

The evidence mapping of wasting programmes and their impact along the continuum of care for wasting in low- and middle-income countries: a rapid review protocol

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Administrative information

Review title

The evidence mapping of wasting programmes and their impact along the continuum of care for wasting in low- and middle-income countries: a rapid review protocol

Review timescale

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Ms	Dieynab	Diatta	International Food Policy Research Institute (IFPRI)	Data screening and extraction, data analysis, contributing to the evidence note
Dr	Andrew	Booth	University of Sheffield (SchARR)	Expert in evidence synthesis providing methodological input, particularly in the search syntax and the harvest plot
Dr	Lieven	Huybregts	International Food Policy Research Institute (IFPRI)	Topical expert input, contributions to the protocol development, strategic decisions, definitions and framework building, and contributing to the evidence note
Dr	Elodie	Becquey	International Food Policy Research Institute (IFPRI)	Topical expert input, contributions to the protocol development, strategic decisions, definitions and framework building, and contributing to the evidence note

Conflicts of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work to be conducted based on this protocol.

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in study design; in the collection, analysis, and interpretation of data; in the writing of the evidence note and/or any other related output.

Protocol registration

The protocol of this rapid review has been submitted to the PROSPERO international register for systematic reviews (30 March, pending approval). In the interest of transparency and accessibility, this protocol was published on the Transform Nutrition West Africa website and any protocol amendments since the day published will be documented (day of change, changes, and reasons).

Introduction

Topic selection and refinement

Stakeholder engagement

The [Transform Nutrition West Africa](#) project is a regional platform that aims to improve and support policy and program decisions and actions to accelerate reductions in maternal and child undernutrition through an inclusive process of knowledge generation and mobilization. Recognizing that knowledge is derived from evidence and experience, TNWA takes a 'knowledge for action' approach. As such, TNWA focuses on strengthening the latter stages of the data value chain (namely analysis, translation, and dissemination for decision-making). Through a regional consultation with different stakeholders (researchers, NGOs, civil society, private sector, government, UN, donor agencies) from various sectors, key priorities for future action in the region were identified. These included capturing, documenting, and learning from implementation experiences, and accelerating equitable program coverage of mother, infant and young child interventions at scale. We apply evidence synthesis approaches (i.e., rapid reviews) to identify best practices on topics as prioritized by regional stakeholders. Previous topics include effectiveness and implementation experience of interventions to improve exclusive breastfeeding and early initiation of breastfeeding in low- and middle-income countries (LMICs), implementation tools for nutrition, and a landscape analysis of research on adolescent nutrition in the region. Through engagements with UNICEF, the Regional Nutrition Working Group (which is a collective of donors, INGO's, researchers, development agencies that are active in nutrition in the region), and other stakeholders, the next topic identified as a key issue for the region was wasting among children under five years of age.

The output of this rapid review will not only inform various stakeholders active in the region but will also support the Integrated Research on Acute Malnutrition in the Sahel project (IRAM). IRAM aims to generate evidence on wasting prevention and treatment interventions in four countries: Chad, Mauritania, Mali and Niger (multi-country partnership between UNICEF and IFPRI).

Stakeholders (review users, such as implementers and researchers) will be involved throughout. They will be consulted to set and refine the review question, eligibility criteria, and the outcome of interest. Consultations will ensure that this rapid review is fit for purpose.

Background

The UNICEF, WHO, World Bank Group 2020 joint malnutrition estimates (UNICEF, 2020) report that worldwide, 47 million children under the age of five suffer from wasting. Only 40 out of 194 countries are

on course to achieve the World Health Assembly 2025 target of maintaining levels of wasting below 5.0 percent (Development Initiatives, 2020). Wasted children often present a weak immune response to infection, are more susceptible to developmental delays, and have an increased risk of death, especially in the severe form of wasting (McDonald et al., 2013). Wasting accounts for 4.7% of all deaths in children under 5 years of age. Severely wasted children are, on average, 11 times more likely to die than their healthy counterparts (McDonald et al., 2013). Among the 47 million wasted children, 92% live in LMICs. On average, in West African countries, 7.5% of children under five years of age are wasted, with the highest prevalence found in Niger (14.1%), Mauritania (11.5%), Guinea (9.2%) and Mali (9.0%) (WHO/UNICEF/WB, 2020). Recent estimates suggest that by 2022 the COVID-19 pandemic could result in an additional 9.3 million wasted children globally which could result in an additional 168,000 child deaths and undo the progress achieved over the past years (Osendarp et al., 2021 – Preprint). Therefore, the prevention of wasting in children and making treatment accessible to all children suffering from wasting are key priority areas to act.

