

The current landscape of research on World Health Assembly targets in West Africa

Technical note on searching for literature in the MEDLINE database

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Summary

[Transform Nutrition West Africa](#) is a regional initiative to support effective policy and programmatic action on nutrition through evidence generation, synthesis, and mobilization.

This technical note provides methodological detail on the systematic mapping review of literature on the World Health Assembly (WHA) targets in the West Africa region. The detailed search syntax is presented in a separate note and the results are presented in a systematic map (a searchable Excel spreadsheet), and a forthcoming journal manuscript.

	Stunting TARGET: 40% reduction in the number of children under-5 who are stunted
	Anaemia TARGET: 50% reduction of anaemia in women of reproductive age
	Low birth weight TARGET: 30% reduction in low birth weight
	Childhood overweight TARGET: No increase in childhood overweight
	Breastfeeding TARGET: Increase the rate of exclusive breastfeeding in the first 6 months up to at least 50%
	Wasting TARGET: Reduce and maintain childhood wasting to less than 5%

WHA targets (Source: WHO, 2020)

Methodology

Review question

The purpose of this systematic mapping review is to provide an overview, catalogue and identify gaps in existing peer-reviewed literature on World Health Assembly (WHA) nutrition targets in the West African region to inform decision-making. To avoid biased post-hoc decisions, a protocol was developed and made available [online](#). What are the trends and gaps in research on the WHA targets in the West Africa Region?

Review concepts

Definitions of indicators of the WHA targets used throughout both review outputs.

Category	Indicator	Definition / measurement
U5NS	 Stunting	<p>Height-for-age (HFA): Height-for-age measures linear growth (stunting). A child who is below two standard deviations (-2 SD) from the median of the WHO Child Growth Standards in terms of height-for-age is considered short for his/her age or stunted.</p> <p>Triceps skin fold thickness is used to estimate body fat, measured on the right arm halfway between the olecranon process of the elbow and the acromial process of the scapula. If a child is below minus three standard deviations (-3 SD) from the median of the WHO Child Growth Standards, then he/she is considered to be severely stunted.</p> <p>Stunting reflects a failure to receive adequate nutrition over a long period of time and is worsened by recurrent and chronic illness. Height-for-age, therefore, reflects the long-term effects of malnutrition in a population and does not vary appreciably according to recent dietary intake</p>
U5NS	 Wasting	<p>Weight-for-height (WFH): Weight-for-height describes current nutritional status. A child who is below two standard deviations (-2 SD) from the median of the WHO Child Growth Standards for weight-for-height is considered to be too thin for his/her height or wasted. This condition reflects acute or recent nutritional deficit. As with stunting, wasting is considered severe if the child is more than three standard deviations below the reference median or by a mid-upper-arm circumference less than 115 mm with or without nutritional oedema. In the presence of bilateral pitting oedema, the term kwashiorkor is used. Severe wasting is closely linked to mortality risk.</p> <p>Mid-upper arm circumference (MUAC) measures the muscle mass of the upper arm. A flexible measuring tape is wrapped around the mid-upper arm (between the shoulder and elbow) to measure its circumference. MUAC should be measured to the nearest 0.1 cm.</p>
U5NS	 Overweight	<p>Weight-for-height (WFH) Overweight is measured as weight-for-height greater than 2 standard deviations (+2 SD) above WHO Child Growth Standards median; and obesity is weight-for-height greater than 3 standard deviations (+3SD) above the WHO Child Growth Standards median.</p>
U5NS	 LBW	<p>Low birth weight (LBW) LBW is defined as a weight of less than 2500 grams at birth</p>
EBF	 EBF	<p>Exclusive Breastfeeding (EBF) The infant receives only breast milk for the first 6 months. No other liquids or solids are given – not even water – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines.</p>

Anaemia
WRA

in

Anaemia in WRA



Anaemia in WRA

Anaemia measured by blood Hemoglobin levels.

