providers (facility-based and CHWs/volunteers), including:
    - Counseling and support for breastfeeding including for sick children
    - Counseling and support for appropriate complementary feeding during and after illness
    - Counseling caregivers on home treatment during IMCI
    - Nutrition counseling for young children
    - Counseling caregivers on feeding (during illness)
- Vitamin A supplementation
- Zinc supplementation in the management of diarrhea

In addition, this review looked at different comparisons of strategies and approaches for feeding and caring practices during child illness and counseling, including barriers and enablers of counseling within health facilities. Please see Annex 3 for more details on targeted interventions related to nutrition counseling and care during and after childhood illness.

[20] Disaggregated when possible by: newborns, children 0–5 months of age, children 6–11 months, children 12–23 months, and children 24–59 months.

1.3.4 KEY INDICATORS

TABLE 4: KEY INDICATORS TO ANALYZE FOR THE LITERATURE REVIEW

Indicator	Summary Description & Unit of Measurement
Childhood Illness and Treatment	
Acute Respiratory Infection*	
Prevalence and Treatment of Symptoms of ARI (DHS-7) ¤	Percentage of children under age 5 with symptoms of ARI, and among children under age 5 with symptoms of ARI, the percentage for whom advice or treatment was sought and for the same or next day.
*Prevalence and Treatment of Symptoms of ARI by Specific Source (DHS-7) ¤	Percentage of children under age 5 with symptoms of ARI for whom advice or treatment was sought from specific sources, and among those for whom advice or treatment was sought, percentage for whom advice or treatment was sought from specific source.
Prevalence and Treatment of ARI and Fever (DHS)	Percentage of children under 5 years who were ill with a cough accompanied with rapid breathing and the percentage who were ill with fever during the 2 weeks preceding the survey, and the percentage of ill children who were treated with specific remedies, by selected background characteristic.
Diarrhea*	
Prevalence and Treatment of Diarrhea (DHS-7)	Prevalence of diarrhea in children: percentage of children under age 5 with diarrhea, and percentage for whom advice or treatment was sought.[21]
Diarrhea Prevalence (DHS)	Percentage of children under age 5 who had diarrhea and diarrhea with blood in the 2 weeks preceding the survey, and percentage of children who had diarrhea in the preceding 24 hours, by selected background characteristics.
Knowledge of Oral Rehydration Solution (ORS) packets (DHS-7)	Percentage of mothers who know about ORS packets or ORS pre-packaged liquids.
Treatment of Diarrhea (DHS)	Percentage of children under age 5 with diarrhea in the 2 weeks preceding the survey who were taken for a treatment to a healthy facility or provider, percentage who received ORS, and percentage who did not receive any treatment.
Source of Advice or Treatment for Children with Diarrhea (DHS-7)	Percentage of children under age 5 with diarrhea for whom advice or treatment was sought from specific sources, among children with diarrhea for whom advice or treatment was sought, percentage sought from specific sources, and among children with diarrhea who received ORS, the percentage for whom advice or treatment was sought from specific sources.
Oral Rehydration Therapy (ORT), Zinc, and Other Treatments for Diarrhea (DHS-7)	Among children under age 5 who had diarrhea in the 2 weeks preceding the survey, percentage given fluid from an ORS packet or pre-packaged ORS fluid, recommended homemade fluids (RHF), ORS or RHF, zinc, ORS and zinc, ORS or increased fluids, ORT, continued feeding and ORT, and other treatments, and percentage given no treatment. • Proportion of children with diarrhea in last 2 weeks who were given ORS • Proportion of children with diarrhea in last 2 weeks who were given zinc • Proportion of children with diarrhea in last 2 weeks who were given RHF • Proportion of children with diarrhea in last 2 weeks who were given the same or more to drink • Proportion of children with diarrhea in last 2 weeks who were given the same or more to eat
Zinc Supplementation and ORT Treatment During Diarrhea (DHS-7[22])	Prevalence of zinc supplementation and ORT treatment during diarrhea: percentage of children under age 5 years of age who had diarrhea in the 2 weeks preceding the survey who received zinc supplementation and ORT during episodes of diarrhea.

[21] Croft, Trevor N. et al. *Guide to DHS Statistics DHS-7: The Demographic and Health Surveys Program*. Rockville, MD, USA: ICF. 2018. https://dhsprogram.com/pubs/pdf/DHSG1/Guide_to_DHS_Statistics_DHS-7.pdf.

[22] *Guide to DHS Statistics DHS-7.* Accessed March 3, 2021. https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Oral_Rehydration_Therapy_Zinc_and_Other_Treatments_for_Diarrhea.htm.

Fever, Prevalence, Diagnosis, and Prompt Treatment of Children with Fever*	
Prevalence and Treatment of Fever (DHS-7)[23]	Percentage of children under age 5 with a fever in the 2 weeks preceding the survey; and among children with a fever, percentage for whom advice or treatment was sought, percentage for whom advice or treatment was sought the same or next day following the onset of a fever, and percentage who had blood taken from a finger or heel for testing percentage with a fever for whom advice or treatment was sought, for whom advice or treatment was sought the same or next day, and who took antibiotic drugs.
Drugs Taken for Fever (DHS)	Percentage of children under 5 years who were ill with a fever during the 2 weeks preceding the survey, by type of antimalarial drug taken, according to residence.
Malaria	
Prevalence of Child Fever (DHS-7)	Percentage of children under age 5 with a fever in the 2 weeks preceding the survey; and among children with a fever, percentage for whom advice or treatment was sought, percentage for whom advice or treatment was sought the same or next day following the onset of a fever.
Prevalence of Child Fever and Treatment (DHS-7)	Percentage of children under age 5 with a fever in the 2 weeks preceding the survey for whom advice or treatment was sought from specific sources; and among children under age 5 with a fever in the 2 weeks preceding the survey for whom advice or treatment was sought, the percentage for whom advice or treatment was sought from specific sources.
Infant and Young Child Feeding and Caring Practices	
Breastfeeding	
Initial Breastfeeding (DHS-7)	Percentage of children ever breastfed, who started breastfeeding within 1 hour of birth, who started breastfeeding within 1 day of birth, and who received a pre-lacteal feed. This indicator is a measure of early initiation of breastfeeding after birth for the age group 0–23 months of age.
Exclusive Breastfeeding[24] (DHS-7)[25]	Prevalence of EBF of children under 6 months of age. Percent distribution of children exclusively breastfeeding, or breastfeeding and consuming plain water only, non-milk liquids, consuming other milk, and consuming complementary foods. *[EBF may include ORS, vitamins, minerals and/or medicines but no other food or liquid.]*
Continued Breastfeeding (DHS-7)	Percentage of children currently breastfeeding, continuing breastfeeding at 1 year and at 2 years.

[23] *Guide to DHS Statistics DHS-7.* Accessed March 3, 2021. https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Prevalence_Diagnosis_and_Prompt_Treatment_of_Children_with_Fever.htm%23Percentage_of_children17bc-1&rhtocid=_15_8_0.

[24] EBF is when an infant receives ONLY breast milk (including milk hand-expressed or from a wet nurse) and no other food or fluids in the previous 24 hours. The infant can still receive ORS, drops, and syrups (vitamins, minerals, and medicines); they cannot receive anything else. Feeding Breast Milk by Spoon, Cup or Bottle: When bottle-feeding is associated with unhygienic conditions and poor preparation of infant formula, it puts the infant at a great risk of illness, resulting in increased risk of mortality. Feeding an infant from a bottle with an artificial teat may also make it more difficult for the baby to learn to attach well at the breast and has been associated with earlier cessation of breastfeeding. If an infant cannot feed directly from the breast, then the safest alternative is to feed expressed breast milk from a cup.

[25] *Guide to DHS Statistics DHS-7.* Accessed March 3, 2021. https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Breastfeeding_and_Complementary_Feeding.htm%23Percent_distribution_of21bc-1&rhtocid=_14_1_0.

Complementary Feeding and Breastfeeding and Complementary Feeding	
Complementary Feeding (DHS-7[26])	Prevalence of complementary feeding: introduction of solid, semi-solid, or soft foods: Percentage of infants 6–8 months of age who receive solid, semi-solid, or soft foods. Percentage of children exclusively breastfed, predominantly breastfed, age-appropriately breastfed, given mixed breast and non-breast milk, and introduced to solid, semi-solid, or soft foods.
Breastfeeding and Complementary Feeding (DHS-7)	Percent distribution of children exclusively breastfeeding, or breastfeeding and consuming plain water only, non-milk liquids, consuming other milk, and consuming complementary foods.
Exclusive Breastfeeding & Complementary Feeding (DHS-7)	Percentage of children exclusively breastfed, predominantly breastfed, age-appropriately breastfed, and introduced to solid, semi-solid, or soft foods.
Feeding with a Bottle (DHS-7)	Percentage of children using a bottle with a nipple.
Foods and Liquids Consumed by Children (DHS-7)	Percentage of breastfeeding and non-breastfeeding children consuming specific foods.
Complementary Feeding and Dietary Diversity	
Minimum Dietary Diversity, Minimum Meal Frequency and Minimum Acceptable Diet (DHS-7)	Percentage of children fed the minimum dietary diversity, the minimum meal frequency, and the minimum acceptable diet.
Minimum Acceptable Diet (MAD) (DHS-7)	Percentage of children aged 6–23 months who consume an MAD. *[MAD measures both the minimum feeding frequency and minimum dietary diversity, as appropriate for various age groups.]*
Minimum Dietary Diversity (MDD) (DHS-7)	MDD for children under 2 years of age: percentage of children 6–23 months of age with MDD[27] (who receive foods from 5 or more food groups).
Minimum Meal Frequency (MMF) (DHS-7)	MMF for children under 2 years of age: percentage of children 6–23 months of age with MMF.
Feeding Practices During Illness	
Feeding Practices during Diarrhea (DHS-7)[28]	Prevalence of feeding practices during diarrhea: percent distribution of children under age 5 with diarrhea by amount of liquids given, and by amount of foods given.
Increased Fluid Intake (ORS or increased fluids for diarrhea) (DHS-7)[29]	IMCI provides specific guidance on home care, which should include more frequent, longer periods of breastfeeding and increased fluid intake. There is no DHS indicator available on increased fluid intake aside from for with diarrhea. Among children under age 5 who had diarrhea in the 2 weeks preceding the survey, percentage given fluid from an ORS packet or pre-packaged ORS fluid, RHF, ORS or RHF, zinc, ORS and zinc, ORS or **increased fluids**, ORT, continued feeding and ORT, and other treatments; and percentage given no treatment.
Counseling	
Infant and Young Child Feeding Counseling (New DHS-8) ***No data yet as its forthcoming***	IYCF counseling: among women age 15–49 whose youngest child 6–23 months is living with them, percentage received IYCF counseling in the last 6 months, according to background characteristic. **Background characteristics** • Counseled in last the 6 months about how or what to feed their child. • Number of women whose youngest child 6–23 months is living with them.

[26] *Guide to DHS Statistics DHS-7.* Accessed March 3, 2021. https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Breastfeeding_and_Complementary_Feeding.htm&rhsearch=complementary%20feeding&ux=search.

[27] The age range of 6–23 months includes both infants (less than 12 months) and young children. In the indicator definition, and in the remainder of this section, we refer to this age group, collectively, as "children."

[28] *Guide to DHS Statistics DHS-7.* https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Feeding_Practices_during_Diarrhea.htm%23Percent_distribution_of49bc-1&rhtocid=_13_4_0

[29] *Guide to DHS Statistics DHS-7.* https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Oral_Rehydration_Therapy_Zinc_and_Other_Treatments_for_Diarrhea.htm&rhsearch=ORS%20or%20increased%20fluids&rhhlterm=ORS%20or%20increased%20fluids&rhsyns=%20

Facility-Based Nutrition Readiness and Delivery of Maternal and Child Nutrition[30]	
Breastfeeding Counseling	Percentage of women receiving breastfeeding counseling during an ANC visit, by country.
Health Facilities that have Growth Monitoring Services	Percentage of facilities providing curative (treatment) care and growth monitoring services for children, by country.
Child Weight and Height During Sick Child Consultations	Percentage of children whose weight was measured and percent of children whose weight was plotted on a growth chart among children weighed during sick child consultations, by country.
Vitamin A During Sick Child Visits	Percentage of children who received vitamin A during sick child visits, by country.
Feeding or Breastfeeding Practices during Sick Child Visits	Percentage of caretakers who discussed feeding or breastfeeding practices during illness or wellness during sick child visits, by country.

Sick Child Definitions
Sick child: refers to an infant or young child who has one of the common childhood illnesses such as pneumonia, diarrhea, or fever and seeks treatment.
Sick child feeding practice: refers to routines of feeding a child at the time of illness and after illness to ensure recovery of weight gain and continued IYCF practices.

2. KEY FINDINGS BY RESEARCH QUESTION

2.1 TRENDS IN FEEDING AND CARE PRACTICES DURING AND AFTER CHILDHOOD ILLNESS, OVER THE LAST 15 YEARS IN AFRICA

1. Trends in Feeding and Care Practices During and after Childhood Illness, over the last 15 years in Africa	
1.1	What are the changes in proportion of children who received treatment or counseling services?
1.2	What are the changes in breastfeeding and complementary feeding practices including during and after common childhood illness?
1.3	What are the changes on the impacts of health providers' provision of IYCF counseling and support on the change in practicing feeding during and after illness?

[30] Mallick, Lindsay, Gedha Temsah, and Rukundo K. Benedict. *Facility-Based Nutrition Readiness and Delivery of Maternal and Child Nutrition Services Using Service Provision Assessment Surveys. DHS Comparative Reports 49*. Rockville, MD: ICF International. 2018. https://dhsprogram.com/pubs/pdf/CR49/CR49.pdf.

Trends in feeding and caring practices during and after childhood illness in Africa over the last 15 years or so were examined through quantitative indicator data from available population-based surveys including DHS, MICS, and Malaria Indicator Surveys (MIS).

This first quantitative part of the review was limited to the indicators available within these nationally representative population-based surveys. Unfortunately, population-based surveys such as DHS and MICS currently report only on feeding practices during diarrhea for both increased amount of fluids and increased amount of foods[31] [32] and do not report on feeding practices during other childhood illnesses such as fever, nor ARIs. They do not have specific data on nutrition counseling, although the DHS-8[33] is currently in the process of introducing nutrition counseling indicators.[34] These include: 1) postnatal breastfeeding counseling and observation; 2) coverage of breastfeeding counseling during postnatal care (PNC); and 3) coverage of nutrition counseling for infants. There was no data or study to answer the trend on the impacts of health provider's provision of IYCF counseling and support on the change in feeding practices during and after illness (research question 1.3).

2.1.1 SUB-QUESTION 1.1: WHAT ARE THE CHANGES IN PROPORTION OF CHILDREN WHO RECEIVED TREATMENT OR COUNSELING SERVICES?

To answer this question, we examined data on health-seeking patterns of caregivers for treatment of diarrhea at a health facility. We also analyzed data related to seeking treatment for children with diarrhea through ORT or increased fluids.

HEALTH-SEEKING CARE FOR DIARRHEA (MEASURED BY CHILDREN WITH SYMPTOMS OF DIARRHEA TAKEN TO HEALTH FACILITY)

Trends in percentages of children with symptoms of diarrhea taken to a health facility for treatment increased in a number of countries over the review period. The following countries showed increases in treatment of diarrhea at health facilities (DRC, Ethiopia, Ghana, Kenya, Mali, Niger, Nigeria, Senegal, Sierra Leone, Rwanda, and Zambia). For example, treatment increased from 23% (2006 DHS) to 49% (2018 DHS) in Mali, and from 33% (2005 DHS) to 46% (2018 DHS) in Senegal. Treatment of diarrhea decreased in four countries (Malawi, Mozambique, Tanzania, and Uganda). For instance, it decreased from 54% (2005 DHS) to 45% (2026 DHS) in Tanzania, and from 70% (2010 DHS) to 66% (2016 DHS) in Malawi.

[31] Measured by the percentage distribution of children under age 5 with diarrhea by amount of liquids given, and by amount of foods given.
[32] *Guide to DHS Statistics DHS-7*. Accessed February 7, 2021. https://dhsprogram.com/data/Guide-to-DHS-Statistics/Feeding_Practices_during_Diarrhea.htm.
[33] ICF. *DHS-8 Questionnaires: Revision Process and New Content*. 2019. https://www.dhsprogram.com/pubs/pdf/DHSM11/DHSM11.pdf.
[34] DHS data for counseling is limited to a woman's ANC and PNC visits, and this indicator is not collected in each country for every survey.

TREATMENT OF DIARRHEA: ORAL REHYDRATION THERAPY OR INCREASED FLUIDS

Trends in the proportion of caregivers who provided increased fluids including ORS for diarrhea treatment increased in nine countries (Ethiopia, Malawi, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Uganda, and Zambia) and decreased in six countries (DRC, Ghana, Kenya, Mali, Mozambique, and Tanzania). In Ethiopia, the proportion of caregivers who provided increased fluids or ORS increased from 33% (2007 DHS) to 46 % (2016 DHS); in Niger, it increased from 31% (2006 DHS) to 60% (2012 DHS). In DRC, the proportion of caregivers who provided increased fluids or ORS decreased from 62% (2007 DHS) to 57.5% in 2013–14 (DHS); in Ghana, it decreased from 67% (2008 DHS) to 62% (2014 DHS).

2.1.2 SUB-QUESTION 1.2: WHAT ARE THE CHANGES IN BREASTFEEDING AND COMPLEMENTARY FEEDING PRACTICES INCLUDING DURING AND AFTER COMMON CHILDHOOD ILLNESS?

WHO recommends using eight IYCF core indicators to assess feeding practice precisely and to compare within and across nations—early initiation of breastfeeding; EBF for six months; continued breastfeeding at age one; introduction of solid, semi-solid, or soft foods; minimum dietary diversity (MDD); minimum meal frequency (MMF); minimum acceptable diet (MAD); and consumption of iron-rich or iron-fortified food.[35] In this literature review, we took the WHO recommendations even further by looking at feeding practices during and after common childhood illness. However, the data available to do this is very limited. The data available from normative population-based surveys was limited to DHS and MICS data on IYCF practices. For sick child feeding, the DHS data is focused only on feeding practices during diarrhea, which is categorized as increased amount of fluids, increased amount of foods, a combination of offering increased fluids and food, or the combined practice (continued feeding and ORT and/or increased fluids). There is no other population-based comparative data available on child feeding practices during and after illness.

In addition, since there is no data at all on feeding practices after childhood illness, even for diarrhea; therefore, there is no way to ascertain trends or even somewhat of an evidence base on feeding after illness. A newly published systematic review (February 2021)[36] also confirmed that there is little data to directly inform the future feeding management of small and nutritionally at-risk infants under six months of age. Therefore, below we display country trends for selected breastfeeding and complementary feeding practices as well as feeding practices during diarrhea that were available from DHS.

WHO and UNICEF are also in the process of developing (in 2020–21) global guidance on recommendations for standardized and harmonized indicators, which includes indicators on nutrition counseling. These forthcoming indicators are a modified core set of indicators for IYCF counseling and a new optional indicator to measure alignment with WHO guidance on minimum recommended number of counseling contacts for countries with longitudinal individual tracking. This includes a core set of three indicators measuring counseling at health facility and community levels during antenatal care (ANC), PNC, and beyond (0–5 months of age), and for children 6–23 months of age.

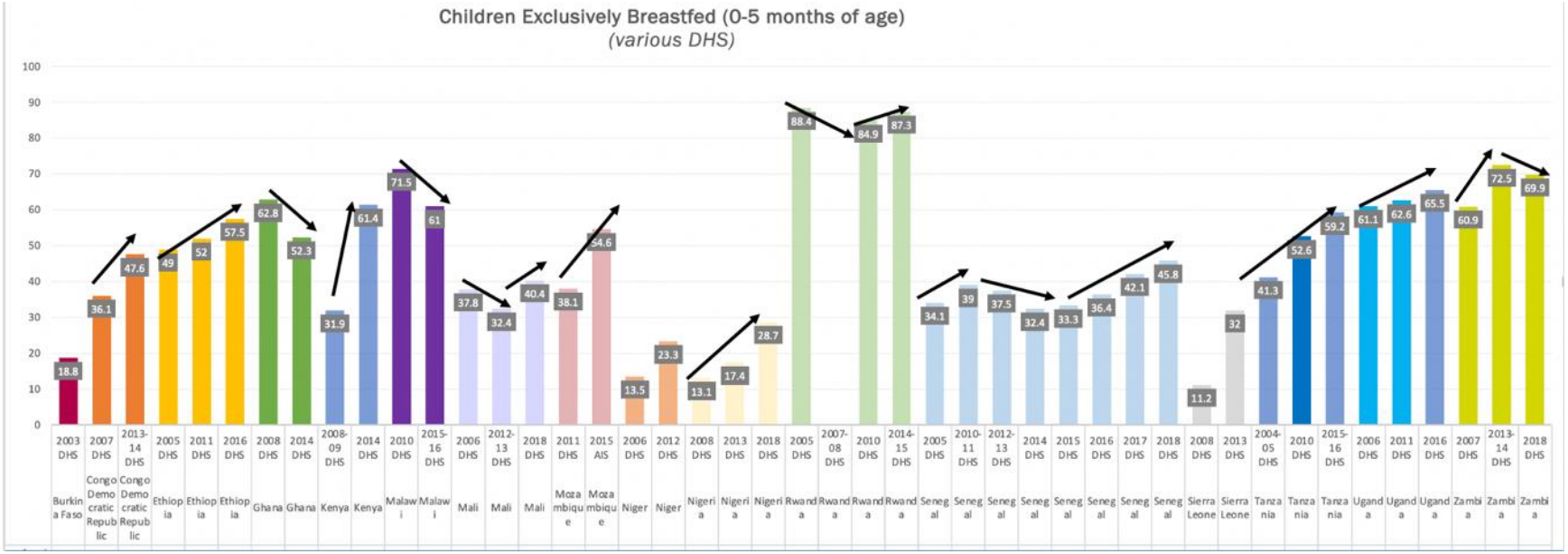
[35] UNICEF. *Infant and Young Child Feeding: Programming Guide.* 2011. https://www.ennonline.net/attachments/1470/unicef-iycf-programming-guide-may-26-2011.pdf

[36] Rana, Ritu et al. 2021. "Effectiveness of Breastfeeding Support Packages in Low- and Middle-Income Countries for Infants under Six Months: A Systematic Review." *Nutrients* 13 (2): 681. https://doi.org/10.3390/nu13020681.

CHILDREN EXCLUSIVELY BREASTFED (0–5 MONTHS OF AGE)

The proportion of children exclusively breastfed varied greatly among the countries (Figure 3). It increased consistently in nine countries: DRC, Ethiopia, Kenya, Mozambique, Nigeria, Senegal, Niger, Senegal, and Tanzania. For instance, DRC increased the EBF rate from 36.1% to 47.6%, Kenya increased it from 31.9% to 61.4%, and Senegal steadily increased it throughout the years from 34.1% to 45.8%. The EBF rate decreased in Malawi and Ghana. It was difficult to decide the trend for Zambia, Mali, and Rwanda because they had no consistent pattern for at least two surveys. Burkina Faso had only a year's data.

FIGURE 3: CHILDREN EXCLUSIVELY BREASTFED (0–5 MONTHS OF AGE) IN FOCUS COUNTRIES—AVAILABLE DATA (2005–PRESENT)



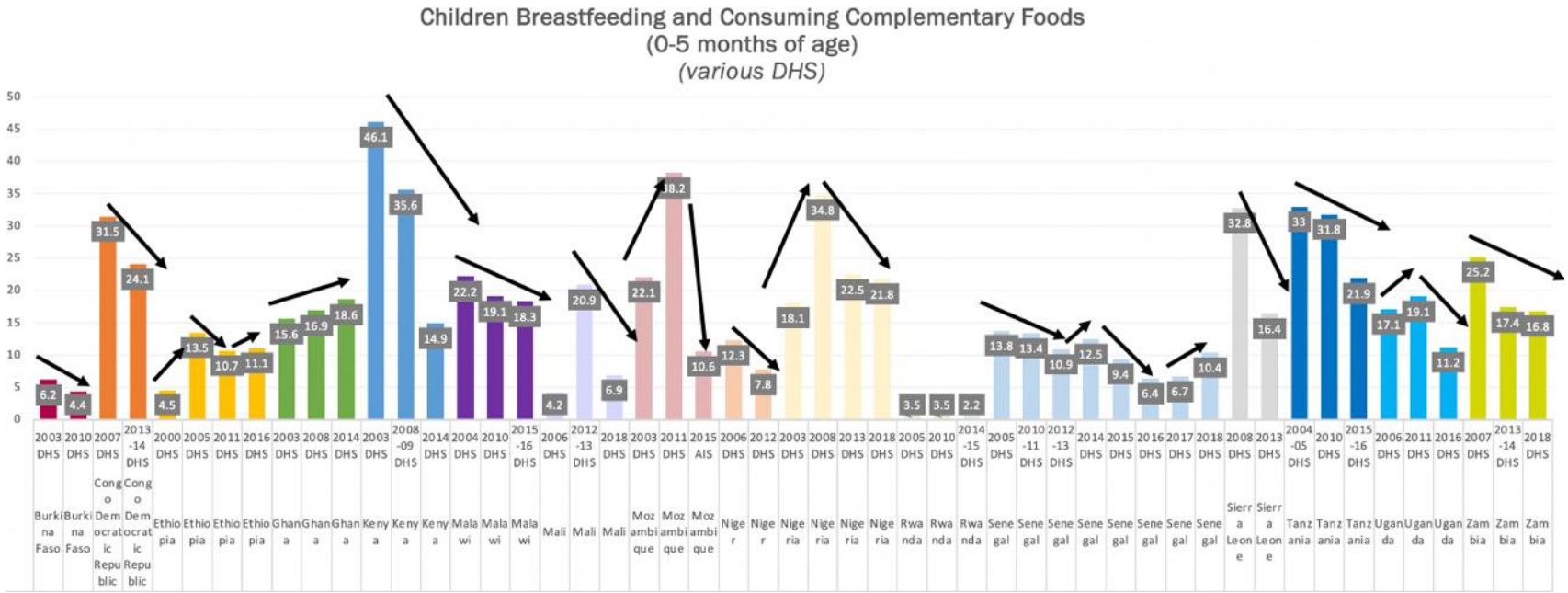
Source: Various population-based health surveys (see references for list) 2005–present, including DHS, MIS, and AIDS Indicators Survey (AIS)

COMPLEMENTARY FEEDING PRACTICES

CHILDREN BREASTFEEDING AND CONSUMING COMPLEMENTARY FOODS (0–5 MONTHS OF AGE)

In terms of the trend in the proportion of children breastfeeding and consuming complementary foods (0–5 months of age) (Figure 4), results varied among the target countries with available information. It showed a decreased trend in 10 countries (Burkina Faso, DRC, Kenya, Malawi, Niger, Nigeria, Senegal, Sierra Leone, Tanzania, and Zambia). For example, it decreased in Malawi from 22.2% to 18.3% and Zambia from 25.2% to 16.8%, while it consistently increased only in Ghana from 15.6% to 16.9% and then to 18.6%. It was inconsistent in Ethiopia, Mozambique, Rwanda, and Uganda.

FIGURE 4: CHILDREN BREASTFEEDING AND CONSUMING COMPLEMENTARY FOODS (0–5 MONTHS OF AGE) IN FOCUS COUNTRIES

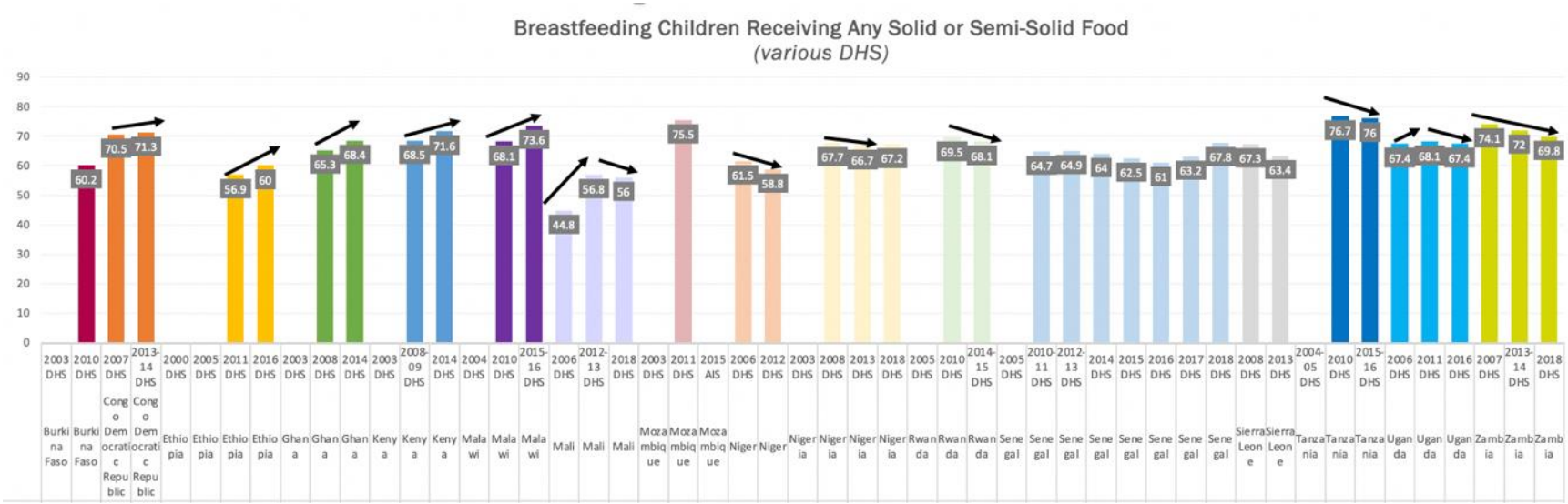


Source: Various population-based health surveys (see references for list) 2005–present, including DHS, MIS, and AIS

BREASTFEEDING CHILDREN RECEIVING ANY SOLID OR SEMI-SOLID FOODS

The trend in proportion of breastfeeding children who received any solid or semi-solid foods results varied again across countries (Figure 5). DRC, Ethiopia, Ghana, Kenya, Malawi, and Sierra Leone showed an increasing trend whereas Mali, Niger, Rwanda, Tanzania, Uganda, and Zambia showed a decreasing trend. For instance, Kenya increased from 68.5% to 71.6%, and Malawi from 68.1% to 73.6%; Zambia decreased from 74.1% to 69.8%. Nigeria stayed about the same, and Senegal had a mixed trend. Burkina Faso and Mozambique had only one year of data.

FIGURE 5: BREASTFEEDING CHILDREN (6–9 MONTHS) RECEIVING ANY SOLID OR SEMI-SOLID FOOD IN FOCUS COUNTRIES



Source: Various population-based health surveys (see references for list) 2005–present, including DHS, MIS, and AIS

FEEDING PRACTICES DURING DIARRHEA: INCREASED AMOUNT OF FOOD

Feeding practices during diarrhea is measured by the percentage distribution of children under five years of age with diarrhea by amount of foods given.[37] The numerator of this indicator asks the caregiver more specifically about the number of children under age five with diarrhea in the two weeks preceding the interview about the following categories of amount of foods offered: more than usual, same as usual, somewhat less, much less, none, never gave food, or don't know. In terms of calculating the increased amount foods, "more than usual" is considered a recommended practice for feeding of a sick child.