In April 2006, the WHO introduced new growth reference for 0-60 months old children, in replacement of the 1977 NCHS/WHO reference which was judged no longer adequate (WHO, 2006). In May 2009, the WHO and UNICEF recommended using the WHO growth standards to identify and manage severe wasting (WHO and UNICEF, 2009). This recommendation, however, was only made for children aged 6-60 months and neglected infants younger than 6 months old. In 2013, an update was made to this guideline with an extension to this age group, but the low quality of evidence in this specific population was highlighted as a barrier to develop more specific recommendations (WHO, 2013).

Evidence on prevention and treatment of wasting have been documented previously (ENN, 2018). Systematic reviews on prevention of wasting have studied the impact of food supplementation (Xu et al, 2019), breastfeeding promotion (Giugliani et al., 2015), cash transfer (Pega et al., 2015) and WASH (Gera et al., 2018). Treatment of wasting was also documented through the study of the efficacy of the therapeutic products (Gera et al., 2017) or the type of management of care: home-based (Schoonees et al., 2019) or inpatient (Wagnew et al., 2019). Other aspects in the management of wasting such as the screening and the referral of under five children have been poorly documented (Becquey et al., 2020 and Huybregts et al., 2020, Bliss et al., 2018). Furthermore, previous exercises with stakeholders highlighted key gaps in the following: “understanding of the aetiology of wasting, including kwashiorkor/nutritional oedema; the relationship/overlap between stunting and wasting; differences relating to age and geography; the role of pre-conception interventions; the relationship between maternal nutrition and health status and child nutrition status; the extent to which wasting in infants under six months of age reflects non-nutritional factors (e.g. low birth weight [LBW]); and mechanisms behind relapse after successful treatment of wasting.” (ENN, 2018). In 2018, only an estimated 10 million children with wasting received treatment (WHO et al, 2019). To meet these challenges and improve the health and survival of newborns and U5 children, a continuum of care for acute malnutrition was introduced. This means that “any child receives appropriate, timely care to enable full recovery wherever they present along the spectrum of acute malnutrition” (Shoham et al., 2019).

We will perform a systematic mapping review which aims to give an appreciation of both the quantity and effectiveness of existing interventions and programmes on wasting while identifying research gaps in the management of wasting. This will be applied to LMICs and can be used as a guide for future programming decisions and guidelines.

Methodology

Review question

To give an overview, catalogue, and identify gaps in the body of evidence on wasting programs designed to reduce wasting among children under five (U5) in LMICs.

More specifically we will:

- Map and document existing evidence on interventions and programs along the wasting continuum of care;
- Summarize the reported effectiveness of types of interventions;
- Identify gaps in existing evidence relative to different age groups (children under 6 months) and contexts (humanitarian crisis).

Review typology

Rapid reviews are an approach to synthesize evidence to inform decision-makers. The guidance by the Cochrane Rapid Reviews Methods Group to conduct rapid reviews (Garritty et al., 2021) will be followed. The guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) for reporting (Moher 2009) and protocol development (PRISMA-P; Moher et al., 2015) will be followed. This rapid review will be informed by a systematic mapping review approach to identify systematic reviews along the wasting continuum of care (James et al., 2016; Clapton et al., 2009), and an umbrella review methodology (Aromataris et al., 2015).

Review concepts

Conceptual Framework for the Wasting Continuum of Care

Several frameworks, definitions, and theories exist that describe the various dimensions related to the wasting continuum of care (Begun, 2019, Mrazek and Haggerty, 1994, Kerber et al., 2007, UNICEF, 2020, Wollum et al., 2018, Shoham et al., 2019). To guide the search for and mapping of evidence in this review, we will use a framework for the Wasting Continuum of Care that was built on this literature (Becquey et al., 2020 and Huybregts et al., 2020) (**Figure 1**). This framework includes the following three dimensions: *i*) the appropriate, timely care offered to prevent, treat, and manage malnutrition to enable full recovery; *ii*) the level of care: from household and community care to outpatient and outreach services, hospitals and health facilities, with appropriate referral and follow-up across levels (Kerber *et al.*, 2007); and *iii*) across multiple systems: food, health, water, hygiene and sanitation, and social protection (UNICEF, 2020). The use of this framework allows for the categorization of an array of interventions and programmes along the wasting continuum of care i.e., prevention and screening, treatment, and long-term management and disease control. The framework is relevant for all populations, including those affected by humanitarian crises, the rural and urban poor and other marginalized groups, as well as specific demographic groups.

