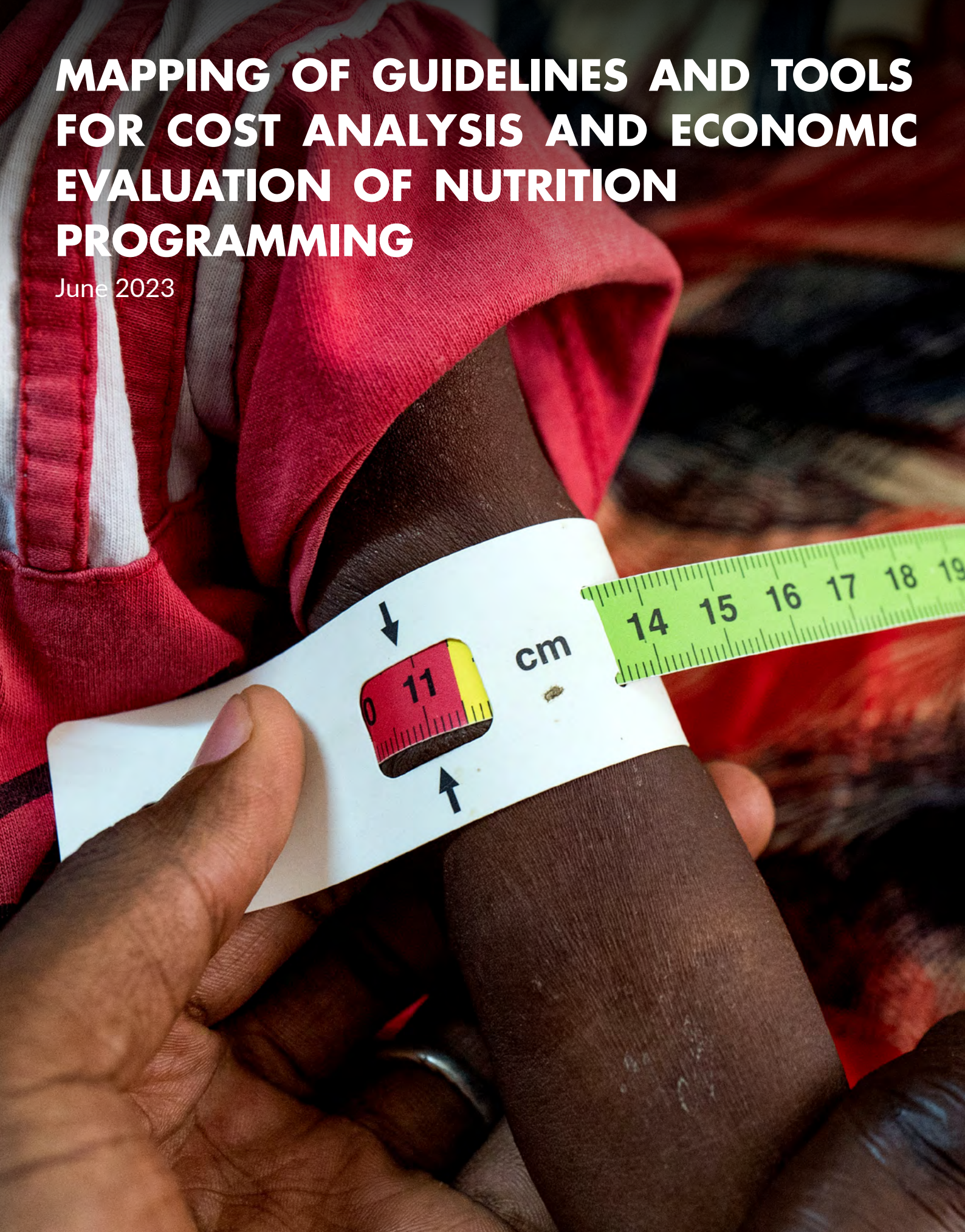


# MAPPING OF GUIDELINES AND TOOLS FOR COST ANALYSIS AND ECONOMIC EVALUATION OF NUTRITION PROGRAMMING

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This review was conducted by Joanne Chui and Lani Trenouth for the GNC Technical Alliance.

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## ACRONYMS

AAH	Action Against Hunger
ACF	Action contre la Faim
AIR	American Institutes for Research
CBA	Cost-benefit analysis
CEA	Cost-effectiveness analysis
CMAM	Community management of acute malnutrition
CUA	Cost-utility analysis
FACET4SNF	Food Aid Cost-Effectiveness Tool for Specialized Nutritious Food
FANTA	Food and Nutrition Technical Assistance
DALY	Disability-adjusted life year
GHCC	Global Health Costing Consortium
GNC	Global Nutrition Cluster
IRC	International Rescue Committee
LiST	Lives Saved Tool
MAM	Moderate acute malnutrition
QALY	Quality-adjusted life year
SAM	Severe acute malnutrition
SBC	Social behaviour change
SECT	The Standardized Early Childhood Development Costing Tool
UNICEF	United Nations Children's Fund
WBCi	World Breastfeeding Costing Initiative
WFP	World Food Programme
WHO	World Health Organisation

# 1. INTRODUCTION

The Global Action Plan on Child Wasting sets ambitious goals for the treatment and prevention of child wasting, emphasising the need to employ cost-effective solutions<sup>1</sup>. However, recent reviews of cost analyses and economic evaluations of nutrition programs have concluded that reliable evidence on the cost of acute malnutrition treatment is limited and that significant challenges remain in meaningful meta-analysis and comparability across studies. As such, it is difficult to draw generalisations about the cost of treatment under varying circumstances, to model projected cost implications of changes in care protocols, or determine what actions to prioritise first. Furthermore, current evidence on value for money of various nutrition programmes is conflicting and there remains an unmet demand for empirically-driven recommendations to inform policy and resource allocation decisions.

These challenges persist in part because of the use of non-standardized methods, variable analytical choices, and opaque reporting common across many studies<sup>2</sup>.

Consequently, the Global Nutrition Cluster (GNC) Technical Alliance commissioned a mapping exercise of the guidelines and tools available on the design and execution of cost analyses.<sup>3</sup> The primary objective of this exercise is to identify and guide the reader towards existing guidance and tools that can help with the design and conduct of cost analysis and economic evaluations of acute malnutrition treatment and prevention programmes. It is anticipated that use of these guidelines and tools can help improve the analytical and methodological rigour of future studies. This report is not intended to be a “how to” guide for designing and conducting costing or economic analyses, rather it is a map of the currently available resources that can be consulted for different users throughout the stages of the study process.

The primary audience of this report includes nutrition policy-makers and practitioners as well as cost analysts and economic evaluators. Accordingly, there are resources included here that will be useful for generalists and specialists alike. We have collated the most useful resources relevant to nutrition, including those that are not nutrition specific but still offer transferable guidance. We present these resources in five sections. The first section – general guidance – highlights the most comprehensive guidelines that span all or most steps of a cost analysis or economic evaluation – study design, data collection planning and execution, data analysis planning and execution, and reporting. The subsequent four sections provide more specific recommended resources within each one of these steps. Finally, we conclude with reflections on gaps and limitations of the current state of knowledge, and provide links to additional resources, relevant webinars, and websites.