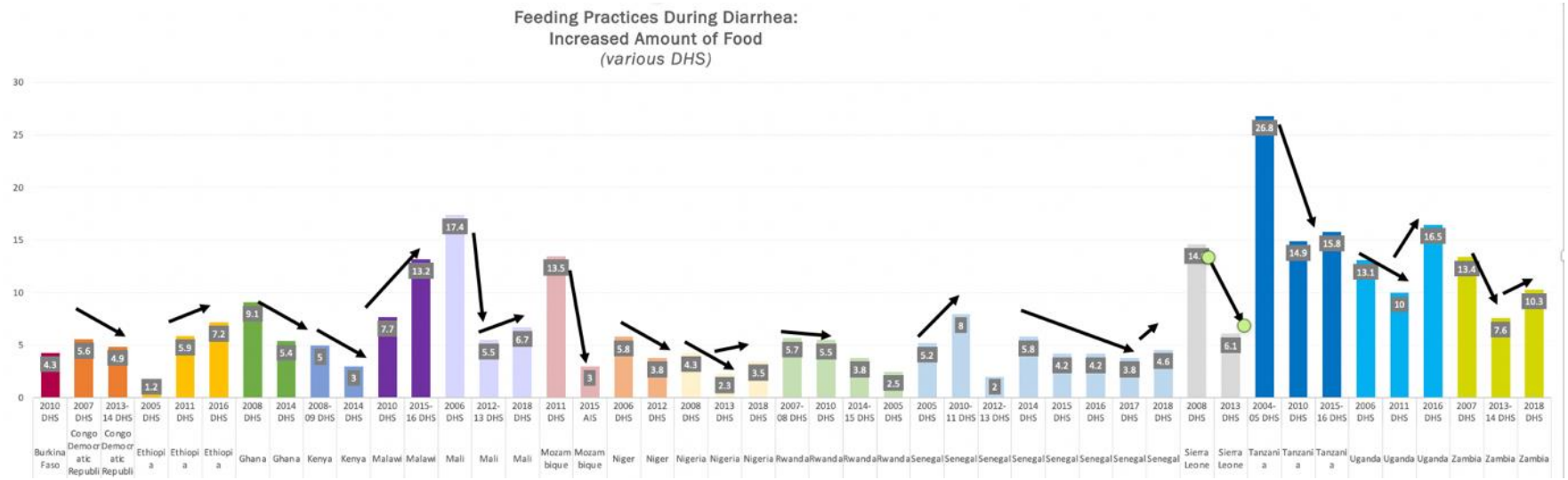
Figure 6 shows the trend in the proportion of children with diarrhea who were offered an increased amount food during diarrhea. In almost all countries, less than 20% of the children were offered increased amount of foods during an episode of diarrhea, which needs attention. A few countries—like Ethiopia, Senegal, Malawi, and Mali—showed an increasing trend at least in their last two consecutive surveys. For instance, Ethiopia increased from 1.2% to 7.2% and Malawi from 7.7% to 13.2%. However, the majority of the countries had a decreasing trend. It decreased in DRC (from 5.6% to 4.9%), Ghana (from 9.1% to 5.4%), and Mali (from 17.4% 6.7%). Uganda and Zambia had a mix of decreasing and increasing trend, which were not consistent.

Table 5 summarizes the trends in the percentage of children under five years of age by amount of foods given during an episode of diarrhea based on the last four population-based surveys available in each country.[38] The most important component to look at is whether the country is increasing food offerings more than usual during an episode of diarrhea, as recommended. The findings reveal that, with the exception of a slight increase for DRC from 11.4% in 2007 to 14.9% in 2014, no countries are on track with increasing trends—which is quite concerning. Some countries have either totally decreased offering more foods to children during diarrhea episodes (Mali, Niger, Nigeria, Sierra Leone, and Zambia) or increased one survey year only to subsequently decrease the following survey years (Ethiopia, Ghana, Rwanda, Senegal, and Uganda). Overall, there needs to be more emphasis on communicating to caregivers to increase foods during diarrhea as recommended. Tanzania had no data to report.

[37] *Guide to DHS Statistics DHS-7.* https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Feeding_Practices_during_Diarrhea.htm&rhsearch=Feeding%20Practices%20During%20Diarrhea&rhsyns=%20

[38] *Guide to DHS Statistics DHS-7.* https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Feeding_Practices_during_Diarrhea.htm&rhsearch=Feeding%20Practices%20During%20Diarrhea&rhsyns=%20

FIGURE 6: FEEDING PRACTICES DURING DIARRHEA: INCREASED AMOUNT OF FOOD IN FOCUS COUNTRIES



Source: Various DHS (see references for list) 2005–present

TABLE 5: FEEDING PRACTICES DURING DIARRHEA: AMOUNTS OF FOODS OFFERED TO CHILDREN (%)

Country and Amount of Foods Offered to Children	First Survey Year	Second Survey Year	Third Survey Year	Forth Survey Year
BURKINA FASO	**1998**	**2003**	**2010**	**n/a**
More than usual	0	8.1	4.9	
Same as usual	0	25.1	39.1	
Less than usual	0	47.4	44.9	
Stopped food	0	0.8	0.8	
Never gave food	0	7.8	6.4	
DEMOCRATIC REPUBLIC OF CONGO	**n/a**	**n/a**	**2007**	**2014**
More than usual			11.4	14.9
Same as usual			32.2	32.6
Less than usual			43.8	42.5
Stopped food			6.4	2.1
Never gave food			6	4.7
ETHIOPIA	**2000**	**2005**	**2011**	**2016**
More than usual	9.3	11.4	6.7	7.4
Same as usual	10.9	13.6	29.9	17.6
Less than usual	64.4	55.6	41.1	60.1
Stopped food	5.2	13.7	7.1	7.7
Never gave food	13.3	17.6	15.7	7.1
GHANA	**1998**	**2003**	**2008**	**2014**
More than usual	0	6.8	8	4.1
Same as usual	23.5	26.7	28.5	36.9
Less than usual	58.4	55.2	48.1	48.4
Stopped food	0	1	1.1	1.1
Never gave food	0	5.4	5.3	5.1
KENYA	**n/a**	**2003**	**2008**	**2014**
More than usual		7.2	5.9	7.2
Same as usual		34.5	28.7	31.7
Less than usual		44.4	53.1	48.6
Stopped food		4.1	1.8	2.4
Never gave food		7.1	7.2	9.4
MALAWI	**2000**	**2004**	**2010**	**2015**
More than usual	4.5	5.7	10.9	6.2
Same as usual	33.2	30	28.8	32.3
Less than usual	31	35.1	45.4	42.8
Stopped food	3.6	7.5	6.6	5
Never gave food	3.9	4	7	5.2

Country and Amount of Foods Offered to Children	First Survey Year	Second Survey Year	Third Survey Year	Forth Survey Year
MALI	**2001**	**2006**	**2012**	**2018**
More than usual	13	5.2	3.3	3.4
Same as usual	27.5	31.2	28.8	34.6
Less than usual	41.1	42.5	58.5	48.8
Stopped food	1.8	1.6	2.2	3.6
Never gave food	4.8	2.8	3.5	5.1
MOZAMBIQUE	**n/a**	**2003**	**2011**	**2015**
More than usual		10.9	2.4	9.6
Same as usual		19.5	34.7	26
Less than usual		49.8	46.9	58.2
Stopped food		4.1	4.3	11.9
Never gave food		0	2.1	0
NIGER	**n/a**	**2006**	**2012**	**n/a**
More than usual		11.1	6.9	
Same as usual		28.3	30.6	
Less than usual		45.6	48.1	
Stopped food		1.4	0.8	
Never gave food		8.4	10.2	
NIGERIA	**2003**	**2008**	**2013**	**2018**
More than usual	5.2	3.5	3.7	2.8
Same as usual	36.9	30.7	32.8	35.8
Less than usual	41.9	55.8	56.9	55
Stopped food	1.1	2.5	3.9	1.8
Never gave food	7.6	4.4	3.3	2.8
RWANDA	**2000**	**2005**	**2010**	**2014**
More than usual	12.9	1.6	5.6	8.3
Same as usual	44.7	36.2	23.3	19.7
Less than usual	22.5	40	61.4	63.3
Stopped food	9.1	8.8	5.4	4.9
Never gave food	12.6	15.6	5.9	6.2
SENEGAL	**n/a**	**2005**	**2010**	**2018**
More than usual		3.5	4.4	3.3
Same as usual		48.8	39.5	40.2
Less than usual		33.4	40.4	43.6
Stopped food		3.9	1.5	1
Never gave food		8.8	7.5	7.4

Country and Amount of Foods Offered to Children	First Survey Year	Second Survey Year	Third Survey Year	Forth Survey Year
SIERRA LEONE	**n/a**	**2008**	**2013**	**2019**
More than usual		5.3	5	2
Same as usual		24.9	25.4	22.4
Less than usual		49.3	60.6	63.3
Stopped food		0.4	1.2	2.5
Never gave food		4.1	2.2	2
UGANDA	**2000**	**2006**	**2011**	**2016**
More than usual	10.9	4.5	5.8	5.6
Same as usual	29.2	44.7	33.8	36.1
Less than usual	39.6	33.4	43.8	43.8
Stopped food	9.4	6.9	0	4
Never gave food	14.9	10.3	0	8.5
ZAMBIA	**2001**	**2007**	**2013**	**2018**
More than usual	10	5.3	4.2	4.4
Same as usual	39.3	37.3	36.8	37.7
Less than usual	38.5	40.1	47.9	42.6
Stopped food	4.7	1.5	1.5	1.3
Never gave food	3.5	3	2.7	4.4

Source: Various population-based health surveys (see references for list) 2005–present, including DHS, MIS, and AIS

Table 6 summarizes the most recent survey data available for each country for caregivers' feeding practices during diarrhea (recommended increased fluids, increased food or continued feeding, and ORT and/or increased fluids) by child's age group. In almost all countries, the combined practice of continued feeding and ORT and/or increased fluids is higher than increased fluid alone and much higher than increased amount of foods in all age groups. Many countries are still increasing food for children under six months of age instead of just exclusively breastfeeding the sick child (Ethiopia 8%, Malawi 7.5%, Mali 6.1%, Mozambique 8.6%, Sierra Leone 6.8%, and Zambia 18.4%). In addition, the percentage of children 6–59 months of age to whom caregivers provided the recommended increased fluids are low among all age groups (under 40% and as low as 8%) across all countries. Finally, the percentage of children 6–59 months of age to whom caregivers provided the recommended increased foods is very low (under 10% in most countries)—signifying that the messages to increase both food intake and fluid intake during an episode of diarrhea is not being efficiently communicated to caregivers in these countries.

TABLE 6: CHILDREN WITH DIARRHEA (%) OFFERED INCREASED FLUIDS OR FOOD OR THE COMBINED PRACTICE (OF BOTH CONTINUED FEEDING AND ORAL REHYDRATION THERAPY AND/OR INCREASED FLUIDS)

Age Group	Increased Fluids	Increased Food	Continued Feeding, and ORT and/or Increased Fluids
BURKINA FASO			
Under 6 months	9	4.5	8.7
6–11 months	23.1	2.7	24.8
12–23 months	25	4.1	35
24–35 months	30.7	6.8	40
36–47 months	31.7	2.7	34.8
48–59 months	29.6	2.9	33.4
DEMOCRATIC REPUBLIC OF CONGO			
Under 6 months	20.5	4.5	20.1
6–11 months	25.9	3.8	34.9
12–23 months	33.6	5.8	43.4
24–35 months	36.1	5.9	44.1
36–47 months	38.5	3.5	43.3
48–59 months	31.9	3.8	40.3
ETHIOPIA			
Under 6 months	12.2	8	15.4
6–11 months	11.8	7.7	30.1
12–23 months	12.9	4	29.7
24–35 months	13.7	7.1	26
36–47 months	20.8	13.3	31
48–59 months	20.3	6.5	35.5
GHANA			
Under 6 months	13.5	2	16.8
6–11 months	13	3.5	33.2
12–23 months	15.3	5	44.1
24–35 months	27.2	6.4	47.4
36–47 months	19.4	11.7	38
48–59 months	18.6	1.6	44.9
KENYA			
Under 6 months	8.1	3.5	13.6
6–11 months	17.8	2	35.8
12–23 months	22.8	3.9	48.8
24–35 months	25	2.6	50.7
36–47 months	21.4	2.1	58.6
48–59 months	27.9	3.3	45.7
MALAWI			
Under 6 months	21.3	7.5	26.4
6–11 months	31.8	11.4	52.8
12–23 months	32.8	11.8	57.1
24–35 months	33.5	16.6	64.1
36–47 months	28.5	15.3	60.8
48–59 months	31.9	15.8	62

Age Group	Increased Fluids	Increased Food	Continued Feeding, and ORT and/or Increased Fluids
MALI			
Under 6 months	14.2	6.1	15.2
6–11 months	21.3	10.5	27.6
12–23 months	26.8	5.7	35.9
24–35 months	28.4	6.1	40.4
36–47 months	23.1	7.9	37.1
48–59 months	18.6	3.8	38.5
MOZAMBIQUE			
Under 6 months	9.1	8.6	30.9
6–11 months	13.9	1.7	37.8
12–23 months	19.2	3.2	50.1
24–35 months	10	2.4	43.3
36–47 months	12.8	2.5	41.8
48–59 months	7.4	3.1	32.9
NIGER			
Under 6 months	16.1	4.6	15.4
6–11 months	21.5	2.8	37.6
12–23 months	24	4.3	51.1
24–35 months	27.7	3.7	46
36–47 months	26.3	5.1	50.6
48–59 months	30.2	1.1	49.9
NIGERIA			
Under 6 months	9.8	4.2	25.8
6–11 months	12.7	3.9	31.5
12–23 months	15.8	3.3	39.1
24–35 months	14.6	4.4	38.7
36–47 months	15	3	35.9
48–59 months	13.7	2	39.8
RWANDA			
Under 6 months	11.8	3.1	5.8
6–11 months	18.1	1.3	16.1
12–23 months	12.1	2.7	16.9
24–35 months	18.5	2.7	24.6
36–47 months	22	1.6	25.2
48–59 months	20.6	5.9	22.6
SENEGAL			
Under 6 months	22.7	2.2	16.3
6–11 months	36.6	1.5	37.5
12–23 months	45.9	6.1	47.1
24–35 months	50.5	4.8	56.7
36–47 months	31.8	3.3	43.8
48–59 months	40	8	50.5

Age Group	Increased Fluids	Increased Food	Continued Feeding, and ORT and/or Increased Fluids
SIERRA LEONE			
Under 6 months	23.4	6.8	38.8
6–11 months	23.8	4.6	62.4
12–23 months	33.3	12.1	58.1
24–35 months	26	12.9	64.7
36–47 months	27.7	9.6	65.1
48–59 months	35.9	8.3	55.8
UGANDA			
Under 6 months	13.3	2.4	10.3
6–11 months	11.1	2	33.8
12–23 months	17.1	6.4	44
24–35 months	16.3	7.5	44.5
36–47 months	16.3	7.8	40.9
48–59 months	18.7	8.9	33.6
ZAMBIA			
Under 6 months	34.9	18.4	34.1
6–11 months	31.4	9.1	52
12–23 months	30.2	12.2	60.1
24–35 months	33.4	6.5	65.6
36–47 months	28.4	9.7	51.4
48–59 months	29.8	6.5	64.7

Source: Various population-based health surveys (see references for list) 1998–present, including DHS, MIS, and AIS.

- Institute National de la Statistique et de la Démographie, Ministère de l'Économie et des Finances, and ICF International. *Burkina Faso Demographic and Health Survey 2010*. 2012. https://dhsprogram.com/pubs/pdf/FR256/FR256.pdf.
- Ministère du Plan et Suivi de la Mise en œuvre de la Révolution de la Modernité, Ministère de la Santé Publique, and ICF International. *Democratic Republic of Congo Demographic and Health Survey 2013-14*. 2014. https://dhsprogram.com/pubs/pdf/FR300/FR300.pdf.
- Central Statistical Agency and ICF International. *Ethiopia Demographic and Health Survey 2016*. 2016. https://dhsprogram.com/pubs/pdf/FR328/FR328.pdf
- Ghana Statistical Service, Ghana Health Service, and ICF International. *Ghana Demographic and Health Survey 2014*. 2015. https://www.dhsprogram.com/publications/publication-FR307-DHS-Final-Reports.cfm.
- Kenya National Bureau of Statistics and ICF International. *Kenya Demographic and Health Survey 2014*. 2015. https://dhsprogram.com/pubs/pdf/FR308/FR308.pdf.
- National Statistical Office and ICF International. *Malawi Demographic and Health Survey 2015-16: Key Indicators Report*. 2016. https://dhsprogram.com/pubs/pdf/PR73/PR73.pdf.
- Institut National de la Statistique, Cellule de Planification et de Statistique Secteur Santé-Développement Social et Promotion de la Famille, and ICF International. *Mali Demographic and Health Survey 2018*. 2019. https://dhsprogram.com/pubs/pdf/FR358/FR358.pdf.
- Instituto Nacional de Saúde, Instituto Nacional de Estatística, and ICF. *Mozambique AIDS Indicator Survey 2015: Key Findings*. 2017. https://dhsprogram.com/pubs/pdf/SR246/SR246.pdf.
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- National Population Commission Federal Republic of Nigeria, and ICF International. *Nigeria Demographic and Health Survey 2018*. 2019. https://dhsprogram.com/pubs/pdf/FR359/FR359.pdf.
- National Institute of Statistics of Rwanda, Ministry of Finance and Economic Planning, Ministry of Health, and ICF International. *Rwanda Demographic and Health Survey 2014-15: Final Report*. 2016. https://dhsprogram.com/pubs/pdf/FR316/FR316.pdf.
- Agence Nationale de la Statistique et de la Démographie and ICF. *Senegal Demographic and Health Survey 2018*. 2020. https://dhsprogram.com/pubs/pdf/FR367/FR367.pdf.
- Statistics Sierra Leone and ICF international. *Sierra Leone Demographic and Health Survey 2013*. 2014. https://dhsprogram.com/pubs/pdf/FR297/FR297.pdf.
- Uganda Bureau of Statistics and ICF. *Uganda Demographic and Health Survey 2016*. 2018. https://www.dhsprogram.com/publications/publication-FR333-DHS-Final-Reports.cfm.
- Zambia Statistics Agency, Ministry of Health, and ICF. *Zambia Demographic and Health Survey 2018*. 2019. https://dhsprogram.com/pubs/pdf/FR361/FR361.pdf.

FEEDING PRACTICES DURING DIARRHEA: INCREASED AMOUNT OF FLUIDS

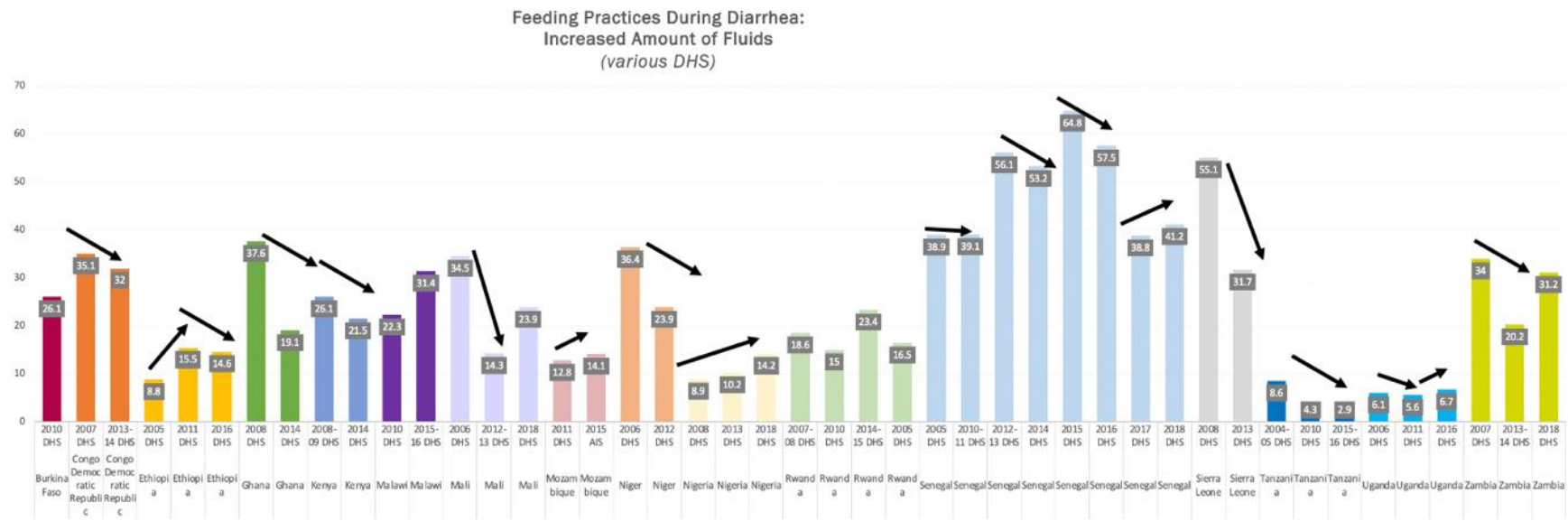
To reduce dehydration and minimize the effects of diarrhea on nutritional status, mothers are encouraged to increase the amount of fluids given. Feeding practices during diarrhea is also measured by the percentage distribution of children under five years of age with diarrhea by amount of liquids given.[39] The numerators of this indicator ask the caregiver more specifically about the number of children under age five with diarrhea in the two weeks preceding the interview about the following categories of amount of liquids given: more than usual, same as usual, somewhat less, much less, none, or don't know. Increasing fluids with an amount more than usual is a recommended practice.

Figure 7 shows the trend in the proportion of children with diarrhea who were offered increased amount fluid, as recommended. Ethiopia, Malawi, Mozambique, Nigeria, and Uganda showed an increasing trend. Nine countries (DRC, Ghana, Kenya, Mali, Niger, Rwanda, Sierra Leone, Tanzania, and Zambia) had a decreasing trend. DRC demonstrated a decreasing trend from 35.1% to 32%, and Ghana from 37.6% to 19.1%. Malawi had an increasing trend from 22.3% to 31.4%; Mozambique from 12.8% to 14.1%; and Nigeria from 8.9% to 14.2%. It increased for the last two surveys in Senegal. Rwanda showed an increased then decreased proportion. Burkina Faso had only one year of data.

Table 7 summarizes the trends in the percentage of children under five years of age with diarrhea by amount of fluids given based on the last four population-based surveys available for each country. The findings revealed a significant percentage (45–80%) of children were offered same or less than usual fluids; in countries like Ethiopia and Mozambique, 5–10% of children were not given fluids, which is concerning. In some countries such as Ghana, Ethiopia, and Mozambique, there were disturbing trends in which caregivers were actually decreasing the amount of liquids offered to children during diarrhea throughout the years rather than increasing fluid intake. The following countries increased the percentage of children who were offered fluids less than usual during the last two to three survey years: Burkina Faso (where, for example, it increased from 26.1% in 2003 to 30.8% in 2010), DRC, Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Niger, Senegal, Sierra Leone, and Uganda. Mali, Nigeria, and Zambia increased only during the last survey year. In addition, the trend seems to confirm most of the countries steadily decreased the percentage of children who were offered more amount of fluids than usual during diarrhea. This may signify that caregivers lacked knowledge about fluid intake during child diarrhea episodes, but more qualitative research is necessary to draw any conclusions.

[39] *Guide to DHS Statistics DHS-7.* https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Feeding_Practices_during_Diarrhea.htm&rhsearch=Feeding%20Practices%20During%20Diarrhea&rhsyns=%20

FIGURE 7: FEEDING PRACTICES DURING DIARRHEA: INCREASED AMOUNT OF FLUIDS IN FOCUS COUNTRIES—AVAILABLE DATA (2005–PRESENT)



Source: Various population-based health surveys (see references for list) 2005–present, including DHS, MIS, and AIS

TABLE 7: FEEDING PRACTICES DURING DIARRHEA: AMOUNTS OF LIQUIDS OFFERED TO CHILDREN (%) BY TARGETED COUNTRY

Country and Amount of Liquids Offered to Children	First Survey Year	Second Survey Year	Third Survey Year	Forth Survey Year
BURKINA FASO	**1998**	**2003**	**2010**	**n/a**
More than usual	36.5	49	26.1	
Same as usual	43.2	23.3	42.2	
Less than usual	10.2	26.1	30.8	
None	0	0.8	0.8	
DEMOGRAPHIC REPUBLIC OF CONGO	**n/a**	**n/a**	**2007**	**2014**
More than usual			35.1	32
Same as usual			28.8	32.3
Less than usual			28.4	33.1
None			6.4	2.1
ETHIOPIA	**2000**	**2005**	**2011**	**2016**
More than usual	34.9	8.8	15.5	14.6
Same as usual	16.6	18.5	35.3	21
Less than usual	42.6	58.2	41.4	56.1
None	5.2	13.7	7.1	7.7
GHANA	**1998**	**2003**	**2008**	**2014**
More than usual	57.8	39.6	37.6	19.1
Same as usual	22.3	32.3	35.3	44.6
Less than usual	18.2	26.2	25.2	35.2
None	0	1	1.1	1.1
KENYA	**n/a**	**2003**	**2008**	**2014**
More than usual		34.2	26.1	21.5
Same as usual		32.9	31.7	36.9
Less than usual		28.5	40.2	38.8
None		4.1	1.8	2.4
MALAWI	**2000**	**2004**	**2010**	**2015**
More than usual	35.4	35.9	22.3	31.4
Same as usual	31.6	24.8	33.9	29.5
Less than usual	29.3	31.7	37	33.8
None	3.6	7.5	6.6	5
MALI	**2001**	**2006**	**2012**	**2018**
More than usual	53.5	34.5	14.3	23.9
Same as usual	19.7	30.6	26.8	30.7
Less than usual	23.2	30.4	56.1	39
None	1.8	1.6	2.2	3.6
MOZAMBIQUE	**n/a**	**2003**	**2011**	**2015**
More than usual		46.7	12.8	14.1
Same as usual		11.8	31.5	26.6
Less than usual		36.4	51	44.2
None		4.1	4.3	11.9

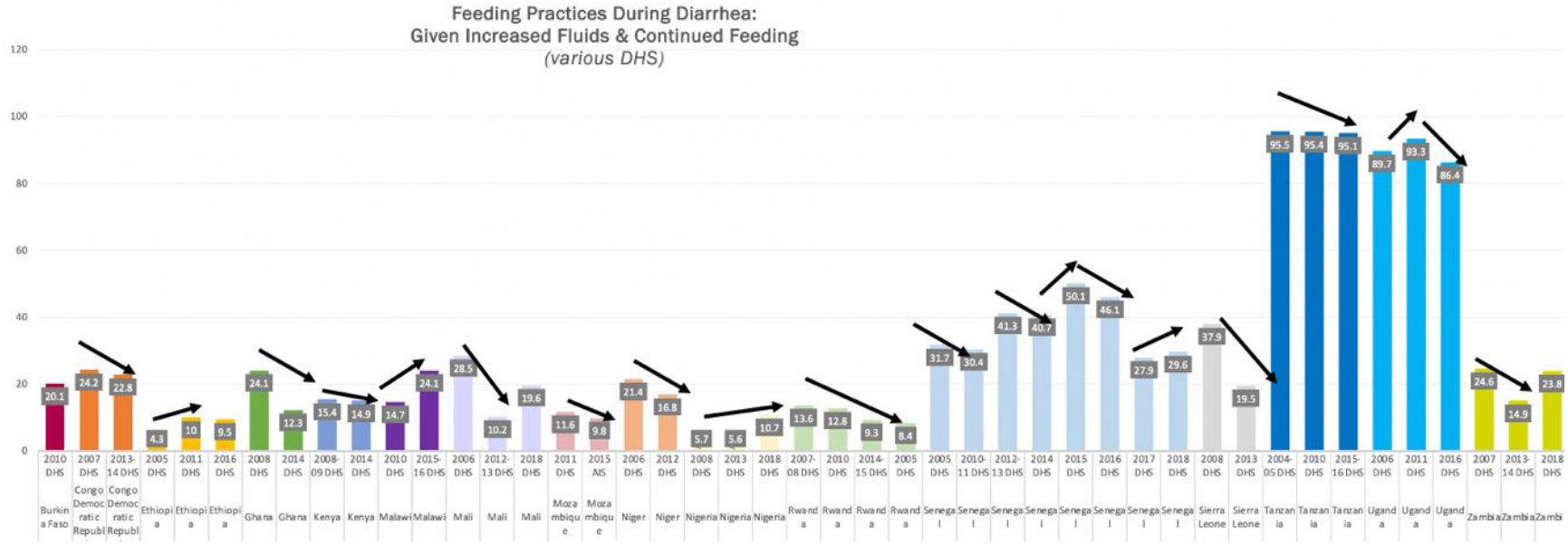
Country and Amount of Liquids Offered to Children	First Survey Year	Second Survey Year	Third Survey Year	Forth Survey Year
NIGER	**n/a**	**2006**	**2012**	**n/a**
More than usual		36.4	23.9	
Same as usual		34.6	36.2	
Less than usual		25.8	38.3	
None		1.4	0.8	
NIGERIA	**2003**	**2008**	**2013**	**2018**
More than usual	20.4	8.9	10.2	14.2
Same as usual	40.8	33.5	34.3	36.8
Less than usual	37.1	54.2	50.5	46.9
None	1.1	2.5	3.9	1.8
RWANDA	**2000**	**2005**	**2010**	**2014**
More than usual	17.3	18.6	23.4	16.5
Same as usual	48.9	41.9	25.9	26.7
Less than usual	24.6	29.5	45.3	51.7
None	9.1	8.8	5.4	4.9
SENEGAL	**1997**	**2005**	**2010**	**2018**
More than usual	53.9	38.9	39.1	41.2
Same as usual	34.6	42.6	37.7	38.1
Less than usual	9.5	13.7	21.1	18.6
None	0	3.9	1.5	1
SIERRA LEONE	**n/a**	**2008**	**2013**	**2019**
More than usual		55.1	31.7	29.5
Same as usual		18.7	24.2	18.6
Less than usual		24.2	42	49.1
None		0.4	1.2	2.5
UGANDA	**2000**	**2006**	**2011**	**2016**
More than usual	27.7	20.4	18.3	15.3
Same as usual	31.2	46.9	37.2	38.5
Less than usual	31.3	25.6	39.1	41.8
None	9.4	6.9	0	4
ZAMBIA	**2001**	**2007**	**2013**	**2018**
More than usual	40.9	34	20.2	31.2
Same as usual	36.2	34.9	38.6	35.8
Less than usual	18.1	29.1	39.1	31
None	4.7	1.5	1.5	1.3

Source: Various population-based health surveys (see references for list) 2005–present, including DHS, MIS, and AIS

FEEDING PRACTICES DURING DIARRHEA: GIVEN INCREASED FLUIDS AND CONTINUED FEEDING

In terms of the trend in feeding practices during diarrhea, based on the percentage of children who were given both increased fluids and continued feeding results varied across countries (Figure 8). The following countries had decreasing trends: DRC (62.1% to 57.5%), Ghana (66.8% to 61.8%), Kenya (78.1% to 70.6%), Mozambique (63.5% to 58.2%), Rwanda, and Tanzania. Ten countries demonstrated an increasing trends: Ethiopia (33.3% to 46.4%), Malawi (74% to 77.9%), Nigeria (36.7% to 44.3%), Niger, Sierra Leone, Uganda, and Zambia. Mali, Uganda, Senegal, and Zambia had inconsistent trends. Burkina Faso only had one year of data.

FIGURE 8: FEEDING PRACTICES DURING DIARRHEA: GIVEN INCREASED FLUIDS AND CONTINUED FEEDING IN FOCUS COUNTRIES—AVAILABLE DATA (2005–PRESENT)



Source: Various DHS (see references for list) 2005–present

2.2 CAREGIVERS' PRACTICES AND HEALTH CARE PROVIDERS' SUPPORT

This section of the review focuses on the caregivers' practices, barriers, and enablers for practicing the recommended feeding behaviors during and after illness, and health providers' and community workers' support to caregivers. **2. Caregivers' Practices and Health Care Providers' Support**	
2.1	What are the proportion of caregivers counseled on how to **feed during and after illness**?
2.2	What are the caregivers' uptake of recommended IYCF practices/behaviors, especially feeding and increased fluid intake?
2.3	From the caregivers' perspective, what are the enablers for practicing and barriers for not practicing optimal breastfeeding **during and after illness**?
2.4	From the caregivers' perspective, what are the enablers for practicing and barriers for not practicing optimal complementary feeding **during and after illness**?
2.5	From the caregivers' perspective, what are the enablers for increasing fluid intake and barriers for not providing more fluids during and after illness?
2.6	Who are community influencers of IYCF practices for sick children? How do they influence positively or negatively optimal feeding practices?
2.7	2.7. a. Do health providers and community workers provide quality counseling and support on feeding of sick children? 2.7. b. If not, what are the reasons from providers' perspective for not providing quality IYCF counseling during and after illnesses? 2.7. c. What are the barriers and enablers of provider counseling and feeding during and after illness?