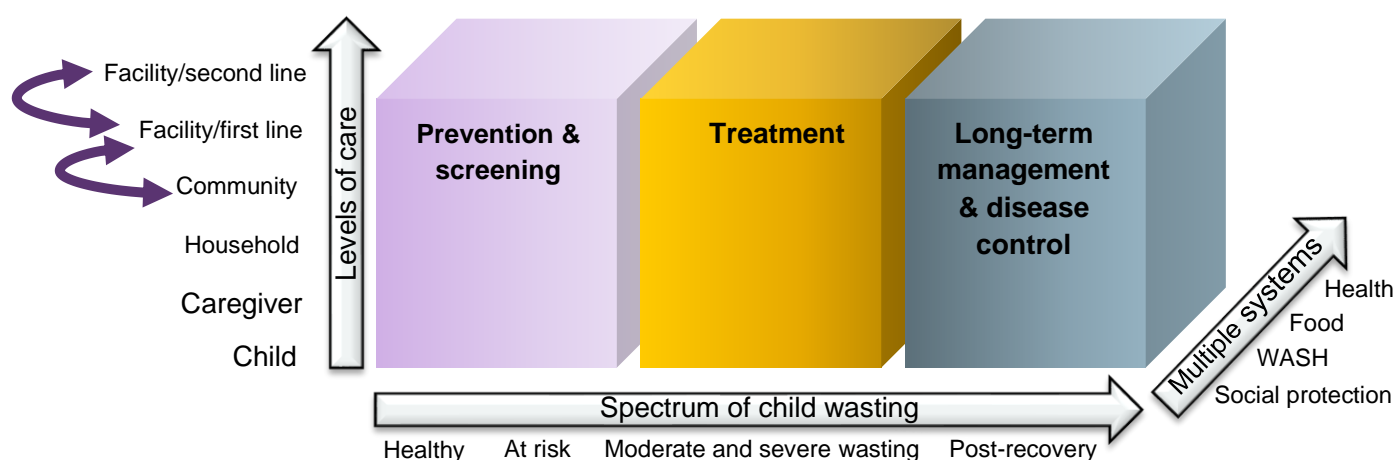


Figure 1: Conceptual Framework for the Wasting Continuum of Care

The table below describes the outcomes expected along the wasting continuum of care.

Wasting continuum of care			Outcome
Prevention and screening	universal/selective/indicated	Prevention Screening	wasting incidence
Treatment	Treatment pathway (identification)	Diagnosis	identification of cases
	Treatment pathway (referral)	referral, follow-up on referral (caregiver seeks for treatment), follow-up on no show (health staff follow on referred children who did not follow up), program enrollment	referral of cases
	Treatment pathway (treatment)	Treatment initiation, compliance, completion, recovery, default	treatment of cases
Management	Prevention of relapse	Reduction in relapse Rehabilitation	relapse incidence

Relevant definitions

The WHO defines wasting as low weight-for-height (weight for height < -2 standard deviation from the median of the WHO Child Growth Standards) a Mid-Upper Arm-Circumference < 125 mm, as well a bilateral pitting edema among children under 5 years of age¹. It often indicates recent and severe weight loss, although it can also persist for a long time. It usually occurs when a person has had acute food shortage (inadequate quality and quantity), and/or they have had frequent or prolonged illnesses.² The term “acute malnutrition” is often used as a synonym for wasting.

¹ <https://www.who.int/data/gho/indicator-metadata-registry/imr-details/302>

² https://www.who.int/health-topics/malnutrition#tab=tab_1

Box 1: Definitions and scope adopted for this rapid review

The Wasting Continuum of Care

The wasting continuum of care includes appropriate, timely care offered to prevent, screen, treat, and manage malnutrition to enable full recovery; from household and community care to outpatient and outreach services, hospitals and health facilities, with appropriate referral and follow-up across levels; and across multiple systems: food, health, water, hygiene and sanitation, and social protection.

Defining acute malnutrition in children aged 0–59 months

Acute Malnutrition (moderate and severe)	Severe Acute Malnutrition (SAM)
Weight-for-height <–2 SD of the WHO Child Growth Standards median	Weight-for-height <–3 SD of the WHO Child Growth Standards median
MUAC <125mm	MUAC <115mm
Bilateral oedema (kwashiorkor)	Bilateral oedema (kwashiorkor)

Source: WHO and UNICEF (2009). *WHO child growth standards and the identification of severe acute malnutrition in infants and children: A joint statement*. Geneva/New York: WHO/UNICEF.

