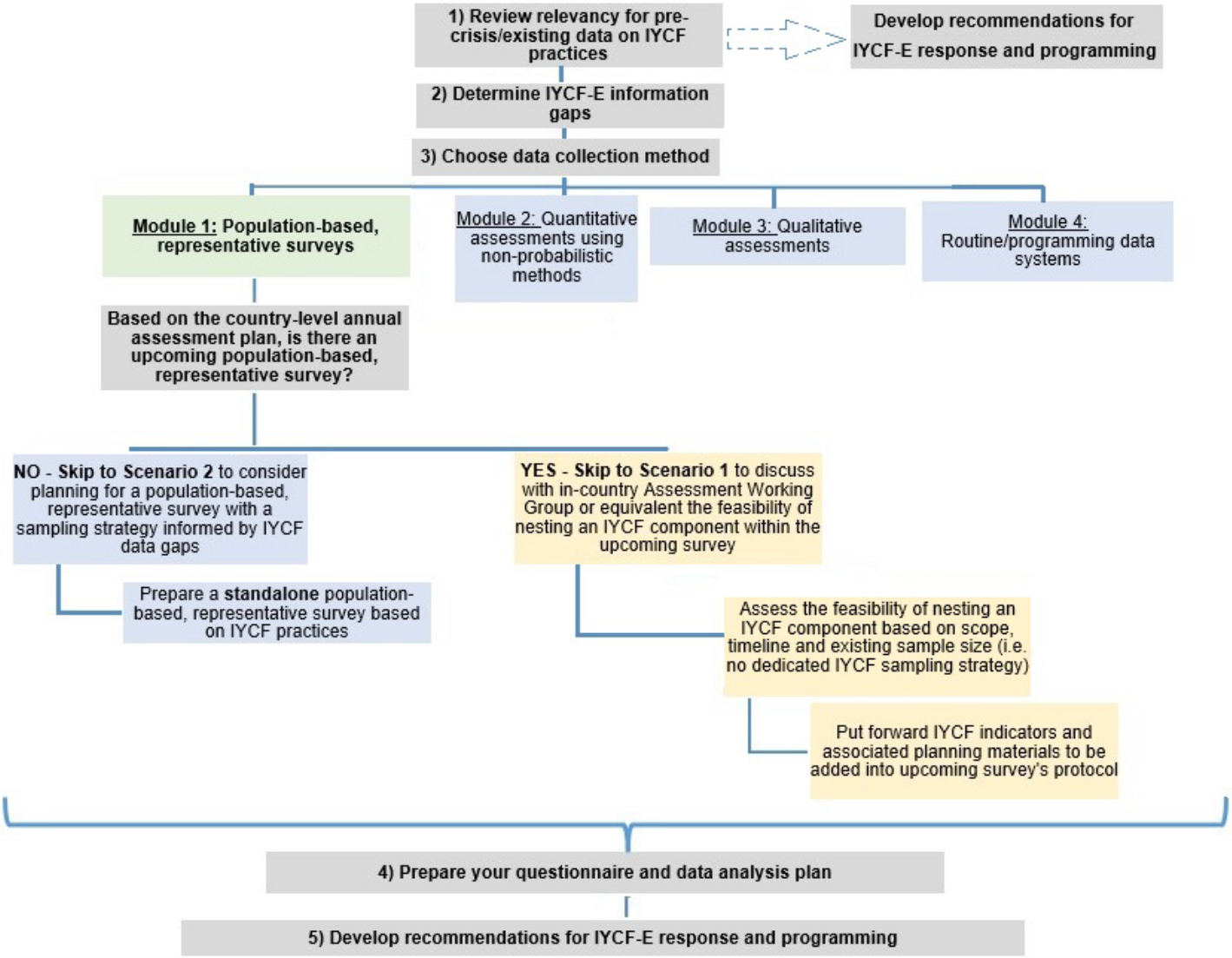
Guidance for conducting an IYCF-E assessment – *First iteration for piloting*

Steps to conducting an Infant and Young Child Feeding in Emergencies assessment

The purpose of this **working** guidance is to streamline the collection, analysis and interpretation of data on Infant and Young Child Feeding (IYCF) practices for decision-making purposes at sub-national/local levels in humanitarian and fragile contexts (see *Figure 1* below). This guidance document is dynamic in nature, as feedback will be collated into subsequent versions based on the inputs, experiences and emerging needs of its intended end-users. It recommends a step-by-step, thought-process aimed at ensuring an evidence-based infant and young child feeding in emergencies (IYCF-E) response and decision-making. Its sections are organized using a modular approach depending on which method for data collection is used, starting with *Module 1's* two scenarios for population-based, representative surveys: 1) nest/integrate an IYCF component into an upcoming survey, or 2) conduct a standalone survey with a dedicated sampling strategy.