2.2.1 SUB-QUESTION: 2.1. WHAT ARE THE PROPORTION OF CAREGIVERS COUNSELED ON HOW TO FEED DURING AND AFTER ILLNESS?

A total of 10 studies were found to be relevant when answering this sub-question, specifically counseling during illness. However, there is limited evidence regarding caregivers counseling on how to feed after illness. The systematic review and meta-analysis of IMCI looked at nutrition counseling outcomes.[40] Correct nutrition counseling was defined as the proportion of caregivers who were advised to continue feeding and/or provide additional fluids to the sick child. With regards to counseling, pooled effect estimates indicated that health workers trained in IMCI were more likely to correctly counsel on basic nutrition (95% CI: 2.43–5.25) and nearly all studies found positive associations between IMCI training and nutrition counseling. IMCI health workers were also more likely than their non-IMCI counterparts to correctly classify illnesses regardless of baseline performance and greater gains were evident for counseling on adequate nutrition.

A study in Burkina Faso showed 75.8% of caregivers attending healthy child consultations did not receive advice on complementary feeding before any improved nutrition counseling or communication by health providers. A study from Tanzania revealed that the quality of the IMCI counseling was found to be generally

[40] Nguyen, Duyen Thi Kim et al. 2013. "Does Integrated Management of Childhood Illness (IMCI) Training Improve the Skills of Health Workers? A Systematic Review and Meta-Analysis." *PLOS ONE* 8 (6): e66030. https://doi.org/10.1371/journal.pone.0066030.

poor, especially in feeding recommendations and follow-up care.[41] In Malawi, a study on the quality of care for community case management of childhood illness (CCM) found that 55% of caregivers of children with uncomplicated diarrhea were advised to give extra fluids and to continue feeding the child during the illness episodes.[42]

A cross-sectional study in Uganda utilizing quantitative and qualitative methods on assessing IMCI-trained health providers' counseling of caregivers and to determine factors that facilitate or constrain counseling[43] demonstrated that health providers performed well in assessing the child's problem (85%), listening (100%), giving feeding advice (76%), and giving advice on return immediately (78%) and for follow-up (75%). Performance was poor in praising the caregivers (43%), asking feeding questions (65%), explaining feeding problems (50%), advising on fluid intake (44%), and advising on medication (61%). Health provider praise during visits by the supervisor was an independent predictor of advising on fluid intake.

A cross-sectional assessment for seven African countries looked at the determinants and outcomes of good provider communication during sick child management.[44] Data came from the Service Provision Assessment (SPA) from seven countries in sub-Saharan Africa. SPA surveys include assessment of facility inputs and processes as well as interviews with caretakers of sick children. The results revealed that the average score of the composite indicator of provider communication was low, at 35%, and only 10% reported that they were counseled on feeding for the child. Caregivers' educational attainment and provider pre-service education and in-service training in IMCI were associated with better communication.

A key informant interview in the DRC reported about half of the women said they breastfed their child the same amount, while the other half said they breastfed less than usual during illness. If their child has already started eating foods, almost half of mothers (45%) reported giving less semi-solid and solid foods than usual and 41% reported not giving any when the child is sick. Only 4–6% reported increasing the amount of these foods after illness or recovery. Women in the focus group said they let children recovering from illness eat until they are satisfied.[45] In a study from Ghana,[46] some health workers advised caregivers on the need to give additional meals after illness and foods that are liked best by the child during such periods of sickness and recovery. Other health workers also advised caregivers who had reported that their children had been sick in the past weeks to breastfeed more often and give soft and easily digestible foods.

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[41] Prosper, Hildegalda, Janet Macha, and Josephine Borghi. *Implementation of Integrated Management of Childhood Illness in Tanzania: Success and Challenges*. Consortium for Research on Equitable Health Systems. 2009.
[42] Gilroy, Kate E. et al. 2013. "Quality of Sick Child Care Delivered by Health Surveillance Assistants in Malawi." *Health Policy and Planning* 28 (6): 573–85. https://doi.org/10.1093/heapol/czs095.
[43] Karamagi, Charles A.S. et al. 2004. "Health providers' counselling of caregivers in the Integrated Management of Childhood Illness (IMCI) programme in Uganda." *African Health Sciences* 4 (1): 31-39.
[44] Larson, Elysia, Hannah H. Leslie, and Margaret E. Kruk. 2017. "The Determinants and Outcomes of Good Provider Communication: A Cross-Sectional Study in Seven African Countries." *BMJ Open* 7:e014888. https://doi.org/10.1136/bmjopen-2016-014888.
[45] Rolf, Klemm, Jennifer Burns, and Kimberly Amundson. *Formative Research to Examine Perceptions and Behaviors about Maternal, Infant and Young Child Feeding—JENGA JAMAA II, Democratic Republic Congo*. Baltimore, MD: Johns Hopkins University, 2012. https://www.jhsph.edu/departments/international-health/faculty/documents/klemm/Klemm-Formative-JENGA2012.pdf.
[46] Nsiah-Asamoah, Christiana, Kingsley Kwadwo Asare Pereko, and Freda Dzifa Intiful. 2019. "Nutritional counselling interactions between health workers and caregivers of children under two years: observations at selected child welfare clinics in Ghana." *BMC Health Services Research* 19 (1): 817. https://doi.org/10.1186/s12913-019-4692-y.

A study on individualized breastfeeding support for acutely ill, malnourished infants under six months old[47] found that well-trained and supervised "breastfeeding peer supporters" operating in inpatient care settings can effectively implement the WHO guidelines for nutritional rehabilitation of ill and malnourished infants under six months of age. Additionally, EBF increased from 55% to 81%, with 67% of all infants reaching the recommended weight velocity on breastmilk alone by discharge.[48]

Counseling services and education can be used for improving quality of services by focusing on client needs and individualizing care provided to these clients. There is a lack of indicators that can measure the extent of support or counseling in breastfeeding and nutrition during ANC, natal and postnatal visits, and during immunization visits and contacts with a sick child. However, as stated before, both WHO and UNICEF are currently developing guidance on indicators for counseling during ANC and PNC. WHO and UNICEF are now proposing a core set of indicators to assess content to capture provision of timed and targeted counseling/age-appropriate counseling. This minimum core set of indicators is intended to capture "whether counseling was delivered" and an optional age-appropriate counseling indicator. Furthermore, growth monitoring is a significant contact point for reinforcing nutrition counseling.[49]

One study in Rwanda looked at parents' knowledge and satisfaction after using CHW services and found that the rules of home treatment (increase liquid, increase breastfeeding or food, and reminding two danger signs) are not well known.[50] The study found that this was due to poor quality training of CHWs, along with complex management tools that were hard to use.

2.2.1 SUB-QUESTION: 2.2 WHAT ARE THE CAREGIVERS' UPTAKE OF RECOMMENDED IYCF PRACTICES/BEHAVIORS, ESPECIALLY FEEDING AND INCREASED FLUID INTAKE?

Existing evidence suggests that increasing fluid intake during illness—including more frequent breastfeeding and encouraging the child to eat soft, varied, and appetizing foods—can help preserve nutrient consumption and improve recovery. After the illness, the child needs better nutrient intake to make up for nutrient losses during sickness and allow for catch-up growth. Extra food is required until the child has regained any weight loss and is growing well again.[51] [52] In addition to the trend analysis included in Section 2.1, we found 10 relevant studies and reports in peer-reviewed and grey literature and program documents that contribute to the evidence base on caregivers' uptake of the recommended feeding practices for sick children.

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[47] Mwangome, Martha et al. 2019. "Individualized Breastfeeding Support for Acutely Ill, Malnourished Infants under 6 Months Old." *Maternal & Child Nutrition* 16: e12868. https://doi.org/10.1111/mcn.12868.

[48] World Health Organization. *Guideline: Updates on the Management of Severe Acute Malnutrition in Infants and Children*. 2013. https://apps.who.int/iris/rest/bitstreams/447316/retrieve.

[49] Abdul-Fadl, A. 2020. "Integration of curative and preventive services for strengthening nutritional outcome of infants and young children." *MedRead Journal of Pediatrics*. Accessed November 23, 2020. https://med-read.org/journals/medread-journal-of-pediatrics/fulltext/integration-of-curative-and-preventive-services-for-strengthening-nutritional-outcome-of-infants-and-young-children.

[50] CHW Central. *Community IMCI/Community Case Management: Evaluation Report of Community Health Workers Performance*. 2013. https://chwcentral.org/resources/community-imci-community-case-management-evaluation-report-of-community-health-workers-performance/.

[51] Pan American Health Organization and World Health Organization. *Guiding Principles for Complementary Feeding of the Breastfed Child*. Accessed December 19, 2020. https://www.who.int/nutrition/publications/guiding_principles_compfeeding_breastfed.pdf

[52] Brown, Kenneth H. et al. 2002. "Effect of supplemental zinc on the growth and serum zinc concentrations of prepubertal children: a meta-analysis of randomized controlled trials." *American Journal of Clinical Nutrition* 75 (6): 1062-71. doi: 10.1093/ajcn/75.6.1062.

AGE-APPROPRIATE FEEDING PRACTICES: Relevant studies on the feeding practices of children during and after illness (including meal frequency and dietary diversity) were limited, with only seven studies identified.

A study in Ethiopia showed nearly 54% of mothers fed their sick child more frequently at a time of illness than when they were healthy, whereas 46% fed their children sub-optimally, 33% fed their children less than usual, and 12% fed the same as usual.[53] Another Ethiopian study showed that 45% of mothers provided their children more frequent feedings at the time of illness.[54] Another study from Botswana reported 86% of caregivers gave less food than usual during an episode of diarrhea.[55] A study from northwest Nigeria[56] reported that most caregivers do not stop breastfeeding when their child has diarrhea (60.5%), most continue to give them water to drink (75.7%), and most give sugar salt solution to a child having diarrhea (62.4%). In Tanzania, a cross-sectional study demonstrated that the practice of offering fluids and breastfeeding of sick children was low.[57]

Findings from formative research in the DRC[58] demonstrated that feeding during and following sickness did not follow guidelines. Many said if they are still breastfeeding that they continue to breastfeed when the child is sick as opposed to giving other liquids. During the structured interviews, mothers were asked how frequently they fed, or gave the same or less breast milk, or did not give certain foods during illness. Only about 40% of mothers fed more breast milk; 46% reported not giving semi-solid and solid foods to their infants during illness, and only 4–6% reported increasing the amount of these foods' during recovery. Recommendations include sensitizing mothers about child's increased nutritional needs during and following sickness.

A study from Ethiopia on feeding practices of children with one or more childhood illnesses found that the overall proportion of MDD was 27% and age-appropriate meal frequency among breastfed was 83.9%. Cereals and roots were provided to the greatest portion of the children (95.7%), and only 2% of the children were given vitamin A source foods.

Formative research from Malawi reported optimal IYCF practices related to feeding sick children. About one-quarter of mothers said they fed more or more frequently during recovery, and about one-quarter said they fed the same amounts and types of food. A few mothers reduced the amount of foods given to children after illness and then gradually increased the amounts. Other mothers fed special foods or increased the energy density of the foods usually given to children. Some mothers said the reason they fed more or more frequently was so their babies would "gain weight."[59]

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[53] Degefa, Nega, et al. 2019. "Sick Child Feeding Practice and Associated Factors among Mothers of Children Less Than 24 Months Old, in Burayu Town, Ethiopia." *International Journal of Pediatrics*. Hindawi. https://doi.org/10.1155/2019/3293516.
[54] Semahegn, Agumasie, Gezahegn Tesfaye, and Alemayehu Bogale. 2014. "Complementary Feeding Practice of Mothers and Associated Factors in Hiwot Fana Specialized Hospital, Eastern Ethiopia." *The Pan African Medical Journal* 18 (143). https://doi.org/10.11604/pamj.2014.18.143.3496.
[55] Mosweu, Gofaone Jessica. 2018. *Knowledge, Attitudes and Practices (KAP) of Caregivers on Management of Childhood Diarrhea among Children Aged between 0-5 Years Attending Child Welfare Clinic (CWC) in Mogoditshane Village, Botswana* (master's thesis). University of the Witwaterstrand, Johannesburg. http://wiredspace.wits.ac.za/bitstream/handle/10539/25229/705857%20gofaone%20jessica%20mosweu.pdf?sequence=1&isAllowed=y.
[56] Raji, M. O. et al. 2017. "Caregivers' knowledge, home treatment of diarrhoea disease and predictors of child diarrhoea disease in a semi urban community of Sokoto, North-west, Nigeria." *Journal of Public Health and Epidemiology* 9 (2): 16-23. https://doi.org/10.5897/JPHE2016.0889.
[57] Athumani, J. 2010. "Knowledge, attitudes and practices of mothers on symptoms and signs of integrated management of Childhood Illnesses (IMCI) strategy at Buguruni Reproductive and Child Health Clinics in Dar Es Salaam." *Dar Es Salaam Medical Students' Journal* 15 (1): 4-8. https://doi.org/10.4314/dmsj.v15i1.49589.
[58] Rolf, Klemm, Jennifer Burns, and Kimberly Amundson. *Formative Research to Examine Perceptions and Behaviors about Maternal, Infant and Young Child Feeding—JENGA JAMAA II, Democratic Republic Congo*. 2012.
[59] Picado, J. I., and B. M. Mtimuni. *Consulting with Caregivers: Formative Research to Determine the Barriers and Facilitators to Optimal Infant and Young Child Feeding in Three Regions of Malawi*. Washington, DC: Infant and Young Child Nutrition Project. 2011.

INCREASED FLUID UPTAKE: Three relevant studies were identified that addressed increased fluid uptake. Findings from a study in Nigeria[60] demonstrated better key home management practices in the community-integrated management of childhood illness (C-IMCI) compliant areas. More caregivers from the C-IMCI areas compared to non-C-IMCI areas reported that they gave the child more than the usual amount of fluid (44.2% and 0.8%, respectively), and food (40.8% and 0.4%, respectively) during the child's most recent illness. More than four-fifths (82.4%) of caregivers from the non-C-IMCI areas said they gave less fluid. In Mali, a study on the introduction of zinc for childhood diarrhea found that 73% of caregivers increased liquids or increased breastfeeding four months after the introduction of zinc treatment for young children with diarrhea.[61]

In Tanzania, a cross-sectional study demonstrated that the practice of offering fluids and breastfeeding of sick children was low.[62] A study from Kenya on home management of diarrhea[63] illustrated that more than 70% of mothers actually decreased fluid intake during diarrhea episodes. This is concerning considering diarrhea is a major contributor to child mortality in the region. During illness, 28% of the children were reported not to have drunk any fluids at all, 53% drunk much less, and only 10% were reported to have drunk more than usual. A significant 90% withheld milk, including breast milk, with the notion that it enhanced diarrhea. Based on these findings, it is recommended to develop interactive communication strategies for health care workers and mothers to address perceptions and misconceptions of fluid intake during illness and facilitate positive change in the household practice on management of diarrhea among children under five years old.

2.2.1 SUB-QUESTION: 2.3–2.5. FROM THE CAREGIVERS' PERSPECTIVE, WHAT ARE THE ENABLERS FOR PRACTICING AND BARRIERS FOR NOT PRACTICING OPTIMAL FEEDING DURING AND AFTER ILLNESS?

The cause of inappropriate feeding practices is multi-factorial and has diverse contributing factors, including socioeconomic and demographic household characteristics and cultural traditions and beliefs. There are few formative researches or assessments that determined enablers and barriers to feeding children during illness, but none for after illness. We also looked at studies and program documents that assessed enablers and barriers common to general IYCF practices (breastfeeding and complementary feeding) and applicable to feeding of a sick child.

A formative research conducted in Malawi on determining the barriers and facilitators to optimal IYCF looked at current practices related to feeding sick children. The research identified these principal feeding problems for sick children: 1) the child's food was immediately changed to a liquid; 2) concern for feeding during illness and encouraging feeding was not high (it was understood and accepted that children do not eat well during illness); 3) more frequent feeding and feeding a greater amount of food did not occur after illness; and 4) the concept of special foods was acceptable, but these foods were not offered.[64]

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[60] Ebuehi, Olufunke Margaret, and Sylvia Adebajo. 2010. "Improving caregivers' home management of common childhood illnesses through community level interventions." *Journal of Child Health Care* 14 (3): 225–38. https://doi.org/10.1177/1367493510364167.
[61] Winch, Peter J. et al. 2008. "Operational Issues and Trends Associated with the Pilot Introduction of Zinc for Childhood Diarrhoea in Bougouni District, Mali." *Journal of Health, Population and Nutrition* 26(2): 151–63.
[62] Athumani, J. 2010. "Knowledge, attitudes and practices of mothers on symptoms and signs of integrated management of Childhood Illnesses (IMCI) strategy at Buguruni Reproductive and Child Health Clinics in Dar Es Salaam."
[63] Othero, Doreen M. et al. 2009. "Home Management of Diarrhea among Underfives in a Rural Community in Kenya: Household Perceptions and Practices." *East African Journal of Public Health*. https://tspace.library.utoronto.ca/handle/1807/39197.
[64] Picado, J. I. and B. M. Mtimuni. *Consulting with Caregivers: Formative Research to Determine the Barriers and Facilitators to Optimal Infant and Young Child Feeding in Three Regions of Malawi.* 2011.

2.2.1 SUB-QUESTION: 2.3. WHAT ARE THE ENABLERS FOR PRACTICING AND BARRIERS FOR NOT PRACTICING OPTIMAL BREASTFEEDING DURING AND AFTER ILLNESS?

Two formative studies, one systematic review, eight studies, and one report were found that had relevant information on enablers and barriers related to breastfeeding during illness. However, there was only one study that looked at these factors after illness or during recovery.

BARRIERS: A formative research study in DRC[65] found that 16% of mothers reported having difficulty breastfeeding due to the illness of the child. A qualitative study on EBF in Kwale, Kenya, revealed that mothers/ caregivers perceived the ill health of babies appeared to be associated with sub-optimal practice of EBF and triggered caregivers to use a variety of food and drink, other than breast milk, for feeding the infants. In addition, it found that perceived insufficient breast milk and actions taken by mothers to cope with perceived health problems in their babies may trigger a vicious circle, causing reduced production of breast milk.

Mothers reported ceasing or reducing breastfeeding when their child had diarrhea for various reasons, including that their belief to continue breastfeeding would not reduce the duration of diarrhea or could cause or worsen the diarrhea. Some caregivers stated they were following the advice of health care providers by restricting breastfeeding.[66] A study in Nigeria[67] found barriers to feeding during illness due to the belief that breastmilk is thought to cause diarrhea; therefore, mothers are taught to withdraw breastfeeding during episodes of diarrhea. In multiple cultures, "dirty" breast milk or secretion of ingested food through breast milk was thought to cause certain types of diarrhea. A study from rural Sierra Leone[68] reveals that incorrect understanding of the cause of diarrhea can lead to poor feeding practices during illness; specifically, many study respondents reported that spoiled breastmilk (which they think can be ruined by the mother menstruating or having sex) is a cause of diarrhea, and this can lead them to stop breastfeeding during illness. Mothers reported stopping or reducing breastfeeding when children had diarrhea because of beliefs that breastmilk was too fatty to be digested. Caregivers in two studies believed specific types of diarrhea must be treated with breastfeeding cessation.[69]

Formative research from the DRC demonstrated that most mothers reported diminished quantity and quality of breastmilk linked to child/maternal illness, inadequate maternal diet, and feedings spaced too far apart. Mothers' return to work in the field led to early introduction of foods prior to six months of age, impeding EBF. It is recommended to explore innovative ways to work with traditional healers, to facilitate referrals for sick/malnourished children, and to provide simple nutrition advice for certain practices (i.e., breastfeeding) to strengthen nutrition within iCCM. There is a need to build the capacity of facility- and community-level providers to counsel on preventive aspects of nutrition/IYCF. [70]

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[65] Rolf, Klemm, Jennifer Burns, and Kimberly Amundson. *Formative Research to Examine Perceptions and Behaviors about Maternal, Infant and Young Child Feeding—JENGA JAMAA II, Democratic Republic Congo*. 2012.

[66] Carter, Emily et al. 2015. "Harmful practices in the management of childhood diarrhea in low- and middle-income countries: a systematic review." *BMC Public Health* 15 (1): 788. https://doi.org/10.1186/s12889-015-2127-1.

[67] Ogunbiyi, B. O., and I. O. Akinyele. 2010. "Knowledge and belief of nursing mothers on nutritional management of acute diarrhoea in infants, Ibadan, Nigeria." *African Journal of Food, Agriculture, Nutrition and Development* 10 (3). https://doi.org/10.4314/ajfand.v10i3.54084.

[68] McMahon, Shannon A. et al. 2013. "Spoiled breast milk and bad water; local understandings of diarrhea causes and prevention in rural Sierra Leone." *BMC Public Health* 13 (1): 1172. https://doi.org/10.1186/1471-2458-13-1172.

[69] Ogunbiyi, B. O., and I. O. Akinyele. 2010. "Knowledge and belief of nursing mothers on nutritional management of acute diarrhoea in infants, Ibadan, Nigeria."

[70] Kavle, Justine A. et al. 2019. "Strengthening nutrition services within integrated community case management (ICCM) of childhood illnesses in the Democratic Republic of Congo: Evidence to guide implementation." *Maternal & Child Nutrition* 15 (S1): e12725. https://doi.org/10.1111/mcn.12725.

Research on breastfeeding barriers in Nampula, Mozambique, showed that breastfeeding challenges—such as inadequate latching, poor positioning, perceptions of breastmilk insufficiency, and breast engorgement—were barriers to early initiation of breastfeeding and EBF. At the community and facility levels, there was little attention to breastfeeding counseling during ANC, childbirth, PNC, and well child and sick child consultations in the study areas. Following rollout of a job aid, this research reported that providers improved assessment of breastfeeding technique, and increased self-efficacy and motivation to identify and resolve EBF problems.[71] In a study from Ghana,[72] caregivers were not often advised on the need to continue breastfeeding when the child was sick.

ENABLERS: When counseling mothers/caregivers who are concerned about their babies' illnesses, health workers/counselors should take into consideration cultural beliefs and the mother's perceptions rather than simply preaching to them on the scientific advantages of EBF.[73]

One study demonstrated that peer counseling more than doubled the breastfeeding prevalence as reported by mothers.[74] A breastfeeding intervention in sub-Saharan Africa showed that community-based peer counseling could increase EBF prevalence at five months by over 70%.[75] Mothers/caregivers will also be more willing and likely to apply recommended feeding practices if the following methods and techniques are used: 1) individualization method to provide opportunities for mothers to have personal questions and concerns about child feeding answered (i.e., what to feed, how to feed) or instructions paced according to individual progress; 2) cognitive skills training for mothers/caregivers with guided practice to influence self-efficacy; 3) tailoring of messages to increase practical knowledge on selection and preparation of new food recipes; and 4) mobilization of social support (i.e., trained peers, sensitized family members, and health facility staff) to offer encouragement and support, and help the mother maintain optimal child feeding practices.[76]

[71] Buccini, Gabriela et al. *Addressing Barriers to Exclusive Breastfeeding in Nampula, Mozambique: Opportunities to Strengthen Counseling and Use of Job Aids: Technical Report*. Washington, DC: USAID and Maternal and Child Survival Program. 2019. https://www.mcsprogram.org/resource/addressing-barriers-to-exclusive-breastfeeding-in-nampula-mozambique-opportunities-to-strengthen-counseling-and-use-of-job-aids/

[72] Nsiah-Asamoah, Christiana, Kingsley Kwadwo Asare Pereko, and Freda Dzifa Intiful. 2019. "Nutritional counselling interactions between health workers and caregivers of children under two years: Observations at selected child welfare clinics in Ghana."

[73] Matsuyama, Akiko et al. 2013. "Perceptions of caregivers about health and nutritional problems and feeding practices of infants: a qualitative study on exclusive breast-feeding in Kwale, Kenya." *BMC Public Health* 13 (1): 525. https://doi.org/10.1186/1471-2458-13-525.

[74] Chola, Lumbwe et al. 2015. "Cost-Effectiveness of Peer Counselling for the Promotion of Exclusive Breastfeeding in Uganda." *PLOS ONE* 10 (11): e0142718. https://doi.org/10.1371/journal.pone.0142718.

[75] Desmond, Chris et al. 2008. "Scaling-up Exclusive Breastfeeding Support Programmes: The Example of KwaZulu-Natal." *PLOS ONE* 3 (6): e2454. https://doi.org/10.1371/journal.pone.0002454.

[76] Kulwa, Kissa B. M. et al. 2014. "Effectiveness of a nutrition education package in improving feeding practices, dietary adequacy and growth of infants and young children in rural Tanzania: rationale, design and methods of a cluster randomised trial." *BMC Public Health* 14(1): 1077. https://doi.org/10.1186/1471-2458-14-1077.

2.2.1 SUB-QUESTION: 2.4. WHAT ARE THE ENABLERS FOR PRACTICING AND BARRIERS FOR NOT PRACTICING OPTIMAL COMPLEMENTARY FEEDING DURING AND AFTER ILLNESS?

Complementary feeding (from six months of age to two years of age) has been identified as the third most effective public health intervention to prevent under-five mortality.

Promoted Nutrition Behavior/Practice
Complementary Feeding
Caregivers encourage children to eat extra food during recovery from illness
Caregivers prepare and feed children 6–9 months old soft and thick meals
Caregivers feed children 6–24 months fruits, vegetables, legumes, animal foods, and fats for nutrient density
Caregivers prepare and feed their children the recommended amount of food
Feeding during and after illness
Responsive feeding

While the research was numerous (one systematic review, four reports, and 17 studies), results varied across studies in terms of factors affecting appropriate sick infant and young child feeding practices with more frequency at the time of illness than when they were not sick.

BARRIERS

NOT ATTENDING FOLLOW-UP CARE: Caregivers might not get the correct counseling because they fail to attend recommended follow-up visits. In Tanzania, a review of IMCI revealed that most mothers and caretakers fail to bring children for a follow-up visit when the child's condition improves. Mothers return to the health facility if and when the child is sick again, as illustrated in the following quote: "Another area where we face a challenge with them is when you tell them to come back after a day or two, and so forth. Some of them never come back. There are only a few who really follow what you tell them." [77]

MOTHERS NOT COUNSELED ON FEEDING: A study from Ethiopia that assessed sick infant and young child feeding practices and associated factors among mothers of children aged less than 24 months old revealed that a mother who had received counseling on sick child feeding was nearly three times more likely to feed her child appropriately than her counterparts. Mothers who were housewives were 55% times less likely to feed their sick child appropriately than mothers who were working and those who had a child less than six months of age.[78,79] Thus, factors that contribute to poor feeding practices of sick children include whether or not the mother has had counseling, if they are working and if their child is younger than six months of age, in which case they need to be more concerned with providing frequent breastfeeds at the time of illness.

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[77] Prosper, Hidegalda, Janet Macha, and Josephine Borghi. *Implementation of Integrated Management of Childhood Illness in Tanzania: Success and Challenges.* 2009.

[78] Degefa, Nega et al. 2019 "Sick Child Feeding Practice and Associated Factors among Mothers of Children Less Than 24 Months Old, in Burayu Town, Ethiopia."

[79] To assess this, these mothers were asked a question on how frequent they fed their child at the time of illness (the correct answer was more than 2–3 meals per day for those aged 6–8 months, and more than 3–4 meals per day for those 9–23 months). For those who were exclusively breastfed, mothers who fed more than the normal frequency (8–12 feeds per day) had good sick child-feeding practice whereas those mothers who gave the usual amount of liquids and those giving somewhat less amount and frequency of liquids than usual or withholding feeding were considered as having poor sick baby-feeding practice.

LACK OF KNOWLEDGE: Restriction or withdrawal of breastfeeding or complementary foods during illness was common among respondents because of children's loss of appetite (supposed or actual) and poor awareness of caregivers about the feeding needs of sick children.[80] A study from Ethiopia found that more than half of mothers initiated complementary feeding in a timely manner. Only 45% of women reported correct feeding practices during childhood illness period, and 32.5% of mothers fed as usual. The main reason reported by the mothers for early initiation of complementary feeding was lack of knowledge leading to the recommendation of community-level information/counseling about the importance of timely initiation of complementary feeding and behavioral change communications with the existing health extension package.[81]

The USAID-funded, MCSP-led trials of improved practices assessment provided formative data on cultural beliefs and perceptions that drive complementary feeding practices in northern Mozambique.[82] This assessment revealed that mothers have a strong aspiration for their children to be healthy and grow and develop well, and that they recognize the importance of feeding a child "well" to achieve this. However, there is a large gap between mothers' current IYCF practices and optimal practices due to cultural beliefs and habits, mothers' lack of knowledge, and the lack of financial means to provide appropriate and sufficient foods. More than a quarter of respondents had started to introduce foods early, either due to a lack of knowledge about the appropriate time to introduce foods or because of perceived insufficient breast milk. Complementary feeding problems, associated messages, suggested recipes, and examples are outlined in the trials of improved practices assessment counseling guide and materials available in the study.[83]

CAREGIVERS' PERCEPTION: A study in Kenya demonstrated that caregivers were not aligned with optimal feeding, zinc supplementation, and fluid intake during childhood diarrhea.[84] Many caregivers withheld food during childhood diarrhea, because they believe it will decrease the frequency of diarrhea. The study suggested guidelines for counseling caregivers on nutritional management of diarrhea. In Zanzibar, Tanzania, a formative assessment identified a key barrier to increase feeding during illness is the mother's perception of a sick child who refuses to eat and finds it difficult to force feed a sick child. [85]

POOR QUALITY OF COUNSELING: In a study from Ghana, some health workers advised caregivers to breastfeed more often and give soft and easily digestible foods during illness. However, none of the health workers provided information on why it was necessary to employ these feeding strategies during periods of sickness and recovery of young children. Only 20–25% of caregivers were counseled on the need to give additional meals after illness and frequently gave small portion sizes of food during illness, respectively. Such advice was only observed in some interactions between health workers and caregivers of children whose

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[80] Degefa, Nega, et al. 2019 "Sick Child Feeding Practice and Associated Factors among Mothers of Children Less Than 24 Months Old, in Burayu Town, Ethiopia."

[81] Kavle, Justine A. et al. 2019. "Strengthening counseling on barriers to exclusive breastfeeding through use of job aids in Nampula, Mozambique." *PLOS ONE* 14 (12): e0224939. https://doi.org/10.1371/journal.pone.0224939.

[82] Picolo, Melanie et al. *Cultural Beliefs and Practices That Influence Infant and Young Child Feeding in Mozambique: Results of Trials of Improved Practices Assessment, September 2017*. Washington, DC: USAID and Maternal and Child Survival Program. 2017. https://www.mcsprogram.org/wp-content/uploads/2017/10/MCSP-Mozambique-TIPs-Report-Exec-Summary.pdf.

[83] Picolo, Melanie et al. 2019. "Rethinking Integrated Nutrition-Health Strategies to Address Micronutrient Deficiencies in Children under Five in Mozambique." *Maternal & Child Nutrition* 15 (Suppl 1): e12721. https://doi.org/10.1111/mcn.12721.

[84] Maina, Matthew Mwaniki. 2018. *Nutritional Management of Childhood Diarrhoea in Korogocho Informal Settlement Nairobi City County* (master's thesis). School of Public Health of Kenyatta University, Nairobi.