Definitions related to the continuum of care

Recovery rate	The proportion of children U5 enrolled in a treatment program who are cured through treatment over a pre-defined period of time
Non-response rate	The proportion of children U5 enrolled in a treatment program who are not cured through treatment over a pre-defined period of time
Adherence/Compliance	The extent to which the patient follows prescribed treatment such as keeping appointments and schedules and medication adherence for desired therapeutic outcome (Medical Subject Headings (MeSH) of the US National Library of Medicine). Medical sources however highlight a difference between adherence and compliance. Adherence is an active choice of patients to follow through with the prescribed treatment while taking responsibility for their own well-being (Thatipelli et al., 2016). Compliance is a passive behavior in which a patient is following a list of instructions from the doctor (Aronson, 2007)
Default rate	The proportion of children U5 enrolled in a treatment program who default from (do not complete) treatment over a pre-defined period of time
Relapse rate	The proportion of children U5 cured by a treatment program who develop a new episode of wasting after recovery and discharge over a pre-defined period of time
Time to recover	Length of time between admission in a treatment program and recovery.
Universal prevention	Type of prevention that refers to interventions delivered to the general population without differentiating between persons at different risk levels (Begun, 2019 and Mrazek and Haggerty, 1994)
Selective prevention	This type of prevention is more targeted than universal, and these interventions would be directed towards populations identified as having a potential somewhat greater than the general population for developing the focal problem (Begun, 2019 and Mrazek and Haggerty, 1994)
Indicated prevention	This type of prevention is even more targeted, delivered to populations/groups of individuals exhibiting/expressing warning signs foreshadowing development of the focal problem (Begun, 2019 and Mrazek and Haggerty, 1994)

Abbreviations: MUAC, mid-upper arm circumference; SD, standard deviation; WHO, World Health Organization.

Research question framework

PICOS framework

P	I	C	O	S
Population/ Participants	Intervention/ Exposure	Comparison/ Control	Outcome	Study design
Studies that include mothers and/children under 60 months of age and/or health care workers, fathers, family members as primary or secondary target audience	Studies that report any intervention/program including prevention, identification, screening, referral, treatment and/or prevention of relapse of wasting as objective	Studies that report any intervention compared to an alternative, or intervention with no comparison group	Studies that report any of the following outcomes: 1. Wasting incidence (WHZ, MUAC, bilateral oedema) 2. Wasting identification (coverage of screening, screening strategies) 3. Wasting referral (coverage of referral) 4. Wasting treatment (initiation, recovery rate, default rate, completion, compliance) 5. Wasting relapse ((WHZ, MUAC, bilateral oedema) 6. case fatality rates (mortality)	Systematic reviews (SR) of primary studies with an intervention

Eligibility criteria

The inclusion criteria will operationalize the PICOS framework and assumptions made within the continuum of care framework. They will be piloted on four included systematic reviews and refined accordingly. Piloting will ensure that the reviews arising from the search will match the topic and expectations of the review team, and that those who will be screening share the same understanding of the criteria. A reflection on the criteria will take place, logs will be kept of decisions made, guidance will be recorded, and criteria amended if necessary.

Study (PICOS) and report characteristics	Inclusion criteria	Exclusion criteria
Participants	<ul style="list-style-type: none"> Mothers (incl. pregnant/lactating) and/or children under 5 years of age AND/OR Health care workers, fathers, family members 	SR that include studies on disease specific populations among mothers or children (e.g. HIV mothers or children)
Intervention	SR must report on any study evaluating interventions to improve wasting outcomes	SR that reports on studies that do not have a nutrition relevant objective. We will include clinical treatment programs.
Comparison	SR must report on any study that aims to improve wasting outcomes through an intervention (with or without control group)	
Outcome	<p>The SR needs to be reporting on any study that includes at least one of the following four outcomes as primary or secondary outcome:</p> <ul style="list-style-type: none"> Wasting incidence (WHZ, MUAC, bilateral 	

Study (PICOS) and report characteristics	Inclusion criteria	Exclusion criteria
	oedema) - Wasting identification (coverage of screening) - Wasting referral (coverage of referral) - Wasting treatment (initiation, recovery rate, default rate, completion, compliance) - Wasting relapse incidence - Case fatality rate (mortality rate, low death rates)	
Setting	SR that includes primary studies based in LMICs We will include any settings (emergency, humanitarian crisis, etc.) in LMICs	- SR that includes a study based in HIC context (we assume we will not retrieve any study in HIC) - Exclusion of SRs that do not describe primary study settings
Time frame of SR publication	Start 2006-2020 Because of the different definitions and classification criteria that have been used to identify children with acute malnutrition only reviews published after 2006 will be included. There is not time restriction on the primary studies.	SR will be excluded if they do not use the WHO 2006 Growth Standards to report results
Language	English, French	Note: Portuguese, Spanish not included because RR language limitation
Study Type	Systematic reviews of primary studies with an intervention that includes randomized controlled trials, controlled trials, case-controls, quasi-experimental design, observational studies, panel, cross-sectional	Any other design study

Search Methods

We will search for systematic reviews in the following electronic databases:

- MEDLINE (biomedical/epidemiological) – (PubMed <http://www.ncbi.nlm.nih.gov/pubmed>),
- Cochrane database (medicine/healthcare) – (<https://www.cochranelibrary.com/>)
- PROSPERO (SR registration) – (<https://www.crd.york.ac.uk/prospERO/>)

These databases were selected given their well-established relevance to health and inclusion of systematic reviews.