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<sup>1</sup> <https://www.childwasting.org/>; [https://ta.nutritioncluster.net/sites/gtamcluster.com/files/2020-10/92555b\\_316bf3c585d04b169b147999d83c49fa%20%281%29.pdf](https://ta.nutritioncluster.net/sites/gtamcluster.com/files/2020-10/92555b_316bf3c585d04b169b147999d83c49fa%20%281%29.pdf)

<sup>2</sup> Njuguna, RG, JA Berkeley and J Jemutai, 2020. Cost and Cost-effectiveness analysis of treatment for child undernutrition in low- and middle-income countries: a systematic review. *Wellcome Open Research* 5:62.; Chui, J et al. 2020. The cost-efficiency and cost-effectiveness of the management of wasting in children: a review of the evidence, approaches, and lessons. *No Wasted Lives.*; Kayouli, E and L Trenouth. 2020. Review of the costing of the management of child wasting. UNICEF. Unpublished report; Ramponi, F, W Tafesse and S Griffin. 2021. Economic evaluation of interventions to address undernutrition: a systematic review. *Health Policy and Planning*, 36:533.

<sup>3</sup> Supported and managed by the GNC Technical Alliance, Global Thematic Working Group on Wasting, sub-group on costing methodologies.

## 2. METHODS

We identified potential resources through consultation with members of the Global Nutrition Cluster's (GNC) Global Thematic Working Group (GTWG) on Wasting, sub-group on costing methodologies; however, the vast majority of the resources reviewed for this exercise were sourced from the existing collection of one of the authors. We subsequently identified additional resources by consulting the reference lists of the initial corpus of documents.

We focused on nutrition-specific resources, but we also included those from other sectors with a more robust history of costing and economic analysis, particularly in the fields of health, vaccination, HIV/AIDS, and education. Resources that focus exclusively on designing and conducting impact evaluations were excluded since the objective here was to collate relevant resources to assist in assessing the cost side of economic evaluation. We also excluded some resources such as journal articles which were very narrow in scope or covered topics sufficiently addressed in other more comprehensive resources, many books since they are not freely available online, as well as most materials older than 2013. We included some older key reference documents that are commonly cited in the literature on costing and economic evaluation. These are included in a further reading list, along with some additional resources, webinars and websites that are relevant to the process of costing and economic evaluation of nutrition programmes.

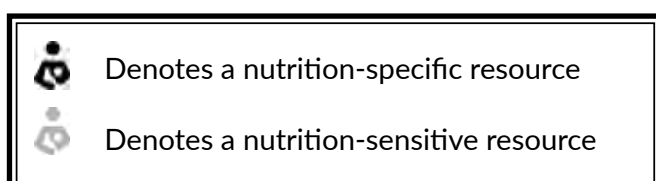
While more than 300 resources were initially identified and screened for inclusion in this review, this was not a systematic review of available guidelines and tools, some resources may have been overlooked, particularly those in the grey literature. However, we consider the breadth of scope to be sufficiently wide likely to have captured the most relevant materials. Finally, some of the included resources may no longer be supported or updated by the creators or hosts; we make note of this wherever possible, but some resources may be defunct or no longer available.

## 3. RESULTS

### 3.1 General guidance

There are many resources that provide guidance on conducting cost analyses and economic evaluations spanning a range of technical disciplines and level of detail. To date, the majority of guidance comes from the field of health, public health and education, with little that is nutrition-specific. However, many of the costing and evaluation principles are transversal and can be applied to multiple sectors. We did not identify one single resource that adequately covered all aspects of conducting a cost analysis or economic evaluation of nutrition programmes; furthermore, it was not our intent to create a single resource to fill this gap.

Instead, the below list of resources provides the reader with a useful roadmap to a wide range of expert authored resources intended for different audiences that can support in every step of commissioning or conducting a cost analysis or economic evaluation.





## Read this first



### [Action Against Hunger 2013 Cost-Effectiveness Guidelines: An Introduction and Overview of Key Concepts for Cost-Effectiveness Analysis Within ACF](#)

This guideline was developed to support the cost-effectiveness analysis (CEA) of community management of acute malnutrition (CMAM) programs. It provides a step-by-step approach for various aspects including the study design, designing and collecting costs, determining outcomes, analysis and interpretation. Examples are from community-based management of acute malnutrition (CMAM) programmes.

*Audience: general to expert*



### [International Rescue Committee 2023 Malnutrition Cost Analysis Methodology at the IRC](#)

Provides an overview of IRC's methodology for conducting cost and cost efficiency analysis of nutrition programmes. A good basic primer.

*Audience: general to expert*

## Guidelines

### [American Institutes for Research 2021 Standards for the Economic Evaluation of Educational and Social Programs](#)

American Institutes for Research (AIR) developed standards for cost analysis, CEA, and cost-benefit analysis (CBA) in education and social programmes to increase the quality of economic analysis and reporting. This document serves as a reference for analysts when they plan, conduct, and report studies. The standards guide the entire process of conducting economic analysis, starting from the study design and the selection of the appropriate analysis type. It then provides specific and detailed standards for planning, collecting, analysing and interpreting each type of analysis: costing, CEA, and CBA.

*Audience: expert*

### [Global Health Costing Consortium 2017 Reference Case for Estimating the Costs of Global Health Services and Interventions](#)

Developed in response to a lack of standardised guidance, approaches, and reporting costs for global health interventions. The Reference Case was produced to improve the quality of cost estimates through "improved consistency and transparency of methods, assumptions, and reporting". This guidance is intended for policymakers, program managers, analysts and funders. It offers a set of 17 principles and methodological specifications to ensure the evaluation of intervention costs is standardised and reliable. While it does not provide the "how-tos", it includes reporting standards and tools to support the implementation of the principles.

*Audience: expert*

### [MEASURE Evaluation 2019 A Guide to the Fundamentals of Economic Evaluation in Public Health](#)

This comprehensive guide has been specifically designed to assist public health planners, managers, and funders to better understand the fundamental concepts of costing and economic analysis covering three types of analysis: costing, CEA, and CBA. The primary objective of this guide is to help readers determine which type of analysis is most suitable for their specific needs. It provides step-by-step instructions for conducting the analysis and highlights important considerations. The goal is to equip readers with the knowledge and tools needed to effectively apply costing and economic evaluation in public health decision-making.

*Audience: general to expert*

### [PAHO 2007 Guide to Economic Evaluation in Health Promotion](#)

An excellent guide to economic evaluation written for health promotion practitioners and policy makers in response to the lack of guidance on how to address practical challenges associated with economic evaluations. This guide is a step-by-step guide for costing and economic evaluations which provides practical examples from health promotion on how to apply economic principles. It also includes a section on complex interventions in health promotion. This guide also takes the reader through 8 steps of conducting an economic evaluation from describing the decision context to interpreting the results.

*Audience: expert*

## Key Toolkits

Two toolkits stand out as providing a suite of resources to guide the costing and economic evaluation process. SEEMS-Nutrition was designed for nutrition-sensitive agriculture interventions, whereas the USAID Cost Measurement Tools was developed for education programming, yet both offer useful models that can be adapted for the treatment and prevention of child wasting.