[85] Kinabo, Joyce L. et al. 2017. "Infant and young child feeding practices on Unguja Island in Zanzibar, Tanzania: A ProPAN based analysis." *Tanzania Journal of Health Research* 19 (3) https://doi.org/10.4314/thrb.v19i3.5 .

weight had decreased or remained the same as the previous month's weight. The main barrier identified was having a one-way conversation with the caregivers during counseling, and health workers did not discuss and confer with caregivers on available options that could be adopted to improve the child's nutritional status. [86]

INCOME OF HOUSEHOLDS/CAREGIVERS: Another study in Zambia demonstrated that income was a huge barrier to accessing timely care-seeking practices. As the proportion of households with a monthly income of more than 200,000 Kwacha increased, more caregivers sought immediate health care for their sick children accordingly, allowing them to have time to be counseled on IYCF practices unless they got that advice from CHWs.[87]

ENABLERS:

ACCESS TO TRAINED HEALTH PROVIDERS: A study from Nigeria showed mothers who have access to facilities with C-IMCI practiced better optimal complementary feeding practices. There was a statistically significant difference in early and timely initiation of complementary feeding and frequency of feeding. About 19.3% of caregivers who were not counseled through C-IMCI commenced complementary feeding earlier than the recommended six months, compared to just 4.2% of caregivers who were counseled through C-IMCI. Over 86% of children 6–23 months of age with C-IMCI counseling were fed more than three times a day, while more than half of children 6–23 months of age (52.1%) were fed less than three times a day in the non-C-IMCI areas. [88]

INDIVIDUAL PERSONALIZED COUNSELING: A study in Burkina Faso improved nutrition counseling or communication by health providers after a nutrition counseling intervention to train health care providers on delivering a personalized educational intervention to mothers during prenatal care, immunization, and healthy and sick child consultations. A total of 24.3% of mothers who received the personalized counseling, and 64.2% of mothers who didn't receive the personalized counseling, did not receive counseling on complementary feeding at their last contact with health services when their child was aged between 6–18 months. All reported complementary feeding practices were significantly better in the intervention arm, with the exception of timely introduction of solid, semi-solid, or soft foods. The overall positive results on feeding practices were likely due to individual personalized counseling adapted to each mother-child pair and their socioeconomic situations after a thorough analysis of the child's situation. Other factors that prevented adequate complementary feeding included limited availability and accessibility of energy and nutrient-dense complementary foods. This study again shows that training primary health care (PHC) providers to provide a facility-based, patient-centered educational intervention to promote good feeding practices for pregnant and lactating women and young children was associated with improved IYCF practices and increased childbirth weight. [89]

Strategies to improve uptake of complementary feeding practices have been identified, including culturally appropriate group nutrition education, individual counseling, interpersonal communication, home visits, and

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[86] Nsiah-Asamoah, Christiana, Kingsley Kwadwo Asare Pereko, and Freda Dzifa Intiful. . "Nutritional counselling interactions between health workers and caregivers of children under two years: observations at selected child welfare clinics in Ghana."

[87] Sasaki, Satoshi et al. 2010. "Access to a health facility and care-seeking for danger signs in children: before and after a community-based intervention in Lusaka, Zambia." *Tropical Medicine & International Health* 15 (3): 312–20. https://doi.org/10.1111/j.1365-3156.2009.02460.x.

[88] Ogundele, Olorunfemi Akinbode, and Tolulope Ogundele. 2015. "Effect of community level intervention on nutritional status and feeding practices of under five children in Ile Ife, Nigeria." *Pan African Medical Journal* 22 (1). doi: 10.11604/pamj.2015.22.255.7121

[89] Nikièma, Laetitia et al. 2017. "Effectiveness of facility-based personalized maternal nutrition counseling in improving child growth and morbidity up to 18 months: A cluster-randomized controlled trial in rural Burkina Faso." *PLOS ONE* 12 (5): e0177839. https://doi.org/10.1371/journal.pone.0177839.

mass media with participatory approaches and community involvement.[90] [91] [92] In many countries, the IYCF counseling package has not been fully rolled out at scale.[93] [94] [95] Systematic reviews of the efficacy and effectiveness of breastfeeding and complementary feeding recommend: 1) well-designed nutrition education and counseling; and 2) optimal use of locally available, feasible, and affordable foods.[96] [97] [98] [99]

2.2.1 SUB-QUESTION: 2.5 FROM THE CAREGIVERS' PERSPECTIVE, WHAT ARE THE ENABLERS FOR INCREASING FLUID INTAKE AND BARRIERS FOR NOT PROVIDING MORE FLUIDS DURING AND AFTER ILLNESS?

One formative study, two systematic reviews, and 12 studies were found that add to the evidence base related to enablers and barriers for increasing fluid intake during and after illness. Studies found that caregivers have poor knowledge, attitudes, and perceptions regarding the management of diarrhea. [100] [101] ORS was sub-optimally used at home among caregivers in Zambia,[102] while in the Gambia, only 17% gave ORS.[103] Carter et al. reported poor perceptions on diarrhea and its treatment.[104] Diarrhea was perceived to be a normal illness and therefore treated lightly.[105] The reason for the inadequate use of ORS ranges from refusal by child due to taste, lack of faith in it by caregivers, and limited availability.[106] Caregivers were more accustomed to the use of antibiotics and anti-diarrheal on acute diarrhea than the recommended ORS and zinc.

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[90] Paul, Keriann et al. 2010. Complementary feeding messages that target cultural barriers enhance both the use of lipid-based nutrient supplements and underlying feeding practices to improve infant diets in rural Zimbabwe. *Maternal & Child Nutrition* 8: 225-38. 10.1111/j.1740-8709.2010.00265.x.

[91] Penny, Mary E. et al. 2005. "Effectiveness of an educational intervention delivered through the health services to improve nutrition in young children: a cluster-randomised controlled trial." *The Lancet*. 365 (9474): 1863-72. 10.1016/S0140-6736(05)66426-4.

[92] Hotz, C. and R. S. Gibson RS. 2005. "Participatory nutrition education and adoption of new feeding practices are associated with improved adequacy of complementary diets among rural Malawian children: a pilot study." *European Journal of Clinical Nutrition*. 59: 226-37. 10.1038/sj.ejcn.1602063.

[93] United Nations Children's Fund. *Community Infant and Young Child Feeding Counselling Package*. 2010. https://iycf.advancingnutrition.org/collections.

[94] *Community Infant and Young Child Feeding Counselling Package* adapted to the Mozambique context.

[95] Picolo, Melanie et al. 2019. "Rethinking Integrated Nutrition-Health Strategies to Address Micronutrient Deficiencies in Children under Five in Mozambique."

[96] Dewey, Kathryn G. and Seth Adu-Afarwuah. 2008. "Systematic review of the efficacy and effectiveness of complementary feeding interventions in developing countries." *Maternal & Child Nutrition* 4 Suppl 1: 24-85. doi:10.1111/j.1740-8709.2007.00124.x

[97] Aidam, B. A. et al. 2005. "Factors associated with exclusive breastfeeding in Accra, Ghana." *European Journal of Clinical Nutrition* 59(6): 789-96. doi: 10.1038/sj.ejcn.1602144

[98] Anderson, Alex K. et al. 2005. "A Randomized trial assessing the efficacy of peer counseling on exclusive breastfeeding in a predominantly Latina low-income community." *Archives of Pediatrics and Adolescent Medicine* 159(9): 836–41. doi: 10.1001/archpedi.159.9.836.

[99] Leite, A. J. et al. 2005. "Effectiveness of home-based peer counselling to promote breastfeeding in the northeast of Brazil: a randomized clinical trial. *Acta Paediatrica* 94 (6): 741-6. doi: 10.1111/j.1651-2227.2005.tb01974.x.

[100] Othero, Doreen M. et al. 2009. "Home Management of Diarrhea among Underfives in a Rural Community in Kenya: Household Perceptions and Practices."

[101] Jammalamadugu, Swetha Bindu et al. 2013. "Assessment of the household availability of oral rehydration salt in rural Botswana." *The Pan African Medical Journal* 15 (130). https://doi.org/10.11604/pamj.2013.15.130.2793.

[102] Greenland, Katie et al. 2016. "Theory-based formative research on oral rehydration salts and zinc use in Lusaka, Zambia." *BMC Public Health* 16 (312) https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-016-2984-2.

[103] Sillah, Famara, Hsin-Jung Ho, and Jane C.-J. Chao. 2013. "The use of oral rehydration salt in managing children under 5 y old with diarrhea in the Gambia: knowledge, attitude, and practice." *Nutrition* 29 (11-12): 1368-73. https://doi.org/10.1016/j.nut.2013.05.014.

[104] Carter, Emily et al. 2015. "Harmful practices in the management of childhood diarrhea in low- and middle-income countries: a systematic review."

[105] Amare, Desalegne et al. 2014. "Maternal Knowledge and Practice Towards Diarrhoea Management in Under Five Children in Fenote Selam Town, West Gojjam Zone, Amhara Regional State, Northwest Ethiopia, 2014." *Journal of Infectious Diseases & Therapy* 2 (06). https://doi.org/10.4172/2332-0877.1000182.

[106] Osonwa, Kalu O., Jimmy E. Eko, and S. Ema. 2016. "Utilization of Oral Rehydration Therapy in the Management of Diarrhea in Children among Nursing Mothers in Odukpani Local Government Area of Cross River State, Nigeria." *American Journal of Public Health Research* 4 (1): 28-37. https://doi.org/10.12691/ajphr-4-1-5.

A systematic review of harmful practices in the management of childhood diarrhea in low- and middle-income countries[107] revealed general common reasons why caregivers would decrease fluids or cease breastfeeding during child diarrhea episodes. Multiple studies have attributed the practice of fluid curtailment to caregiver beliefs about the impact of fluid intake on a child's diarrhea episode. Caregivers restricted fluids and feeding during diarrhea episodes and gave inappropriate medication instead. In Kenya, caregivers withheld feeding with the perception that it enhanced diarrhea. A study in a rural community in Kenya looking at household perceptions and practices of home management of diarrhea found that a barrier to increasing fluid intake during diarrhea illness lies in a misconception that the more a child drinks the looser stools they will pass; therefore, fluids should be limited to reduce diarrhea.[108] There are also beliefs of family and community members, particularly elderly relatives that have also been reported as influential in determining caregiver practices related to fluids and feeding during childhood diarrhea episodes. In three studies, caregivers reported reduced fluid intake due to child refusal, child crying, or decreased thirst.[109] [110] [111] In one study, mothers reported they did not encourage increased fluids because they were inexperienced in how to do this.[112]

A study from rural Sierra Leone[113] reported that if the family does not have access to any other water source, they might also reduce the amount of water given to the child to treat the diarrhea. A study in Lesotho[114] found that reasons for limiting fluids included: mothers received conflicting advice from grandmothers and nurses, and some health care providers advising them to restrict feeding during illness. Many mothers believe solid food should be given during illness because it "strengthens the bowels." A study in Malawi[115] found that caregivers perceive contaminated breast milk as a cause of diarrhea, which leads them to reduce/stop breastfeeding and start early weaning foods as treatment.

2.2.1 SUB-QUESTION: 2.6 WHO ARE COMMUNITY INFLUENCERS OF IYCF PRACTICES FOR SICK CHILDREN? HOW DO THEY INFLUENCE POSITIVELY OR NEGATIVELY OPTIMAL FEEDING PRACTICES?

There are multiple community influencers of IYCF practices for sick children: CHWs, husbands, grandmothers, mothers-in-law, community leaders, and women leaders. CHWs' delivery of nutrition education is an effective way to improve caregiver feeding practices, children's dietary diversity, and the frequency by which they are fed. The review found limited literature on community influencers of feeding of children during illness, and none exist after illness. In total one formative study, one systematic review, two program reports

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[107] Carter, Emily et al. 2015 "Harmful practices in the management of childhood diarrhea in low- and Middle-income countries: a systematic review."
[108] Othero, Doreen M. et al. 2009. "Home Management of Diarrhea among Underfives in a Rural Community in Kenya: Household Perceptions and Practices."
[109] Dearden, K. A. et al. 2002. "What influences health behavior? Learning from caregivers of young children in Viet Nam." *Food Nutrition Bulletin*. 23 (4 suppl): 119–29.
[110] Okunribido, O. O. et al. 1997. Cultural perceptions of diarrhea and illness management choices among yoruba mothers in oyo state, Nigeria. *International Quarterly of Community Health Education*. 17 (3): 309-18.
[111] Ali, M., D. Atkinson, and P. Underwood. 2000. "Determinants of use rate of oral rehydration therapy for management of childhood diarrhea in rural Bangladesh." *Journal of Health, Population and Nutrition* 18 (2):103-8.
[112] Ibid.
[113] McMahon, Shannon A. et al. 2013. "Spoiled breast milk and bad water; local understandings of diarrhea causes and prevention in rural Sierra Leone."
[114] Almroth, S., M. Mohale, and M. C. Latham. 1997. "Grandma ahead of her time: traditional ways of diarrhoea management in Lesotho." *Journal of Diarrhoeal Diseases Research* 15 (3): 167-72.
[115] Munthali, A. C. 2005. "Change and continuity in the management of diarrhoeal diseases in under-five children in rural Malawi." *Malawi Medical Journal* 16 (2). https://doi.org/10.4314/mmj.v16i2.10859.

and nine studies were found on this topic. Community influencers who support feeding sick children are mostly similar to those who influence optimal IYCF practices.

CHWS AND LEADERS: The Lancet Series on Maternal and Child Nutrition 2013 and 2021 both recommend community-based platforms for nutrition education and promotion that includes building community workers' skills in behavior change communication (BCC) and developing community mobilization strategies to promote optimal feeding practices. The series also emphasizes the importance of community engagement and buy-in to ensure effective community outreach programs, behavior change, and access.[116] Caregiver knowledge of feeding in Uganda increased after caregivers participated in a 10-week nutrition education and supplemental feeding program.[117]

FAMILY MEMBERS: A study from Kenya found that advice from extended family and mothers-in-law is influential at reinforcing traditional norms relating to feeding practices.[118] Formative research from DRC suggested that 15% of mothers said that their mothers-in-law would be opposed to them continuing to breastfeed their baby when he/she is sick.[119] Grandmothers, too, play a key role in influencing IYCF practices in DRC. They advise on caring for and feeding the sick child (continue breastfeeding, give the child an enema to stimulate appetite, and give the child Bakeke tea and biscuits); advise mothers on breastfeeding (give the breast often, continue feeding sick children, eat enough food and/or take herbs to have sufficient quantity breastmilk); and sometimes help finance the care of sick children to take them to the health facility. [120]

A quasi-experimental study in Western Kenya on the role of social support in improving infant feeding practices[121] revealed that encouraging the provision of social support to mothers by key household influencers such as grandmothers and fathers improved some targeted infant feeding practices, including feeding the infant the minimum number of meals and dietary diversity. These promising results support the need to adopt a wider, family-centered approach by providing resources such as more education to these influential family members to enhance support in child health, especially in optimal IYCF and care practices as these relatives have less access to new knowledge than mothers do. In Mozambique, husbands were reported to be the primary source of support for EBF during pregnancy and after childbirth. [122]

A review on facilitators and barriers to EBF in West Africa[123] showed that there are pressures from families on breastfeeding mothers that have a negative influence on EBF practices. The dissemination of program interventions on awareness and benefits of EBF among mothers at the community level should involve

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[116] Bhutta, Zulfiqar A. et al. 2013. "Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost?" *The Lancet* 382 (9890): 452–77. doi:10.1016/S0140-6736(13)60996-4.
[117] Ickes, S. B. et al. 2017. "Maternal participation in a nutrition education program in Uganda is associated with improved infant and young child feeding practices and feeding knowledge: a post-program comparison study." *BMC Nutrition* 3 (1): 32. https://doi.org/10.1186/s40795-017-0140-8.
[118] Matsuyama, Akiko et al. 2013. "Perceptions of caregivers about health and nutritional problems and feeding practices of infants: a qualitative study on exclusive breast-feeding in Kwale, Kenya."
[119] Rolf, Klemm, Jennifer Burns, and Kimberly Amundson. *Formative Research to Examine Perceptions and Behaviors about Maternal, Infant and Young Child Feeding—JENGA JAMAA II, Democratic Republic Congo*. 2012.
[120] Kavle, Justine A. et al. 2019. "Strengthening nutrition services within integrated community case management (ICCM) of childhood illnesses in the Democratic Republic of Congo: Evidence to guide implementation."
[121] Mukuria, Altrena G. et al. 2016. "Role of Social Support in Improving Infant Feeding Practices in Western Kenya: A Quasi-Experimental Study." *Global Health: Science and Practice* 4, (1): 55-72. https://doi.org/10.9745/GHSP-D-15-00197.
[122] Buccini, Gabriela et al. *Addressing Barriers to Exclusive Breastfeeding in Nampula, Mozambique: Opportunities to Strengthen Counseling and Use of Job Aids: Technical Report*. 2019.
[123] Apanga, Paschal Awingura. 2014. "A Review on Facilitators and Barriers to Exclusive Breastfeeding in West Africa." *Journal of Biology, Agriculture and Healthcare*. 4 (24): 9-15. iiste.org/Journals/index.php/JBAH/article/view/16879

important key players such as community leaders, husbands, mothers-in-law, and grandmothers since they often influence the decision of a mother to exclusively breastfeed. A study in a rural area of Cameroon on cultural barriers to EBF[124] revealed that mothers practiced mixed feeding instead of EBF due to cultural beliefs and pressure from families.

A formative assessment of a community-based study from Western Kenya on engaging fathers and grandmothers to improve maternal and child dietary practices[125] found that besides caring for young children, grandmothers strongly influence what is cooked (i.e., recipes used) and fed to young children in families. Participants in all group discussions noted that senior women are key influencers in making household decisions about maternal nutrition, newborn care, and complementary feeding. This study involved a controlled experiment with two different study areas. In the treatment area, grandmothers and fathers were taught about optimal IYCF practices through "dialogue groups." These treatment areas had better outcomes than the control areas on knowledge and practice of optimal feeding recommendations.

A review of operations research to strengthen nutrition interventions including BCC[126] recommended careful design and implementation of behavior change strategies, based on understanding barriers to behavior change using community-based platforms that work with CHWs to improve access, engage stakeholders, and promote behavior change. Results from a study on iCCM in DRC indicate that targeting key influencers through community and mother support groups can aid in equipping caregivers with information on IYCF.[127] Therefore, engaging traditional healers who can provide nutrition advice and support referrals of sick and/or malnourished children is critical.

MCSP's trials of improved practices in Mozambique[128] looked at understanding cultural beliefs, perceptions, behaviors, and motivating factors that may facilitate or act as a barrier to optimal IYCF practices, and identified the influence and role of other family members, particularly grandmothers and fathers. A primary recommendation is to develop a comprehensive communication strategy aimed at health care providers and CHWs and tailored messages for mothers, grandmothers, fathers, and other caregivers to strengthen and reinforce optimal breastfeeding and complementary feeding practices. This includes training the health care providers, CHWs, and traditional birth attendants on the benefits of breastfeeding, and disseminating this information through various channels to mothers, grandmothers, and fathers alike. It was also recommended to encourage female family members and fathers who also have a role in children's care to join in educational sessions as key influencers to pass their knowledge on to mothers.

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[124] Kakute, Peter Nwenfu et al. 2005. "Cultural Barriers to Exclusive Breastfeeding by Mothers in a Rural Area of Cameroon, Africa." *Journal of Midwifery & Women's Health* 50 (4): 324–28. https://doi.org/10.1016/j.jmwh.2005.01.005.

[125] Thuita, Faith et al. 2015. "Engaging fathers and grandmothers to improve maternal and child dietary practices: Planning a community-based study in western Kenya." *African Journal of Food, Agriculture, Nutrition and Development* 15 (5): 10386-405.

[126] Menon, Purnima et al. 2014. "Strengthening implementation and utilization of nutrition interventions through research: a framework and research agenda." *Annals of the New York Academy of Sciences* 1332 (1): 39–59. doi:10.1111/nyas.12447.t

[127] Kavle, Justine A. et al. 2019. "Strengthening nutrition services within integrated community case management (ICCM) of childhood illnesses in the Democratic Republic of Congo: Evidence to guide implementation."

[128] Picolo, Melanie et al. *Cultural Beliefs and Practices That Influence Infant and Young Child Feeding in Mozambique: Results of Trials of Improved Practices Assessment, September 2017*. 2017.

2.2.1 SUB-QUESTION: 2.7A DO HEALTH PROVIDERS/WORKERS AND COMMUNITY WORKERS PROVIDE QUALITY COUNSELING AND SUPPORT ON FEEDING OF SICK CHILDREN?

COMMUNITY HEALTH WORKERS: Experience from low- and middle-income countries suggest that frontline health workers can deliver quality community-based care to sick children in settings where access to formal health service is limited.[129] [130] According to the UNICEF/WHO iCCM protocol,[131] community workers identify and refer children with illnesses, and advise caregivers on prevention and home treatment of illnesses and follow-up care. CHWs implementing iCCM are supposed to advise the caregiver of a sick child to continue feeding and fluids. Evidence demonstrates that using community-level nutritional counseling can greatly improve nutritional status and feeding practices of under-five children.[132] However, a review of nutrition counseling in iCCM found little data about the quality or quantity of feeding-related advice.[133] Overall, six studies, three reports and one systematic review support the evidence base related to the quality of counseling and support to feeding sick children by CHWs.

A study in Mozambique[134] looking at health strategies for children under five years old clearly recommends delivery of integrated child health services by CHWs versus health facility workers to allow for appropriate time for IYCF counseling. The study also recommended investments be made in adequate training and equipping of health facility personnel and CHWs with the required skills to support and guide caregivers on responsive feeding and problem solving. Studies conducted in lower-resource countries in Africa indicate that IMCI-trained workers were more likely than non-IMCI-trained workers to provide quality services as measured by correctly classifying illnesses and showing greater improvements in counseling families on adequate nutrition.[135]

A study from Ethiopia assessed the quality of iCCM services delivered by iCCM-trained Health Extension Workers (HEWs).[136] Analysis of the HEW quality of care revealed that 78% of caregivers were advised to give extra fluids and continued feeding for diarrhea, 36% of caregivers advised to return immediately if the child cannot drink/breastfeed or becomes sicker, and 93% of caregivers advised on when to return for follow-up. In a study looking at the quality of sick child care delivered by CHWs in Tanzania, only 69% of community workers counseled caregivers to give extra fluids and continue feeding their sick child for children with uncomplicated diarrhea.[137]

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[129] Oresanya, Olusola et al. 2019. "Effect of community-based intervention on improving access to treatment for sick under-five children in hard-to-reach communities in Niger State, Nigeria." *Journal of Global Health* 9 (1): 010803. https://doi.org/10.7189/jogh.09.010803.
[130] Gilroy, Kate E. et al. 2013. "Quality of sick child care delivered by Health Surveillance Assistants in Malawi."
[131] World Health Organization and United Nations Children's Fund. *WHO/UNICEF Joint Statement: Integrated Community Case Management (iCCM): An equity-focused strategy to improve access to essential treatment service for children*. 2012. www.who.int/maternal_child_adolescent/documents/statement_child_services_access_whounicef.pdf.
[132] Ogundele, Olorunfemi Akinbode, and Tolulope Ogundele. 2015. "Effect of community level intervention on nutritional status and feeding practices of under five children in Ile Ife, Nigeria."
[133] Wolfheim, Lynette and Cathy Friedman. *Linking Nutrition & (Integrated) Community Case Management: A review of operational experiences*. 2014. www.ennonline.net/linkingnutritionintegratedcommunitycasemanagementareviewofoperationalexperiences.
[134] Picolo, Melanie et al. 2019. "Rethinking Integrated Nutrition-Health Strategies to Address Micronutrient Deficiencies in Children under Five in Mozambique."
[135] Abebe, Ayele Mamo, Mesfin Wudu Kassaw, and Fikir Alebachew Mengistu. 2019. "Assessment of Factors Affecting the Implementation of Integrated Management of Neonatal and Childhood Illness for Treatment of under Five Children by Health Professional in Health Care Facilities in Yifat Cluster in North Shewa Zone, Amhara Region, Ethiopia." *International Journal of Pediatrics*. https://doi.org/10.1155/2019/9474612.
[136] Quality was assessed based on whether HEWs correctly assessed, classified, treated, and referred children with iCCM illnesses and provided counseling to caregivers based on Ethiopia's iCCM clinical guidelines.
[137] Baynes, Colin et al. 2018. "Quality of Sick Child-Care Delivered by Community Health Workers in Tanzania." *International Journal of Health Policy and Management* 7 (12): 1097-109. https://doi.org/10.15171/ijhpm.2018.63.

Nigeria's CHWs[138] who had training in iCCM had significantly improved communication with caregivers and more caregivers were advised on how to give extra fluid to a sick child and when to return to a facility. A similar recommendation arose from the 2008 review on linking nutrition and iCCM. The iCCM training manuals and recording forms should be revised to ensure that continued feeding of the sick child is emphasized and made more explicit.[139]

A systematic review and meta-analysis looked at the training skills of health workers for IMCI counseling. IMCI-trained workers were more likely to correctly classify illnesses and showed greater improvements in counseling families on adequate nutrition.[140] In Sudan, a high percentage (79%) of caregivers who were counseled by IMCI-trained health workers responded that they would continue feeding the child during illness but only 45% mentioned they would give extra fluids and continue feeding the sick child at home.[141]

HEALTH PROVIDERS: It is important to recognize the importance and acceptance of facility-based health services as the first point of entry for sick children. Literature related to this was scarce; we found only three studies and three reports/grey literature. Grey literature from DRC identified the health center as the first choice for households for sick child treatment and counseling and information on how to feed children. Close to 64% of caregivers received information on how to feed their child from the health center.[142]

Also, health workers trained in IMCI are better than non-trained ones in advising caregivers on how to care for a sick child at home. A study from Nigeria compared the quality of care provided to sick children at selected first-level health facilities in IMCI-implementing and non-IMCI-implementing health facilities.[143] It revealed IMCI-trained health workers showed enhanced counseling and communication skills as evidenced by the high percentage (90%) of caregivers advised to give extra fluids and continue feeding, while only 4% were advised to do so in the comparison districts. Nearly all facilities with IMCI (97%) had social and behavior change communication (SBCC) materials, the required chart booklet, and nutritional counseling cards. The study concluded the quality of care provided to sick children attending IMCI-implementing facilities was significantly better if the health worker was trained in IMCI and provided with the necessary materials.

The quality of primary care services delivered by health facility providers such as ANC and sick child care in low- and middle-income countries is frequently inadequate relative to national and international norms.[144] Studies conducted throughout sub-Saharan Africa have documented low adherence to national health care guidelines, improper choice of treatment during care, and incorrect dosing of medication for children presenting with fever.[145]

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[138] To be a community oriented person (CORP), the person must be resident, literate, credible, willing to be a volunteer, and have time to do the work every month. The work of the CORPs is guided by guidelines. A CORP is to be a female (preferably) and must treat a sick child only if trained.
[139] Wolfheim, Lynette and Cathy Friedman. *Linking Nutrition & (Integrated) Community Case Management: A review of operational experiences*. 2014.
[140] Nguyen, Duyen Thi Kim et al. "Does Integrated Management of Childhood Illness (IMCI) Training Improve the Skills of Health Workers? A Systematic Review and Meta-Analysis."
[141] Federal Ministry of Health Sudan and World Health Organization. *IMCI Health Facility Survey Sudan: March–April 2003.* 2004. https://applications.emro.who.int/dsaf/dsa483.pdf?ua=1.
[142] Windhager, Michaela. 2018. *Effectiveness of Current Vitamin A Deficiency Programs in Democratic Republic of Congo* (master's thesis). University of Vienna, Austria. http://othes.univie.ac.at/51655/.
[143] Jibo, Abubakar Mohammed. 2010. *Assessment of the Effect of Implementation of the Integrated Management of Childhood Illnesses (IMCI) Approach on Childcare in Kano State Nigeria* (dissertation). National Postgraduate Medical College of Nigeria, Abuja. http://www.dissertation.npmcn.edu.ng/index.php/FMCPH/article/view/2475.
[144] Koblinsky, Marge et al. 2006. "Going to Scale with Professional Skilled Care." *The Lancet* 368 (9544): 1377–86. https://doi.org/10.1016/S0140-6736(06)69382-3.
[145] Zurovac, D., and A. K. Rowe. 2006. "Quality of treatment for febrile illness among children at outpatient facilities in sub-saharan Africa." *Annals of Tropical Medicine & Parasitology* 100 (4): 283-96. https://doi.org/10.1179/136485906X105633.

In South Africa, a study on quality of care provided to children attending PHC clinics found that growth monitoring and nutritional counseling at well child visits were generally inadequate.[146] Health promotion activities (e.g., growth monitoring, counseling on feeding practices) were consistently ignored during sick child visits. Counseling on the current condition was satisfactorily provided in less than a third of consultations. Counseling on prevention, home management, follow-up plans, and danger signs to suggest immediate return were all poorly performed. The child's growth was only discussed with the caregiver in 12% of consultations, and nutritional advice was seldom offered, even for children failing to thrive.

A study that examined the association of in-service training and supervision of providers with the quality of sick child care in sub-Saharan Africa revealed that in-service training and supervision were associated with quality of sick child care, with higher impact when provided jointly. In addition, supervision that included supportive elements (feedback and discussion of problems) and a provider's having had recent training were associated with quality in sick child care.[147] However, pooled data from multiple country SPAs[148] revealed that only 36% of health providers had a training course in ANC or sick child care in the past one or two years.[149] The most common topics of recent sick child care trainings were malaria treatment for children (66%), diarrhea treatment (54%), and nutrition or micronutrient deficiencies (50%). Furthermore, only 37% of health providers had all the essential equipment for ANC or sick child care. Observed clinical quality was low, with only 43% of health workers performing the items on the indices of clinical quality for sick child care.

2.2.1 SUB-QUESTION: 2.7B. IF NOT, WHAT ARE THE REASONS FROM PROVIDERS' PERSPECTIVE FOR NOT PROVIDING QUALITY INFANT AND YOUNG CHILD FEEDING (IYCF) COUNSELING DURING AND AFTER ILLNESSES?

The challenge of providing high-quality care for sick children is not unique to community-based delivery strategies; even children treated by trained clinicians in health facilities in low-income countries often receive health care of inadequate quality.[150] [151] [152] [153] The review identified seven studies and three reports that identified the following factors affecting the quality of nutrition counseling and service during illness.

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[146] Thandrayen, Kebashni, and Haroon Saloojee. 2010. "Quality of care offered to children attending primary health care clinics in Johannesburg." *South African Journal of Child Health* 4 (3): 73-77.

[147] Leslie, Hannah H. et al. 2016 "Training And Supervision Did Not Meaningfully Improve Quality Of Care For Pregnant Women Or Sick Children In Sub-Saharan Africa." *Health Affairs* 35 (9): 1716-24. https://doi.org/10.1377/hlthaff.2016.0261.

[148] The SPAs conducted in sub-Saharan Africa over the past decade with observations of antenatal care and sick child care were from surveys were from Kenya, in 2010; Malawi, 2013; Namibia, 2009; Rwanda, 2007; Senegal, 2012–14; Tanzania, 2006; and Uganda, 2007.

[149] Leslie, Hannah H. et al. 2016 "Training And Supervision Did Not Meaningfully Improve Quality Of Care For Pregnant Women Or Sick Children In Sub-Saharan Africa."

[150] Hanson, Kara et al. 2003. "Expanding access to priority health Interventions: a framework for understanding the constraints to scaling-up." *Journal of International Development* 15: 1-14. https://doi.org/10.1002/jid.963

[151] El Arifeen, S. et al. 2005. "Quality of care for under-fives in first-level health facilities in one district of Bangladesh." *Bulletin of the World Health Organization : The International Journal of Public Health* 83 (4): 260-267. https://apps.who.int/iris/handle/10665/73098.

[152] Pariyo, George W. et al. 2005. "Improving facility-based care for sick children in Uganda: training is not enough." *Health Policy and Planning* 20 (Suppl 1): i58–68. https://doi.org/10.1093/heapol/czi051.

[153] Rowe, Alexander K. et al. 2005. "How Can We Achieve and Maintain High-Quality Performance of Health Workers in Low-Resource Settings?" *The Lancet* 366 (9490): 1026–35. https://doi.org/10.1016/S0140-6736(05)67028-6.