The initial search string will be developed in MEDLINE by combining the following items of the PICOS model: Population, Intervention, Outcome and Setting (**see Annex 1**). The search string will include both Medical Subject Headings and keywords for the different stages of the Continuum of Care framework. A scoping search will be done to identify appropriate search terms. We will adapt the final search string to the Cochrane database. We will search the PROSPERO register to identify SR on wasting. An information specialist (AB) will be involved in the development and review of the search syntax in MEDLINE and the Cochrane database.

We will scan reference lists of included systematic reviews after screening of abstracts and full texts.

Quality assurance

To assure quality throughout the mapping review, we will document systematically procedures and decisions around e.g., in/exclusion criteria, search strategies to ensure consistency and transparency in decision-making.

Screening and study selection

The results of this search will be exported in Excel. A standardized form for title and abstract, and full text screening will be developed, pilot tested and calibrated. MT and DD will dual screen 20% of titles and abstracts and full text for relevance against the inclusion/exclusion criteria. Inconsistencies will be checked by a third member (RV) of the team to assure quality, and to resolve conflicts. If there is any doubt, the reference will be retained for full text screening. One reviewer will screen remaining abstracts and titles and full text; a second reviewer will screen all excluded abstracts and titles and full texts articles. A flow chart will provide details of selection of references at different stages, and records will be kept of why studies were excluded at title/abstract or full text screening.

Data extraction

Coding and data extraction will seek to position each retained study within the three-dimensional conceptual framework, according to the spectrum of malnutrition (prevention, diagnosis, referral, treatment, relapse prevention), the system (WASH, food, health, social protection) and the level of care (mother, household, community, advanced strategy, health center) to which it corresponds. Data extraction will occur at full text level by one reviewer; a second reviewer will be used to check for correctness and completeness of extracted data. We will develop a data extraction template that will translate each item within the wasting continuum of care framework into one column in an Excel spread sheet. Additionally, we will extract data on general characteristics of the SR and other items that are map-specific (based on in/exclusion criteria); items will be discussed and evaluated with relevance to the review question by the review team. The data of interest to be extracted for each systematic review include: i) *general characteristics* including review objectives, nature of studies reviewed, the timeframe of the SR, population characteristics (the targeted population, the geographic setting); ii) *review findings* including the intervention descriptions, the outcomes measured and their impact, methods used to synthesize the evidence; and iii) *map-specific characteristics* including the spectrum of malnutrition, the system, and the level of care. The draft template can be found in **Annex 2**. This template will be pilot tested on 4 different retained SR before applying them to all included studies. A reflection on the template will take place, logs will be kept of decisions made, guidance will be recorded, and the template fine-tuned where necessary.

Quality appraisal

The Measurement Tool to Assess Systematic Reviews (AMSTAR-2) (Shea *et al*, 2017) checklist will be applied by one reviewer to assess the quality of included systematic reviews at full text level. This checklist provides criteria for evaluating and determining overall quality of SR that synthesize evidence from RTCs and nonrandomized studies in healthcare interventions. Through 16 items, the tool will rate the overall confidence in the results of the review high, moderate, low or critically low.

Synthesis and Analysis

The analysis will include:

- A systematic map that will catalogue the existing peer-reviewed literature on wasting programs in the low-and middle-income countries (LMICs). Firstly, we will analyze the general characteristics of the studies. Secondly, the general characteristics will be analyzed according to the three dimensions of the wasting conceptual framework (spectrum of malnutrition, level of care and systems). Finally, a narrative synthesis will identify evidence of what exists and gaps in evidence along the wasting continuum of care of wasting and the characteristics of the study (age group, context, etc.).
- A harvest plot that will describe at each level of the continuum if the intervention decreases, had no impact, or increases the outcome of interest. A harvest plot will be used to report the effectiveness of interventions. The harvest plot is an approach that synthesizes evidence about the differential effects of population-level interventions. It is a visual display, which assists synthesis and assimilation of findings, making best use of all available evidence as it allows to incorporate all relevant data. The method is easily adaptable to a variety of questions in evidence synthesis and particularly useful when it involves a broader type of research question relevant to policymakers (Ogilvie et al., 2008).