### [SEEMS-Nutrition](#)

The aim of SEEMS-Nutrition is to develop a common approach to measuring cost and benefits of multi-sectoral nutrition strategies. A set of comprehensive costing tools were created to estimate financial and economic costs for nutrition-sensitive interventions. These tools are based on the following steps: 1) study design, 2) delineate project activities and align to SEEMS-Nutrition codes, 3) collect qualitative data, 4) obtain and analyse financial data, 5) estimate economic costs, and 6) combine financial and economic costs.

*Audience: General to expert*

### [USAID Education Cost Measurement Tools](#)

The [Cost Analysis Guidance](#) covers the core analysis methods and includes tools and templates spanning economic evaluation steps. The Cost Reporting Guidance provides some advice on collecting and organising cost data, including setting up ex ante coding systems for program expenditures, but as it was developed specifically for education programs, the details are less transferable to nutrition programs. Similarly, the associated Excel tools and templates provided are not easily transferable to other sectors but the broad framework can be adapted to a nutrition cost and economic evaluation.

*Audience: expert*



### Confused about terminology?

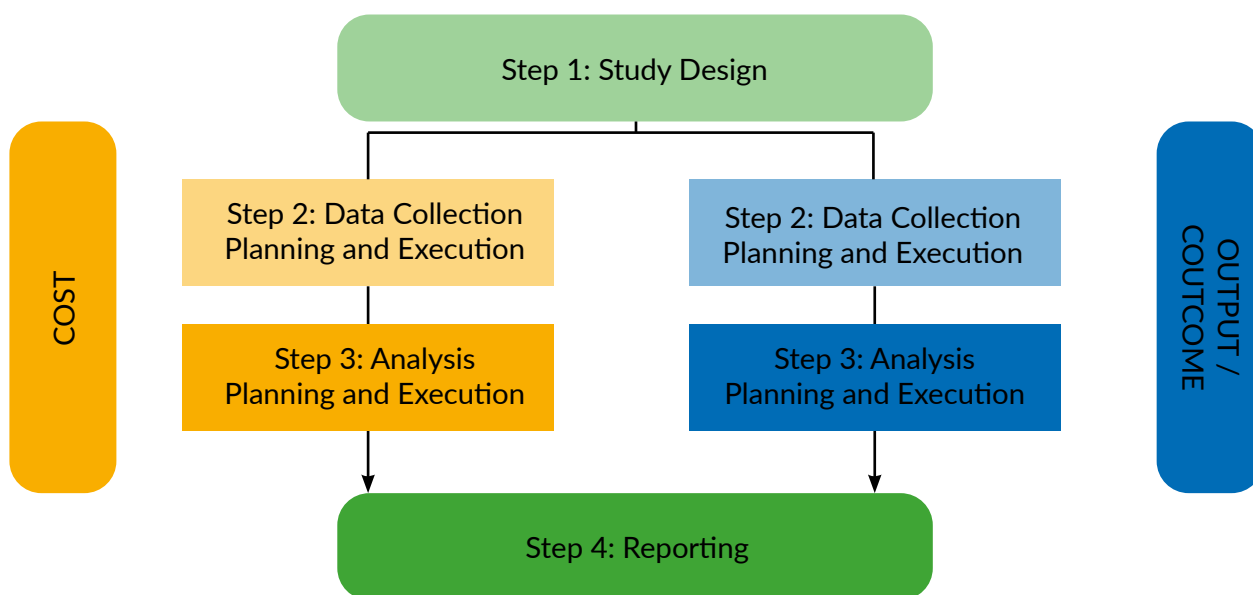
There are several glossaries to help understand costing and economic analysis terminology. The most comprehensive are [Rosen et al. 2019 Guidelines for Costing of Social and Behavior Change Health Interventions](#), Appendix 2 and [PAHO 2007 Guide to Economic Evaluation in Health Promotion](#), Appendix 1.



## 3.2 Costing and economic evaluation process

The recommended resources are organised based on the main steps in the cost analysis and economic evaluation process (Figure 1). Each step includes a description, why it is important, a summary of guides and tools available and a table of key resources.

Figure 1: Schematic of the economic evaluation process



*Adapted from GHCC 2017, AIR 2021 and Glandon et al. 2023.*

### 3.2.1. Step 1: Study Design

Study design is led by the purpose of the assessment and the policy, programming or research questions resulting from that purpose. Determining the goal and purpose of the assessment drives the key choices about the study design and choices around what cost, output and outcome data is required, and how the data is analysed. In addition to selecting the most appropriate methodology based on the objectives of the study, the following should be defined in the study design phase: the unit of analysis for costing and outputs or outcomes (if relevant); methods for estimating inputs; the timeframe and scope of the study sampling strategy, among other design considerations.

There is user-friendly guidance from multiple sectors on how to design a study and cover essential principles of costing and economic analysis. Some of these resources have useful summary tables of different economic analyses describing the uses, advantages, and limitations. ACF 2013 and SEEMS-Nutrition provide guiding questions to assist with specifying the intervention and scope.



## Why is this important?

Decisions made in the study design will impact the research methodology selected, type and scope of data collected and the kind of analysis that can be done. Developing an explicit study protocol for cost or economic analyses is not as commonly done as for impact evaluations, but it is equally necessary<sup>4</sup>.



### Read this first

[Walls et al. 2021 Cost Analysis Guidance for USAID-Funded Education Activities](#) - Specifies “what can we learn?” and “what data do we need?” for each methodology. Has sections on “learning from cost analysis results” and “(step 2) on cost analysis objectives and questions” to help understand the objectives of cost-economy, cost-efficiency, and CEA. Provides questions on what we need to know and why it is important to help clarify cost analysis objectives. Includes examples of objectives, utilisation, initial policy questions, and then final research question. Very detailed. Has some practical tools.

### General audience



[ACF 2013 Cost-Effectiveness Guidelines: An Introduction and Overview of Key Concepts for Cost-Effectiveness Analysis Within ACF](#) Guiding questions to assist with specifying the intervention and scope of the study. Provides an example from a community case management of severe wasting.



[Levin et al. 2019 Economic Evaluation of Multisectoral Actions for Health and Nutrition](#) - Visually represents the different types of economic analysis (cost minimisation, cost efficiency, CEA, CUA, and CBA) and provides more detailed information on what they can be used for.

### General to expert audience

[Moreland et al. 2019 A Guide to the Fundamentals of Economic Evaluation in Public Health](#) - Detailed explanation of the cost analysis, CEAs, CBA, and CUAs. Provides example research/policy questions in public health and uses of economic evaluations can answer. Also provides detailed guide to conducting cost analysis, CEAs, and CBAs including criticisms of CBAs. Very detailed but easy to read.

[PAHO 2007 Guide to Economic Evaluation in Health Promotion](#) - Covers cost minimisation, CEA, cost-consequence, CBA, and CUA including strengths and weaknesses of each. Provides a list of suitable questions for economic evaluations in health promotion, which are transferable to nutrition.