Hemoglobin and/or anemia prevalence below certain thresholds: lower than 110 grams per liter in pregnant women and lower than 120 grams per liter in non-pregnant women.

U5NS: Under Five Nutritional Status; Source: WHO 2017 GLOBAL NUTRITION MONITORING FRAMEWORK targets for 2025 Operational guidance for tracking progress in meeting WHO [Child Growth Standards](#), DAPA [childhood measurement toolkit](#)

Research question framework

PICOS framework

We used the Population, Intervention/exposure, Comparison, Outcome, Setting (PICOS) framework to translate the research question and build the search syntax.

Table 1: PICOS Framework for the MEDLINE search

PICOS	Details
Population	Women of reproductive age (WRA), children under 5 years (U5), infants less than 6 months
Intervention/Exposure	Studies reporting on prevalence, drivers, programs, and policies
Comparison	Comparison group required for program studies
Outcomes	Anaemia in WRA, U5 stunting, U5 wasting, low birthweight, U5 overweight/ obesity and exclusive breast-feeding
Setting	West Africa (region and individual countries)
Time frame	Studies published between 2010-2020 including three searches: first search will be completed in April 2018 and updated in March 2020 and March 2021 (living systematic map).
Language	English, French

Search strategy and screening

Our search strategy was designed using a systematic approach to review literature in the bibliographic database MEDLINE (<https://pubmed.ncbi.nlm.nih.gov/>). A search syntax was created using the Population, Intervention Comparison, Outcome, Setting (PICOS) model (Table 1). Further details can be found [here \(hyperlink to search syntax\)](#). A date restriction was applied to the evidence search to include only studies published after January 1, 2010. The year 2010 was chosen as the cut-off as this is when the Scaling Up Nutrition initiative was launched. Searches were first completed in April 2018 and first updated in March 2020 (living systematic map).

The title and abstract of retrieved references were screened against predetermined eligibility criteria (Table 2), which varied according to the WHA target. For studies to be included in this systematic mapping review, they had to: report on primary research in West Africa, report on any of the WHA targets, report on problem, programs, or policy, be published in peer-reviewed journals, and be written in English or French. The search resulted in 3,755 unique references, of which 413 qualified for inclusion. One reviewer completed the screening and a second reviewer screened those references for inclusion.

Table 2: Eligibility criteria

PICOS	Include	Exclude
Population	<ul style="list-style-type: none"> • Children (from singleton births) from their day of birth up until their 5th birthday (U5NS) • Studies can include both mothers and children up to 5 years old (U5NS) • Healthy children from singleton births (U5NS) • Pregnant women and breast-feeding mothers with no restriction on the age of mothers (EBF) • Infants up to the age of 6 months (EBF) • Women of reproductive age (15-49 years old) (WRA anaemia) • Studies that include a subpopulation of 15- to 49-year-old women (e.g., adolescent studies focusing on 12-18 years old) (WRA anaemia) • Inclusion of both pregnant and nonpregnant women (WRA anaemia) 	<ul style="list-style-type: none"> • Exclusion of studies reporting solely on one group not included in the WHA targets, e.g. males only, elderly populations only • Exclusion of studies reporting on disease-specific populations (e.g., HIV positive participants only)
Intervention/Exposure	<ul style="list-style-type: none"> • Problem: Studies reporting on prevalence of and/or drivers/risk factors related to U5NS, EBF, and WRA anaemia • Programs: Programs reported as randomized controlled trials (RCTs) require having either a nutrition-sensitive or nutrition-specific objective • Policy: Studies reporting on policy, governance, agenda, etc. This includes policy across all spectrums, e.g. government, international, organizational, hospital 	Exclusion of non-randomized controlled trials (such as quasi-experimental, controlled before and after studies)
Comparison	N/A	N/A
Outcomes	<ul style="list-style-type: none"> • Studies reporting on: HAZ, WAZ, WHZ, MUAC, skinfold, LBW (U5NS) • Studies using Indian Academy of Paediatrics (IAP), WHO growth standards and National Center for Health Statistics references (U5NS) • Studies reporting on EBF defined as “when the infant receives only breast milk. No other liquids or 	All other outcomes

solids are given – not even water – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines” (WHO, 2017) (EBF)