Figure 1. Overview of steps to conduct an IYCF-E assessment



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Limitations

The first iteration of this guidance represents a dynamic, working document aimed at streamlining IYCF-E assessments; its contents will be modified as more modules are being incorporated. The engagement of targeted end-users during its pilot-testing aims to build in not only feedback on its content, but also the integration of lessons learned and experiences based on the complexity of contextual considerations and factors. Because the development of this guidance uses a modular approach, the complete, pilot-tested guidance document will not be available until late 2024. For any suggestions or recommendations on how to further improve these guidelines, please contact Alessandro Iellamo at AIellamo@fhi360.org

Abbreviations

4W – Who, What, Where and When
BF – Breastfeeding or breastfed
BFHI – Baby-Friendly Hospital Initiative
BMS – Breastmilk Substitute
CDC – Centers for Disease Control and Prevention
DEFF – Design effect
DHS – Demographic and Health Survey
ENA – Emergency Nutrition Assessment (software)
ENN – Emergency Nutrition Network
GAM – Global Acute Malnutrition
GBV – Gender-Based Violence
GNC – Global Nutrition Cluster
HCT – Humanitarian Coordination Team
HINI – High Impact Nutrition Interventions
HNO – Humanitarian Needs Overview
HRP – Humanitarian Response Plan
IASC – Inter-Agency Standing Committee
IBFAN – International Baby Food Action Network
ICDC – International Code Documentation Centre
IFE Core Group – Interagency working group on Infant Feeding in Emergencies
IDPs – Internally Displaced Persons
IPC AMN – Integrated Food Security Phase Classification for Acute Malnutrition
ISSSF – Introduction of solid, semi-solid or soft foods
IYCF – Infant and Young Child Feeding (used in development contexts)
IYCF-E – Infant and Young Child Feeding in Emergencies (also referred to as IFE)
IYCF-E SOP– Infant and Young Child Feeding in Emergencies Standard Operating Procedure for emergency response teams
KAP – Knowledge, Attitude and Practices
MICS– Multiple Indicator Cluster Survey
MOH – Ministry of Health
NGO – Non-governmental Organisations
MOH – Ministry of Health
NGO – Non-governmental Organisations
NiE – Nutrition in Emergencies
NIS – Nutrition Information System
NISWG – Nutrition Information System Working Group
NNIS – National Nutrition Information System
NutriDash – UNICEF's Nutrition Dashboard data collection system
OCHA – (United Nations) Office for the Coordination of Humanitarian Affairs
OG-IFE – Operational Guidance on Infant and Young Child Feeding in Emergencies
PIF – Powdered Infant Formula
PiN – People in Need
PLW – Pregnant and Lactating Women
PSU – Primary Sampling Unit
PPS – Probability Proportional to Size
RUIF – Ready-to-Use Infant Food
SADD – Sex-and Age-Disaggregated Data
SC – Save the Children
SMART – Standardized Monitoring and Assessment of Relief and Transitions
Tech RRT – Technical Rapid Response Team
The Alliance – Global Nutrition Cluster Technical Alliance
TWG – Technical Working Group
UN – United Nations
UNICEF – United Nations Children's Fund
WASH – Water, Sanitation and Hygiene
WBTi – World Breastfeeding Trends initiative
WHA – World Health Assembly
WHO – World Health Organization
WFP – World Food Programme
WHZ – Weight-for-Height Z-score

Glossary[1]

Artificial feeding: feeding of infants with a breastmilk substitute.

Breastfeeding: provision of breastmilk, either directly from the breast or expressed.

Breastmilk Substitute (BMS): Any food (solid or liquid) being marketed, otherwise represented, or used as a partial or total replacement for breastmilk, whether or not suitable for that purpose. In terms of milk products, recent WHO guidance has clarified that a BMS includes any milks that are specifically marketed for infants and young children up to the age of three years. For more information, consult the *International Code of Marketing of Breast-milk Substitutes*.

Complementary feeding: use of age-appropriate, adequate, and safe solid or semi-solid food in addition to breastmilk or a breastmilk substitute in children aged 6-23 months.

Data: facts and/or figures; pieces of quantitative or qualitative information (WHO & UNICEF 2022).

Data source: type of data and/or modality of data collection (e.g., routine data, survey data) – can also be synonymous with data provider (WHO & UNICEF 2022).

Disaggregation: data that have been broken down into detailed subcategories (e.g., age, sex, economic status/income or geographic location) to support in understanding the data (WHO & UNICEF 2021b).

[1] Based 2020 Save the Children and Tech RRT's IYCF-E SOP unless specified otherwise.

Exclusive Breastfeeding (EBF): percentage of infants 0-5 months of age who were fed exclusively with breastmilk (i.e. no other food or drink, not even water) during the previous day (WHO & UNICEF 2021a).

Humanitarian and fragile context: in this document refer to "an event or series of events involving widespread human, material, economic or environmental losses and impacts that exceed the ability of the affected community or society to cope using its own resources and therefore requires urgent action to save lives and prevent additional mortality and morbidity. The term encompasses natural disasters, man-made emergencies, health emergency/pandemic and complex emergencies [that can be] slow- or rapid-onset, chronic or acute [in nature]." Adapted from the OG-IFE 2017.

Indicator: indicators make collected data understandable and useful for monitoring performance, assessing achievement, and determining accountability – they can be used to determine a proportion (e.g., prevalence) and are often designed to track inputs, outputs, outcomes and impact (WHO & UNICEF 2022).

Infant: A child aged 0-11 completed months (may be referred to as 0-<12 months or 0-<1 year). An older infant means a child from age of 6 months up to 11 completed months of age.