[Rosen et al. 2019 Guidelines for Costing of Social and Behavior Change Health Interventions](#) - Follows the GHCC standards which includes defining the purpose, defining the intervention, and defining the perspective, but provides specific examples from social behavioural change. Helpful to see how the methodological standards are applied.

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<sup>4</sup> Based on the dearth of published protocols on cost or economic analyses.

[AIR 2021 Standards for the Economic Evaluation of Educational and Social Programs](#) - Includes an overview and dedicated chapters on the evaluation design for cost analysis, CEA, and CBAs. Has useful diagrams which visually illustrate the difference between incremental, total and gross costing when costing “add-on” programmes, supplementary programmes or partially substituting programmes. Less detailed than the other resources for this step.

[SEEMS-Nutrition 2023 - Economic Evaluation Matrix](#) template assists in defining the intervention and scope of the study; the [protocol](#) also provides recommendations for applications of common methods including data management.



### What methodologies should I consider?

There are multiple methodologies that can be used in costing and economic evaluation depending on the policy and research questions, including cost analysis (also referred to as costing or cost-economy analysis), cost-minimization analysis, cost-efficiency analysis, cost-consequence analysis, cost-effectiveness analysis, cost-utility analysis, and cost-benefit analysis. The following tables and figures can aid in the decision on the most appropriate methodology to answer your policy or research questions:



[Levin et al. 2019 Economic Evaluation of Multisectoral Actions for Health and Nutrition](#), Figure 1

- [PAHO 2007 Guide to Economic Evaluation in Health Promotion](#), Table 1
- [Walls et al. 2021 Cost Analysis Guidance for USAID-Funded Education Activities](#) Exhibit 5

### 3.2.2. Step 2: Data Collection Planning and Execution

This step moves from the initial study protocol into the operationalisation phase of the study whereby data collection instruments are designed and data collection plans are developed and carried out. Related to costs, this involves collecting financial data, economic data, and quantifying cost items by interviewing staff and beneficiaries using data collection sheets/templates and interview guides. Related to outputs or outcomes (if relevant), this involves determining what existing or planned data can be used for the economic evaluation depending on the methodology selected. For example, not all program outcome metrics can be used as the denominator in a cost-effectiveness analysis.

There are some useful guides to assist with planning of cost and outcome data collection but only a few are for nutrition-specific interventions, specifically CMAM (Myatt et al. 2021; Frankel et al. 2015). There are limited publicly available data collection templates that can be adapted to systematically collect cost and output/outcome data (SEEMS-Nutrition; Myatt et al. 2021; Frankel et al. 2015). Some guides provide example cost categories; however, these categories vary depending on the guide). Among those most relevant to nutrition programmes, the [FANTA CMAM Costing Tool](#) is specific to CMAM and [Dioptra](#) attempts to standardise across multiple sectors, while SEEMS-Nutrition is for nutrition-sensitive agriculture interventions.



### Why is this important?

Careful planning is essential to ensure cost data collection is as comprehensive and accurate as possible. Planning also ensures that the collected data is consistent with the study objectives without collecting extraneous data. Checking data collection feasibility is also important to define

how detailed the analysis can be and which economic analysis can be conducted. Unless the costing or economic evaluation is conducted alongside an impact evaluation, outcome data (if relevant) can usually be provided by programme staff from their monitoring and evaluation activities, but it would need to be assessed for quality and fit-for-purpose.

### Read this first

[Moreland et al. 2019 A Guide to the Fundamentals of Economic Evaluation in Public Health](#) - Very detailed; chapters on key methodological considerations for cost analysis including types of costs, cost estimation approaches, sources of cost data, and cost sampling. Includes chapters on measuring impact in public health, some of which is applicable to nutrition outcomes. Not a step-by-step guide but detailed and easy to follow.

### General audience



[Frankel et al. 2015 Cost Costs, Cost-Effectiveness, and Financial Sustainability of Community-based Management of Acute Malnutrition in Northern Nigeria](#) - Provides all the cost collection instruments for CMAM programming including Interview questionnaires for caregivers, community volunteers, and staff.

[Myers 2008 Costing early childhood care and development programmes](#) - Discusses how costs are defined and estimated, the sources of cost data (budget, expenditure, cost simulations) and ways of organising costs. Easy to follow. Costing studies only.

### General to expert audience

[AIR 2021 Standards for the Economic Evaluation of Educational and Social Programs](#) - Chapters on cost analysis standards, CEA standards, and CBA standards. Each chapter has sections on data collection. Very good step by step; detailed but easy to follow

[Walls et al. 2021 Cost Analysis Guidance for USAID-Funded Education Activities](#) - Detailed, practical approach to data collection focusing on cost only. Provides guidance on cost analysis steps, assessment of data completeness, feasibility and quality, and source of costs. Templates and tools would need to be modified for the nutrition sector.

[PAHO 2007 Guide to Economic Evaluation in Health Promotion](#) - A step by step guide for planning data collection for both costs and consequences. Includes practical tips and examples from health promotion.

[Rosen et al. 2019 Guidelines for Costing of Social and Behavior Change Health Interventions](#) - Covers study scope, measuring and allocating cost/resource use, sampling, measuring units of outputs, timing of data collection, sources of price data. Has specific examples from SBC and is based on the GHCC guidance.

## Expert audience



[Myatt et al. 2021 A Simple Approach to Cost-Effectiveness Analysis of Community-Based Management of Acute Malnutrition \(CMAM\) Programs A Handbook](#) - Greater focus on data collection for outcomes and less detailed for cost data collection compared to other resources. Includes some short example questionnaires for cost data collection as well as data requirements and potential sources to calculate DALYs for CMAM.

### 3.2.3. Step 3: Data Analysis Planning and Execution

This step involves many decisions on the organisation of costs into the categories defined as relevant based on the analytical objectives of the study as well as how to treat shared or joint costs (e.g. if and how to prorate such costs). Other cost adjustments might include amortisation or depreciation of capital or investment costs, determining and applying shadow prices to economic costs such as donated time or resources, among others. Methodologies involving the analysis of outcome data will need to be planned to ensure the relevance and appropriateness of the outcome data for the purposes of an economic evaluation. Sensitivity analysis might be carried out to better understand the variability of the plausible range in results.



#### Why is this important?

The analytical decisions and assumptions enable the analyst to interpret the results and compare them across studies. Many choices are made in the data analysis stage that will affect the results and comparability of results, and as such they need to be made explicit and transparent. Data analysis planning should be conducted alongside data collection planning since the decisions made regarding the type of analysis anticipated will influence the type and detail of data that needs to be collected.


Some guidelines outline the typical cost adjustments that may need to be made, while the ACF 2013 guideline provides examples for wasting treatment programmes. Practical examples from the social behavioural change health, public health and education programmes are also applicable to nutrition-specific programming. Box 1 explores further the micro-costing data analysis tools and three macro-costing data analysis tools which can be used for different nutrition-specific interventions.



#### Read this first

[Moreland et al. 2019 A Guide to the Fundamentals of Economic Evaluation in Public Health](#) - Covers cost allocation and cost adjustments. Also includes a section on cost analysis of complex programmes.