- Studies reporting on anaemia measured by blood haemoglobin levels. Studies need to report summary statistics on mean haemoglobin and/or anaemia prevalence below certain thresholds: lower than 110 grams per litre in pregnant women and lower than 120 grams per litre in nonpregnant women (WRA anaemia)

Setting	West Africa (region and individual countries)	Migrants from West Africa living outside of the region; any other country
Time frame	Studies published between 1999–2019	Studies published before 1999
Study type	Epidemiology/cohort studies, case-control studies, cross-sectional studies, comparative or descriptive studies, RCTs, qualitative studies (only for policy studies)	<ul style="list-style-type: none"> • Grey literature • Systematic reviews • RCT protocols
Language	English, French	All other languages

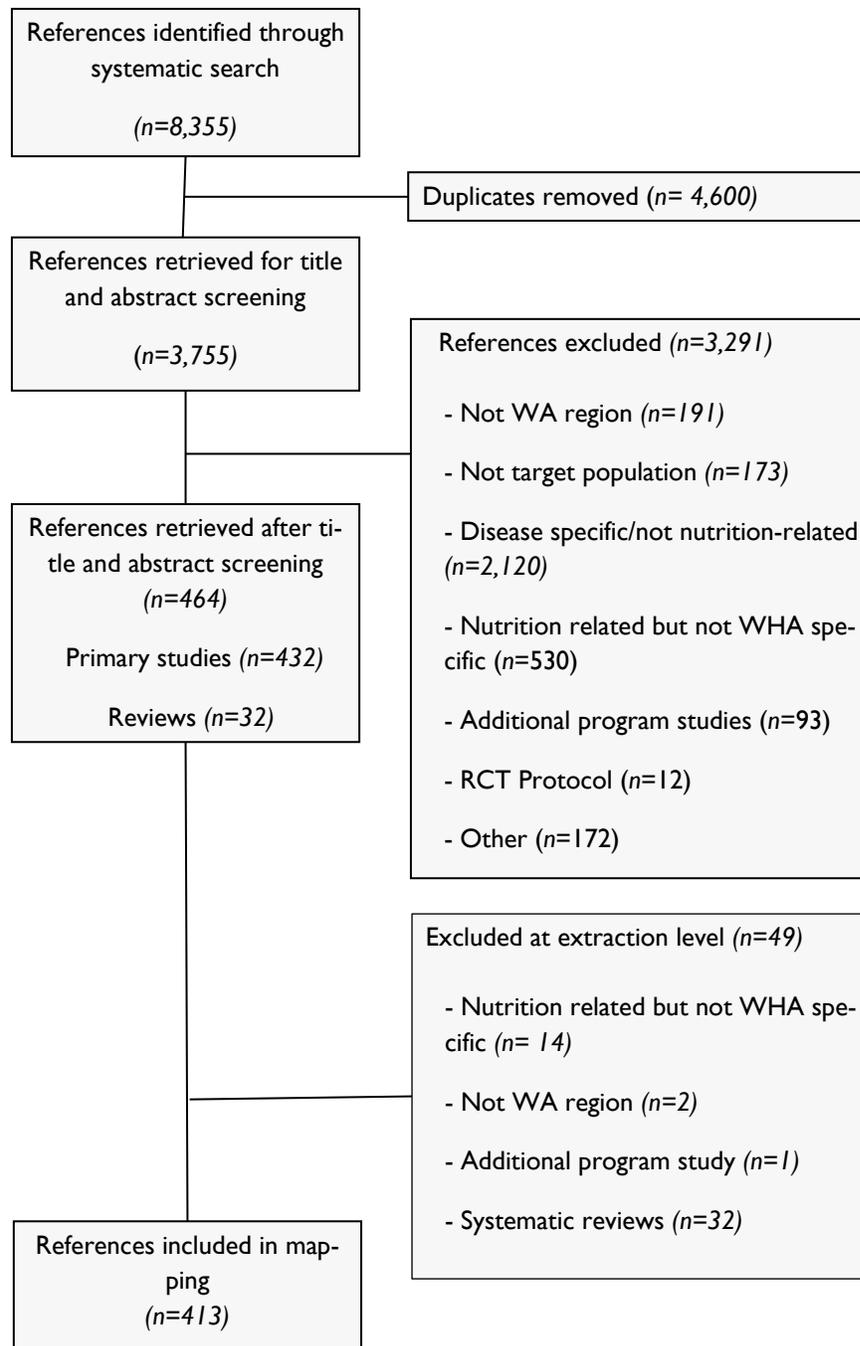


Figure 1: Flowchart of search results

Data extraction

Data was extracted for all studies separately by two reviewers (double data extraction) (n=413) at abstract level, and included information on: language, focus of research, country, outcome, study design, study setting, participants, intervention type, and drivers (Table 3). The extraction of information related to the drivers of malnutrition was a three-stage process. First, information related to drivers was extracted in free text form, that is, as it appeared in the abstract.

These studies were then grouped into broad categories, i.e., what we refer to as a taxonomy (Driver taxonomy¹ variable in Table 4). These categories were then further grouped according to the UNICEF categories of immediate, underlying, and basic drivers (Driver taxonomy 2 variable in Table 3).

Table 3. Extraction template

Variable	Extraction categories
Language	English, French
Focus of research	Prevalence, drivers, policy, program
Country	Benin, Burkina Faso, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo, and the West Africa Region
Outcome	U5 stunting, U5 wasting, LBW, U5 overweight, WRA anaemia, EBF
Study design	Cohort, cross-sectional, case-control, case-series, qualitative, review, randomized controlled trials, not specified, other