Infant Feeding in Emergencies (IFE) Core Group: a global collaboration of agencies and individuals formed in 1999 to address policy guidance and training resource gaps hampering programming on infant and young child feeding support in emergencies. The IFE Core Group does not directly implement programs; instead, it develops guidance and resource materials, documents lessons learned and builds capacity for effective Infant and Young Child Feeding (IYCF) support in emergencies. The IFE Core Group is the Global Thematic Working Group on Infant and Young Child Feeding in Emergencies as part of the Global Nutrition Cluster Technical Alliance (GNC-TA).

Infant Formula: A breastmilk substitute formulated industrially in accordance with applicable Codex Alimentarius standards for infants. Commercial infant formula is infant formula manufactured for sale, branded by a manufacturer. Generic infant formula is unbranded. Powdered Infant Formula (PIF) is an infant formula product, which needs to be reconstituted with safe water before feeding. Ready-to-use infant formula (RUIF) is a type of infant formula product that is packaged as a ready-to-feed liquid and does not need to be reconstituted with water.

International Code of Marketing of Breastmilk substitutes (*The Code*): The *Code* intends to ensure BMS will be used as safely as possible when they are necessary based on impartial, accurate information. The *Code* does not restrict the availability of BMS, feeding bottles or teats or prohibit the use of BMS during emergencies. In context of the *Code*, BMS means any food being marketed or otherwise represented as a partial or total replacement for breastmilk, whether suitable for that purpose or not. The *Code* applies to the marketing and related practices, quality, availability and information on use, including but not limited to: breastmilk substitutes (including infant formula, follow-on/follow-up milk, growing-up milk, other milk products, including bottle-fed complementary foods) specifically marketed for feeding children up to three years of age; foods and beverages (baby teats, waters and juices) when marketed for use as a partial or total replacement of breastmilk during the first six months of life; feeding bottles and teats.

Introduction of solid, semi-solid or soft foods (ISSSF): percentage of infants 6-8 months of age who consumed solid, semi-solid or soft foods during the previous day (WHO & UNICEF 2021a).

Nutrition and health emergency response: A formal response framework, guided by a "cluster" or "sector" group and in-country technical capacity, aimed at directly meeting the health and nutrition needs of a disaster-affected population through the delivery of humanitarian health and nutrition interventions in a coordinated and principled manner and in line with agreed international and national standards and guidance. The terms "sector" and "cluster" may be used interchangeably in a particular response, for example, if the government prefers to refer to the activated cluster as a sectoral response system. Details on the transition from sector to cluster coordination platforms and their various ways of interaction are found in (UNICEF 2013) and (Hailey & Akwanyi 2017) respectively.

Preparedness: capacities and knowledge developed by governments, professional response organisations, communities, and individuals to anticipate and respond effectively to the impact of likely, imminent, or current hazard events or conditions.

Qualitative data: data collected using qualitative methods, such as interviews, focus groups, observations and key informant interviews – generally expressed in narrative form, pictures of objects (i.e., not numerically) (WHO & UNICEF 2022).

Quantitative data: data that are measured on a numerical scale that can be analysed using statistical methods and can be displayed using tables, charts, histograms and graphs (WHO & UNICEF 2022).

Recommended Infant and Young Child Feeding practices: early initiation (within one hour of birth), exclusive breastfeeding for the first 6 months of life, followed by nutritionally adequate and safe complementary foods while breastfeeding continues for up to two years of age or beyond.

Routine data: data continuously collected as part of a regular activity/procedure or programme (WHO & UNICEF 2022).

Surveillance data: data collected on a recurring basis from designated locations (e.g., sentinel sites) to provide insights on trends into a broader area and/or larger population (WHO & UNICEF 2022).

Young child: A child from the age of 12 months up to the age of 23 completed months (may also be referred to as 12-<24 months or 1-<2 years).

Background

Appropriate and timely support of infant and young child feeding in emergencies (IYCF-E) in humanitarian and fragile situations is crucial for survival, healthy growth and development in infants and young children. Infants should be breastfed within one hour of birth, breastfed exclusively for the first six months of life and continue to be breastfed up to two years of age and beyond. Inappropriate infant and young child feeding practices increase vulnerability to undernutrition, disease and death, and undermine maternal health. For example, 823,000 children under-five deaths could be averted by breastfeeding alone (Victora et al, 2016). Non-breastfed infants are 14 times more likely to die from pneumonia and 10 times more likely to die of diarrhoea than breastfed children.

IYCF-E includes actions and interventions to protect and support the nutritional needs of both breastfed and non-breastfed infants and young children aged 0–23 months. Support of pregnant and breastfeeding women is central to the well-being of their children. IYCF-E must be included as one of the first activities of a response and there is opportunity to integrate IYCF-E with other sectors. However, up-to-date evidence to support an appropriate and timely health and nutrition response and to monitor the impact of humanitarian action and inaction on infant and young child feeding practices using comparable data collection methods remains difficult to prove.