## General audience

-  [ACF 2013 Cost-Effectiveness Guidelines: An Introduction and Overview of Key Concepts for Cost-Effectiveness Analysis Within ACF](#) - Sections on analysis and interpretation for CEAs, including sensitivity analysis. Includes information on discounting, inflation, capital cost, shadow price/ opportunity cost, and organising costs.

## Expert audience

[Walls et al. 2021 Cost Analysis Guidance for USAID-Funded Education Activities](#) - Detailed practical steps on preparation and implementation of data for analysis. Topics include: data protection, inflation, currency adjustment, shadow prices, alignment of units, data quality checks, monetising donations, discounting costs and benefits, and common mistakes during analysis. Analysis is broken down by type of methodology (cost-economy, cost-efficiency, CEA). Under each section, specific steps to analysis are provided including what to analyse.


[AIR 2021 Standards for the Economic Evaluation of Educational and Social Programs](#) - A section on analysing the data is included for each analysis (cost, CEA, CBA). Includes information on how to achieve best practices on data analysis. Topics include, discounting programmes costs and benefits across multiple years, allocation of costs across stakeholders, allocation of joint costs, inflation, and uncertainty.

[Resch et al. 2020 How to Cost Immunization](#) - Data analysis for costing studies chapter is detailed with subsections on analysing shared costs, recurrent costs, capital costs, estimating unit costs from a sample of sites at multiple levels. Methods for estimating labour and allocating joint and shared costs are provided in the annexes. Cost only, not economic analysis.

[Rosen et al. 2019 Guidelines for Costing of Social and Behavior Change Health Interventions](#) - Detailed sections with examples from social behavioural change for the allocation of costs, valuing capital inputs, adjusting costs (discounting, inflation, currency), using shadow costs, and dealing with uncertainty. Cost only, not economic analysis.

### Need guidance on how to calculate DALYs?

- [European Centre for Disease Prevention and Control 2019 Toolkit](#) - A web-based DALYs calculator.

 [Myatt et al. 2021 A Simple Approach to Cost-Effectiveness Analysis of Community-Based Management of Acute Malnutrition \(CMAM\) Programs. A Handbook](#) - illustrates in detail how to calculate DALYs and adjust for uncertainty.

There are four micro-costing data analysis tools and three macro-costing data analysis tools spanning the range of nutrition-specific interventions (Box 1). Each has advantages and limitations detailed further in Annex 1.

## Box 1: Review of costing tools for nutrition-specific interventions

In 2020 UNICEF carried out a review of costing tools relevant to nutrition-specific interventions for the treatment and prevention of child wasting (Annex 1). This review identified three macro-costing tools and five micro-costing tools that can support cost data organisation and analysis.

Seven tools were assessed for their utility in assisting with cost analysis for useful tools to analyse cost data for nutrition-specific interventions (Table 1). LiST, OneHealth and Optima can be used for all intervention types, but as macro-costing tools, they are not appropriate for most costing and economic analyses since the level of cost detail, precision and context specificity are limited. Conversely, micro-costing tools are better suited to economic evaluation but are necessarily specific to certain interventions.

**Table 1: Intervention Types and Relevant Micro- and Macro-Costing Tools**

Intervention Type <sup>5</sup>	Micro-Costing Tools	Macro-Costing Tools
SAM treatment (inpatient, outpatient, community-based treatment delivery platforms)	<a href="#">FANTA CMAM</a> , <a href="#">FACET4SNF</a>	<a href="#">LiST</a> , <a href="#">OneHealth Tool</a> , <a href="#">Optima</a>
MAM management	<a href="#">FACET4SNF</a>	<a href="#">LiST</a> , <a href="#">OneHealth Tool</a>
Supplementation (maternal: folic acid, multiple micronutrients, calcium, balanced energy and protein; child: vitamin A, zinc, deworming)	<a href="#">FACET4SNF</a> (only balanced energy and protein)	<a href="#">LiST</a> , <a href="#">OneHealth Tool</a> , <a href="#">Optima</a>
Behaviour change communication (breastfeeding, complementary feeding)	<a href="#">FANTA NACS</a> , <a href="#">WBCi</a>	<a href="#">LiST</a> , <a href="#">OneHealth Tool</a> , <a href="#">Optima</a>
Commodity fortification (iron, salt iodization)	None	<a href="#">LiST</a> , <a href="#">OneHealth Tool</a> , <a href="#">Optima</a>

<sup>5</sup> Intervention types based on those identified as high impact nutrition interventions in Bhutta et al. 2013

## 2023 UPDATE

The [Dioptra](#) tool was not reviewed due to its requirement for a paid licence and inability to assess its functionality<sup>6</sup>. Yet, based on publicly available information, it appears to be most applicable for retrospective micro-costing given that it pulls data from accounting records. However, given that it can also analyse data that are uploaded in a spreadsheet format, it could also be used prospectively with predicted costs. It then guides the user in organising the data in a systematic manner to facilitate the comparability of results across studies and organisations.

The WFP MAM Costing Tool is likely a micro-costing tool relevant for MAM management but was still not made publicly available at the time of the review update. The Brookings Institution has developed a [Childhood Cost Calculator](#)<sup>7</sup>, a costing tool for early childhood development which includes some nutrition interventions. More information can be found on the [website](#), and this [webinar](#) provides a basic overview of the tool.

[SEEMS-Nutrition](#) provides a toolkit of spreadsheets and associated guides to structure the financial expenditure and economic cost analyses that, while not directly applicable to nutrition-specific interventions, could be used as a model for adaptation. This webinar introduces the toolkit.

### 3.2.4. Step 4: Reporting

The report should include all information needed to assess the quality of the analysis as well as the appropriateness of comparison or aggregation with the results from other similar studies. These aspects include, among others: study objectives; policy, programme, and/or research question(s); situation context; programme details; analytical methods; cost allocation decisions. There are multiple reporting standards and checklists to guide the reporting process and assess the study quality. While developed predominantly for health interventions, most standards and checklists are relevant for reporting on nutrition-specific costing and economic evaluations.

#### Why is this important?

To ensure results can be interpreted, compared, and used it is important to have full transparency of the methods, context, analytical approach, and findings. Report templates and checklists can be useful to ensure consistent reporting for easier comparison, streamline reporting, and enhance the clarity of results.

#### Read this first

[Husereau et al. 2022 Consolidated Health Economic Evaluation Reporting Standards 2022 \(CHEERS 2022\) statement: updated reporting guidance for health economic evaluations](#) -

Presents reporting standards for health economic evaluations. While written in reference to health economics, the principles are transferable to other sectors. Includes a 28 item checklist. Not all elements will be relevant for all methodologies.

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<sup>6</sup> It is possible to request a trial use of Dioptra from IRC; however, it was beyond the scope of this review to secure test data and trial the software

<sup>7</sup> This tool was made available after the landscape review was carried out and was therefore not included in the analysis.



## General to expert audience



[SEEMS-Nutrition](#) - The [Generic Protocol](#) is a comprehensive reporting template based on the GHCC standards.