Study setting	National, district, village, hospital, primary healthcare center, health facility, community, other, not specified
Intervention Type	Free text description of intervention (randomized controlled trials only)
Participants	Free text description of participants (e.g., 100 WRA)
Driver (Free text)	Description of drivers as it appeared in the abstract. (e.g., age of mother, immunization of child, food availability)
Driver Taxonomy 1 (Grouped categories)	<p>Food consumption and intake (hunger, intake, dietary diversity, consumption of fortified foods)</p> <p>Maternal nutritional status (anthropometry and micronutrients)</p> <p>Maternal health status (prevalence of LBW, BW, infection, disease)</p> <p>Child nutritional status (anthropometry: WHZ, BMI, MUAC and micronutrients)</p> <p>Child health status (immunization, illness, parasitic infection)</p> <p>Food security (seasonality, crop harvest)</p> <p>IYCFP (breastfeeding, EBF, complementary feeding)</p> <p>WASH (sanitation, WASH, water)</p> <p>Health system environment (mode of delivery, antenatal visits, health-seeking behavior, health insurance)</p> <p>Gender (female empowerment)</p> <p>Socio-demographics (at the household level, maternal level, age, number of children), Poverty</p> <p>Food environment (marketing of food products)</p> <p>Enabling environment (nutrition policy and programming)</p>
Driver Taxonomy 2 (UNICEF categories)	<p>Immediate: Food consumption and intake, maternal nutritional status, maternal health, child nutritional status, child health status</p> <p>Underlying: Food security, IYCFP, WASH, health system environment, gender</p> <p>Basic: Socio-demographics, poverty, food environment, enabling environment</p>

¹ Taxonomy refers to the classification of data into categories and subcategories.

Synthesis and quality assessment

The extracted information was brought together in a systematic map (in Excel) to identify trends and gaps in the information retrieved. This was then summarized using narrative synthesis. Within this review we did not conduct a full quality appraisal of these studies but included only peer-reviewed studies as a quality control.

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