In 2021, in light of the need to assess the medium- and long-term impact of the COVID-19 on infant and young child feeding practices of the affected population, the IFE Core Group and the Alliance's Nutrition Information System Technical Working Group (NISWG) led a review of the current practices when conducting IYCF-E assessments which identified the need for consensus-driven evidence for field implementation. Respondents from various countries[2] highlighted the need to streamline collection methods for IYCF practices at subnational/local levels. Recent data on IYCF practices directly provides life-saving information on the nutritional status of children under two years of age and, ultimately, impact child survival. Protecting, and where necessary, improving on, infant and young child feeding practices in children aged 0-23 months is therefore critical to improved nutrition, health and development of children in humanitarian and fragile contexts. To support the IYCF-E's Standard Operating Procedure (SOP) for emergency response teams (specifically *Step 4 – Assess and Monitor*), the development of standardized methods will not only help the sector to collect data on IYCF in a comparable manner, but also inform programming and decision-making for better utilization and uptake by governments and other key stakeholders to respond more effectively to the needs identified in children aged 0-23 months and their caregivers.

Purpose, audience and scope

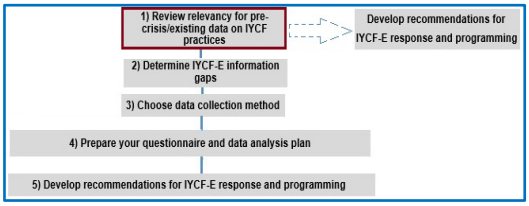
The purpose of this guidance is to streamline the collection, analysis and interpretation of data on IYCF practices for decision-making purposes at sub-national/local level in humanitarian and fragile contexts. **In alignment with the IYCF-E SOP and Operational Guidance (OG-IFE) for emergency response teams, its intended audience is for survey managers and technical assistance providers who are directly supporting the nutrition and health emergency and the IYCF-E response.** It includes but not limited to: humanitarian practitioners (i.e., Health & Nutrition Advisors, IYCF-E Advisors) from UN agencies, international and local NGOs, and government/Ministry of Health, as well as members of technical working groups (e.g. Assessment Working Group). The outputs stemming from this guidance are relevant to all humanitarian actors, including decision-makers, Humanitarian Coordination Team (HCT) members, humanitarian organizations contributing to coordinated assessments, policymakers, donors, as well as local and national authorities including national survey organizations. This guidance focuses on humanitarian and fragile environments spanning acute-onset/slow-onset, natural disasters, conflicts and protracted crises; however certain principles and considerations may be applicable to development contexts.

[2] Based on the responses from the following 26 countries: Afghanistan, Algeria, Argentina, Burkina Faso, Central Africa Republic, Colombia, Democratic Republic of Congo, Ethiopia, Greece, Guatemala, Iraq, Kenya, Mauritania, Mozambique, Myanmar (Burma), Nicaragua, Nigeria, Palestine, Peru, Philippines, Senegal, Somalia, South Sudan, Sudan, Syria, and Yemen.

This guidance is **dynamic** in nature, as feedback from its piloting will be collated into subsequent versions based on the inputs, experiences and emerging needs of the target users. It recommends a step-by-step, thought-process to identifying, collecting, analysing and utilizing IYCF information aimed at ensuring an evidence-based IYCF-E response and decision-making. Its third section is organized according to a modular approach depending on the data collection method to be used:

Module 1 (*included in this first iteration)*: Population-based, representative surveys, either as a standalone or with a nested/integrated IYCF component into an upcoming survey;
Module 2 (*forthcoming*): Quantitative assessments using non-probabilistic/random sampling methods;
Module 3 (*forthcoming*): Qualitative assessments;
Module 4 (*forthcoming*): Routine data systems.

This is a first iteration (1.0) with forthcoming modules, with content evolving as more modules are developed and integrated. If collected at multiple points in time, certain modules may also be relevant for routine monitoring and surveillance purposes. The proposed actions defined in this document are not meant to be exhaustive nor prescriptive in nature, but rather indicative of key considerations to include and common pitfalls to avoid. Certain tasks such as questionnaire development and description of standard IYCF indicators are not addressed in detail, instead links to existing guidance and in-depth resources are given. Moreover, examples to support the contextualization and application of the guidance are provided in *Boxes*, along with key points highlighted by: ✔s.



1) Review relevancy of pre-crisis or existing data on IYCF practices

Conditions that support mothers and caregivers to breastfeed, adopt recommended complementary feeding behaviors, and minimize the risks of artificial feeding when infants are not breastfed, can be threatened in humanitarian and fragile contexts (IFE Core Group 2017). Physical displacement, loss of income, trauma, injury, interruptions in availability, access, and use of essential services, and the unethical marketing and donation of breastmilk substitutes (BMS) and other harmful supplies can affect the ability and confidence of mothers and caregivers to adopt or maintain recommended IYCF practices: exclusive and continuous breastfeeding (BF), appropriate complementary feeding, and measures to support the health and wellbeing of non-breastfed infants (The World Bank 2011). Additional stresses and risks, such as sexual and reproductive health issues, poor mental health and psychological distress, and sexual and gender-based violence against mothers, must be addressed to support the recommended IYCF-E response. Furthermore, refugees and internally displaced persons (IDPs) can also face additional challenges, including displacement, lack of access to income-generating activities, and disrupted community structures.