Plans for Dissemination

Results of this analysis will be disseminated through an evidence note which will summarize the systematic reviews reporting on wasting in LMICs to identify evidence of what works and gaps in evidence along the continuum of care for wasting.

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Annexes

Annex 1: Search syntax

Date	25/02/2021	Database	MEDLINE	Hits (PubMed)
Search n°	Syntax		Notes	#
#1	baby OR babies OR girl OR boy OR girls OR boys OR "under 5 year" OR "under 5 years" OR "under five year" OR "under five years" OR "under-five" OR "under-five" OR infant OR infant* OR infancy OR neonat* OR newborn* OR enfant OR toddler OR toddlers OR bébé OR pre-school OR preschool OR kindergarten OR child, preschool [MeSH]		U5 terms	3,587,287
#2	MAM OR "moderate acute malnutrition" OR SAM OR "severe acute malnutrition" OR GAM OR "global acute malnutrition" OR kwashiorkor OR undernutrition OR undernourish* OR malnourish* OR "wasting"[All Fields] OR WAZ OR "weight for age" OR WHZ OR "weight for height" OR "weight for length" OR underweight OR MUAC OR "middle-upper arm circumference" OR edema OR emaciation OR marasmus OR marasme OR starvation OR "Infant Nutrition Disorders"[MeSH Terms] OR "Child Nutrition Disorders"[MeSH Terms]		Wasting terms	439,748
#3	LMIC Syntax for PubMed (see end of document) using the EPOC LMIC filter		LMICs terms	2,167,232
#4	#1 AND #2 AND #3		U5 + wasting + LMICs	24,506
#5	Prevention OR "prevention and control"[sh]		Prevention terms	2,668,861

#6	nutrition intervention* OR nutrition program* OR nutrition counsel* OR nutrition advice* OR nutrition educat* OR nutritional intervention* OR nutritional program* OR nutritional counsel* OR nutritional advice* OR nutritional educat* OR diet intervention* OR diet program* OR diet counsel* OR diet advice* OR diet educat* OR dietary intervention* OR dietary program* OR dietary counsel* OR dietary advice* OR dietary educat* OR food intervention* OR food program* OR food counsel* OR food advice* OR food educat* OR feeding intervention* OR feeding program* OR feeding counsel* OR feeding advice* OR feeding educat* OR "Dietary Supplements" OR "Infant Food" OR "Child Nutritional Physiological Phenomena" OR "Maternal Nutritional Physiological Phenomena" OR "Feeding Behavior"[Mesh:No-Exp] OR "Food, Fortified" OR supplements OR supplementation OR Water (Mesh Terms) OR Drinking Water (Mesh Terms) OR Water Quality (Mesh Terms) OR Water Purification (Mesh Terms) OR Water Supply (Mesh Terms) OR Sanitation (Mesh Terms) OR Environmental Health (Mesh Terms) OR Sanitary Engineering (Mesh Terms) OR Waste Disposal (Mesh Terms) OR Refuse Disposal (Mesh Terms) OR Drainage, Sanitary (Mesh Terms) OR Waste Management (Mesh Terms) OR Toilet Facilities (Mesh Terms) OR Hygiene (Mesh Terms) OR Hygiene, hand (Mesh Terms) OR Hand disinfection (Mesh Terms) OR health OR "Early Childhood Development" OR vaccination OR "antenatal care" OR "micronutrient supplementation" OR social assistance OR social polic* OR social welfare OR social insurance* OR social protection* OR social safety net OR public assistance OR family policy OR ((financial OR cash OR pay* OR monetary OR money) AND (transfer* OR measure* OR incentive* OR allowance* OR exclu* OR reform* OR gain* OR credit* OR benefit*))	Intervention type terms	5,651,413
#7	#5 OR #6	All prevention terms	7,266,075
#8	diagnosis[sh] OR Mass Screening[MeSh] OR "Child Nutrition Disorders/diagnosis"[MeSH] OR "nutrition assessment"[MeSH Terms] OR "assessment" OR "diagnostic" OR "diagnosis" OR "screening" OR "case-detection"	Screening terms	6,235,541
#9	Referral OR "enrolment" OR tracking OR "admission criteria" OR admission	Referral terms	581,029
#10	Treat* OR therapy OR "therapeutic feed*" OR "community based therapeutic care" OR CTC OR "oral rehydration therapy" OR F-75 OR F75 OR F100 OR rehabilitation OR recover* OR supplement* OR "micronutrient supplement" OR "fortified food" OR "micronutrient powder*" OR "supplementary feeding program" OR SFP OR "dietary intervention" OR RUF OR "ready to use food*" OR RUSF OR "ready to use supplementary food" OR RUTF OR "ready to use therapeutic food*" OR plumpy* OR FBF OR "fortified blended flour*" OR supercereal OR CSB OR "corn soy* blend*" OR WSB OR "wheat soy* blend*" OR "cereal pulse blend" OR LNS OR "lipid based nutrient supplement*" OR nutributter OR management OR "Integrated Management" OR CMAM OR "community based management" OR "integrated community case management" OR "inpatient management" OR "in-patient management" OR "facility based management" OR "integrated management of childhood illness" OR IMCI OR "integrated management of newborn and childhood illness" OR IMNCI	Treatment terms	14,166,337
#11	relapse OR readmission OR "after recovery" OR "post-recovery" OR "after discharge" OR "post-discharge" OR "post-treatment" OR "after treatment" OR "long term" OR rehabilitation	Relapse terms	2,245,954
#12	#7 AND #11	Prevention of relapse terms	776,770
# 14	(#7 OR #8 OR #9 OR #10 OR #12)	All framework terms	18,996,063