INADEQUATE TRAINING, INCLUDING COUNSELING SKILLS: A cross-sectional study in DRC[154] determined that the CHWs lacked training in malnutrition (only 18.8%), EBF (only 9%), and IYCF (only 26.9%). Another contributing factor to the low training coverage of IMCI-trained health workers in Kenya is inadequate pre-service training such as limited time allocated that does not give the students enough exposure to practice skills in clinical settings and the lack of a counseling component of the IMCI case management process.[155] In Tanzania, it is also indicated that the main limitations of pre-service training are the absence of a counseling component and the difficulty in tracing health workers that would have been trained in pre-service training.[156]

DURATION OF COUNSELING: One of the challenges identified is that IMCI consultations take a long time: "the counseling messages recommended by IMCI are time consuming for health workers to deliver, and health workers under time pressure could limit counseling messages to those that are most essential."[157] This is a challenge to IMCI implementation, especially with acute staff shortages at many first-level health facilities in South Africa.[158] A review of IMCI in Kenya revealed that health workers thought that a key barrier for assessing children and counseling caregivers during the sick child assessment was the duration, since the average of 10–20 minutes to assess each child fully was considered excessive. As a result, many health workers skipped sections they perceived as unnecessarily time consuming or reverted to their original practices. In South Africa, nutritional assessments such as checking for signs of malnutrition were not conducted, and providing advice on feeding practices was usually omitted.[159] Thus, health care workers often failed to promote breastfeeding and provide counseling about complementary feeding.[160] Additionally, counseling sessions were typically very short in duration (most lasted less than five minutes), which did not allow most health providers time to follow the best practices for effective EBF counseling (i.e., breastfeeding history, breastfeeding assessment, and breastfeeding counseling skills). It was also argued that a main barrier was their high workload, long patient queues, and low staffing levels.[161] Other barriers included a lack of job aids, with wall charts and chart booklets frequently not available since they were only issued to trainees and were not replaced when lost, removed, or damaged. For example, in Tanzania, after being trained, providers are given a chart booklet to guide practice in facilities, and a "mother's card" showing the recommendations for feeding children.[162]

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[154] Mukulukulu, John Etshumba et al. 2020. "Improving Demand for Health Services with the Involvement of Community Health Workers: A Case Study of Community Dynamics at Mosango Rural Health Zone in the Democratic Republic of Congo." *Open Journal of Epidemiology* 10 (3): 265. https://doi.org/10.4236/ojepi.2020.103023.

[155] Mullei, K., F. Wafula, and C. Goodman. *A Case Study of Integrated Management of Childhood Illness (IMCI) Implementation in Kenya*. Consortium for Research on Equitable Health Systems. 2008.

[156] Prosper, Hidegalda, Janet Macha, and Jo Borghi. *Implementation of Integrated Management of Childhood Illness in Tanzania: Success and Challenges*. 2009.

[157] Horwood, Christiane et al. 2009. "Experiences of training and implementation of integrated management of childhood illness (IMCI) in South Africa: a qualitative evaluation of the IMCI case management training course." *BMC Pediatrics* 9: 62. https://doi.org/10.1186/1471-2431-9-62.

[158] Mupara, Lucia Mungapeyi. 2013. *Challenges Identified by Experienced IMCI-1-Trained Registered Nurses in Implementing the Integrated Management of Childhood Illnesses (IMCI) Strategy in Gaborone, Botswana* (master's thesis). University of South Africa, Pretoria.

[159] Horwood, Christiane et al. 2009. "An Evaluation of the Quality of IMCI Assessments among IMCI Trained Health Workers in South Africa." *PLOS ONE* 4 (6): e5937. https://doi.org/10.1371/journal.pone.0005937.

[160] Reñosa, Mark Donald et al. 2020. "Key challenges of health care workers in implementing the integrated management of childhood illnesses (IMCI) program: a scoping review." *Global Health Action* 13 (1): 1732669. https://doi.org/10.1080/16549716.2020.1732669.

[161] Consortium for Research on Equitable Health Systems. *Implementing IMCI in Kenya: Challenges and Recommendations* (policy brief). 2008. Accessed December 12, 2020. http://www.crehs.lshtm.ac.uk/downloads/publications/IMCI_policybrief.pdf.

[162] Prosper, Hidegalda, Janet Macha, and Jo Borghi. *Implementation of Integrated Management of Childhood Illness in Tanzania; Success and Challenges*. 2009.

LACK OF SPACE FOR COUNSELING: It was also reported by health care workers that physical structures did not support the delivery of IMCI services (e.g., rooms were not big enough to conduct counseling services). A major barrier according to research in Mozambique was that the lack of private rooms for health providers to conduct individual breastfeeding counseling; thus, breastfeeding counseling happened during child services, at either well child consultation (i.e., growth monitoring and child vaccination) or sick child visits.[163] This most likely decreased the time of counseling, making it impossible to give adequate counseling. Overall, during child health visits, it was noted that breastfeeding counseling was done only if the health provider was concerned with infant weight or growth.

INADEQUATE SUPERVISION: Inadequate supervision with infrequent visits was constrained by heavy workloads and limited transport. Moreover, IMCI was rarely addressed during integrated supervision visits, and case management observations were almost never undertaken.

LACK OF UNDERSTANDING OF KEY BEHAVIORS: A study in Ethiopia found that a barrier faced by frontline health workers is difficulty understanding the complex set of behaviors for complementary feeding that include the timing of introduction of complementary food, dietary diversity, feeding frequency, responsiveness to child cues, and safe preparation and storage of foods that may vary and thus affect their knowledge-sharing effectiveness.[164] Regarding questions on optimal IYCF practices during the complementary feeding period (6–23 months of age), only 50% of the health workers could correctly answer questions on the optimal duration of continued breastfeeding, the minimum number of meals per day (68%), MDD (53%), and beverages such as sugary drinks and tea not recommended for IYCF (70%). The study also revealed that certain key IYCF recommendations (e.g., minimum duration of continued breastfeeding, MDD, and minimum acceptable meal frequency) were not well understood by the health workers—which in turn affected the effectiveness of the knowledge transfer to mothers. This finding suggests that besides working to increase the knowledge of the health workers, it is equally important to strengthen their knowledge-sharing efficiency through training.

2.2.1 SUB-QUESTION: 2.7C WHAT ARE THE BARRIERS AND ENABLERS OF PROVIDER COUNSELING AND FEEDING DURING AND AFTER ILLNESS?

Five studies and two reports found by the review identified the following barriers and enablers to provider counseling and feeding during and after illness.

NEED TO STRENGTHEN QUALITY COUNSELING SKILLS DURING ICCM: A review of experiences and evidence on linkages between iCCM and nutrition revealed that iCCM's nutrition components need to be strengthened to improve the coverage and quality of services for sick children and strengthen linkages between the community and health facility, while also linking health and nutrition at the institutional level (Friedman & Wolfheim, 2014).[165] In DRC, the nutrition component of iCCM is limited to screening for malnutrition, which includes identification, referral, and treatment of SAM, and provides brief guidance of continued feeding of

[163] Buccini, Gabriela et al. *Addressing Barriers to Exclusive Breastfeeding in Nampula, Mozambique: Opportunities to Strengthen Counseling and Use of Job Aids: Technical Report*. 2019.
[164] Abebe, Zeweter, Gulelat Desse Haki, and Kaleab Baye. 2016. "Health Extension Workers' Knowledge and Knowledge-Sharing Effectiveness of Optimal Infant and Young Child Feeding Are Associated With Mothers' Knowledge and Child Stunting in Rural Ethiopia." *Food and Nutrition Bulletin* 37 (3): 353–63. https://doi.org/10.1177/0379572116651209.
[165] Kavle, J. et al. 2014. "Exploring why junk foods are 'essential' foods and how culturally tailored recommendations improved feeding in Egyptian children." *Maternal & Child Nutrition* 11 (3): 346–70. https://doi.org/10.1111/mcn.12165

sick children.[166] A study from South Africa explored key determinants of IMCI delivery in a South African province, with a specific focus on health system building blocks using a health system dynamics framework.[167] The South Africa study identified barriers that included poor definition of elements of a service package for children and how IMCI aligned with this, as well as incompetence of trained nurses. Enabling practices in one district included the use of standardized child health records incorporating IMCI activities and stringent practice monitoring through record audits.

SCALE-UP OF SIMPLIFIED, LOW-LITERATE JOB AIDS: Another study from DRC re-affirmed that at scale, simplified tools and a training package adapted for low-literate CHWs could substantially improve health outcomes for under-five children while reducing implementation costs and decreasing their workload. As a result, the training curriculum and simplified tools were adopted nationally based on the results from this study.[168]

TASK SHIFTING TO LOWER-LEVEL CADRES: The studies suggest that lower-level cadres, such as health care assistants, should be trained in IMCI training to boost the number of health workers capacitated to deliver IMCI. These providers can help with non-clinical skills of IMCI, such as identifying feeding problems, monitoring growth, and counseling the caregiver, among other things.[169]

INCLUSION OF COUNSELING IN PRE-SERVICE TRAINING: One noted barrier from Tanzania was that pre-service education of health care workers lacked a component on counseling of the mother, which is important for improved feeding practices.[170] Another barrier identified is the need to improve the supply of daily monitoring tools, such as recording forms, in the facilities; these tools can be helpful for health workers in managing sick children. [171]

SCALE-UP OF COMMUNITY-BASED MONITORING AND EVALUATION TOOLS FOR THE SICK CHILD: From a study on scaling up iCCM in Malawi,[172] a key enabler was the use of a "Sick Child Recording Form" and the generated monitoring data that suggested that communities were using the sick child services. The Sick Child Recording Form serves as job aid through its algorithms for assessment and classification of the sick child's signs and symptoms, and guides CHWs on appropriate treatment (e.g., antibiotic, antimalarial, and/or ORS and zinc tablet). In addition, this form informs the CHWs to advise the caregiver to give more fluids, continue feeding, and return if the child cannot drink or feed, becomes sicker, or has blood in stool. It also advises to follow up with the child in three days. However, a key barrier mentioned again was the lack of supervision and drug supply. In terms of supervision, it is recommended that integrated checklists incorporating key elements of the recording form be developed to assist with supervision.

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[166] Ministry of Health of the Democratic Republic of Congo. *Integrated Management of Childhood illness Community Care Sites: Implementation Guide*. 2007. https://www.advancingpartners.org/sites/default/files/cadres/policies/rd_congo_guide_de_mise_en_oeuvre_pcime-c.pdf.

[167] Pandya, Himani, Wiedaad Slemming, and Haroon Saloojee. 2018. "Health system factors affecting implementation of integrated management of childhood illness (IMCI): qualitative insights from a South African province." *Health Policy and Planning* 33 (2): 171–82. https://doi.org/10.1093/heapol/czx154.

[168] Langston, Anne et al. 2019. "Testing a simplified tool and training package to improve integrated Community Case Management in Tanganyika Province, Democratic Republic of Congo: a quasi-experimental study." *Journal of Global Health* 9 (1) https://doi.org/10.7189/jogh.09.010810.

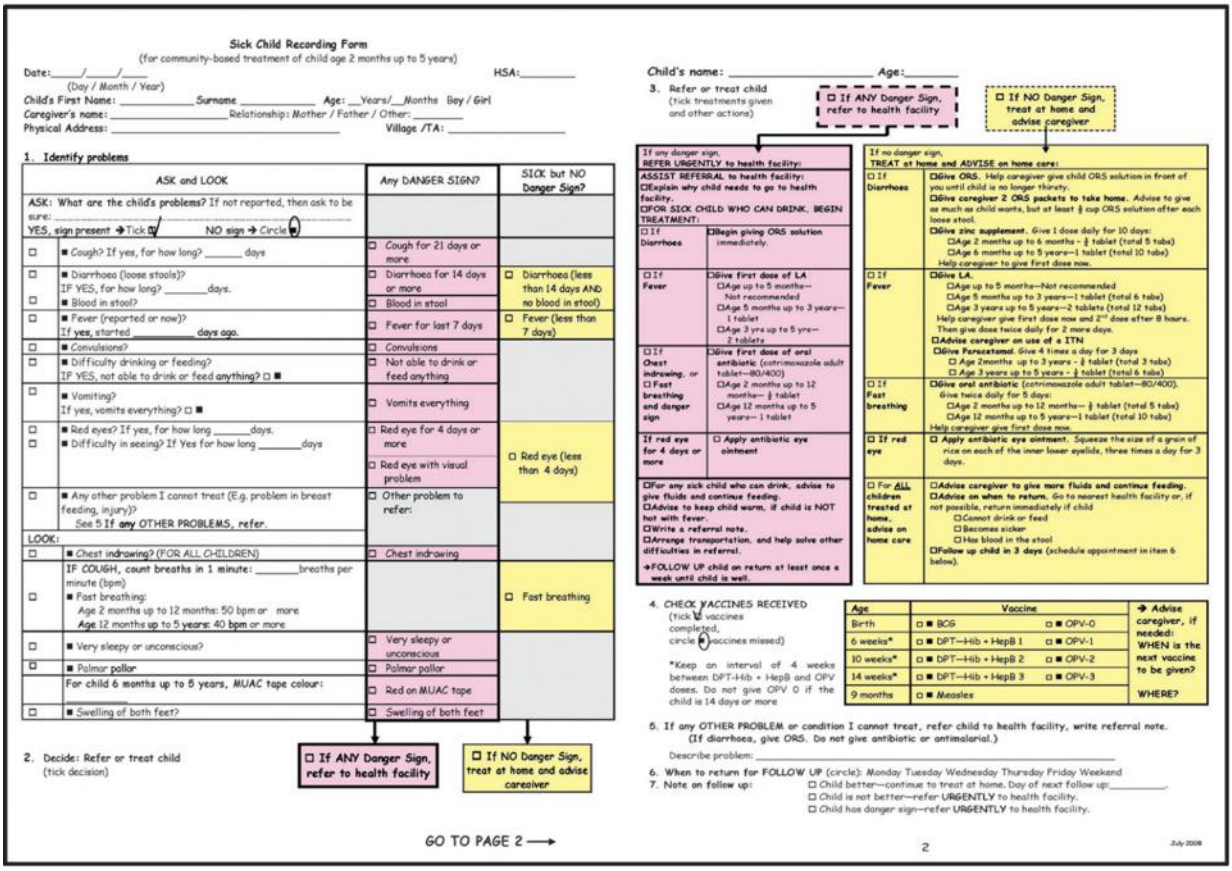
[169] Mupara, Lucia Mungapeyi. 2013. *Challenges Identified by Experienced IMCI-1-Trained Registered Nurses in Implementing the Integrated Management of Childhood Illnesses (IMCI) Strategy in Gaborone, Botswana* (master's thesis).

[170] Prosper, Hidegalda, Janet Macha, and Jo Borghi. *Implementation of Integrated Management of Childhood Illness in Tanzania: Success and Challenges.* 2009.

[171] Ibid.

[172] Nsona, Humphreys et al. 2012. "Scaling Up Integrated Community Case Management of Childhood Illness: Update from Malawi." *The American Journal of Tropical Medicine and Hygiene* 87 (5 Suppl): 54–60. https://doi.org/10.4269/ajtmh.2012.11-0759.

FIGURE 9: MALAWI'S SICK CHILD RECORDING FORM ENABLING COUNSELING ON FEEDING



Sick Child Recording Form

(for community-based treatment of child age 2 months up to 5 years)

Date:____/____/____ (Day / Month / Year) HSA:_____

Child's First Name: _____ Surname _____ Age: __Years/__Months Boy / Girl

Caregiver's name: _____ Relationship: Mother / Father / Other: _____

Physical Address: _____ Village /TA: _____

1. Identify problems

ASK and LOOK	Any DANGER SIGN?	SICK but NO Danger Sign?
ASK: What are the child's problems? If not reported, then ask to be sure: YES, sign present → Tick ☑ NO sign → Circle ●		
☐ ■ Cough? If yes, for how long? _____ days	☐ Cough for 21 days or more	
☐ ■ Diarrhoea (loose stools)? IF YES, for how long? _____days.	☐ Diarrhoea for 14 days or more	☐ Diarrhoea (less than 14 days AND no blood in stool)
☐ ■ Blood in stool?	☐ Blood in stool	
☐ ■ Fever (reported or now)? If yes, started _____ days ago.	☐ Fever for last 7 days	☐ Fever (less than 7 days)
☐ ■ Convulsions?	☐ Convulsions	
☐ ■ Difficulty drinking or feeding? IF YES, not able to drink or feed anything? ☐ ■	☐ Not able to drink or feed anything	
☐ ■ Vomiting? If yes, vomits everything? ☐ ■	☐ Vomits everything	
☐ ■ Red eyes? If yes, for how long _____days.	☐ Red eye for 4 days or more	☐ Red eye (less than 4 days)
☐ ■ Difficulty in seeing? If Yes for how long _____days	☐ Red eye with visual problem	
☐ ■ Any other problem I cannot treat (E.g. problem in breast feeding, injury)? See 5 If any OTHER PROBLEMS, refer.	☐ Other problem to refer:	
LOOK:		
☐ ■ Chest indrawing? (FOR ALL CHILDREN)	☐ Chest indrawing	
☐ IF COUGH, count breaths in 1 minute: _____breaths per minute (bpm) ■ Fast breathing: Age 2 months up to 12 months: 50 bpm or more Age 12 months up to 5 years: 40 bpm or more		☐ Fast breathing
☐ ■ Very sleepy or unconscious?	☐ Very sleepy or unconscious	
☐ ■ Palmar pallor	☐ Palmar pallor	
For child 6 months up to 5 years, MUAC tape colour: _____	☐ Red on MUAC tape	
☐ ■ Swelling of both feet?	☐ Swelling of both feet	

2. Decide: Refer or treat child (tick decision)

☐ If ANY Danger Sign, refer to health facility

☐ If NO Danger Sign, treat at home and advise caregiver

GO TO PAGE 2 →

Child's name: _____ Age:_____

3. Refer or treat child (tick treatments given and other actions)

☐ If ANY Danger Sign, refer to health facility

☐ If NO Danger Sign, treat at home and advise caregiver

If any danger sign, REFER URGENTLY to health facility:

ASSIST REFERRAL to health facility:
☐Explain why child needs to go to health facility.
☐FOR SICK CHILD WHO CAN DRINK, BEGIN TREATMENT:

- ☐ If Diarrhoea: ☐Begin giving ORS solution immediately.
- ☐ If Fever: ☐Give first dose of LA ☐Age up to 5 months—Not recommended ☐Age 5 months up to 3 years—1 tablet ☐Age 3 yrs up to 5 yrs—2 tablets
- ☐ If Chest indrawing, or ☐ Fast breathing and danger sign: ☐Give first dose of oral antibiotic (cotrimoxazole adult tablet—80/400) ☐Age 2 months up to 12 months—½ tablet ☐Age 12 months up to 5 years—1 tablet
- If red eye for 4 days or more: ☐ Apply antibiotic eye ointment

☐For any sick child who can drink, advise to give fluids and continue feeding.
☐Advise to keep child warm, if child is NOT hot with fever.
☐Write a referral note.
☐Arrange transportation, and help solve other difficulties in referral.
→FOLLOW UP child on return at least once a week until child is well.

If no danger sign, TREAT at home and ADVISE on home care:

- ☐ If Diarrhoea: ☐Give ORS. Help caregiver give child ORS solution in front of you until child is no longer thirsty. ☐Give caregiver 2 ORS packets to take home. Advise to give as much as child wants, but at least ½ cup ORS solution after each loose stool. ☐Give zinc supplement. Give 1 dose daily for 10 days: ☐Age 2 months up to 6 months - ½ tablet (total 5 tabs) ☐Age 6 months up to 5 years—1 tablet (total 10 tabs) Help caregiver to give first dose now.
- ☐ If Fever: ☐Give LA. ☐Age up to 5 months—Not recommended ☐Age 5 months up to 3 years—1 tablet (total 6 tabs) ☐Age 3 years up to 5 years—2 tablets (total 12 tabs) Help caregiver give first dose now and 2nd dose after 8 hours. Then give dose twice daily for 2 more days. ☐Advise caregiver on use of a ITN ☐Give Paracetamol. Give 4 times a day for 3 days ☐ Age 2months up to 3 years - ¼ tablet (total 3 tabs) ☐ Age 3 years up to 5 years - ½ tablet (total 6 tabs)
- ☐ If Fast breathing: ☐Give oral antibiotic (cotrimoxazole adult tablet—80/400). Give twice daily for 5 days: ☐Age 2 months up to 12 months—½ tablet (total 5 tabs) ☐Age 12 months up to 5 years—1 tablet (total 10 tabs) Help caregiver give first dose now.
- ☐ If red eye: ☐ Apply antibiotic eye ointment. Squeeze the size of a grain of rice on each of the inner lower eyelids, three times a day for 3 days.
- ☐ For ALL children treated at home, advise on home care: ☐Advise caregiver to give more fluids and continue feeding. ☐Advise on when to return. Go to nearest health facility or, if not possible, return immediately if child ☐Cannot drink or feed ☐Becomes sicker ☐Has blood in the stool ☐Follow up child in 3 days (schedule appointment in item 6 below).

4. CHECK VACCINES RECEIVED (Tick ☑ vaccines completed, circle ● vaccines missed)

Age	Vaccine		→ Advise caregiver, if needed: WHEN is the next vaccine to be given? WHERE?
Birth	☐ ■ BCG	☐ ■ OPV-0	
6 weeks*	☐ ■ DPT—Hib + HepB 1	☐ ■ OPV-1	
10 weeks*	☐ ■ DPT—Hib + HepB 2	☐ ■ OPV-2	
14 weeks*	☐ ■ DPT—Hib + HepB 3	☐ ■ OPV-3	
9 months	☐ ■ Measles		

*Keep an interval of 4 weeks between DPT-Hib + HepB and OPV doses. Do not give OPV 0 if the child is 14 days or more

5. If any OTHER PROBLEM or condition I cannot treat, refer child to health facility, write referral note. (If diarrhoea, give ORS. Do not give antibiotic or antimalarial.)

Describe problem: _____

6. When to return for FOLLOW UP (circle): Monday Tuesday Wednesday Thursday Friday Weekend

7. Note on follow up: ☐ Child better—continue to treat at home. Day of next follow up:_____. ☐ Child is not better—refer URGENTLY to health facility. ☐ Child has danger sign—refer URGENTLY to health facility.

2

July 2008

PANEL 1. Sick child recording form job aid with iCCM guidelines.

Source: Nsona, Humphreys et al. 2012. "Scaling Up Integrated Community Case Management of Childhood Illness: Update from Malawi." The American Journal of Tropical Medicine and Hygiene 87 (5Suppl): 54–60.

2.3 LIMITATIONS AND STRENGTHS OF THE LITERATURE REVIEW

LACK OF PREVIOUS RESEARCH STUDIES ON THE TOPIC: There was very little or no prior research on looking at IYCF practices including counseling of a sick child during or after illness—which leads to the importance of this opportunity to identify new gaps in the prior literature and to present the need for further development in the area of study.

LACK OF QUANTITATIVE, POPULATION-BASED DATA FOR TREND ANALYSIS ACROSS COUNTRIES FOR NUTRITION COUNSELING AND FEEDING OF THE SICK CHILD: There is currently a global movement by UNICEF and WHO to add nutrition counseling indicators as standardized indicators within routine health management information systems. Still, currently there are limited indicators tracked across countries on counseling (limited to antenatal and postnatal counseling) and feeding practices for during an illness (limited to diarrhea) with no data for post-illness.

There is limited formative research from Africa on feeding and counseling during childhood illness, with most of the evidence coming from USAID's global IYCF project, which is no longer operational.

Evidence on feeding practices during childhood illnesses other than diarrhea—for example, malaria, ARIs, and other fever—was not available.

There was limited research on influencers such as fathers, husbands, grandmothers, in-laws, and neighbors on children's feeding during sickness. Therefore, most of the research is mainly on influencers of IYCF practices in general, rather than on feeding of sick children during and after illnesses.

While we were able to find some evidence of feeding practices during childhood illness, there was a lack of systematic reviews and across-country formative research.

A strength of the review was the ability to examine a number of quantitative indicators from population-based surveys (i.e., DHS) to ascertain trends.

2.4 RECOMMENDATIONS

The trend analysis and findings from several published and unpublished studies in Africa showed most caregivers do not follow optimal feeding practices during sickness. In addition, a low percentage of caregivers received quality feeding counseling during sick child visits. The review highlighted the information gaps and key areas that need more investigations to provide quality feeding counseling and track progress during sick child contacts, mainly IMCI and iCCM.

Based on the review findings, we propose the following recommendations to improve caregivers' practices; strengthen the quality of feeding counseling during illness; and address evidence gaps in feeding care during illness, nonexistent data and evidence on feeding practices, and caregivers' and health providers' enablers and barriers to optimal feeding after illness or during recovery.

STRENGTHEN SKILLS AND BALANCE WORKLOAD OF HEALTH PROVIDERS: Governments and partners continue to refine and support pre-service and in-service training of health providers to build their capacity and skills to provide quality counseling responsive to specific situations of each mother-child pair. Also, since health providers need more than training on IMCI/iCCM to provide quality feeding counseling, training should be complemented with supportive supervision on feeding counseling and support, incorporating feeding counseling in IMCI/iCCM supervision checklist, and providing appropriate IYCF counseling materials and tools. Facilities and district managers need to manage health provider workloads to give them enough time to understand specific needs of caregivers and provide quality counseling on feeding.

PROVIDE CAREGIVERS WITH INDIVIDUALIZED COUNSELING AND SUPPORT: The review showed clearly that caregivers improved feeding practice of sick children during illness when they received individualized and quality feeding counseling and support that considered their misconceptions, concerns, and cultural beliefs, as well as perceptions of family/community that influence feeding of sick children and food preferences for sick children. In addition to telling caregivers the optimal feeding messages, facility group education sessions and iCCM/IMCI tools and counseling materials for assessing and treating feeding problems should also consider these factors and explain reasons behind employing feeding practices during illnesses. CHWs need to counsel or educate mothers-in-law, grandmothers, and other influential family and community members during household and follow-up visits and through community-based platforms such as mother support groups, growth monitoring and promotion (GMP) platforms, etc.

ENSURE THAT COMMUNITY IYCF BEHAVIOR CHANGE STRATEGIES AND MATERIALS ADDRESS COMMUNITY, FAMILY, AND SOCIAL BARRIERS TO FEEDING OF SICK CHILD. Currently, community IYCF strategies, promotions, and messages focus on general IYCF behaviors and their determinants. The review found timing of counseling of feeding of sick children—as part of general IYCF counseling and support during prior health and community contacts—is a key enabler for improved practices of feeding during illness. Thus, it is important to carefully design and implement community IYCF SBC strategies, tools, and materials that address community and family barriers to feeding of sick children and promote feeding of sick child behaviors before they are sick.

SUPPORT COUNTRIES TO ADAPT THE GLOBAL BEHAVIORAL PROFILE FOR FEEDING OF SICK CHILDREN TO IMPROVE COUNSELING THROUGH IMCI/ICCM AND COMMUNITY IYCF PROGRAMS. USAID supported development of the global behavioral profile for feeding during illness, which can be used by individual countries to use local information to conduct a behavioral analysis on feeding sick children during and after illnesses. This analysis will help them identify structural and societal factors and caregivers' knowledge, skills, beliefs, and attitudes on feeding during and after illness; identify institutional, community, and household supporting actors and actions; and design strategies to improve feeding practices during sick child visits and community contacts.

ADVOCATE FOR BETTER SOURCE OF DATA TO TRACK FEEDING OF SICK CHILD: Current DHS and SPA data tracks limited feeding practices such as fluid intake, increased food intake, and breastfeeding during diarrhea. There is a need for population-based data to track trends in optimal IYCF practices, especially breastfeeding and complementary feeding practices, for all common childhood illness including after illness. The DHS-8 is in the process of introducing nutrition counseling indicators and coverage indicators of nutrition counseling for infants. DHS and SPA revision has identified draft recommended nutrition indicators of sick children as part of pediatric quality of care. Additionally, WHO and UNICEF are developing a modified core set of IYCF counseling indicators to measure counseling at health facility and community levels during ANC and PNC, beyond, and for children 6–23 months. These potential sources of data can be used to track trends in feeding practices during illness and the impacts of health providers' IYCF counseling and support on change in feeding practices. There is a need to advocate to DHS and ongoing initiatives to include indicators that will help countries and development partners to assess quality of counseling and track progress in feeding care of sick children both during and after illness.

CONDUCT ADDITIONAL RESEARCH: The review found few enablers and barriers to sub-optimal feeding for children with diarrhea. It is nonexistent for feeding after illness or during recovery. More multi-country systematic assessments are needed to deep dive into the barriers and enablers of feeding during and after common childhood illnesses. We recommend a demonstration project in two to three countries as part of IMCI to shed light on challenges to feeding counseling and to implement comprehensive interventions to strengthen feeding counseling during and after illness for sick children. These interventions could include in-service training on feeding and skills building for individual personalized counseling, supportive supervision, simplified tools, and follow-up as well as managing workloads through task shifting and linking with community IYCF activities or support groups.

ANNEX 1: SUMMARY OF THE LITERATURE REVIEW STUDIES

The following in Table 8 summarizes the findings from the studies/citations. This summarizes (if the information is available) the citation, type of literature, study purpose, period of study, sample size, outcome measures, and relevant findings.