Actions in other sectors can also affect caregivers' ability to nourish their children (IFE Core Group 2017). For example, the shelter sector response can influence access to appropriate and safe spaces where mothers can breastfeed their infants and young children in the privacy required in their specific cultural context. In a parallel manner, the protection sector response can influence access to humanitarian protection activities for IDPs on community protection, gender-based violence, as well as the protection of children and civilians. Disruptions in health services can prevent screening for feeding difficulties and referral for appropriate support. In emergencies, resources such as access to clean water, sanitation, fuel, and health care needed to minimize the risks of artificial feeding are more limited (IFE Core Group 2017). Refugees on the move may face different IYCF-E response priorities and support packages as they cross borders, which can further undermine IYCF practices.

✔ **Before considering any type of IYCF-E assessment, a thorough review of existing, secondary information on in-country IYCF practices is critical. Conducting an assessment is expensive and time-consuming, and perhaps sufficient information is already readily available to guide decision-making for the IYCF-E response so that there is no need to review the following sections of the guidance – refer to *Figure 1* above.**

Consultations and direct involvement of the national government (e.g., Ministry of Health-MOH), key stakeholders supporting national information systems, humanitarian and development practitioners in different sectors, nutrition and health coordinating bodies, provide the means to collate valuable pre-crisis information in terms of preparedness but also potential risks to IYCF practices based on the triangulation of emerging data from the humanitarian and fragile context.

Pre-crisis and preparedness data relevant for IYCF

To start building a IYCF situation profile, gathering background/secondary data can stem from a wide range of sources from government ministries to community-based organizations to international organizations (*Box A)*.

With the 2021 Global Nutrition Cluster's IYCF-E checklist in hand, inquire about the following:

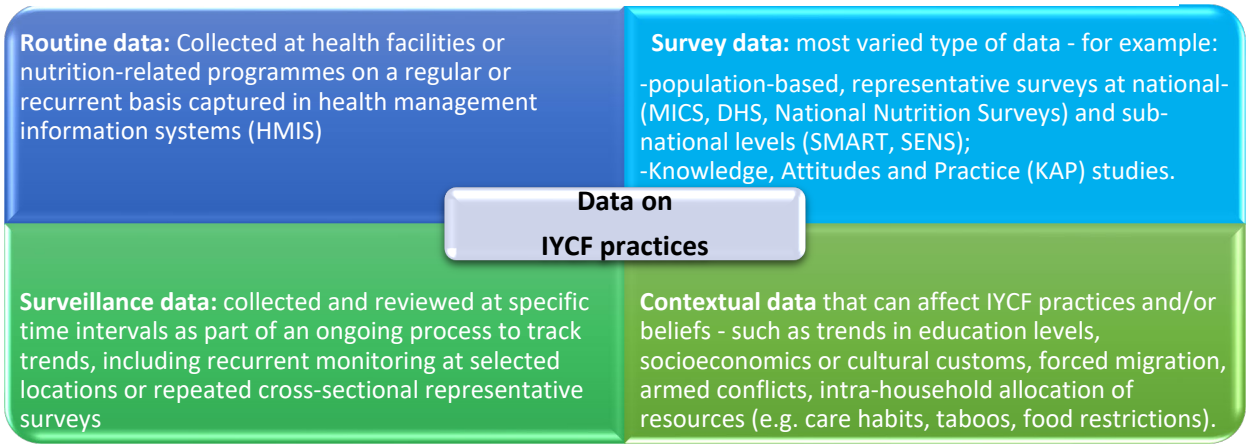
- National policies, implementation plans, preparedness/contingency plans on IYCF and/or IYCF-E, including but not limited to the legal status of the *Code*, national food and drug legislation that affects the procurement of commodities. This also pertains to non-breastfed children and special circumstances, such as breastfeeding in the context of HIV;
- Existing coordination mechanisms at different levels, whether the cluster system is activated, or sector or government mechanisms. There might be a need to advocate for activation of nutrition cluster/ Nutrition/IYCF/IYCF-E Technical Working Group;

Box A. **Pre-crisis/preparedness information sources:**

Databases	Indicators & Reports
UNICEF NutriDash online database of nutrition programs at the country level	Nutrition information in routine reporting systems
International Baby Food Action Network (IBFAN)	Food Security and Nutrition Monitoring Systems (FSNMS)
World Breastfeeding Trends Initiative (WBTi) database	Humanitarian Response Plans Info
Famine Early Warning Systems Network (FEWS NET)	Global Nutrition Report
Global Dietary Database	Analytical reports on IYCF-E relevant actions: Annual WHO report
Joint Malnutrition Estimates	Marketing of Breast-Milk Substitutes: *National implementation of the International Code*
Nutrition Landscape Information System	Data Exchange
UNICEF Data & Analytics	The 10-point INFORM Risk Index
Vitamin and Mineral Nutrition Information System	ACAPS Global Emergency Overview
DHIS2	Relief Web

- Existing IYCF services/programmes and their coverage, including a BMS management and *Code* violations monitoring system;
- Availability of a National Nutrition Information System (NNIS) and/or an up-to-date inventory of data sources with its different types of data (see *Figure 2* below) on IYCF indicators and useful measures, including the existence of an annual assessment plan. NNIS captures information on the causes and determinants of malnutrition (see Global Nutrition Cluster's 2021 Nutrition Humanitarian Needs Analysis' *Annex 1- Key components of the IPC Acute Malnutrition Analytical Framework – IPC AMN)*: nutritional status of children (particularly in infants aged 0-5 months), adolescent girls and pregnant and lactating women, household food security, health environment, water, sanitation and hygiene (WASH) situation, infant and child morbidity and mortality rates, social welfare and protection, etc.
- Findings from a recent IYCF-E capacity mapping highlighting capacity and availability of government's and partners' operational, IYCF-E technical capacity and/or experience as well as the availability of skilled breastfeeding counsellors locally or nationally who could be mobilised to support breastfeeding – for example, International Baby Food Action Network (IBFAN) groups, Leche League Groups, International Lactation Consultant Association networks.