# 15	#4 AND #14	U5 + wasting + LMICs + framework	21,395
# 16	#15 AND filter: publication date 2006/01/01 – 2021/02/25 Language filter: English and French	Language and date filter	12,996
# 17	#16 AND filter: systematic reviews (SR)	SR filter	263

Annex 2: Data extraction template

Category	Coding question	Codes	Analysis
General characteristics of SR (one results table)			
Author/year	First author last name Date of publication	NA	NA
Timeframe of SR	Specify the timeframe the SR reports on	Eligible formats are: XXXX-XXXX (e.g. 2010-2018), XXXX-NS (e.g. 2006-NS) NS-XXXX (e.g. NS-2012) NS)	<ul style="list-style-type: none"> What was the timeframe the SR reports on and what are the implications regarding the guidelines/definitions at this time? Put in perspective the timeframe of the SR included and the timeframe of our study.
Databases searched	Specify from which databases the SR were retrieved	Pubmed, Cochrane, Pubmed and Cochrane	<ul style="list-style-type: none"> Give an idea of the databases that were searched (LMIC representativeness)
Objectives /purpose/research question of the SR	Specify the main objective/purpose of the SR as reported	Free text	<ul style="list-style-type: none"> What were the general objectives addressed by the SRs? Were the interventions nutrition relevant or nutrition specific)?
Population characteristics			
Number of participants/sample size included in the SR	Give the total number of participants/Sample size included in the SR	Total: n= xxxxx; range xxxx-yyyy	<ul style="list-style-type: none"> What is the weight of the SR in our analysis?
Target group as reported in the SR	The target group of the intervention(s) as reported in the SR	E.g.: mothers, family, health workers.	<ul style="list-style-type: none"> Who received the intervention? On which target population was the intervention most efficient?
Countries/region on which the SR focused on	List the countries that were included in the SR, list also if the geographic or economic were given instead of the countries.	E.g., Burkina Faso, LMIC, Sub-Saharan Africa	<ul style="list-style-type: none"> On which country or region are the interventions on wasting mostly conducted? Is there any difference in results regarding region?
Geographic area the SR focuses on (urban vs rural)	Was the intervention conducted in an urban or rural area, NS if not specified	Urban, rural, urban and rural, semi-urban, semi-rural, NS	<ul style="list-style-type: none"> On which setting (urban/rural) are the interventions on wasting mostly conducted? Is there any difference in results regarding the type of area?
Review findings			
Design of studies included in the SR	What type of design is included in the SR?	e.g. RCT, quasi-experimental, controlled trials, case study, etc.	<ul style="list-style-type: none"> What were the designs used in the SR?
Outcome(s) as reported in the SR	List the outcomes for which the review presented results.	Includes all outcomes whether they are included in the summary data presented in the abstract or the full text, whether they are main or secondary outcomes.	<ul style="list-style-type: none"> Regarding the continuum of care (from prevention to treatment and long-term management), which point did the interventions target? Is there a bias in the reporting?