## Expert audience

[GHCC 2017 Reference Case for Estimating the Costs of Global Health Services and Interventions](#) - Checklist for all recommended principles and methods and provides “options” where possible for the analyst to choose from.

[Crowley 2018 Standards of Evidence for Conducting and Reporting Economic Evaluations in Prevention Science](#) - Checklist of key information for reporting economic evaluations for prevention programmes in Table 3.

[AIR 2021 Standards for the Economic Evaluation of Educational and Social Programs](#) - Two separate checklists for reporting a comparative CEA and CBA.

## 4. GAPS AND LIMITATIONS

**Lack of nutrition-specific resources** An important gap observed in available literature is the low proportion of comprehensive and detailed resources that are nutrition-specific, notwithstanding the [Action Against Hunger 2013](#) guidelines, the [Myatt et al. 2021](#) book, and some of the analysis tools. Although many of the principles and methodologies prepared for other sectors are transversal, it would be preferable to have a complete nutrition-specific toolkit with guidelines, data collection instruments, and data analysis tools. The inclusion of more nutrition-specific examples would help make existing guidelines more applicable and relevant for use in nutrition costing and economic evaluation.

**Focus on “what to do” and very little on “how to do it”** None of the guidelines provides practical information on planning the data collection, such as general terms of reference for the data collection visit, profile of local data collection personnel and associated job descriptions, memorandum of understanding on data sharing and data protection, etc. Few resources provide an estimate on the level of effort required to conduct a study. As such, there can be unrealistic expectations around what can be achieved within a given number of working days. The level of effort and the level of detail of the study go hand-in-hand.

**Limited data collection instruments** Only recently have data collection instruments been disseminated publicly (cf. [Walls et al. 2021](#), [SEEMS-Nutrition 2023](#), [Myatt et al. 2021](#), and [Frankel et al. 2015](#)), and this has been a major gap. Notably, none of the nutrition-specific data analysis tools described in Box 1 also provide associated data collection instruments, leaving the task of developing the interview guides and other instruments to the user. This remains a barrier to the uptake of these analysis tools. Since this is a key component to the study process, and it could easily be standardised to some extent, this seems to be a major oversight in the development of the data collection instruments.

**No standardised cost categories** There is not yet an agreed upon standardised list of cost categories for nutrition-specific programmes. Some efforts have been made in this direction but

there is no documentation that can be consulted, other than the cost category tables provided in well-reported economic evaluations (cf. [Isanaka et al. 2019](#); [Puett et al. 2012](#); [Griswold et al. 2021](#); [Walters et al. 2018](#)). Given the relatively standardised treatment protocol for severe wasting, the standardisation of cost categories should be relatively straightforward. Cost analysts do not have to use every category, but a common agreement on how to classify and organise costs is feasible. Standardisation will improve comparability across studies.

**No standardised outputs/outcomes** Other than number of children treated, number of children cured, DALYs or cases of wasting averted there does not seem to be a consensus on the outputs that can be used in economic evaluation of nutrition interventions. These metrics overlook issues related to quality of service provision or coverage or sustainability in terms of recovery and relapse rates. A menu of outputs/outcomes could be developed, along with a description of the associated data required.

**Incomplete guidance on reporting of the context** Available reporting guidance does not include all elements to consider when reporting related to describing the context in which a programme is being implemented. There are myriad ways in which the context can influence the costs or cost-effectiveness of an intervention outside of the list, including geography, political stability, security situation, maturity of the programme, among others. Without adequate consideration of these factors, the interpretation of the results could be incomplete or even misleading.

**Low level of information sharing** While this is changing, one constraint to advancing this field of knowledge is a low level of information sharing of cost analyses and economic evaluation results and methodologies. There appears to be little interest from journal editors to publish methodological papers or empirical studies for which there was little or no impact; results from cost studies are difficult to publish. Furthermore, many organisations choose not to publish their protocols, methodologies or results, likely given the effort required to prepare a manuscript or report for public consumption.

## 5. ADDITIONAL RESOURCES

### General guidance

- [USAID 2022 Discussion Note: Cost Data Collection and Analysis](#) - A basic primer on costing.
- [WHO 2000 Economic Evaluations](#) - Older, but clearly described guide; useful for less technical audiences; provides a good overview of the main steps of an economic analysis including defining the economic question and perspectives of the study, defining the intervention, and choosing the study design.
- [Tan-Torres 2003 Making choices in health: WHO guide to Cost-effectiveness Analysis](#) - Key resource but best suited for a technical audience.
- [Glandon et al. 2022 The State of Cost-Effectiveness Guidance: Ten Best Resources for CEA in Impact Evaluations](#) - A review of how CEAs can be used for decision-making, barriers to their uptake, and remaining gaps; also provides a list of key resources, some of which are included in this review.
- [USAID/IRC 2019 Cost-Efficiency Analysis of Basic Needs Programs: Best Practice Guidance for Humanitarian Agencies](#) - Developed in reference to cash transfer programming but also relevant for nutrition programming.

## Step 1 - Study design

- [Simoens 2009 Health Economic Assessment: A Methodological Primer](#) - Basic overview of fundamental concepts and terms; covers the various methodologies.
- [Myers 2008 Costing early childhood care and development programmes](#) - Basic description on how to do costing and some pitfalls and considerations in early childhood care and development programmes
- [Resch et al. 2020 How to Cost Immunization](#) - Describes well the relationship between study objectives, research questions, and design choices
- [Sullivan et al. 2014 Budget Impact Analysis–Principles of Good Practice: Report of the ISPOR 2012 Budget Impact Analysis Good Practice II Task Force](#) - Defines and describes the intended use of a budget impact analysis and provides basic information on what should be considered in the design
- [Kashi et al. 2022 Assessment of the 2015 USAID Guidelines for Cost-benefit and Cost-effectiveness analysis](#) - The updated version of the USAID 2015 Guidelines Cost Benefit Analysis discusses the role of CBA at USAID and includes the benefits and limitations of CBA at each step of the USAID programme cycle. Covers the constraints to increasing CBA use at USAID.
- [Skordis-Worrall et al. 2016 Protocol for the economic evaluation of a community-based intervention to improve growth among children under two in rural India \(CARING trial\)](#) - Good example of a research protocol
- [Lelijveld et al. 2018 The “ComPAS Trial” combined treatment model for acutemalnutrition: study protocol for the economic evaluation](#) - Protocol example from a nutrition study