Figure 2. Types of data collected by in-country data sources (adapted from UNICEF & WHO 2021b)



To put this process into context, review the following example drawing from pre-existing information[3] from Sudan:

Example: Pre-crisis information given Sudan's recent outbreak of violence

Pre-Crisis ICYF & Nutrition Pre-Crisis Cluster Objectives: Source from Box A *"[Malnutrition Cluster Objectives include] IYCF counselling, training of nutrition providers on complementary food, supportive supervision, cooking demonstrations and home gardening. Iron and folic acid for PLWs, vitamin A deficiency affecting about 58% of the children, multiple micronutrient powder (MNP) in areas where MQ-LNS/FBPM will not be implemented and iodine. Include: Access to nutritious food such as (Medium Quantity Lipid based Nutrient Supplements) in food insecure especially in IPC-4 localities, localities with high level of malnutrition."* ***Sudan Humanitarian Response Plan 2023***

Pre-Crisis Nutrition Indicators (UNICEF Sudan, 2020; MICS Sudan, 2014)

Indicator	Sudan Statistics
Percent of Women Consuming Minimum Dietary Diversity	8.5% (Sudan 2020)
Percent of Households Consuming Adequately Iodized Salt	3.2% (Sudan 2020)
Children Aged <5 Received Vitamin A in Past 6 Months	39.8% (Sudan 2020)
Percent of Children Aged 6-23 Months Who Received Minimum Acceptable Diet	15.1% (Sudan 2014)

Pre-Crisis ICYF & Nutrition Data: Sources from Box A

Indicator	Year	Value
Continued breastfeeding at 1 year in infants 12-15 months (%)	2014	89.4
Continued breastfeeding at 2 years in infants 20-23 months (%)	2014	48.8
Early initiation of breastfeeding (%)	2014	68.71645
Exclusive breastfeeding under 6 months (%)	2014	54.6 [50.5-58.6]

Figure 1: Data from Global Nutrition Report: Relevant IYCF Indicators and Previous Data

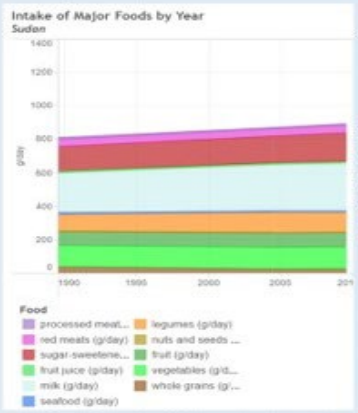


Figure 2: Data from Global Dietary Database

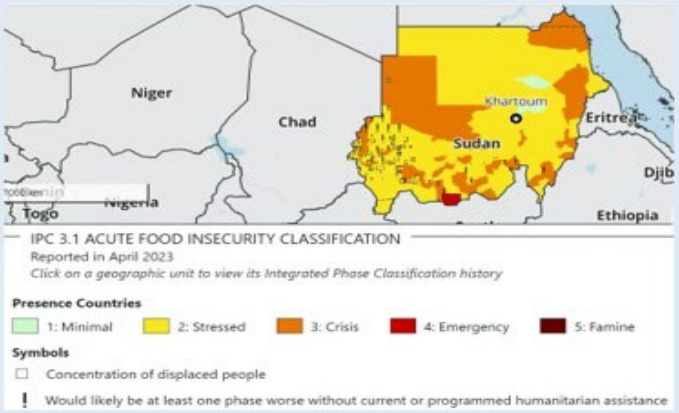


Figure 3: Real-Time Food Insecurity Data from FEWS NET

*Figures based on readily available data excluding NutriDash database, data subject to change

[3] Main sources include: UNICEF (2014) MICS Sudan and UNICEF (2020) Sudan: annual report on nutrition

This gathering of information provides a valuable overview of pre-crisis country-level information systems, level of preparedness and capacities to track risks to recommended feeding practices for infants and young children. Most data sources provide quantitative and qualitative data, both being equally as important. For example, quantitative data may show that a high percentage of mothers stop exclusive breastfeeding earlier than recommended, with the qualitative data capturing the reasons why this happens (UNICEF & WHO 2021b). Qualitative data may also capture the status of policy development or the functioning of coordination mechanisms – this is of particular importance for IYCF-E response planning and decision-making.