TABLE 8: SUMMARY OF THE LITERATURE REVIEW STUDIES

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
Multiple Regions/Countries								
1	Binkin, Nancy et al. 2011. "Do improvements in outreach, clinical, and family and community-based services predict improvements in child survival? An analysis of serial cross-sectional national surveys." *BMC Public Health* 11 (1): 456.	Journal article (quantitative research)	Assess the correlation between changes in principal components of clinical, outreach, and community-based services (including breastfeeding and nutritional services) and changes in under-5 mortality rates after controlling for multiple potential confounding factors	2011 publication; uses survey data from 1992–2006	27 countries, 19 of which in Africa	• Change in child mortality over the period of 1992–2006 (compared to change in services provision over same time period)	• In the family and community services domain, improvements in breastfeeding were associated with significant changes in mortality in the 30 countries but not in the African subset. While in the African countries, nutritional status improvements were associated with a significant decline in mortality.	Benin, Burkina Faso, Cameroon, Chad, Eritrea, Ethiopia, Ghana, Guinea, Kenya, Madagascar, Mali, Malawi, Mozambique, Niger, Rwanda, Senegal, Tanzania, Uganda, Zambia
2	Leslie, Hannah H. et al. 2016."Training And Supervision Did Not Meaningfully Improve Quality Of Care for Pregnant Women Or Sick Children In Sub-Saharan Africa." *Health Affairs* 35 (9): 1716-1724.	Journal article (quantitative research)	To examine the association of in-service training and supervision with provider quality in ANC and sick child care	2006–2014, depending on the country (SPAs of DHS)	3,916 health workers were observed providing sick child care (14,718 observations); 508 providers were included in both samples	• Score on clinical visit quality index with 18 different parameters for sick child visits (some of which were asked about breastfeeding practices, checked for dehydration signs, checked for edema, asked about feeding changes during illness, asked about inability to feed, etc.)	• Observed quality of care was poor, with fewer than half of evidence-based actions completed by health workers, on average. • In-service training and supervision were associated with only very modestly higher quality of sick child care. • Training and supervision without a focus on effectiveness are unlikely to result in the improvements needed to ensure quality of care.	Kenya, Malawi, Namibia, Rwanda, Senegal, Tanzania, Uganda

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
3	Nguyen, Duyen Thi Kim et al. 2013. "Does Integrated Management of Childhood Illness (IMCI) Training Improve the Skills of Health Workers? A Systematic Review and Meta-Analysis." *PLOS ONE* 8 (6): e66030.	Systematic review and meta-analysis	Conduct a systematic review and meta-analysis to determine whether IMCI training actually improves performance of health care workers in service delivery for childhood illness	1990–2013	46 studies in systematic review and 26 studies in meta-analysis, narrowed from 5,326 citations	Counseling caregivers on nutrition	• Overall, IMCI-trained workers were more likely to correctly classify illnesses (RR = 1.93, 95% CI: 1.66–2.24). • Studies of workers with lower baseline performance showed greater improvements in prescribing medications, vaccinating children, and counseling families on adequate nutrition (RR = 10.12, 95% CI: 6.03–16.99) and administering oral therapies. • Trends toward greater training benefits were observed in studies that were conducted in lower-resource settings and reported greater supervision. • Although nearly all studies found positive associations between IMCI training and nutrition counseling, visual inspection of the Galbraith plot and statistical assessment for heterogeneity showed much dispersion in the magnitudes of benefit reported by studies.	26 studies globally, with majority from sub-Saharan Africa including from: Benin, Nigeria, Senegal, Sudan, Niger, Eritrea, Ethiopia, Kenya, Tanzania, Togo, Zambia, South Africa, Mali, Uganda
4	Abdul-Fadl, A. 2020. "Integration of curative and preventive services for strengthening nutritional outcome of infants and young children." *MedRead Journal of Pediatrics*.	Journal article (quantitative research)	To study whether integration of preventive and curative services can improve health-seeking behavior in PHC and enhance the nutritional status of children	2020 Data is from "recent" DHS surveys, and paper was published in 2020	Unclear, maybe unit of analysis is country, so about 70, although that is unlikely; probably is mother/child pair, but it is not shown in the article	• low birth weight • stunting, • wasting • overweight **NOTE:** >> Looks at mother's access to health care at ANC visits, during delivery, during immunization, AND most relevantly, visits related to symptoms of ARIs, fever, and treatment of diarrheal disease by ORS.	• Integration of preventive and curative services can strengthen PHC and should start from pregnancy. • Immunization services represent opportunities for counseling in nutrition and early signs of sickness in the child to prevent delay in management, thereby improving nutritional status of children. • Health-seeking behavior for ARI symptoms and treatment of diarrhea with ORS correlated with preventive care services afforded to the mother. • There was a negative correlation between health-seeking behavior for child illnesses and stunting and wasting rates, so curative care had a positive effect.	Global data on 70 countries including 35 African countries and the following on our list of target countries: Burkina Faso, Ghana, Niger, Mali, Senegal, Ethiopia, Kenya, Uganda, DRC, Zambia, Malawi, Mozambique

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
5	Patel, Smruti et al. 2018. "Rethinking the scale up of Integrated Management of Childhood Illness." *BMJ* 362: k2993.	Report (strategic review)	To summarize the findings of UNICEF and WHO 2016 strategic reviews of IMCI implementation globally along its 3 components (i.e., improving case management skills of health care staff, improving overall health systems, and improving family and community health practices)	2016	Source survey covered 95 countries	• Reported implementation of the different components of IMCI by country • Challenges to implementation of IMCI	• Although most (81%) countries in the IMCI survey reported integration of all 3 components, there is significantly lower implementation among countries with higher child mortality rates and high variations in the actual scale of implementation. • Four critical factors stand out for successful IMCI programming: strong central leadership; commitment to strengthening health systems; clear vision and focus on integration between primary and community levels of care; and strong pre-existing community networks. • High cost of IMCI training was a barrier in many countries; 42% of countries reported shortening the training to reduce costs. • Niger is an example of a country that has done a good job dealing with health worker shortages for IMCI implementation, using a 2-tiered group of CHWs including volunteers (who are managed formally and trained) to get higher coverage. Niger has also used successful promotion strategies including community dialogues and media messages (cinema, community radio, theatre) to disseminate information on promotion and prevention. • By contrast, in Ethiopia, the lack of formalization of the volunteer cadre tasked to deliver community IMCI was identified as a factor contributing to its relatively poor implementation. But Ethiopia has other innovative aspects of its program that have been successful, including a Health Development Army, and community members that collectively trained over 3 million women.	Global

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
6	Reñosa, Mark Donald et al. 2020. "Key challenges of health care workers in implementing the integrated management of childhood illnesses (IMCI) program: a scoping review." *Global Health Action* 13 (1): 1732669.	Journal article (systematic review)	To determine the key challenges affecting IMCI implementation from the perspective of health care workers in PHC facilities	Searches from 27 December 2018-15 January 2019. Systematic review ranges from 2005-2018.	41 publications included	Child health outcomes Health worker outcomes for nutrition counseling practices in the delivery of IMCI services	• Four key challenges emerged from our analysis: 1) insufficient financial resources to fund program activities; 2) lack of training, mentoring, and supervision from tertiary level; 3) length of time required for effective and meaningful IMCI consultations conflicts with competing demands; and 4) lack of planning and coordination between policy makers and implementers result in ambiguity of roles and accountability. • Health workers often failed to do nutritional assessments (e.g., searching for signs of malnutrition), and omitted providing caretakers with advice on feeding practices.	Global, including Ethiopia, Kenya, Uganda, Tanzania, DRC, Mali, Niger
East Africa								
1	Abebe, Ayele Mamo, Mesfin Wudu Kassaw, and Fikir Alebachew Mengistu. 2019. "Assessment of Factors Affecting the Implementation of Integrated Management of Neonatal and Childhood Illness for Treatment of under Five Children by Health Professional in Health Care Facilities in Yifat Cluster in North Shewa Zone, Amhara Region, Ethiopia." *International Journal of Pediatrics*. doi: 10.1155/2019/9474612.	Journal article (quantitative research; cross-sectional study)	To: 1) assess the implementation of IMNCI by health professional in health care facilities; and 2) identify factors affecting implementation of IMNCI by health professional in health care facilities	March–May 2018	201 health care professionals	• Application of IMCI guidelines for children below 5 years at a comprehensive and holistic level (for treatment of malaria, pneumonia, diarrhea, measles, and malnutrition)	• Overall IMCI implementation was 58% at a high level of adherence to IMCI protocols. • IMCI implementation was highest among IMCI-trained health care professionals and those who always referred to chart booklet.	Ethiopia
2	Gebremedhin, Samson et al. 2020. "Changes in care-seeking for common childhood illnesses in the context of Integrated Community Case Management (iCCM) program implementation in Benishangul Gumuz region of Ethiopia." *PLOS ONE* 15 (11): e0242451.	Journal article (quantitative research)	Evaluate the association between the implementation of iCCM program in Assosa Zuria zone, Benishangul Gumuz region and changes in care seeking for common childhood illnesses	2017–2018	1,848 Children 2–59 months of age who recently had cough, fever, or diarrhea	• Care seeking from any health facility and from health posts, by caretakers for sick children	• Care seeking from iCCM providers was almost doubled (adjusted odds ratio = 2.32: 95% confidence interval; 1.88–2.86) over the period.	Ethiopia

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
3	Chola, Lumbwe et al. 2015. "Cost-Effectiveness of Peer Counselling for the Promotion of Exclusive Breastfeeding in Uganda." *PLOS ONE* 10 (11): e0142718. doi:10.1371/journal.pone.0142718.	Journal article (quantitative research)	Compare the effects of 2 methods of breastfeeding promotion—standard health facility promotion (HFP) alone, and community-based peer counseling in addition to HFP—on breastfeeding prevalence and diarrhea prevalence **NOTE:** Women in intervention clusters received home-based individual peer counseling from lay counselors, to encourage EBF for 6 months. The women received 5 visits, once in the third trimester and during the first week of birth, and in weeks 4, 7, and 10. Extra visits were offered to mothers with breastfeeding problems or if the mother or counselor for other reasons deemed it necessary.	2006–2008	24 village clusters, randomly assigned 1 treatment method or the other	HFP alone, and community-based peer counseling (in addition to HFP)— • Promotion of breastfeeding and breastfeeding prevalence AND • Diarrhea prevalence • Estimated cost per DALY averted of using each promotion method	• Peer counseling more than doubled the breastfeeding prevalence as reported by mothers, but there was no observable impact on diarrhea prevalence. • Community-based peer counseling is unlikely to be cost-effective in reducing diarrhea prevalence and mortality in Uganda, because its cost per DALY averted far exceeds the commonly assumed willingness-to-pay threshold of 3 times Uganda's GDP per capita (US$1,653). However, since the intervention significantly increases prevalence of exclusive or predominant breastfeeding, it could be adopted in Uganda if benefits other than reducing the occurrence of diarrhea are believed to be important.	Uganda

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
4	Kulwa, Kissa B. M. et al. "Effectiveness of a nutrition education package in improving feeding practices, dietary adequacy and growth of infants and young children in rural Tanzania: rationale, design and methods of a cluster randomised trial." *BMC Public Health* 14 (1): 1077.	Grey literature (study protocol for uncompleted study)	To evaluate the effectiveness of a nutrition education package in improving feeding practices, dietary adequacy, and growth as compared to routine health education	Sometime after 2014	9 treatment and 9 control villages, randomized control trial (RCT)	Nutrition education package in improving feeding practices, dietary adequacy, and growth as compared to routine health education. • Primary outcome = linear growth as length-for-age Z-scores • Secondary outcomes (changes in weight-for-length Z-scores; mean intake of energy; fat, iron, and zinc from complementary foods; proportion of children consuming 4 or more food groups; recommended number of semi-solid/soft meals and snacks per day; and maternal level of knowledge and performance of recommended practices)	No findings. Have not completed study.	Tanzania

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
5	Othero, Doreen M. et al. 2009. "Home Management of Diarrhea among Underfives in a Rural Community in Kenya: Household Perceptions and Practices." *East African Journal of Public Health*.	Journal article (quantitative and qualitative research)	To determine the perceptions of mothers/caregivers regarding the causes of diarrhea among children under 5 and how it was managed in the home before seeking help from CHWs or health facilities	2004–2006	• 927 mothers/ • caregivers of under-5s • 42 key informant interviews	• % children with diarrhea • Caregiver perceptions of causes and correct treatments for diarrhea • Feeding practices used during diarrhea episodes	• More than 70% of mothers decreased fluid intake during diarrhea episodes. • Mothers perceived wheat flour, rice water, and selected herbs as anti-diarrheal agents. • During illness, 239 (27.8%) of the children were reported not to have drunk any fluids at all, 487 (52.5%) drunk much less, and only 93 (10.0%) were reported to have drunk more than usual. • A significant 831 (89.6%) withheld milk including breast milk with the notion that it enhanced diarrhea.	Kenya
6	Consortium for Research on Equitable Health Systems. *Implementing IMCI in Kenya: Challenges and recommendations*. 2008.	Grey literature (policy brief)	To outline challenges faced in Kenya's implementation of IMCI policies, and to provide recommendations to improve program implementation in the future	Oct 2008	n/a	• National coverage of health workers trained in IMCI • Adherence level of health workers to IMCI protocols	• By mid-2017, only 18% of health workers in Kenya were trained in IMCI; this is low because of the high cost of training and reluctance of the government or partners to adequately fund IMCI. • IMCI-trained staff often fail to follow case management guidelines (e.g., few children are checked for general danger signs of severe disease, less than half have their weight checked against growth chart, and referral rates are low). • Many health workers believed the 10–20-minute recommended duration for an IMCI check was too long and shortened it by skipping some components. • Other barriers to proper IMCI implementation included lack of job aids, frequent drug stock-outs, inappropriate facility layout, and negative attitudes of clinical officers and doctors toward IMCI. • Households face barriers to accessing IMCI including high cost of fees at health centers and high cost of referrals.	Kenya

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
7	Prosper, Hildegalda, Janet Macha, and Josephine Borghi. *Implementation of Integrated Management of Childhood Illness in Tanzania: Success and Challenges*. Consortium for Research on Equitable Health Systems. 2009.	Report (case study)	To investigate IMCI implementation in Tanzania using a policy analysis approach	2006	2 purposively selected districts in Mara region (Bunda, Tarime) with 17 total key informant interviews at district level and 12 at national level	• worker adherence to IMCI protocols by district	• Poor compliance to IMCI was found to be related to health system weaknesses, including short supply of IMCI job aids and drugs, the length of the protocol, staff shortage and rotation in health facilities, lack of motivation, insufficient/lack of supervision (both follow-up and routine) and the difficulty of monitoring IMCI. • IMCI implementation seems to be suffering due to budget problems; unlike vertical health programs, it does not have its own earmarked funding.	Tanzania
8	Bikes, Gashaw Andargie et al. 2020. "Feeding practice and associated factors among infants and children with common childhood illness at Dabat Health and Demographic surveillance System site: A community based cross-sectional study." *Research Square* (preprint). doi: 10.21203/rs.3.rs-15653/v1.	Journal article (quantitative research)	To assess feeding practices and its associated factors among children with illnesses	Feb–June 2016	1,174 mother-child pairs, for children aged 6–59 months with illness in 2 weeks prior to data collection	Feeding practice s and its associated factors among children with illnesses AND • Prevalence of a MDD practice AND • Prevalence of minimum meal frequency	• 83% of children in the sample achieve MMF recommended. • Only 27% of the surveyed children met the MDD score. • Dietary diversity of children was higher for mothers who received at least 1 ANC visit during pregnancy and for those households for which mothers purchased some foods outside the home instead of relying on home gardens.	Ethiopia
9	Abebe, Zeweter, Gulelat Desse Haki, and Kaleab Baye. 2016. "Health Extension Workers' Knowledge and Knowledge-Sharing Effectiveness of Optimal Infant and Young Child Feeding Are Associated with Mothers' Knowledge and Child Stunting in Rural Ethiopia." *Food and Nutrition Bulletin* 37 (3): 353-363.	Journal article (quantitative research)	To evaluate mothers' and HEWs' knowledge of key IYCF practices and to investigate whether mothers' knowledge and HEWs' knowledge-sharing effectiveness are associated with stunting in young children 12–23 months of age	Oct–Dec 2013	96 HEWs and 122 mothers of children 12–23 months of age	Mothers' and HEWs' knowledge of key IYCF practices AND Length-for-age Z-scores	• Some key gaps in knowledge were observed among HEWs: only 50% of HEWs correctly answered questions on optimal duration of continued breastfeeding, minimum number of meals per day (68%), MDD (53%), and beverages not recommended for infants and young children such as sugary drinks and tea (70%). An even smaller number of mothers answered these questions correctly. • Mother training and knowledge was significantly correlated with better nutrition outcomes. This included knowledge of correct feeding during illness recommendations.	Ethiopia

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
10	Miller, Nathan P. et al. 2014. "Integrated community case management of childhood illness in Ethiopia: implementation strength and quality of care." *The American Journal of Tropical Medicine and Hygiene* 91 (2): 424-434.	Journal article	To assess the strength of iCCM implementation and quality of care provided by HEWs Methods: Observe consultations with sick children and carried out gold standard re-examinations (including checking for signs of malnutrition and giving advice on proper feeding during and after illness)	May–June 2012 for data collection, May 2011 for initiation of iCCM treatment	All children age 2–59 months seen by 104 health posts in intervention areas and 46 health posts in comparison areas	Score during health consultations on numerous areas from iCCM protocols including in disease assessment, classification, treatment, and counseling of caregivers	• Proportions of children correctly managed for pneumonia, diarrhea, and malnutrition were 72%, 79%, and 59%, respectively. • But only 34% of children with severe illness were correctly managed. • 59% of children with malnutrition were correctly treated for malnutrition. • 85% of caregivers were told to give extra fluids and continue feeding to treat diarrhea.	Ethiopia
11	Ickes, S. B. et al. 2017. "Maternal participation in a nutrition education program in Uganda is associated with improved infant and young child feeding practices and feeding knowledge: a post-program comparison study." *BMC Nutrition* 3 (1): 32.	Journal article (comparative evaluation)	To understand whether children's diet quality and caregiver nutrition knowledge was improved after participation in a lipid-based nutrition supplement (LNS)-supported supplemental feeding program on IYCF practices	January – July 2009	122 caregivers of children age 6–59 months (61 each in program and control groups)	• reported feeding practices • dietary diversity scores • caregiver recall of nutrition education messages	• Caregivers in program group demonstrated greater knowledge of healthful IYCF practices. • Program group children had higher dietary diversity scores (3.0 vs 2.1) than control group children, and were fed more frequently (3.0 vs 2.1 times per day). • IYCF indicators were higher in program group for MMF (44.8% vs. 37.9%), MDD (10.3 vs. 3.4%), iron-rich complementary foods (17.2 vs. 20.7%), and minimally acceptable diet (10.3% vs 3.6%), but differences were non-significant. • 10–11% of surveyed caregivers could recall recommended messages on feeding children during and after illness, with no difference for program vs. control groups.	Uganda

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
12	Degefa, Nega et al. 2019. "Sick Child Feeding Practice and Associated Factors among Mothers of Children Less Than 24 Months Old, in Burayu Town, Ethiopia." *International Journal of Pediatrics.*	Journal article (quantitative research)	To assess sick infant and young child feeding practice and associated factors among mothers of children aged less than 24 months old in the Burayu town Oromia, Ethiopia	April–May 2015	362 mother-child pairs attending maternal and child care units at the 2 public health facilities	• Adherence to national feeding recommendations for sick children • Frequency of feeding during illness	• More than half (53.6%) of all mothers fed their child more frequently at the time of illness than at a time of health. • Mother who received counseling on sick child feeding were nearly 3 times more likely to feed their child appropriately than their counterparts (AOR: 2.95; 95% CI; 1.78, 4.91). • Mothers who were housewives were 55% times less likely to feed their sick child appropriately than those who were working (AOR: 0.45; 95% CI; 0.26, 0.79). • Mothers who have a child aged less than 6 months were 88% less likely to practice appropriate sick child feeding than those who have a child aged more than 6 months (AOR: 0.22; 95% CI; 0.12,0.40).	Ethiopia
13	Maina, Matthew Mwaniki. 2018. *Nutritional Management of Childhood Diarrhoea in Korogocho Informal Settlement Nairobi City County, Kenya* (master's thesis). School of Public Health of Kenyatta University, Nairobi.	Grey literature/ PhD dissertation (quantitative research)	To determine the nutritional management of childhood diarrhea (practices taken, their association with caregiver factors, and childhood nutrition status) in Korogocho informal settlement	N/A	354 caregivers of children age 6–59 months	• Feeding practices during episodes of diarrhea • Utilization of zinc during diarrhea • Nutritional status of children	• Most caregivers (57%) did not visit a health facility immediately when their child got diarrhea. • Most caregivers (58.5%) gave less food to their children when they had diarrhea. • No caregivers restricted breastmilk during diarrhea but only 7% gave more. • 60% of caregivers gave children with diarrhea traditional dried foods such as boiled yams and cassava, believing they would "strengthen the bowels." • Correct use of ORS and zinc supplementation was at 65.1% and 7.9%, respectively. • Children who had diarrhea were 2.3 times as likely to be malnourished as compared to those who did not have diarrhea. • There was no significant difference in the nutritional management of childhood diarrhea according to caregiver's number of children (p=0.815), and age (p=0.491) but there was significant difference according to level of education (p=0.003).	Kenya

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
14	Berhane, Melkamu et al. 2018. "Parents' Knowledge of Danger Signs and Health Seeking Behavior in Newborn and Young Infant Illness in Tiro Afeta District, Southwest Ethiopia: A Community-based Study." *Ethiopian Journal of Health Sciences* 28 (4): 473-82.	Journal article (quantitative research)	To assess the knowledge of danger signs and health-seeking behavior of parents/caregivers in newborn and young infant illness in Southwest Ethiopia	N/A	422 samples of parents/ caregivers who had infants less than 6 months old		**Overall:** • Care-seeking behavior for newborn and young infant illness was high (83%), the major factor associated with care-seeking behavior being place of delivery. • Only less than half of the respondents had adequate knowledge of symptoms of illness of newborns and young infants. • Major factors associated with knowledge of parents/caregivers were maternal education and paternal education. **More relevant to our lit review:** • 89% of study participants reported that they had PNC visits after delivery, of which 63.5% and 38.8% were advised about breastfeeding and newborn illnesses, respectively. • *The main barrier to taking a sick child to health facility for treatment was high cost of treatment (33.8%) and not having enough money (30.9%). The next most common reason was "considering that herbs are more effective treatment" (13.2%).	Ethiopia
15	Matsuyama, Akiko et al. "Perceptions of caregivers about health and nutritional problems and feeding practices of infants: a qualitative study on exclusive breast-feeding in Kwale, Kenya." *BMC Public Health* 13 (1): 525.	Journal article (qualitative research)	To explore perceptions and feeding practices of caregivers of children under 6 months old with special attention to the caregivers' indigenous knowledge, perceptions about the health and nutritional problems of their infants, and care-seeking behaviors that affect feeding practices	July–Dec 2011	• 32 key informant interviews (mothers, mothers-in-law, traditional healers) • 28 babies under 6 months observed at home	• Feeding practices used for healthy and sick children • Treatments used by caregivers for common illnesses • Feeding practices • Caregiver perceptions of the cause of common illnesses	• Informants stated that various types of food, drink, and medicine were given to infants under 6 months old. • Direct observation also confirmed that 2- to 3-month-old babies were given porridge, water, juice, herbal medicine, and over-the-counter medicine. • Mothers' perceptions of insufficient breast milk production and a lack of proper knowledge about the value of breast milk were identified as important factors associating with use of food and drink other than breast milk. • Perceived ill health of babies appears to be associated with sub-optimal practice of EBF.	Kenya

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
16	Baynes, Colin et al. 2018. "Quality of Sick Child-Care Delivered by Community Health Workers in Tanzania." *International Journal of Health Policy and Management* 7 (12): 1097-109.	Journal article (evaluation)	To assess the IMCI skills and service delivery quality of a trial cohort of CHWs in Tanzania, called WAJA	2014	142 WAJA health care workers	• Proportion of WAJA performing different actions during sick child visit as recommended by IMCI protocols • Correlation between WAJA diagnosis and recommendation with that of an IMCI expert assessor	• In the majority of cases, WAJA correctly assess sick children for CCM-treatable illnesses (malaria, pneumonia, and diarrhea) and general danger signs (90% and 89%, respectively), but too few correctly assess for physical danger signs (39%); on classification in the majority of cases (73%) WAJA correctly classified illness, though more for CCM-treatable illnesses (83%). • The physical danger signs most overlooked were malnutrition assessment using MUAC tape (assessed for 54% of children), swelling in both feet of the sick child (assessed for 55%), and chest in-drawing (assessed for 65%). • In majority of cases (78%), WAJA treated children correctly (84% of malaria, 74% pneumonia, and 71% diarrhea cases). Errors were often associated with lapses in health systems support, mainly supervision and logistics. • In 69% of cases of children with uncompli-cated diarrhea, the WAJA advised caregivers to give extra fluids and continue feeding.	Tanzania
17	Athumani, J. 2010. "Knowledge, attitudes and practices of mothers on symptoms and signs of integrated management of Childhood Illnesses (IMCI) strategy at Buguruni Reproductive and Child Health clinics in Dar es Salaam." *Dar Es Salaam Medical Students' Journal* 15 (1): 4-8.	Journal article (quantitative research)	To assess mothers' knowledge, attitudes, and practices on symptoms and signs of IMCI strategy addressed illnesses	July–Sept 2007	336 mothers	• Childhood illnesses for which mothers can identify symptoms • Perceived causes of illness by mothers • Barriers to bringing sick children to health facilities	• Mothers recognized symptoms of childhood diseases as fever, cough, inability to play, irritability and restlessness, and diarrhea by 92.5%, 85.3%, 83.5%, 81.1% and 80.8% respectively. • Most mothers (89.2%) found no factor preventing them from seeking care, though the top barrier for those with one was "lack of money." • 98.2% and 99.4% of mothers took their children to health facilities once sick or developed any symptom of severe childhood disease. • The practice of offering fluids and breastfeeding sick children was low, probably because ages of children were bimodal whereby children of less than 4 months were on EBF while those who were older than 4 months were likely to be on complementary feeds; however, ages of children were not considered in this study.	Tanzania

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
18	Mullei, K., F. Wafula and C. Goodman. *A Case Study of Integrated Management of Childhood Illness (IMCI) Implementation in Kenya.* Consortium for Research on Equitable Health Systems. 2008.	Case studies (qualitative research)	A study of the implementation of IMCI in Kenya to identify the major gaps between health policies on paper and the reality on the ground	Sept 2006–Aug 2007	Sampled 50 facilities and conducted 289 case management observations of IMCI trained and untrained health workers in facilities with at least one trained health worker.	• Impact of IMCI on health and utilization outcomes	Factors affecting health worker compliance with guidelines: health worker perceptions of IMCI, time constraints, facility support, supervision and on-the-job training, and inadequate supportive supervision. Reasons for reluctance to fund IMCI training: high cost of training, failure to adopt alternative training options, difficulties in demonstrating impact of IMCI, increased interest in c-IMCI, low profile of child health.	Kenya
19	Semahegn, Agumasie, Gezahegn Tesfaye, and Alemayehu Bogale. 2014. "Complementary Feeding Practice of Mothers and Associated Factors in Hiwot Fana Specialized Hospital, Eastern Ethiopia." *The Pan African Medical Journal* 18 (143). https://doi.org/10.11604/pamj.2014.18.143.3496.	Cross-sectional study design	To assess of complementary feeding practice and associated factors	January 2013	200 mothers to child pair		• Prevalence of timely initiation of complementary feeding was 60.5%; 19% of mothers initiated complementary before 6 months. • The reason for too early initiation of complementary feeding was lack of knowledge and perceived inadequate breast milk production by mothers (17 [47.2%] and 11 [30.6%], respectively). • Mothers with male child are 3 times more likely to initiate timely complementary feeding than those with a female child (AOR 2.9, 95% CI 1.2-7.3). This might be due to traditional gender norms around female feeding ("female eat little talk little") that may start early in life.	Ethiopia

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
West Africa								
1	Jibo, Abubakar Mohammed. 2010. *Assessment of the Effect of Implementation of the Integrated Management of Childhood Illnesses (IMCI) Approach on Childcare in Kano State Nigeria* (dissertation). National Postgraduate Medical College of Nigeria, Abuja.	Grey literature/ PhD dissertation (comparative evaluation)	To assess the health system for provision of quality child care services and key household and community practices in IMCI-implementing and non-implementing communities in 2 local government areas (LGAs) to determine the differences that existed, between these LGAs	Feb 2009–Jan 2010	92 health consultations observed (52 IMCI-trained and 40 not)	• % health workers who checked for danger signs • % health workers who diagnosed child's problems correctly • % health workers correctly identifying nutrition status • EBF rate • Time of introduction of complementary feeds	• 80% of health workers in IMCI-trained facilities checked danger signs, compared to 22.5% in non-IMCI-trained facilities. • 73% of caregivers left IMCI facilities better informed about child's condition, versus 53% in non-IMCI-trained facilities. • EBF and proper introduction of complementary feeds was higher in the IMCI-trained community, and underweight rates were lower.	Nigeria
2	Ogundele, Olorunfemi Akinbode, and Tolulope Ogundele. 2015. "Effect of community level intervention on nutritional status and feeding practices of under five children in Ile Ife, Nigeria." *Pan African Medical Journal* 22 (1).	Journal article (quantitative research)	To assess the effect of community-level intervention on nutritional status and feeding practices of children in Ile Ife, Nigeria	2015 published; data collection unclear	722 mothers of under 5 children	• Weight for age • MUAC levels • % of caregivers introducing complementary feeding before 6 months	• Using community-level nutritional counseling can greatly improve nutritional status and feeding practices of under-5 children. • More children in the LGAs not implementing C-IMCI (16.1%) had low weight for age compared with 3.6% in LGAs implementing C-IMCI (p=0.000). • A statistically significant difference exists in the MUAC measurement of children 12–23 months between the C-IMCI-implementing and non-implementing communities (p=0.007). • A higher percentage of caregivers (19.3%) introduced complementary feeding earlier than 6 months in the non-implementing area (p<0.001). • Over 86% of children aged 6–23 months in the implementing LGA feed more than 3 times a day, while more than half of children (52.1%) in the non-implementing LGA feed less than 3 times a day.	Nigeria

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
3	Ebuehi, Olufunke Margaret, and Sylvia Adebajo. 2010. "Improving caregivers' home management of common childhood illnesses through community level interventions." *Journal of Child Health Care* 14 (3): 225-238.	Journal article (case study)	To compare LGA that has implemented an IMCI program with one that has not in order to check what the impact of IMCI programming has been on caretaker knowledge and treatment practices for child illnesses	Aug–Sept 2007	260 caregivers of children 0–59 months in one C-IMCI-implementing LGA and 255 caregivers in one non-C-IMCI-implementing LGA	• Child's fluid and feed intake during illness • Caretaker knowledge of causes of common illnesses (diarrhea, cough, fever, ARI, malaria, malnutrition) • Caretaker knowledge of symptom recognition for common illnesses • Caretakers' interventions for treating common illnesses • Use of ORS for children	• Findings revealed better key home management practices in the C-IMCI compliant LGA than in the non-CIMCI compliant LGA. • Caregivers from the compliant LGA demonstrated better treatment practices for diarrhea and cough. • Community Resource Persons were the major source of information on these key practices in the compliant LGA. In the non-compliant LGA, the traditional healers, elders, and to a lesser extent, health workers gave information. • More caregivers from the compliant LGA than from the non-compliant LGA reported that they gave the child more than the usual amount of fluid (44.2% and 0.8% respectively, p ¼ 0.000) and food (40.8% and 0.4% respectively, p ¼ 0.000) during the child's most recent illness. More than four-fifths (82.4%) of caregivers from the non-compliant LGA said they gave less fluid.	Nigeria

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
4	Nikièma, Laetitia et al. 2017. "Effectiveness of facility-based personalized maternal nutrition counseling in improving child growth and morbidity up to 18 months: A cluster-randomized controlled trial in rural Burkina Faso." *PLOS ONE* 12 (5): e0177839.	Journal article (quantitative research; RCT)	To evaluate the effect of a nutrition counseling intervention on caretaker practices and child health outcomes Intervention treatment includes nutrition advice for sick children: During child curative consultations, health care providers explored the child's ongoing feeding practices and tailored advice for treatment of any illness; finally, caregivers were counseled on recognizing symptoms of common childhood diseases (fever, diarrhea, ARI, and so on), how to address these adequately, and how to recognize danger signs	Aug 2009–Dec 2011	2,253 mother-child pairs	• Cumulative incidence of wasting • Changes in child weight-for-height Z-scores. • women's prenatal dietary practices, early breastfeeding practices, EBF, timely introduction of complementary food, child's feeding frequency, and dietary diversity • children's mean birth weight, endpoint prevalence of stunting • Cumulative incidence of diarrhea, fever, and ARI	• Facility-based personalized maternal nutrition counseling was associated with improved prenatal dietary practice, IYCF practices, and child birth weight. There was no significant effect of the intervention on stunting or wasting. • Mothers in the intervention arm had a significantly higher exposure to counseling with 11.2% for breastfeeding techniques to 75.7% for counseling on EBF. • Mothers of infants below 6 months of age in the intervention arm were more likely to exclusively breastfeed (54.3% vs 42.3%). • More children in the intervention arm benefited from the required feeding frequency (68.8% vs 53.4%).	Burkina Faso

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
5	Nsiah-Asamoah, Christiana, Pereko, Kingsley Kwadwo Asare, and Freda Dzifa Intiful. 2019 "Nutritional counselling interactions between health workers and caregivers of children under two years: observations at selected child welfare clinics in Ghana." *BMC Health Services Research* 19 (1): 817.		To examine GMP activities and educational/ counseling activities undertaken by health workers to communicate nutrition information to caregivers, depending on the ages of the children	2013–2014	528 counseling interactions between health workers and caregivers in 16 child welfare clinics in 2 rural districts	• Observed actions during counseling interaction, including growth monitoring actions taken, questions asked, and advice given	• About 95.1 and 61.8% of the caregiver-health worker interactions involved mothers of children who were less than 6 months of age and those above 6 months, respectively. • Health workers counseled the caregivers on appropriate nutrition for the child. Health messages shared with caregivers focused mainly on importance of attending child welfare clinics and vaccination of children and rarely included any teaching materials. • In most of the interactions, health workers asked what the child's feeding practices were during the past 1 month; and also did not provide advice on specific issues of IYCF. • Nutritional counseling information given for non-breastfeeding children was inadequate and in some cases absent. • With regard to the feeding of children during periods of sickness, in only a few one-to-one interactions, 24.7% and 20.4%, were caregivers counseled on the need to give additional meals after illness and frequently give small portion sizes of food during illness, respectively. • Only 45.2% of caregiver-health worker interactions emphasized the need to continue breastfeeding when the child was unwell.	Ghana