## Step 2 - Data collection planning and execution

- [ACF 2013 Cost-Effectiveness Guidelines: An Introduction and Overview of Key Concepts for Cost-Effectiveness Analysis Within ACF](#) - Provides an overview of steps to conduct a CEA/ CUA of a CMAM programme. Describes the key components of activity-based costing and difference between QALYs and DALYs. Less detailed than other resources.
- [SEEMS-Nutrition](#) - Has Excel and Word based templates for cost activity tracking, data collection planning, generic key information/focus group discussion guides, time allocation forms, and financial and economic cost analysis templates.
- [Resch et al. 2020 How to Cost Immunization Programs](#) - Types of sampling methods including common sample design questions which are also applicable to nutrition; includes a step by step guide to the sampling procedure.
- [Dioptra](#) - A web-based software that can automatically pull cost data from organisational financial systems or from uploaded comma separated values (CSV) files. Cost categories and output measures are standardised, including a module for nutrition interventions. Paid service requiring a licence; free trial and payment waivers for local organizations are available. Financial systems need to be set up a priori to pull data automatically or data can be uploaded from a spreadsheet.
- [Brookings 2017 The Standardized Early Childhood Development Costing Tool \(SECT\) A Global Good to Increase and Improve Investments in Young Children](#) - Provides practical guidance on potential challenges and solutions to data collection for a costing analysis. NOTE: a revised tool called the Childhood Cost Calculator is being developed and will replace SECT.
- [Puett et al. 2012 Cost-effectiveness of the community-based management of severe acute malnutrition by community health workers in southern Bangladesh](#) - Examples of cost categories for CMAM and detailed information on data sources
- [Griswold et al. 2021 Effectiveness and cost-effectiveness of 4 supplementary foods for treating moderate acute malnutrition: results from a cluster-randomized intervention trial in Sierra Leone](#) - Supplemental table provides cost categories and data sources

### Step 3 - Data Analysis Planning and Execution

- [PAHO 2007 Guide to Economic Evaluation in Health Promotion](#) - Sections on valuing the consequence, adjusting for differential timing of costs and consequences, sensitivity analysis, interpreting the results, and dealing with complex interventions.

### Step 4 - Reporting

- [Walls et al. 2021 Cost Analysis Guidance for USAID-Funded Education Activities](#) - A section on what to report and document for social science research. Has a table summarising the sections of a report and content that should be included. Costing only
- [Rosen et al. 2019 Guidelines for Costing of Social and Behavior Change Health Interventions](#) - Adapted the GHCC checklist for SBC. Provides an example of what can be done for the nutrition sector
- [Frankel et al. 2015. Costs, Cost-Effectiveness, and Financial Sustainability of Community-based Management of Acute Malnutrition in Northern Nigeria](#) - Example of detailed transparent cost method reporting in CMAM for a non-academic audience.
- [James et al. \(2021\). Nigeria Joint Response Case Study Micro-Enterprise Management Training & Treatment of Malnutrition Value for Money: Efficiency](#) - Example of reporting non-academic economic analysis.

### Webinars - Nutrition

- USAID Advancing Nutrition 2023: [What Does Nutrition Cost? New Resources in Costing Complex Nutrition Interventions Webinar](#)
- GNC Technical Alliance 2022: [Costing Child Wasting Treatment](#)
- GNC Technical Alliance 2022: [The use of cost data for decision making in child wasting treatment](#)
- Global Financing Facility 2022: [Allocative efficiency analysis for more nutrition for the money: Country experiences with Optima Nutrition](#)
- SoAM 2020: [Standardising cost-efficiency and cost-effectiveness measurement of the management of wasting in children](#)
- SPRING 2018: [Smart investments, big returns: How understanding financial data can transform nutrition](#)
- SPRING 2018: [Changing the way we think about cost-effectiveness of addressing childhood anaemia](#)

### Webinars - General costing

- 3ie 2020: [So the intervention is effective... but what will it cost?](#)
- 3ie 2020: [Barriers to integrating cost-effectiveness analysis and cost-benefit analysis into impact evaluations](#)
- USAID Data4Impact 2020: [Use of routine data for economic evaluations](#)
- GHCC 2018: [Essential Component of Health Priority Setting: Best Practices in Understanding and Interpreting Cost Data](#)
- Global Brain Health Institute 2016: [Cost analysis & value based care - costing](#)

### Webinars - Other sectors

- Brookings 2022: [From simulation to scale: Tools for effective costing of early learning and ECD programs](#)
- Breakthrough Action 2020: [Breakthrough Research SBC Cost repository webinar](#)
- Brookings 2017: [Encouraging better financing of early childhood development programs.](#)

Launch of the “Standardized ECD Costing Tool (SECT): a global good to increase and improve investments in young children”

## **Webinars - Training**

- [Dioptra costing tool](#)
- [FACET4SNF costing tool](#)
- [LiST tool](#)

## **Websites**

- [Brookings Institute ECD Programmes costing tool](#)
- [State of Acute Malnutrition \(Current\)](#)
- [SEEMS-Nutrition](#)
- [GNC Technical Alliance](#)

# ANNEX 1

## REVIEW OF COSTING TOOLS FOR NUTRITION-SPECIFIC INTERVENTIONS

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## ACRONYMS

CMAM	Community management of acute malnutrition
EQUIST	Equitable Impact Sensitive Tool
FACET	Food Assistance Cost Effectiveness Tool
FANTA	Food and Nutrition Technical Assistance Project
iCCM	Integrated community case management
IMAM	Integrated management of acute malnutrition
IYCF	Infant and young child feeding
LiST	Lives Saved Tool
MAM	Moderate acute malnutrition
MINIMOD	Micronutrient Intervention Modelling Project
MMS	Multiple micronutrient supplement
NACS	Nutrition assessment, counselling and support
NNP	National nutrition plan
N/A	Not applicable
SAM	Severe acute malnutrition
SCAN	Systematic Cost Analysis
TB	Tuberculosis
TBC	To be confirmed
WBCi	World Breastfeeding Costing Initiative
VAS	Vitamin A supplementation



# INTRODUCTION

The United Nations Children’s Fund (UNICEF) is engaged in a process of assisting national governments transition towards the integration of the management of child wasting into existing national health systems. Considerable effort continues to be made towards developing or updating existing national nutrition plans (NNPs) in multiple countries, including the costing of these plans. In order to operationalize the NNPs, the required resources need to be identified, costed and financed. Yet, while highly detailed protocols exist for the implementation of many nutrition services, including the treatment of severe wasting, similarly detailed guidance on the estimating the costs of providing nutrition services is lacking. Consequently, the development of robust estimates of the cost of pluriannual nutrition plans can be challenging.

Existing estimates of program unit costs vary widely in terms of their detail and accuracy. Many reports fail to provide the reader with sufficient information on the methodological and analytical choices made in the costing exercise to allow for the assessment of the quality and comprehensiveness of the results. Without this information, decisions on resource allocation or program design, just to name a few uses of cost estimates, may be based on erroneous conclusions drawn from partial and/or incomparable estimates. A more standardised approach to estimating the cost of nutrition services would improve consistency across costing exercises and can improve the reliability and validity of the cost estimates. Costing tools are one way to increase the comprehensiveness and decrease the variability of cost estimates. They can also provide a way to increase the transparency of methodological and analytical choices by revealing any implicit assumptions made by the cost analyst.

This report presents the results of a landscape analysis of existing costing tools with direct application for costing nutrition-specific interventions, including the management (treatment) of wasting, micronutrient supplementation, and infant and young child feeding (IYCF) counselling<sup>1</sup>. The scope of this review was limited to cost and does not include any assessment of how some tools include program outcomes. Multi-sectoral or nutrition-sensitive programs were not included within the scope of this exercise. This review responds to the increased demand for more standardised, high-quality cost estimates for various nutrition services as well as scenario modelling. This report intends to identify the most applicable and user-friendly costing tools capable of costing and modelling for use by UNICEF, national government and NGO partner nutrition personnel.