✔ **Depending on the availability of information, the pre-crisis IYCF situation profile on in-country breastfeeding and complementary feeding levels and practices aims to have a rough understanding of the following:**

- Pre-emergency feeding practices, including artificial feeding practices, prevalent complementary feeding practices, common complementary foods used and their sources;
- Local population's knowledge and attitudes regarding IYCF;
- Acceptability and feasibility of relactation, wet nursing, use of donor human milk, availability of human milk banks – see 2017 IFE Core Group's OG-IFE *Sections 5.11-5.14;*
- Local perceptions of child disability and associated feeding and care practices, stemming from reports and observations regarding children and caregivers with disabilities and any feeding or care related issues;
- Availability/frequency of reports of feeding difficulties or requests for feeding support (including requests for BMS) from mothers, families, communities and/or in the media;
- Change in the normal household composition - large numbers of separated children or orphaned infants;
- Availability/frequency of requests or reports of untargeted distribution or donations of BMS, complementary foods, or feeding equipment.

Relevancy to the humanitarian and fragile context

Once a rough understanding of pre-crisis IYCF situation is drafted, understanding its relevancy to the given humanitarian and fragile context is required. As global databases do not currently distinguish between IYCF-E relevant data in humanitarian and development contexts, the triangulation of data sources considers the following categories when assessing the relevancy of the pre-crisis/preparedness data for response and decision-making purposes in the current context (adapted from 2021 Global Nutrition Cluster's *Nutrition Humanitarian Needs Analysis guidance - Boxes B and E)*:

Nature of the humanitarian and fragile context

-Type: shock(s) from a rapid-onset/acute or major deterioration in an ongoing slow-onset emergency - for example, a Mother Baby Area is more vital during a rapid-onset emergency as compared to slow-onset/chronic because there is no private space for mothers to breastfeed during rapid-onset emergencies (SC & Tech RRT 2020);

-Stage of the response: beginning, middle or later on based on existing situation analyses (e.g., SitReps);

-Magnitude: number of areas affected, people affected, damages, devastation, etc. - if resources are limited more affected areas can be prioritised (SC & Tech RRT 2020);

-**Displacement patterns:** Host community/camp environment, urban/rural, internally displaced persons/international refugees, repeated/singular. For example, a Mother Baby Area may be more appropriate in a refugee camp than with a host community (IYCF corner may be a better option for host community);

-Vulnerability of affected population: looking at existing morbidity and other underlying factors - for example, if the population is more vulnerable to HIV/AIDS, breastfeeding in the context of HIV is more important;

-Accessibility: In some instances, the nature of the humanitarian and fragile context (e.g. conflict) may limit the access of organizations to collect suitable evidence and affect the geographical coverage;

-Disruption to normal care environment (access to food, water, or secondary caregivers): for example if mothers lack access to support or feeling depressed;

-Operational environment (access to population, mobility, geographical location): if there is no access because of security, working with locals and providing remote support may be one option.

Data quality and reliability of existing IYCF information

-Level of disaggregation: can be done by population group, by age category, by sex, disability, other diversity characteristics (e.g. IDP/host community status, rural/urban, livelihoods, ethnic or religious identifiers, etc) or by administrative level at which results from a survey can be representative at the unit of analysis. It is important to always consider how and why different groups may be affected differently;

-Time relevancy: evidence collected previously reflects similar conditions (e.g., seasonality for nutritional needs) – for example, IPC Global Partners (2021) *Integrated Food Security Phase Classification Technical Manual Version 3.1 – Acute Malnutrition Reliability Score Table* may be useful to consider;

-Level of representativeness: a measure of how well or accurately a sample reflects the population from which it is drawn, often ensured by probability (random) sampling methods;

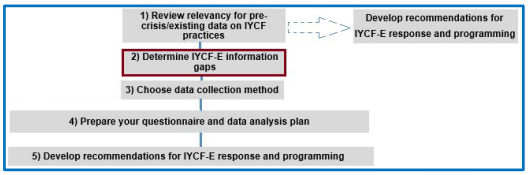
-Sound statistical and data management methods: use of appropriate statistically viable methods used to collect, analyse, and manage data to ensure accurate interpretation of information;

-Demographic coverage: whether existing indicator(s) can be used as a proxy for the needs of the entire population group's needs or only a subset;

-Transparency: clarity on the sources, the methods used to collect the data, the calculations and any technical and methodological notes used;

-Unit(s) of analysis: for IYCF, the majority of indicators are at individual-level (e.g. minimum dietary diversity), aggregated at geographical and/or affected group level in terms of representativeness of findings.

✔ **Triangulation of existing and emerging data from the humanitarian and fragile context identifies potential risks and impacts on specific IYCF practices and key gaps in information.** If the pre-crisis IYCF practice is poor, it is more likely the situation will deteriorate quickly. Ultimately, an evidence-based, informed IYCF-E response ensures the needs, potential risks and the identified gaps in information for decision-making.