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
Central Africa								
1	CHW Central. *Community IMCI/Community Case Management: Evaluation Report of Community Health Workers Performance*. 2013.	Government report (evaluation)	*Review quality of case management by CHWs *Review quality of drugs management *Analyze process and quality of technical supervision received by CHWs *Analyze parents' satisfaction after using CHW services *Make recommendations to improve program implementation	March–May 2008	95 CHWs managing 1,553 cases of sick child visits	• % data completely and correctly recorded by CHW during sick child visit • % concordance between CHW treatment recommendation and what correct recommendation should be based on symptoms • Level of competency of CHWs in various protocols for sick child visits (e.g., MUAC measurements, checking for dehydration, sharing the 3 rules of home care) • Parental satisfaction rate • Parental knowledge of care needed for sick child after visit	• CHWs performance is strongly linked to level of simplicity of management tools, quality of training they received, and quality of mentorship received after training. • Although most parents report being satisfied with CHW and knowledge of how to treat sick child is high right after visit, the rules of home treatment (increase liquid, increase breastfeeding or food, reminding of 2 danger signs) are not well known.	Rwanda
2	Ministry of Health of Rwanda et al. *Maternal, Infant and Young Child Nutrition: National Counselling Cards for Health Workers*. https://www.minimex.co.rw/resources/pdf/Counceling_cards_maternal_and_child_nutrition.pdf	Government tool	Provide tools for CHWs and caregivers to provide proper nutrition to children, including sick children	Unclear	n/a	n/a	Set of counseling cards includes one on feeding sick child under 6 months and another on feeding sick child over 6 months.	Rwanda

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
3	Klemm, Rolf, Jennifer Burns, and Kimberly Amundson. *Formative Research to Examine Perceptions and Behaviors about Maternal, Infant and Young Child Feeding—JENGA JAMAA II, Democratic Republic Congo*.	Report (qualitative research)	To assess beliefs and perceptions on maternal and infant and young child feeding practices, the results of which will inform the development of SBCC training materials and guide components of ADRA's Care Group intervention model	2011–2012	351 mothers of children less than 24 months old (in focus group discussions, structured interviews and in-depth interviews)	• Reported barriers and constraints to uptake of recommended maternal nutrition and infant and young child feeding and caring practices • Types and amounts of foods consumed by pregnant women and fed to children for complementary feeding • Common nutrition practices including feeding children during illness	• Infants are fed the same or less breast milk during illness, and only about 40% are fed more breast milk during recovery. • Most "Leader Mothers" have a basic knowledge of identifying sick and malnourished children.	DRC

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
4	Kavle, Justine A. et al. 2019. "Strengthening nutrition services within integrated community case management (iCCM) of childhood illnesses in the Democratic Republic of Congo: Evidence to guide implementation." *Maternal & Child Nutrition* 15 (S1): e12725.	Journal article (qualitative research)	To identify gaps and opportunities available to strengthen service delivery of nutrition within iCCM at the health facility and community levels in Tshopo Province, DRC, through the following objectives: 1) examine cultural beliefs and perceptions of IYCF and child illness; 2) explore perspectives and knowledge of facility-based and community-based health providers on nutrition and iCCM; and 3) gain an understanding of the influence of key family and community members on IYCF and care-seeking practices	Jan–March 2017	• 48 mothers, 20 grandmothers, and 21 fathers of children under 5 • 18 facility-based health providers and 20 traditional healers	Caregiver practices and attitudes related to child nutrition and illnesses	• Most mothers reported diminished quantity and quality of breastmilk linked to child/maternal illness, inadequate maternal diet, and feedings spaced too far apart. • Mothers' return to work in the field led to early introduction of foods prior to 6 months of age, impeding EBF. • Children's diets are largely limited in frequency and diversity with small quantities of foods fed. • Most families seek modern and traditional medicine to remedy child illness, dependent on type of disease, its severity, and cost. Traditional healers are the preferred source of information for families on certain child illnesses and breastmilk insufficiency. • CHWs often refer and accompany families to the health center, yet are underutilized for nutrition counseling, which is infrequently given.	DRC
5	Langston, Anne et al. 2019. "Testing a simplified tool and training package to improve integrated Community Case Management in Tanganyika Province, Democratic Republic of Congo: a quasi-experimental study." *Journal of Global Health* 9 (1).	Journal article (evaluation)	To evaluate the effects of a simplified set of pictorial tools and curriculum adapted for low-literate CHWs developed by the International Rescue Committee in their implementation of iCCM for children 2–59 months old (includes pictorial guide for all steps including counseling of caregivers on feeding practices)	Sept 2015–July 2016	74 CHWs (known in French as *relais communau-taires*, or RECOs) in control group, 78 in intervention group	1) Quality of care, measured by direct observation and reexamination; 2) workload, measured as time required for each assessment, including documentation; and 3) costs of rolling out each package	• Children seen by RECOs in the intervention group had nearly 3 times higher odds of receiving correct treatment (adjusted odds ratio OR=2.9, 95% confidence interval CI=1.3–6.3, P=0.010). On average, time spent by the intervention group was 10.6 minutes less (95% CI=6.6–14.7.)	DRC

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
6	Mukulukulu, John Etshumba et al. 2020. "Improving Demand for Health Services with the Involvement of Community Health Workers: A Case Study of Community Dynamics at Mosango Rural Health Zone in the Democratic Republic of Congo." *Open Journal of Epidemiology* 10 (3): 265.	Journal article (quantitative research)	To assess the improvement of demand for health services with the involvement of CHWs in Mosango Rural Health Zone	2019	234 CHWs surveyed, of which 227 were promotional CHWs compared to only 7 CHWs providing care	• Health indicators evolution in the Mosango Rural Health Zone since CHW's intervention—12 different metrics including rate of curative services used	• Themes included in capacity building session provided to CHWs included: malnutrition (only 19% of cases) and EBF (9% of cases). • From 2010 baseline to 2019 endline, rate of curative services used by the population increased from 25% to 60%. • Four predictive factors determined the improvement of health indicators with the involvement of CHWs in activities of the Mosango Rural Health Zone: 1) having attended school; 2) having sufficient theoretical knowledge on malaria, diarrhea, pneumonia, and malnutrition; 3) availability of inputs to treat these diseases; and 4) having undergone more than one training as CHW.	DRC

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
7	Windhager, Michaela. 2018. *Effectiveness of Current Vitamin A Deficiency Programs in Democratic Republic of Congo* (master's thesis). University of Vienna, Austria.	Grey literature/ dissertation (quantitative research)	To look into the life circumstances of the population in DRC and the programs that were carried out to address Vitamin A deficiency in order to identify the limitations of these programs and therefore the reason for the slow progress	N/A	2,017 caregivers of children under 5 years	• Received Vitamin A supplementation • Dietary diversity score • Many other variables on mother and child nutrition practices, treating childhood illnesses	• 96.6% of the reference children between 5–33 months received vitamin A supplementation. • The majority of children (87.9%) and mothers (90.8%) consumed food rich in pro-vitamin A (green leafy vegetables) in the last 24 hours, but almost no household consumed vitamin A rich foods from animal origin, although pre-formed retinol (vitamin A) from animal-sourced foods is better available for the body. • 66% of mothers and 71% of children did not reach the established target dietary diversity score (WDDS and DDS) of 4. • Only half (47.8%) of mothers practiced EBF in the first 6 months of life as WHO recommends. • Education level was significantly associated with the feeding practice but education on how to feed their children was not. • 64.3% received educational information on how to feed their child from the health center; 11.5% from either CHWs, mothers-in-law, radio, or nongovernmental organizations; and 22.7% did not receive any information. • If the child needs treatment, 36.7% of households receive treatment from the health center, 17.9% from the shop/chemist, and 8.7% from either hospital, traditional medication, or other sources. 36.7% did not give information about where they receive treatment if the child is sick.	DRC

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
Southern Africa								
1	Sasaki, Satoshi et al. 2010. "Access to a health facility and care-seeking for danger signs in children: before and after a community-based intervention in Lusaka, Zambia." *Tropical Medicine & International Health* 15 (3): 312–20.	Journal article (evaluation)	To assess the association of accessibility to a health facility with caregivers' care-seeking practices for children with danger signs before and after community-based intervention NOTE: Health education on the danger signs was started in September 2003 at the monthly GMP+ service through various channels, such as health talk as a topic of health education and one-on-one communication in nutrition counseling	2003–2006	500 caretakers interviewed	• % of caregivers immediately seeking medical help for sick children showing danger signs (refusing to breastfeed or drink, vomiting everything, abnormal breathing, appearing weak or sleepy, and convulsions)	Poor accessibility to health facilities was a significant barrier to care seeking in a peri-urban area. However, when caregivers are properly educated about danger signs and appropriate responses through community-based intervention, this barrier can be overcome through behavioral change in caregivers.	Zambia

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
2	Buccini, Gabriela et al. *Addressing Barriers to Exclusive Breastfeeding in Nampula, Mozambique: Opportunities to Strengthen Counseling and Use of Job Aids: Technical Report*. Washington, DC: USAID and Maternal and Child Survival Program. 2019.	USAID report (evaluation)	*Identify problems and challenges with EBF experienced by mothers *Gain understanding of mothers' care-seeking patterns for addressing the identified breastfeeding problems and challenges *Gain understanding of the quality and type of counseling on breastfeeding problems and challenges currently provided by facility- and community-based health providers *Assess the usefulness of job aids to improve successful identification of and counseling on barriers to EBF	July–Oct 2018	23 mothers and 11 service providers via in-depth interviews and observation of counseling sessions (3 of which were during sick child visits)	• Mothers' knowledge, perceptions, and cultural beliefs on problems and challenges with EBF • Mothers' care-seeking patterns for addressing the identified breastfeeding problems and challenges • Type and quality of counseling on EBF challenges provided by community and facility-based health providers	• There was little attention to breastfeeding counseling during PNC and well child and sick child consultations in the study areas. • EBF happens more if influential family members (especially husbands) receive counseling. • Returning to work too soon postpartum was a major barrier to EBF compliance. • Job aids provided to explain breastfeeding issues had an impact and made CHWs more effective.	Mozambique

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
3	Gilroy, Kate E. et al. 2013. "Quality of sick child care delivered by Health Surveillance Assistants in Malawi." *Health Policy and Planning* 28 (6): 573-585.	Journal article (evaluation)	To assess the quality of care provided by Health Surveillance Assistants (HSAs)—a cadre of CHWs—as part of a national scale-up of CCM in Malawi	Oct–Nov 2009 (18 months after first CCM training)	388 sick child consultations, conducted by 131 HSAs in 6 districts	• Observations of HSA consultations with sick children, compared to "gold standard" reevaluations; used to determine how closely HSAs fulfilled visit protocols and made diagnoses and treatment recommendations consistent with gold standard	• Just over half (55%) of caregivers of children with diarrhea were advised to give extra fluids and continue feeding the child during the illness episode. • Overall, 62% of children with confirmed fever, cough with fast breathing, and/or diarrhea were treated correctly, a finding similar to previous studies in Malawi and sub-Saharan Africa. • HSAs provided correct treatment with antimalarial to 79% of the 241 children presenting with uncomplicated fever, with ORS to 69% of the 93 children presenting with uncomplicated diarrhea and with antibiotics to 52% of 58 children presenting with suspected pneumonia (cough with fast breathing). About 1 in 5 children (18%) presented with danger signs. • HSAs correctly assessed 37% of children for 4 danger signs by conducting a physical exam, and correctly referred 55% of children with danger signs.	Malawi

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
4	Picolo, Melanie et al. "Rethinking Integrated Nutrition-Health Strategies to Address Micronutrient Deficiencies in Children under Five in Mozambique." *Maternal & Child Nutrition* 15 (Suppl 1): e12721.	Journal article (systematic review of government documents on the topic)	To provide program considerations for planning, implementing, monitoring, and evaluating vitamin A and iron deficiency interventions targeting children under 5 within the context of complementary, multi-sectoral interventions and lessons learned to date	1999–2018	n/a	• Coverage of vitamin A supplementation (VAS)	• For 15 years, the Mozambican Ministry of Health implemented twice-yearly vitamin A supplementation through both campaigns and routine health services. Yet coverage in 2017 (55%) was not much higher than in 2003 (44%). Major factors contributing to low coverage of vitamin A supplementation in routine child health services include: • Insufficient demand for vitamin A among caregivers (they do not seek additional preventive care after finishing immunization). • Low capacity to adequately register, aggregate, report, and analyze routine vitamin A data from all delivery platforms. • Localized stock-outs of supplements. • Missed opportunities for vitamin A supplementation during at-risk child and sick-child visits at the health facility. • Large vitamin A supplementation campaigns may demotivate health workers to provide vitamin A during routine services. • Low-quality microplanning and lack of means to operationalize outreach activities for hard-to-reach children. • It is anticipated that monitoring of vitamin A supplementation coverage will improve through recently developed well-child and sick-child consultation registers.	Mozambique

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
5	Nsona, Humphreys et al. 2012. "Scaling Up Integrated Community Case Management of Childhood Illness: Update from Malawi." *The American Journal of Tropical Medicine and Hygiene* 87 5 Suppl: 54-60. https://doi.org/10.4269/ajtmh.2012.11-0759.	Journal article (report)	To document progress in the scale-up of iCCM between 2008 and 2011, describe critical challenges that affect effectiveness and sustainability of the program, and propose solutions	2008–2011	n/a Review of national data mostly from Health Management Information System reports from the IMCI unit in the Ministry of Health	• Total number of health clinics implementing iCCM • Total health care workers trained in iCCM • Various other observations and findings of government assessments of iCCM implementation	• The Government of Malawi targeted the establishment of 3,452 village health clinics in hard-to-reach areas by 2011. By September 2011, 3,296 HSAs had received training in iCCM, and 2,709 village health clinics were functional (78% of the goal). • A 2009 quality of care assessment found that just over 50% of children requiring referral were properly referred and 37% of children were properly assessed for danger signs. • Supervision is a major weakness and contributes to low-quality implementation: Less than 40% of HSAs included in the sample had received an iCCM-specific supervisory visit in the previous 3 months, and only 16% received a visit that included clinical observation of case management. • 62% of children were found to have received correct treatment for their illnesses.	Malawi
6	Thandrayen, Kebashni, and Haroon Saloojee. 2010. "Quality of care offered to children attending primary health care clinics in Johannesburg." *South African Journal of Child Health* 4 (3): 73-77.	Journal article (evaluation)	To assess the quality of child health services provided at PHC facilities in Johannesburg, South Africa	Oct–Nov 2005	141 sick child and 149 well child visits observed at 16 PHC clinics	• Score on a researcher developed structured checklist of what should happen during the visit	• The majority of facilities were adequately equipped and well stocked with drugs. • Many routine examination procedures were poorly performed, with an adequate diagnosis established in 108 of 141 consultations (77%), even though health professionals were experienced and well trained. Triage and attention to danger signs were poor. • Only 3 clinics had a nurse practicing IMCI, despite 12 clinics having IMCI-trained staff. • Health promotion activities (such as growth monitoring) were consistently ignored during sick child visits. • Growth monitoring and nutritional counseling at well child visits was generally inadequate, with none of 11 children who qualified for food supplementation receiving it.	South Africa

	Study/Source Citation	Type of Literature	Study Purpose	Time Frame	Sample Size	Outcome Measures	Relevant Findings	Countries Covered
7	Mupara, Lucia Mungapeyi. 2013. *Challenges Identified by Experienced IMCI-1-Trained Registered Nurses in Implementing the Integrated Management of Childhood Illnesses (IMCI) Strategy in Gaborone, Botswana* (master's thesis). University of South Africa, Pretoria.	Grey literature/ dissertation (review and quantitative research)	To identify challenges experienced by IMCI-trained registered nurses in implementing the guidelines and procedures of the strategy when tending children under 5 years in Gaborone health district, and to solicit recommendations on how to deal with those challenges	N/A	33 registered nurses surveyed across 15 clinics		• The majority of the study participants (78%) had not received IMCI follow-up training and 64% said this was a barrier to implementation. • High cost of IMCI training was identified as a major challenge. • IMCI consultation length, contributing to long patient waiting queues, emerged as a major problem, and participants suggested wider training of more staff, including lower-level staff, would help.	Botswana and many others in literature review
8	Kavle, Justine A. et al. 2019. "Strengthening counseling on barriers to exclusive breastfeeding through use of job aids in Nampula, Mozambique." *PLOS ONE* 14 (12): e0224939.	Journal article (quantitative research)	To assess EBF challenges, from the perspectives of health providers and mothers; ascertain the quality of health provider counseling to address EBF challenges; and gain an understanding of the usefulness of job aids to improve counseling within routine health contact points in Nampula, Mozambique	July–November 2018	46 in-depth interviews with mothers and providers, and 11 observations of counseling sessions were conducted	Exclusive breastfeeding	• Poor latch and positioning, perceived insufficient breastmilk, and breast engorgement emerged as barriers to EBF. • Providers often lacked the knowledge, skillset, and self-efficacy to manage EBF problems, with little counseling provided at community or facility levels. • Following job aid rollout, providers reported improved assessment of breastfeeding technique, and increased self-efficacy and motivation to identify and resolve EBF problems.	Mozambique
9	Mapoma, Chabila C., and Caroline Banda. *Breastfeeding and Common Childhood Diseases in Zambia: Does Breastfeeding Have a Protective Effect against Diarrhea, Fever and Acute Respiratory Infections among Children in Zambia?* African Population Studies. Accra: Union for African Population Studies. 2019.	Journal article (quantitative research)	Determine if breastfeeding reduces the occurrence of ARIs, fever, and diarrhea in children who are breastfeeding; and is the occurrence of these common childhood diseases affected by duration (period) of breastfeeding	2019 article, data from 2013 (DHS)	11,914 children	• Child has suffered from illness (diarrhea, ARI or fever) during the study period	• Breastfeeding does not protect children against diarrhea but does protect against fever and ARIs. • Breastfeeding children under 6 months is the most important, beyond that has no effect on the targeted disease or can even be dangerous. • Children whose mothers were employed were more likely to suffer from all the 3 disease outcomes compared to those not employed (OR Diarrhea 1.2; Fever 1.5; ARIs 1.2).	Zambia

ANNEX 2: DATA SOURCES USED FOR THE DATA SEARCHES FOR THE LITERATURE REVIEW

TABLE 9: DATA SOURCES FOR DATA SEARCHES FOR THE LITERATURE REVIEW [173]

Data Source	Weblink	Type of Data Source/Description	Search Criteria
African Index Medicus (AIM)	https://indexmedicus.afro.who.int/	In order to give access to health information published in or related to Africa and to encourage local publishing, WHO, in collaboration with the Association for Health Information and Libraries in Africa, has produced an international index, called African Index Medicus (AIM), to list African health literature and information sources.	• By targeted country • By targeted interventions related to nutrition counseling and care during and after childhood illness
African Journal of Food, Agriculture, Nutrition and Development (AJFAND)	http://ajfand.net/#gsc.tab=0	African peer-reviewed journal The African Journal of Food, Agriculture, Nutrition and Development (AJFAND) is a highly cited and prestigious peer-reviewed journal with a global reputation, published in Kenya by the Africa Scholarly Science Communications Trust. Their internationally recognized publishing program covers a wide range of scientific and development disciplines, including agriculture, food, nutrition, environmental management, and sustainable development related information.	• By targeted country • By targeted interventions related to nutrition counseling and care during and after childhood illness
Alive and Thrive	https://www.aliveandthrive.org/	Alive & Thrive (A&T) is an initiative to save lives, prevent illness, and ensure healthy growth and development through optimal maternal nutrition, breastfeeding, and complementary feeding practices. Through application of its evidence-based framework and utilization of its robust network of partners, A&T builds momentum, breaks down barriers, and supports a better future for women and children.	• By targeted country • By targeted interventions related to nutrition counseling and care during and after childhood illness
BiblioMap - Evidence for Policy and Practice Information and Coordinating Centre (EPPI-Centre) database of health promotion research	eppi.ioe.ac.uk/webdatabases/Intro.aspx?ID=7	BiblioMap, the EPPI-Centre database of health promotion research, contains over 14,100 records at present. The studies included in Bibliomap have been compiled over a number of years as a result of searching and coding research for inclusion in systematic reviews at the EPPI-Centre. All studies are coded for specific characteristics of health focus, population group, and study type.	

[173] Based on: Lefebvre C, Manheimer E, and J Glanville, on behalf of the Cochrane Information Retrieval Methods Group. 2011. "Searching for Studies." In *Cochrane Handbook for Systematic Reviews of Interventions*, edited by Higgins JPT and S Green. Version 5.1.0. [updated March 2011]. The Cochrane Collaboration. Available from: www.cochrane-handbook.org.

Data Source	Weblink	Type of Data Source/Description	Search Criteria
Community Health Worker (CHW) Central: A global resource for and about Community Health Workers	https://chwcentral.org/resources-search/?wpv_post_search=nutrition&wpv_aux_current_post_id=3162&wpv_view_count=3161-TCPID3162	CHW Central is a global resource for and about CHWs around the globe. It has a collection of resources about CHWs and CHW programs.	
clinicaltrials.gov	https://clinicaltrials.gov/	ClinicalTrials.gov[174] is a resource provided by the U.S. National Library of Medicine. It lists 357,991 research studies in all 50 states and in 218 countries. A clinical study involves research using human volunteers (also called participants) that is intended to add to medical knowledge. There are 2 main types of clinical studies: clinical trials (also called interventional studies) and observational studies. ClinicalTrials.gov includes both interventional and observational studies.	• By targeted country • By targeted interventions related to nutrition counseling and care during and after childhood illness
Cochrane Reviews	https://www.cochranelibrary.com	Systematic Reviews Cochrane produces systematic reviews of primary research in human health care and policy. Each Cochrane Review addresses a clearly formulated question (e.g., Can antibiotics help in alleviating the symptoms of a sore throat?). To answer this question, Cochrane searches for and collates all the existing primary research on a topic that meets certain criteria; then they assess it, using stringent guidelines, to establish whether or not there is conclusive evidence about a specific treatment. Cochrane Reviews are internationally recognized as the highest standard in evidence-based health care and they publish them online in the Cochrane Library.	• By targeted country • By targeted interventions related to nutrition counseling and care during and after childhood illness
Database of Promoting Health Effectiveness Reviews (DoPHER)	http://eppi.ioe.ac.uk/webdatabases4/Intro.aspx?II=9	DoPHER is unique in its focused coverage of systematic and non-systematic reviews of effectiveness in health promotion and public health worldwide. This register currently contains details of over 6,000 reviews of health promotion and public health effectiveness.	• By targeted country • By targeted interventions

[174] U.S. National Library of Medicine. ClinicalTrials.Gov. Accessed November 17, 2020. https://clinicaltrials.gov/.

Data Source	Weblink	Type of Data Source/Description	Search Criteria
Demographic and Health Surveys (DHS)	https://dhsprogram.com/data/DHS-Survey-Indicators-Maternal-and-Child-Health.cfm	Population-based surveys	• By targeted country • Targeted Indicators • Between January 2005-December 2020
The Emergency Nutrition Network (ENN)	https://www.ennonline.net/	ENN strives to enhance the effectiveness of nutrition policy and programming by improving knowledge, stimulating learning, and building evidence. We are passionate about being field driven and are globally recognized as thought leaders and conveners in nutrition.	• By targeted country • By targeted interventions
Google Scholar	https://scholar.google.com/	Google Scholar (http://scholar.google.com) provides a new method of locating potentially relevant articles on a given subject by identifying subsequent articles that cite a previously published article. An important feature of Google Scholar is that researchers can use it to trace interconnections among authors citing articles on the same topic and to determine the frequency with which others cite a specific article, as it has a "cited by" feature.	• By targeted country • By targeted interventions
Ministry of health websites in respective countries		Ministries of health of each targeted country to search for: • IMCI policies, strategies, plans, and materials • iCCM policies, strategies, plans, and materials • IYCF national policies, strategies, plans, and materials • National nutrition policies, strategies, plans, and materials **East Africa** Ethiopia: http://www.moh.gov.et/ejcc/ Kenya: https://www.health.go.ke/ Tanzania: https://www.moh.go.tz/en/ Uganda: https://www.health.go.ug/ **West Africa** Burkina Faso: https://www.sante.gov.bf/accueil Ghana: Moh.Gov.gh Mali: http://www.sante.gov.ml/ Niger: https://www.sante.gouvne.org/ Nigeria: www.health.gov.ng Sierra Leone: https://mohs.gov.sl/ Senegal: http://www.sante.gouv.sn/ **Central Africa:** DRC: http://www.minisanterdc.cd/ Rwanda: https://moh.gov.rw **Southern Africa:** Malawi: https://www.health.gov.mw/ Mozambique: https://www.misau.gov.mz/ Zambia: https://www.moh.gov.zm/	• By targeted country • By targeted policies, strategies, plans, and materials

Data Source	Weblink	Type of Data Source/Description	Search Criteria
PROSPERO-National Institute for Health Research International prospective register of systematic reviews	https://www.crd.york.ac.uk/prospero/	PROSPERO is an international database of prospectively registered systematic reviews in health and social care, welfare, public health, education, crime, justice, and international development, where there is a health-related outcome. Key features from the review protocol are recorded and maintained as a permanent record. PROSPERO aims to provide a comprehensive listing of systematic reviews registered at inception to help avoid duplication and reduce opportunity for reporting bias by enabling comparison of the completed review with what was planned in the protocol. PROSPERO is produced by the Centre for Reviews and Dissemination and funded by the National Institute for Health Research in the United Kingdom.	• By targeted country • By targeted interventions related to nutrition counseling and care during and after childhood illness
PubMed including MEDLINE	https://pubmed.ncbi.nlm.nih.gov/ https://www.nlm.nih.gov/bsd/pmresources.html	PubMed® comprises more than 30 million citations for biomedical literature from MEDLINE, life science journals, and online books. Citations may include links to full-text content from PubMed Central and publisher web sites. MEDLINE® contains journal citations and abstracts for biomedical literature from around the world.	• By targeted country • By targeted interventions related to nutrition counseling and care during and after childhood illness
Scaling up Nutrition (SUN)	https://scalingupnutrition.org/	SUN is a Movement which puts national priorities at the heart of global efforts to improve nutrition. Each SUN Country has nominated a SUN Government Focal Point who acts as a key driving force for the national movement. They are supported by a multi-stakeholder platform, which can include representatives of civil society, donor, and United Nations agencies, business, and the technical community. The multi-stakeholder platform works across sectors to embrace nutrition-sensitive approaches to tackle the underlying causes of malnutrition as well as nutrition-specific interventions to tackle its direct manifestations.	• By targeted country • By targeted interventions related to nutrition counseling and care during and after childhood illness
United Nations Children's Fund (UNICEF) Multiple Indicator Cluster Surveys (MICS)	https://mics.unicef.org/	Since its inception in 1995, MICS has become the largest source of statistically sound and internationally comparable data on women and children worldwide. MICS was a major source of data on the Millennium Development Goal indicators and will continue to be a major data source during the 2030 Sustainable Development Agenda to measure Sustainable Development Goal indicators.	• By targeted country • Targeted Indicators • Between January 2005-December 2020
USAID Experience Development Clearinghouse	https://dec.usaid.gov/dec/home/Default.aspx	• Peer-reviewed publications • USAID evaluations • A half-century of U.S. international aid records	• By targeted country • By targeted interventions related to nutrition counseling and care during and after childhood illness

Data Source	Weblink	Type of Data Source/Description	Search Criteria
USAID/Food and Nutrition Technical Assistance III Project (FANTA)	https://www.fantaproject.org/	FANTA was a centrally-funded, USAID-funded project that worked to improve the health and nutrition of vulnerable children and mothers in the developing world through programs supporting maternal and child health and nutrition.	• By targeted country • By targeted interventions
USAID Advancing Nutrition	https://www.advancingnutrition.org/	USAID Advancing Nutrition is the Agency's flagship multi-sectoral nutrition project.	• By targeted country • By targeted interventions • Between January 2005-December 2020
USAID/Maternal and Child Survival Program (MCSP)	https://www.mcsprogram.org/	MCSP was a multi-partner, flagship program in support of USAID's priority goal of preventing child and maternal deaths. MCSP was evidence-based and results oriented. MCSP focused on increasing coverage and utilization of high-quality reproductive, maternal, newborn, and child health interventions at the household, community, and health facility levels.	• By targeted country • By targeted interventions • Between January 2005-December 2020
World Health Organization's International Clinical Trials Registry Platform (ICTRP)	https://www.who.int/clinical-trials-registry-platform	For the purposes of registration, a clinical trial is any research study that prospectively assigns human participants or groups of humans to one or more health-related interventions to evaluate the effects on health outcomes. Clinical trials may also be referred to as interventional trials. Interventions include but are not restricted to drugs, cells and other biological products, surgical procedures, radiologic procedures, devices, behavioral treatments, process-of-care changes, preventive care, etc. This definition includes Phase I to Phase IV trials.[175] WHO regards trial registration as the publication of an internationally-agreed set of information about the design, conduct, and administration of clinical trials.[176] These details are published on a publicly-accessible website managed by a registry conforming to WHO standards.[177]	• By targeted country • By targeted interventions • Between January 2005–December 2020

[175] Biomedical clinical trials of experimental drug, treatment, device, or behavioral intervention may proceed through four phases: 1) clinical trials test a new biomedical intervention in a small group of people (e.g., 20–80) for the first time to evaluate safety (e.g., to determine a safe dosage range and to identify side effects); 2) clinical trials study the biomedical or behavioral intervention in a larger group of people (several hundred) to determine efficacy and to further evaluate its safety; 3) studies investigate the efficacy of the biomedical or behavioral intervention in large groups of human subjects (from several hundred to several thousand) by comparing the intervention to other standard or experimental interventions as well as to monitor adverse effects, and to collect information that will allow the intervention to be used safely; and 4) studies are conducted after the intervention has been marketed; these studies are designed to monitor effectiveness of the approved intervention in the general population and to collect information about any adverse effects associated with widespread use.

[176] World Health Organization. *WHO Data Set*. Accessed November 17, 2020. http://www.who.int/ictrp/network/trds/en/.

[177] World Health Organization. *WHO Registry Criteria*. Accessed November 17, 2020. https://www.who.int/clinical-trials-registry-platform/network/registry-criteria.

Data Source	Weblink	Type of Data Source/Description	Search Criteria
World Health Organization Guidelines	www.who.int	WHO iCCM materials Caring for Newborns and Children in the Community: Caring for the Sick Child in the Community: A Training Course for Community Health Workers: • Participant's Manual[178] • Facilitators Notes[179] • Photo Book[180] • Chart Booklet[181] • Facilitator Guidelines for Conducting a Workshop[182] • Planning Handbook[183] These materials are designed to help lay CHWs assess and treat sick children aged 2–59 months. In this process, also known as "Community Case Management" (CCM) the CHW: • Identifies and refers children with danger signs; • Treats (or refers) pneumonia, diarrhea, and fever; • Identifies and refers children with severe malnutrition to a health facility; • Refers children with other problems that need medical attention; and • Advises on home care for all sick children. WHO/UNICEF Joint Statement on ICCM[184]	

[178] World Health Organization and United Nations Children's Fund. Caring for Newborns and Children in the Community: Caring for the Sick Child in the Community: A Training Course for Community Health Workers: Participant's Manual. 2011. https://apps.who.int/iris/bitstream/handle/10665/44398/9789241548045_Manual_eng.pdf?sequence=1&isAllowed=y&ua=1.
[179] World Health Organization and United Nations Children's Fund. *Caring for Newborns and Children in the Community: A Training Course for Community Health Workers: Caring for the Sick Child in the Community: Facilitator Notes*. 2011. https://apps.who.int/iris/bitstream/handle/10665/44398/9789241548045_Facilitator_Notes_eng.pdf?sequence=2&isAllowed=y&ua=1
[180] World Health Organization and United Nations Children's Fund. *Caring for Newborns and Children in the Community: A Training Course for Community Health Workers: Caring for the Sick Child in the Community: Photo Book*. 2011. https://apps.who.int/iris/bitstream/handle/10665/44398/9789241548045_Photo_Book_eng.pdf?sequence=3&isAllowed=y&ua=1.
[181] World Health Organization and United Nations Children's Fund. *Caring for Newborns and Children in the Community: A Training Course for Community Health Workers: Caring for the Sick Child in the Community: Chart Booklet*. 2011. https://apps.who.int/iris/bitstream/handle/10665/44398/9789241548045_Chart_Booklet_eng.pdf?sequence=4&isAllowed=y&ua=1.
[182] World Health Organization. *Caring for Newborns and Children in the Community: Faciltator Guidelines for Conducting a Planning Workshop*. 2015. https://apps.who.int/iris/bitstream/handle/10665/204456/9789241508582_eng.pdf?sequence=1.
[183] World Health Organization. *Caring for Newborns and Children in the Community: Planning Handbook for Programme Managers and Planners: Planning Handbook*. 2015. https://apps.who.int/iris/bitstream/handle/10665/204457/9789241508599_eng.pdf?sequence=1.
[184] World Health Organization and United Nations Children's Fund. *WHO/UNICEF Joint Statement: Integrated Community Case Management (iCCM)*. 2012. http://www.who.int/maternal_child_adolescent/documents/statement_child_services_access_whounicef.pdf.