## METHODS

The identification of potentially relevant nutrition costing tools for inclusion in this review was primarily conducted through Internet searches and was supplemented by key informant interviews. Tools were qualitatively assessed for their potential to improve the consistency, reliability and validity<sup>2</sup> of cost estimates for wasting treatment and prevention services. The basic approach, strengths and weaknesses of each tool were assessed and tabulated.

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<sup>1</sup> The type of nutrition-specific interventions included in the review was guided by the high impact nutrition actions described in Bhutta et al. 2013.

<sup>2</sup> Reliability refers to the consistency of a measurement to return similar results, or the repeatability of the results. Validity refers to the extent to which a measurement represents the intended variable.

# RESULTS

A total of 23 tools were identified for this review. Tools that were excluded were those that are not publicly available, not designed for cost estimation, not applicable to the treatment or prevention of child wasting, and those for which there is a newer iteration or are otherwise obsolete. Eight tools were deemed potentially useful to support the costing of nutrition services and were selected for further review and 15 were excluded (Table 1). Many of these tools have been assessed by others as part of a landscape review of costing tools relevant for nutrition-specific interventions (c.f. Sackler Institute 2017, MQSUN+ 2020, Shen et al. 2021), yet none of these reviews included all the resources included here.

The evaluated tools were placed into one of two broad categories based primarily on the level of detail required of the input data, macro-costing tools and micro-costing tools. In practice, however, both approaches are often used in tandem in the same costing exercise depending on the objectives of the duty and availability of data.

Macro-costing tools rely on high-level aggregated costs or assumptions and require less detailed primary data collection. As such, they are typically faster and easier to carry out, but are less sensitive to differences in the cost environment, context, program variations in design, scope and scale, and do not allow for robust modelling based on variation of service delivery or epidemiology; modelling of scale up cost is possible but offer only a crude estimate. Macro-costing is better suited for retrospective analysis and to contexts with mature programs from which comprehensive historical data can be obtained, or when highly detailed analysis is not required, such as an investment case.

Micro-costing tools often use an “ingredients approach”<sup>3</sup>, estimating the total cost of a programme or service by adding together the cost of the various resources required to implement it. Micro-costing typically relies on primary data collection, using normative assumptions or proxies only when reliable empirical data is not available. As such, it can be more resource-intensive to conduct an analysis using a micro-costing approach, but it provides more reliable, accurate and context-specific cost estimates. Micro-costing can be used for both retrospective or prospective analysis, and better suited for most economic evaluations, or when there is a need for disaggregated data for modelling purposes.

## Description of Reviewed Costing Tools

**LiST and OneHealth Tool** are similar in that their main purpose is to estimate the impacts of multiple health interventions, with some nutrition outcomes being among those modelled. Costing is not the primary focus but it is included as an adjunct to impact modelling of national programs. As macro-level costing tools, they rely heavily on aggregated cost information and provide a narrower scope for detailed cost data than allowed in micro-level tools. As such, they are not well suited to modelling cost implications for variations in service delivery protocols. Cost results are highly aggregated and the outputs are best used for advocacy or high-level investment case purposes where a high degree of accuracy or precision is not required.

**Optima Nutrition** is a quantitative tool that can provide practical advice to governments to assist with the allocation of current or projected budgets across nutrition programs. It is designed to optimally allocate a fixed budget across multiple interventions to maximise user-selected outcomes. It was initially designed with a focus on stunting but has since expanded and now includes outcomes related to wasting, anaemia and under five mortality. It relies on LiST for the

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<sup>3</sup> An ingredients approach is a method of costing where the estimated or actual quantities of each resource used to implement the program is multiplied by the unit price of each item.

estimations of impact on nutrition and on user input for the cost per beneficiary for each of the nutrition services selected for the analysis. This tool can only be used when the cost per unit of service delivery is already known.

The **Community Health Costing and Planning Tool** uses an ingredients approach to calculate costs from the bottom up based on the resources required for the intervention. It is designed to cost multiple health-oriented interventions delivered at the community level and is not able to cost facility-based nutrition interventions, therefore its applicability for nutrition costing is very limited.

**FACET4SNF** is a web-based tool to facilitate the costing and economic analysis of food-based nutrition programmes, including both therapeutic and supplementary feeding. Micro-costing is done for most categories of resources, but some categories such as “in-country programming” rely on aggregated macro-costing. One key limitation of the tool is that scenarios cannot be saved and reloaded for additional editing so the data entry must be completed from start to finish in a single session and the scenario saved.

The **WBCi** and **FANTA CMAM** and **FANTA NACS** tools were designed to help the user generate cost per beneficiary estimates as an output of the analysis by using a very detailed activity-based ingredients costing approach. These tools are intended to estimate program delivery costs, providing flexibility to compare cost implications of variations in delivery modalities or design. The data collection and entry requirements can be substantial, but many cost categories include pre-entered normative values which can be used in the absence of primary data or for a simplified estimate. The reliability and validity of the cost results from these highly detailed tools is greater than that of the aggregated approach used by macro-oriented tools. Funding for FANTA ended in 2018 and therefore the CMAM and NACS tools are no longer supported for updating or technical assistance.

Table 1: List of excluded tools

Tool	Primary Developer and/or Host
Costing Readiness Tool	MQSUN
CostIt - Costing Interventions	WHO
Cost of the Diet	Save the Children
Dioptra (formerly SCAN - Systematic Cost Analysis)	IRC
EQUIST - Equitable Impact Sensitive Tool	UNICEF
GHCC Costing Tool	GHCC
iCCM Costing and Financing Tool (became Community Health Costing and Planning Tool)	MSH
Marginal Budgeting for Bottlenecks (MBB)	UNICEF/World Bank
MINIMOD - Micronutrient Intervention Modelling Project	UC Davis
MMS Cost-Benefit Tool - Multiple micronutrient supplement	Nutrition International
Nutrition costing tool	UNICEF Kenya
Optifood	FANTA
PROFILES	FANTA/FHI 360
Tool for Optimization of Vitamin A Supplementation (became MINIMOD)	UC Davis
Treatment of MAM Costing Tool	WFP

## CONCLUSION

The intent of this review was to evaluate existing costing tools for their suitability to estimate the cost of key nutrition-specific interventions to reduce wasting among children. Eight publicly available costing tools were identified and reviewed in detail for their usefulness in contributing to standardising cost analysis to improve the accuracy and reliability of estimating the cost to deliver nutrition services.

The selection of the most appropriate costing tool is influenced by the program and policy questions and study objectives, the level of detail required and the availability of data and resources to collect data. Among the tools reviewed, none is superior or uniquely suited to cost the wide array of nutrition-specific interventions. Nonetheless, the use of any tool will support efforts to improve the harmonisation, consistency and transparency of costing exercises insofar as they provide a framework to structure the cost analysis. Independent from the use of any tool, the accuracy and reliability of the cost estimates are a product of the quality of the input data. Improving the accuracy and consistency of costing, particularly at the macro level, will lead to better processes of costing, budgeting, and financing.

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