Category	Coding question	Codes	Analysis
Intervention description	Describe the specific interventions covered within the scope of the review	Free text	<ul style="list-style-type: none"> What type of interventions were used to reduce wasting prevalence?
Comparison interventions as reported in the SR	List the types of comparison interventions that were used, if no comparison group report NA	Free text	<ul style="list-style-type: none"> Was there a comparison group in the study? If yes, what did they receive, standard care, nothing?
Setting of intervention as reported in the SR	List the setting where the interventions included in the SR were delivered	Example of setting: home, health center, community, school, etc.	<ul style="list-style-type: none"> In which setting was the intervention conducted to reduce wasting prevalence?
Summary of key findings/Narrative conclusions on the results of the SR	Give the conclusion on the effect of intervention on the specified outcome.	Free text	<ul style="list-style-type: none"> What was the conclusion regarding the efficacy of the interventions on wasting?
Meta-analysis in the SR	Specify if the SR includes a meta-analysis	Yes/No	<ul style="list-style-type: none"> Did the SR give any global measurable effects?
Results of the meta-analysis of the SR	Give all the results of the meta-analysis (specify the format reported RR, OR, etc. and add the CI), NA if not applicable	E.g., RR=1.13 (1.02, 1.24)	<ul style="list-style-type: none"> What was the impact of the intervention (negative, no impact, positive) (harvest plot)?
CoC - specific characteristics			
Child age group as reported in the SR	Specify on which child age group the systematic review focused on.	Format: XX-XX mo NS if the age group is not specified or if the target group is not children	<ul style="list-style-type: none"> On which age group did wasting interventions focused?
Child age disaggregation in the SR	Use this column to note any sub-analysis for different ages	Format XX-XX mo NA if no disaggregation	<ul style="list-style-type: none"> Is there any sub-analysis for a particular child age group? 0-6mo? 6-23 mo?
Level of care (taxonomy from setting)	Classify the type of setting according to the taxonomy	Mother/child, household, community, facility/first line, facility/second line	<ul style="list-style-type: none"> Where is the gap in the framework of wasting continuum of care according to the level of care dimension?
System (taxonomy from Intervention)	Classify the sector/system according to the taxonomy	Health, Food, WASH, social protection	<ul style="list-style-type: none"> Where is the gap in the framework of wasting continuum of care according to the system dimension?
Stage of the CoC (taxonomy from Outcome)	Classify the outcome according to the outcome taxonomy	Prevention, screening/diagnosis, referral, treatment, prevention of relapse	<ul style="list-style-type: none"> Where is the gap in the framework of wasting continuum of care according to the spectrum of malnutrition dimension?

Rapid Review Protocol checklist: recommended items to address in a rapid review protocol (ref: rapid review guidebook and template TNWA)

Checklist item	Page number
Administrative information	
<i>Title:</i> Informative title indicating that this is a protocol	2
<i>Registration:</i> Details of Protocol Availability Clear indication of protocol document status Identify any updates/changes made to the protocol	3
<i>Authors:</i> Identification of Review Team	2
<i>Conflict of interest</i>	2
Introduction	
<i>Topic selection and refinement</i> Details on stakeholders and the stakeholder engagement Describe the background to the specific topic selected	3-4
<i>Research question</i> Describe the research question (free text) Detail the research question using the elements of a question framework Include the relevant definitions for the topic and/or the framework used for the rapid review (if applicable)	5
Methods	
<i>Overall Review typology</i> State the method applied to the rapid review	5
<i>Eligibility Criteria</i> List the eligibility criteria using the questions framework elements	8-9
<i>Searching for evidence</i> State the search methods applied, including information sources and the search strategy	9-10
<i>Screening and study selection</i> State the methods of screening and study selection including data management	10
<i>Data extraction</i> State the data extraction procedures, including variables for which data will be extracted	10
<i>Quality assessment</i> If applied in the rapid review, report the quality assessment (risk of bias) tools applied	10
<i>Knowledge synthesis</i> Describe the methods of synthesis and analysis	10-11
Dissemination	
<i>Report production and dissemination</i> Plans for output and dissemination	11

Abbreviations

AMSTAR	assessing the methodological quality of systematic reviews
CMAM	community-based management of acute malnutrition
CSB	Corn-Soya Blend
ENN	Emergency Nutrition Network
GAM	global acute malnutrition

HIV	human immunodeficiency virus
IFPRI	International Food Policy Research Institute
IMAM	integrated Management of Acute Malnutrition
IRAM	Integrated Research on Acute Malnutrition in the Sahel
IYCF	infant and young child feeding
LBW	low birth weight
LMIC	low- and middle- income country
LNS	lipid-based nutrient supplement
MAM	moderate acute malnutrition
MAMI	Management of acute malnutrition in infants aged under 6 months
MNP	multiple micronutrient powder
MUAC	mid-upper arm circumference
NCHS	National Center for Health Statistics
ORT	oral rehydration therapy
RUF	ready-to-use food
RUSF	ready-to-use supplementary food
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
TNWA	Transform Nutrition West Africa
TSFP	targeted supplementary feeding programmes
UNICEF	United Nations Children's Fund
WASH	water, sanitation, and hygiene
WAZ	weight-for-age Z-score
WB	World Bank
WHO	World Health Organization
WHZ	weight-for-height Z-score
WLZ	weight-for-length Z-score

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INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

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