ANNEX 3: TARGETED INTERVENTIONS RELATED TO NUTRITION COUNSELING AND CARE DURING AND AFTER CHILDHOOD ILLNESS

TABLE 10: TARGETED INTERVENTIONS RELATED TO NUTRITION COUNSELING AND CARE DURING AND AFTER CHILDHOOD ILLNESS

Targeted Population Group	Applicable Context or Setting	Intervention
Assessment and Management of Wasting		
Infants and children aged 6–59 months with moderate acute malnutrition (undernutrition)	All countries, all settings	Identify infants under 6 months of age with severe acute malnutrition (undernutrition).
Infants and children aged 6–59 months with moderate and severe acute malnutrition (undernutrition) accessing treatment services and receiving nutrition counseling	All countries, all settings	Children 6–59 months of age with moderate and severe acute malnutrition (undernutrition) access treatment services and receive appropriate nutritional counseling.
Breastfeeding Promotion		
All infants	All countries, all settings	Enable EBF for the first 6 months of life.
All infants	All countries, all settings	Enable continued breastfeeding (*during and after illness).
All infants	All countries, all settings	Counsel women to improve breastfeeding practices (*during and after illness).
Mothers/caregivers of children 0–6 months of age	All countries, all settings	Counsel for breastfeeding for children 0–6 months of age.
Mothers/caregivers of children 6–12 months of age	All countries, all settings	Counsel for complementary feeding and hand washing 6–12 months of age.
Complementary Feeding (Appropriate)		
Infants and young children 6–23 months of age	All countries, all settings	Ensure complementary feeding practices of sick Infants and young children 6–23 months of age.
Counseling Caregivers on Home Treatment During Integrated Management of Childhood Illness (IMCI)		
Caregivers of infants and young children under 5 years of age	All countries, all settings	A critical component of IMCI is counseling caregivers on home treatment (e.g., treating local infections, giving oral drugs), feeding and fluids, breastfeeding, and other well child care. Then counsel the caregiver about her own health. Advise the caregiver to return for follow-up on a specific date. Teach caregivers when to return immediately if child shows signs of severe illness. Counsel caregivers on how to feed during and after illness.
Counseling: Nutrition Counseling for Young Children		
Caregivers of infants and young children under 5 years of age	All countries, health facility, and community health services settings	Nutrition counseling is an important intervention during ANC, postnatally, and throughout early childhood. The DHS-8 Woman's Questionnaire now includes questions on nutrition counseling during ANC, breastfeeding counseling during ANC, and nutrition counseling for young children. With this information, countries will be able to track the coverage and impact of nutrition counseling interventions. The reference period is 3 years to improve women's recall and reduce survey burden.

Targeted Population Group	Applicable Context or Setting	Intervention
Feeding (During Illness) * Primary Priority of the Literature Review		
Infants under 6 months of age	All countries, Inpatient care for Infants under 6 months of age with severe acute malnutrition	Infants under 6 months of age can be discharged from all care when all the following conditions are met:[185] They are breastfeeding effectively or feeding well with replacement feeds; and They have adequate weight gain or they have weight-for-length or height 2 or more standard deviations below the median compared to the WHO child growth standards.
Children under 2 years of age and health care providers	All countries, health facility, and community health services settings	ASSESS FEEDING[186] if the child is less than 2 years old, or all children who have MODERATE ACUTE MALNUTRITION, ANAEMIA, or is HIV exposed or infected. FEEDING PROBLEMS: Do you breastfeed your child? Yes ___ No ___ If yes, how many times in 24 hours? ___ times. Do you breastfeed during the night? Yes ___ No ___ Does the child take any other foods or fluids? Yes ___ No ___If Yes, what food or fluids? How many times per day? ___ times. What do you use to feed the child? If MODERATE ACUTE MALNUTRITION: How large are servings? Does the child receive his own serving? ___ Who feeds the child and how? During this illness, has the child's feeding changed? Yes ___ No ___If Yes, how?
Vitamin A Supplementation (VAS)		
Infants under 6 months of age	Infants under 6 months of age	Infants under 6 months of age.
Infants under 6 months of age	Infants under 6 months of age	Infants under 6 months of age.
Infants and children 6–59 months of age	Settings where the prevalence of night blindness is 1% or more in children aged 24–59 months, or the prevalence of vitamin A deficiency is 20% or higher in infants and children aged 6–59 months	High-dose vitamin A supplementation for infants and children aged 6–59 months.
Zinc Supplementation in the Management of Diarrhea		
Infants and children with diarrhea	All countries, all settings	Zinc supplementation with increased fluids and continued feeding for management of diarrhea in children.

[185] World Health Organization. *Essential Nutrition Actions: Mainstreaming Nutrition through the Life-Course*. 2019. https://apps.who.int/iris/bitstream/handle/10665/326261/9789241515856-eng.pdf?ua=1.
[186] World Health Organization. *IMCI Set of Distance Learning Modules*. Accessed November 19, 2020. https://www.who.int/maternal_child_adolescent/documents/9789241506823/en/.

ANNEX 4: LIST OF KEY INDICATORS TRACKED FOR THE REVIEW

TABLE 11: KEY INDICATORS TO ANALYZE FOR THE LITERATURE REVIEW

Indicator	Summary Description & Unit of Measurement
Childhood Illness and Treatment	
Nutritional Status	
Child Stunting (DHS-7)	Percentage of stunted children under 5 years of age.
Child Underweight (DHS-7)	Percentage of underweight children under 5 years of age.
Child Wasting (DHS-7)	Percentage of wasted children under 5 years of age.
Acute Respiratory Infection*	
Prevalence and Treatment of Symptoms of ARI (DHS-7) ¤	Percentage of children under age 5 with symptoms of ARI, and among children under age 5 with symptoms of ARI, the percentage for whom advice or treatment was sought and for whom advice or treatment was sought the same or next day.
*Prevalence and Treatment of Symptoms of ARI by Specific Source (DHS-7) ¤	Percentage of children under age 5 with symptoms of ARI for whom advice or treatment was sought from specific sources, and among those for whom advice or treatment was sought, percentage for whom advice or treatment was sought from specific source.
Prevalence and Treatment of ARI and of Fever (DHS)	Percentage of children under 5 years who were ill with a cough accompanied with rapid breathing and the percentage who were ill with fever during the 2 weeks preceding the survey, and the percentage of ill children who were treated with specific remedies, by selected background characteristic.
Diarrhea*	
Prevalence and Treatment of Diarrhea (DHS-7)	Prevalence of diarrhea in children: Percentage of children under age 5 years of age with diarrhea, and percentage for whom advice or treatment was sought.[187]
Diarrhea Prevalence (DHS)	Percentage of children under age 5 who had diarrhea and diarrhea with blood in the 2 weeks preceding the survey, and the percentage of children who diarrhea in the preceding 24 hours, by selected background characteristics.
Knowledge of ORS packets (DHS-7)	Percentage of mothers who know about ORS packets or ORS pre-packaged liquids.
Treatment of Diarrhea (DHS)	Percentage of children under age 5 with diarrhea in the 2 weeks preceding the survey who were taken for a treatment to a healthy facility or provider, percentage who received ORS, and percentage who did not receive any treatment.
Source of Advice or Treatment for Children with Diarrhea (DHS-7)	Percentage of children under age 5 with diarrhea for whom advice or treatment was sought from specific sources, among children with diarrhea for whom advice or treatment was sought, percentage sought from specific sources, and among children with diarrhea who received ORS, the percentage for whom advice or treatment was sought from specific sources.

[187] *Guide to DHS Statistics DHS-7.* https://dhsprogram.com/pubs/pdf/DHSG1/Guide_to_DHS_Statistics_DHS-7.pdf.

Indicator	Summary Description & Unit of Measurement
Oral Rehydration Therapy (ORT), Zinc, and Other Treatments for Diarrhea (DHS-7)	Among children under age 5 who had diarrhea in 2 weeks preceding the survey, percentage given fluid from an ORS packet or pre-packaged ORS fluid, RHF, ORS or RHF, zinc, ORS and zinc, ORS or increased fluids, ORT, continued feeding and ORT, and other treatments; and percentage given no treatment. Proportion of children with diarrhea in last 2 weeks who were given ORS Proportion of children with diarrhea in last 2 weeks who were given zinc Proportion of children with diarrhea in last 2 weeks who were given RHF Proportion of children with diarrhea in last 2 weeks who were given the same or more to drink Proportion of children with diarrhea in last 2 weeks who were given the same or more to eat
Zinc Supplementation and ORT Treatment During Diarrhea (DHS-7)[188]	Prevalence of zinc supplementation and ORT treatment during diarrhea: percentage of children under age 5 who had diarrhea in the 2 weeks preceding the survey who received zinc supplementation and ORT during episodes of diarrhea.
Fever, Prevalence, Diagnosis, and Prompt Treatment of Children with Fever*	
Prevalence and Treatment of Fever (DHS-7)[189]	Percentage of children under age 5 with fever in the 2 weeks preceding the survey; and among children with fever, percentage for whom advice or treatment was sought, percentage for whom advice or treatment was sought the same or next day following the onset of fever, and percentage who had blood taken from a finger or heel for testing.
Drugs Taken for Fever (DHS)	Percentage of children under 5 years who were ill with fever during the 2 weeks preceding the survey, by type of antimalarial drug taken, according to residence.
Malaria	
Prevalence of Child Fever (DHS-7)	Percentage of children with fever in the 2 weeks preceding the survey; and among children with fever, percentage for whom advice or treatment was sought, percentage for whom advice or treatment was sought the same or next day following the onset of fever.
Prevalence of Child Fever and Treatment (DHS-7)	Percentage of children under age 5 with fever in the 2 weeks preceding the survey for whom advice or treatment was sought from specific sources; and among children under age 5 with fever in the 2 weeks preceding the survey for whom advice or treatment was sought, the percentage for whom advice or treatment was sought from specific sources.
Infant and Young Child Feeding and Caring Practices	
Breastfeeding	
Initial Breastfeeding (DHS-7)	Percentage of children ever breastfed, who started breastfeeding within 1 hour of birth, who started breastfeeding within 1 day of birth, and who received a pre-lacteal feed. This indicator is a measure of early initiation of breastfeeding after birth for the age group 0–23 months of age.

[188] *Guide to DHS Statistics DHS-7.* Accessed March 3, 2021. https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Oral_Rehydration_Therapy_Zinc_and_Other_Treatments_for_Diarrhea.htm.
[189] *Guide to DHS Statistics DHS-7.* Accessed March 3, 2021. https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Prevalence_Diagnosis_and_Prompt_Treatment_of_Children_with_Fever.htm%23Percentage_of_children17bc-1&rhtocid=_15_8_0.

Indicator	Summary Description & Unit of Measurement
Exclusive Breastfeeding (EBF)[190] (DHS-7)[191]	Prevalence of EBF of children under 6 months of age. EBF may include ORS, Vitamins, minerals, and/or medicines but no other food or liquid. Percent distribution of children exclusively breastfeeding, or breastfeeding and consuming plain water only, non-milk liquids, consuming other milk, and consuming complementary foods.
Continued Breastfeeding (DHS-7)	Percentage of children currently breastfeeding, continuing breastfeeding at 1 year and at 2 years.
Complementary Feeding and Breastfeeding and Complementary Feeding	
Complementary Feeding (DHS-7)[192]	Prevalence of complementary feeding: introduction of solid, semi-solid, or soft foods: Percentage of infants 6–8 months of age who receive solid, semi-solid, or soft foods. Percentage of children exclusively breastfed, predominantly breastfed, age-appropriately breastfed, given mixed breast and non-breast milk, and introduced to solid, semi-solid, or soft foods.
Breastfeeding and Complementary Feeding (DHS-7)	Percent distribution of children exclusively breastfeeding, or breastfeeding and consuming plain water only, non-milk liquids, consuming other milk, and consuming complementary foods.
Exclusive Breastfeeding and Complementary Feeding (DHS-7)	Percentage of children exclusively breastfed, predominantly breastfed, age-appropriately breastfed, and introduced to solid, semi-solid, or soft foods.
Feeding with a Bottle (DHS-7)	Percentage of children using a bottle with a nipple.
Foods and Liquids Consumed by Children (DHS-7)	Percentage of breastfeeding and non-breastfeeding children consuming specific foods.
Complementary Feeding and Dietary Diversity	
Minimum Dietary Diversity, Minimum Meal Frequency and Minimum Acceptable Diet (DHS-7)	Percentage of children fed the MMD, MMF, and MAD.
Minimum Acceptable Diet (MAD) (DHS-7)	Percentage of children aged 6–23 months who consume a MAD. [It is important to note that MAD measures both the minimum feeding frequency and MDD, as appropriate for various age groups.]
Minimum Dietary Diversity (MDD) (DHS-7)	MDD for children under 2 years of age: Percentage of children 6–23 months of age with MDD[193] (who receive foods from 5 or more food groups).
Minimum Meal Frequency (MMF) (DHS-7)	MMF for children under 2 years of age: Percentage of children 6–23 months of age with MMF.
Feeding Practices During Illness	
Feeding Practices during Diarrhea (DHS-7)[194]	Prevalence of feeding practices during diarrhea: percent distribution of children under age 5 with diarrhea by amount of liquids given, and by amount of foods given.

[190] Exclusive breastfeeding is when an infant receives ONLY breast milk (including milk hand-expressed or from a wet nurse) and no other food or fluids in the previous 24 hours. The infant can still receive ORS, drops and syrups (vitamins, minerals and medicines). They cannot receive anything else. Feeding Breast Milk by Spoon, Cup or Bottle: When bottle-feeding is associated with unhygienic conditions and poor preparation of infant formula, it puts the infant at a great risk of illness, resulting in increased risk of mortality. Feeding an infant from a bottle with an artificial teat may also make it more difficult for the baby to learn to attach well at the breast and has been associated with earlier cessation of breastfeeding. If an infant cannot feed directly from the breast, then the safest alternative is to feed expressed breast milk from a cup.

[191] *Guide to DHS Statistics DHS-7*. Accessed March 3, 2021. https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Breastfeeding_and_Complementary_Feeding.htm%23Percent_distribution_of21bc-1&rhtocid=_14_1_0.

[192] *Guide to DHS Statistics DHS-7*. Accessed March 3, 2021. https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Breastfeeding_and_Complementary_Feeding.htm&rhsearch=complementary%20feeding&ux=search.

[193] The age range of 6–23 months includes both infants (less than 12 months) and young children. In the indicator definition, and in the remainder of this section, we refer to this age group, collectively, as "children."

[194] *Guide to DHS Statistics DHS-7*. https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Feeding_Practices_during_Diarrhea.htm%23Percent_distribution_of49bc-1&rhtocid=_13_4_0

Indicator	Summary Description & Unit of Measurement
Increased Fluid Intake (ORS or increased fluids for diarrhea) (DHS-7)[195]	IMCI provides specific guidance on home care, which should include more frequent, longer periods of breastfeeding and increased fluid intake. There is no DHS indicator available on increased fluid intake aside from for with diarrhea: • Among children under age 5 who had diarrhea in the 2 weeks preceding the survey, percentage given fluid from an ORS packet or pre-packaged ORS fluid, RHF, ORS or RHF, zinc, ORS and zinc, ORS or increased fluids, ORT, continued feeding and ORT, and other treatments; and percentage given no treatment.
Counseling	
Counseling During Postnatal Care [New UNICEF/WHO] (data not available yet; future recommendations from UNICEF/WHO)	PNC counseling: percentage of (proportion) PNC consultations for mothers of infants under 6 months providing counseling on appropriate IYCF [New UNICEF/WHO]. Currently in the DHS-7: Percent distribution of timing of first postnatal check for the mother, and percentage who received a postnatal check during the first 2 days[196].
Infant and Young Child Feeding Counseling (New DHS-8) ***No data yet as it is forthcoming***	IYCF counseling: Among women aged 15–49 whose youngest child 6–23 months is living with them, percentage received IYCF counseling in the last 6 months, according to background characteristics [Country Survey Year]. **Background characteristics** • Counseled in last 6 months about how or what to feed their child • Number of women whose youngest child 6–23 months is living with them
Counseling During Postnatal Care ***(data not available yet; future recommendations from UNICEF/WHO)***	Percentage of women receiving PNC during the first 2 days after the birth a) Cord examined b) Temperature measured **c) Counseling on danger signs** **d) Counseling on breastfeeding** e) Observation of breastfeeding f) Weighed
Facility-Based Nutrition Readiness and Delivery of Maternal and Child Nutrition[197]	
Women Receiving Weight Assessment and Maternal Nutrition Counseling During an ANC Visit	Percent of women receiving weight assessment and maternal nutrition counseling during an ANC visit, by country.
Breastfeeding Counseling	Percent of women receiving breastfeeding counseling during an ANC visit, by country.
Health Facilities that Have Growth Monitoring Services	Percent of facilities providing curative (treatment) care and growth monitoring services for children, by country.
Child Weight and Height During Sick Child Consultations	Percent of children whose weight was measured and percent of children whose weight was plotted on a growth chart among children weighed during sick child consultations, by country.
Vitamin A During Sick Child Visits	Percent of children who received vitamin A during sick child visits, by country.
Feeding or Breastfeeding Practices during Sick Child Visits	Percent of caretakers who discussed feeding or breastfeeding practices during illness or wellness during sick child visits, by country.

[195] *Guide to DHS Statistics DHS-7*. https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Oral_Rehydration_Therapy_Zinc_and_Other_Treatments_for_Diarrhea.htm&rhsearch=ORS%20or%20increased%20fluids&rhhlterm=ORS%20or%20increased%20fluids&rhsyns=%20

[196] *Guide to DHS Statistics DHS-7* https://dhsprogram.com/data/Guide-to-DHS-Statistics/index.htm#t=Postnatal_Care.htm&rhsearch=counseling&rhhlterm=counseling&rhsyns=%20

[197] Mallick, Lindsay, Temsah, Gheda, and Rukundo Benedict. *Facility-Based Nutrition Readiness and Delivery of Maternal and Child Nutrition Services Using Service Provision Assessment Surveys. DHS Comparative Reports 49*. 2018.

ANNEX 5: REFERENCES

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ANNEX 6: DEMOGRAPHIC AND HEALTH SURVEY REFERENCES

TABLE 12: DEMOGRAPHIC AND HEALTH SURVEYS REFERENCES

Country	Survey & Year	Reference
Burkina Faso	2010 DHS	Institut National de la Statistique et de la Démographie, Ministère de l'Économie et des Finances, and ICF International. *Burkina Faso Demographic and Health Survey 2010*. 2012. https://dhsprogram.com/pubs/pdf/FR256/FR256.pdf.
Democratic Republic of Congo	2007 DHS	Ministère du Plan and Macro International. *Democratic Republic of Congo Demographic and Health Survey 2007*. 2008. https://dhsprogram.com/pubs/pdf/FR208/FR208.pdf.
	2013–14 DHS	Ministère du Plan et Suivi de la Mise en œuvre de la Révolution de la Modernité, Ministère de la Santé Publique, and ICF International. *Democratic Republic of Congo Demographic and Health Survey 2013-2014.* 2014. https://dhsprogram.com/pubs/pdf/FR300/FR300.pdf
Ethiopia	2005 DHS	Central Statistical Agency and ORC Macro. *Ethiopia Demographic and Health Survey 2005*. 2006. https://dhsprogram.com/pubs/pdf/FR179/FR179[23June2011].pdf.
	2011 DHS	Central Statistical Agency and ICF International. *Ethiopia Demographic and Health Survey 2011*. 2012. https://www.dhsprogram.com/publications/publication-FR255-DHS-Final-Reports.cfm.
	2016 DHS	Central Statistical Agency and ICF. *Ethiopia Demographic and Health Survey 2016*. 2016. https://dhsprogram.com/pubs/pdf/FR328/FR328.pdf.
Ghana	2008 DHS	Ghana Statistical Service, Ghana Health Service, and ICF Macro. *Ghana Demographic and Health Survey 2008*. 2009. https://dhsprogram.com/pubs/pdf/FR221/FR221[13Aug2012].pdf
	2014 DHS	Ghana Statistical Service, Ghana Health Service, and ICF International. *Ghana Demographic and Health Survey 2014*. 2015. https://www.dhsprogram.com/publications/publication-FR307-DHS-Final-Reports.cfm
Kenya	2008–09 DHS	Kenya National Bureau of Statistics and ICF Macro. *Kenya Demographic and Health Survey 2008-9*. 2010. https://dhsprogram.com/pubs/pdf/FR229/FR229.pdf
	2014 DHS	Kenya National Bureau Statistics and ICF International. *Kenya Demographic and Health Survey 2014*. 2015. https://dhsprogram.com/pubs/pdf/FR308/FR308.pdf
Malawi	2010 DHS	National Statistical Office and ICF Macro. *Malawi Demographic and Health Survey 2010*. 2011. https://dhsprogram.com/pubs/pdf/FR247/FR247.pdf.
	2015–16 DHS	National Statistical Office and ICF International. *Malawi Demographic and Health Survey 2015-16: Key Indicators Report*. 2016. https://dhsprogram.com/pubs/pdf/PR73/PR73.pdf.
	2017 MIS	National Malaria Control Programme and ICF. *Malawi Malaria Indicator Survey 2017*. 2018. https://dhsprogram.com/pubs/pdf/MIS28/MIS28.pdf
Mali	2006 DHS	Cellule de Planification et de Statistique Ministère de la Santé, Direction Nationale de la Statistique et de l'Informatique Ministère de l'Économie, de l'Industrie et du Commerce, and Macro International. *Mali Demographic and Health Survey 2006*. 2007. https://www.dhsprogram.com/pubs/pdf/FR199/FR199.pdf.

Country	Survey & Year	Reference
	2012–13 DHS	Cellule de Planification et de Statistiques, Institut National de la Statistique, Centre d'Études et d'Information Statistiques, and ICF International. *Mali Demographic and Health Survey 2012-13*. 2014. https://dhsprogram.com/pubs/pdf/FR286/FR286.pdf.
	2018 DHS	Institut National de la Statistique, Cellule de Planification et de Statistique Secteur Santé-Développement Social et Promotion de la Famille, and ICF International. *Mali Demographic and Health Survey 2018*. 2019. https://dhsprogram.com/pubs/pdf/FR358/FR358.pdf.
Mozambique	2011 DHS	Instituto Nacional de Estatística, Ministério da Saúde, and MEASURE DHS/ICF International. *Mozambique Demographic and Health Survey 2011*. 2013. https://www.dhsprogram.com/pubs/pdf/FR266/FR266.pdf.
	2015 AIS	Instituto Nacional de Saúde, Instituto Nacional de Estatística, and ICF. *Mozambique AIDS Indicator Survey 2015: Key Findings*. 2017. https://dhsprogram.com/pubs/pdf/SR246/SR246.pdf.
Niger	2006 DHS	Institut National de la Statistique, Ministère de l'Économie et des Finances,, and Macro International. *Niger Demographic and Health Survey 2006*. 2007. https://dhsprogram.com/pubs/pdf/FR193/FR193-NI06.pdf.
	2012 DHS	Institut National de la Statistique, Ministère des Finances, and ICF International. *Niger Demographic and Health Survey 2012*. 2013. https://dhsprogram.com/pubs/pdf/FR277/FR277.pdf.
Nigeria	2008 DHS	National Population Commission Federal Republic of Nigeria and ICF International. *Nigeria Demographic and Health Survey 2008*. 2009. https://dhsprogram.com/pubs/pdf/FR222/FR222.pdf.
	2010 MIS	National Population Commission, National Malaria Control Programme, and ICF International. *Nigeria Malaria Indicator Survey 2010*, 2012. https://dhsprogram.com/pubs/pdf/MIS8/MIS8.pdf.
	2013 DHS	National Population Commission Federal Republic of Nigeria and ICF International. *Nigeria Demographic and Health Survey 2013*. 2014. https://dhsprogram.com/pubs/pdf/FR293/FR293.pdf.
	2015 MIS	National Population Commission, National Malaria Control Programme, and ICF International. *Nigeria Malaria Indicator Survey 2015*. 2015. https://dhsprogram.com/pubs/pdf/MIS20/MIS20.pdf
	2018 DHS	National Population Commission Federal Republic of Nigeria and ICF International. *Nigeria Demographic and Health Survey 2018*. 2019. https://dhsprogram.com/pubs/pdf/FR359/FR359.pdf.
Rwanda	2005 DHS	Institut National de la Statistique, Ministère des Finances et de la Planification Économique, and ORC Macro. *Rwanda Demographic and Health Survey 2005*. 2006. https://dhsprogram.com/pubs/pdf/FR183/FR183.pdf.
	2007–08 DHS	Ministry of Health of Rwanda, National Institute of Statistics of Rwanda, and ICF Macro. *Rwanda Interim Demographic and Health Survey 2007-08*. 2009. https://dhsprogram.com/pubs/pdf/FR215/FR215.pdf.
	2010 DHS	National Institute of Statistics, Ministry of Health, and ICF International. *Rwanda Demographic and Health Survey 2010*. 2012. https://www.dhsprogram.com/publications/publication-FR259-DHS-Final-Reports.cfm.
	2013 MIS	Malaria and Other Parasitic Diseases Division and ICF International. *Rwanda Malaria Indicator Survey 2013*. 2014. https://dhsprogram.com/pubs/pdf/MIS16/MIS16.pdf.
	2014–-15 DHS	National Institute of Statistics of Rwanda, Ministry of Finance and Economic Planning, Ministry of Health, and ICF International. *Rwanda Demographic and Health Survey, 2014-15 - Final Report*. 2016. https://dhsprogram.com/pubs/pdf/FR316/FR316.pdf.

Country	Survey & Year	Reference
	2017 MIS	Malaria and Other Parasitic Diseases Division of the Rwanda Biomedical Center Ministry of Health and ICF. *Rwanda Malaria Indicator Survey 2017*. 2018. https://dhsprogram.com/pubs/pdf/MIS30/MIS30.pdf.
Senegal	2005 DHS	Ministère de la Santé et de la Prévention Médicale, Centre de Recherche pour le Développement Humain, and ORC Macro. *Senegal Demographic and Health Survey 2005*. 2006. https://dhsprogram.com/pubs/pdf/FR177/FR177.pdf
	2010–11 DHS	Ministère de la Santé et de la Prévention Médicale, Centre de Recherche pour le Développement Humain, and ORC Macro. *Senegal Demographic and Health Survey 2010-11*. 2012. https://dhsprogram.com/pubs/pdf/FR258/FR258.pdf
	2012–13 DHS	Ministère de la Santé et de la Prévention Médicale, Centre de Recherche pour le Développement Humain, and ORC Macro. *Senegal Demographic and Health Survey 2012-13*. 2013. https://dhsprogram.com/pubs/pdf/FR288/FR288.pdf
	2014 DHS	Agence Nationale de la Statistique et de la Démographie and ICf International. *Senegal Demographic and Health Survey 2012-2014: Regional Results*. 2015. https://dhsprogram.com/pubs/pdf/FR315/FR315.pdf
	2015 DHS	Agence Nationale de la Statistique et de la Démographie and ICF. *Senegal Demographic and Health Survey 2015*. 2016. https://dhsprogram.com/pubs/pdf/FR320/FR320.pdf
	2016 DHS	Agence Nationale de la Statistique et de la Démographie and ICF. *Senegal Demographic and Health Survey 2016*. 2017. https://dhsprogram.com/pubs/pdf/FR331/FR331.pdf
	2017 DHS	Agence Nationale de la Statistique et de la Démographie and ICF. *Senegal Demographic and Health Survey 2017*. 2018. https://dhsprogram.com/pubs/pdf/FR345/FR345.pdf
	2018 DHS	Agence Nationale de la Statistique et de la Démographie and ICF. *Senegal Demographic and Health Survey 2018*. 2020. https://dhsprogram.com/pubs/pdf/FR367/FR367.pdf.
Sierra Leone	2008 DHS	Statistics Sierra Leone and ICF Macro. *Sierra Leone Demographic and Health Survey 2008*. 2009. https://dhsprogram.com/pubs/pdf/FR225/FR225.pdf.
	2013 DHS	Statistics Sierra Leone and ICF international. *Sierra Leone Demographic and Health Survey 2013*. 2014. https://dhsprogram.com/pubs/pdf/FR297/FR297.pdf.
Tanzania	2004–05 DHS	National Bureau of Statistics and ORC Macro. *Tanzania Demographic and Health Survey 2004*. 2005. https://dhsprogram.com/pubs/pdf/FR173/FR173-TZ04-05.pdf.
	2010 DHS	National Bureau of Statistics and ICF Macro. *Tanzania Demographic and Health Survey 2010*. 2011. https://www.dhsprogram.com/publications/publication-FR243-DHS-Final-Reports.cfm.
	2015–16 DHS	Ministry of Health, Community Development, Gender, Elderly and Children/Tanzania Mainland, Ministry of Health/Zanzibar, National Bureau of Statistics/Tanzania, Office of Chief Government Statistician/Zanzibar, and ICF. *Tanzania Demographic and Health Survey and Malaria Indicator Survey 2015-16*. 2016. https://dhsprogram.com/pubs/pdf/FR321/FR321.pdf.
Uganda	2006 DHS	Uganda Bureau of Statistics and Macro International. *Uganda Demographic and Health Survey 2006*. 2007. https://dhsprogram.com/pubs/pdf/FR194/FR194.pdf.
	2009 MIS	Uganda Bureau of Statistics and ICF Macro. *Uganda Malaria Indicator Survey 2009*. 2010. https://dhsprogram.com/pubs/pdf/MIS6/MIS6.pdf.

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	2011 DHS	Uganda Bureau of Statistics and ICF International. *Uganda Demographic and Health Survey 2011*. 2012. https://www.dhsprogram.com/publications/publication-FR264-DHS-Final-Reports.cfm.
	2016 DHS	Uganda Bureau of Statistics and ICF. *Uganda Demographic and Health Survey 2016*. 2018. https://www.dhsprogram.com/publications/publication-FR333-DHS-Final-Reports.cfm.
Zambia	2007 DHS	Central Statistical Office, Ministry of Health, Tropical Diseases Research Centre, University of Zambia, and Macro International Inc. *Zambia Demographic and Health Survey 2007*. 2009. https://dhsprogram.com/pubs/pdf/FR211/FR211[revised-05-12-2009].pdf.
	2013–14 DHS	Central Statistical Office, Ministry of Health, Tropical Diseases Research Centre, University of Zambia, and ICF International. *Zambia Demographic and Health Survey 2013-14*. https://www.dhsprogram.com/pubs/pdf/FR304/FR304.pdf.
	2018 DHS	Zambia Statistics Agency, Ministry of Health, and ICF. *Zambia Demographic and Health Survey 2018*. 2019. https://dhsprogram.com/pubs/pdf/FR361/FR361.pdf.

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