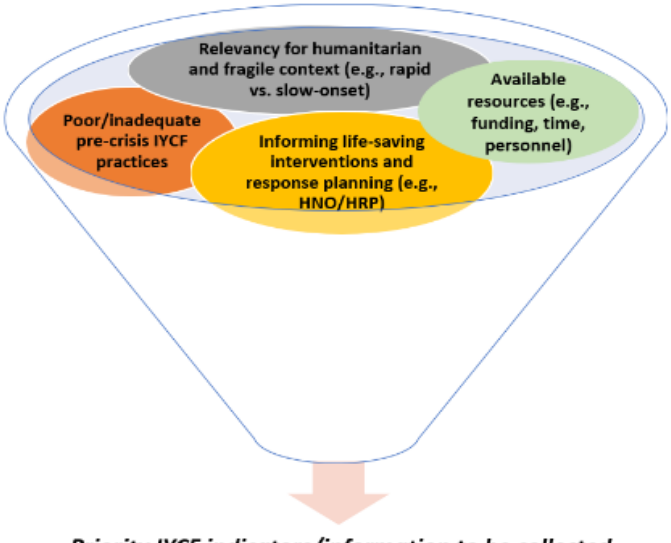
2) Determine information gaps

Once an IYCF situation profile has been roughly established, discussions within in-country nutrition and health coordination bodies and Humanitarian Country Teams, Assessment Working Group or equivalent, relevant MOH staff, and humanitarian practitioners aim for a consensus on relevant information gaps to guide the IYCF-E response and programme decision-making.

Based on the potential/ongoing impact of the humanitarian and fragile context on IYCF practices, the following guiding principles (*Figure 3)* drive the thought process to determine which indicators/information are priority to assess the needs and priorities for the IYCF-E response, and monitor the impact of programming, humanitarian action, and inaction.

✔ **Ultimately, these guiding principles allow flexibility and contextualization of country-level discussions aimed at identifying existing or potential IYCF issues, risk factors and data gaps required to guide the IYCF-E response and decision-making.** Certain information gaps may be of interest but not a priority depending on the stage of the response. Consideration for priorities in the national, subnational, and sectoral plans that are being implemented, analysed and monitored should also be accounted for during this process.

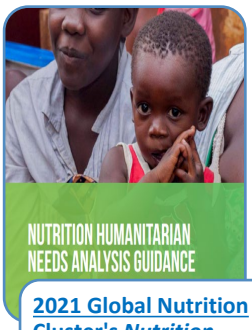
Figure 3. Guiding principles to determine IYCF-E information gaps



To support this identification of relevant and priority IYCF information gaps, the use of well-defined indicators recommended for the assessment of needs of the humanitarian situation, as well as monitoring of trends and comparisons over time.

✔ **Consult the following sources to identify relevant and appropriate indicators for the humanitarian and fragile context – there is no one-size-fits-all for IYCF indicators/information gaps; further details on common indicators used per data collection method will be provided in subsequent iterations of the guidance** (links embedded in title– *Figure 4*):

Figure 4. Proposed sources to review for the identification of relevant IYCF indicators/information gaps



2021 Global Nutrition Cluster's *Nutrition Humanitarian Needs Analysis - recommended indicators to guide the Nutrition Situation Analysis (Table 1)*

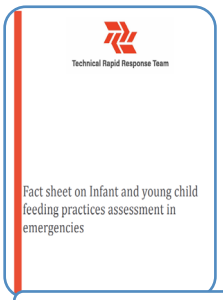
- This list of indicators comes with **thresholds** to help guide what types of interventions may be better suited for a given humanitarian and fragile context.

2021 WHO & UNICEF's *Indicators for assessing infant and young child feeding practices: Definitions and measurement methods*

- **List of population-level indicators not specifically designed for humanitarian and fragile contexts**
- Allow for comparison with large-scale surveys or by national programmes, may be useful for smaller local and regional programmes.

Global Nutrition Cluster's *Humanitarian Indicators Registry*

- Comprehensive point of reference for countries to select indicators with their standard definitions and associated applications at individual-, community- and facility-levels;
- Reference indicators to track needs over time and **programming** monitoring, useful for strategic planning, humanitarian dashboards and bulletins.



Factsheet on IYCF practices assessment in emergencies

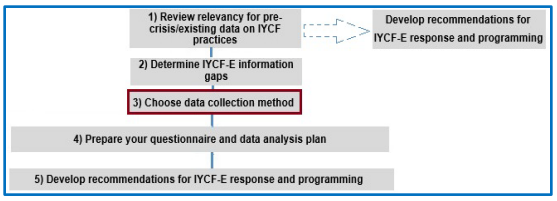
- Review relevancy of BF changes in frequency, BF difficulties, origin of BMS if used, availability of facilities and supplies to prepare BMS, origin of complementary food given to the child, cup feeding.

Specifically for refugee contexts, consult 2018 UNHCR's *Standardised Expanded Nutrition Survey (SENS) guidelines for refugee populations – Module 4: Infant and Young Child Feeding (IYCF)* since certain IYCF indicators' definition differ from those mentioned in *Figure 6* given characteristics of refugee populations. For example, SENS asks only a single question about solid, semi-solid or soft foods compared to several food-recall questions in 2021a WHO & UNICEF, and the list of liquid questions is not exactly equivalent for the construction of exclusive breastfeeding.

Respondents for IYCF practices

Respondents are usually mothers but may also be other caregivers of the survey subject: children aged 0-23 months. In some cases, multiple caregivers may have fed an eligible child at different times during the previous day (e.g. a mother and grandmother, or a mother and sister). If available, they can all be asked to participate. For IYCF indicators relating to feeding in the first few days after birth (*Ever breastfed, Early initiation of breastfeeding* and *Exclusively breastfed for the first two days after birth*), the respondents are women of reproductive age who have given birth in the last two years (WHO & UNICEF 2021a). Ideally, surveys should interview all women of reproductive age in the sampled households to assess these three indicators.

3) Choose data collection method



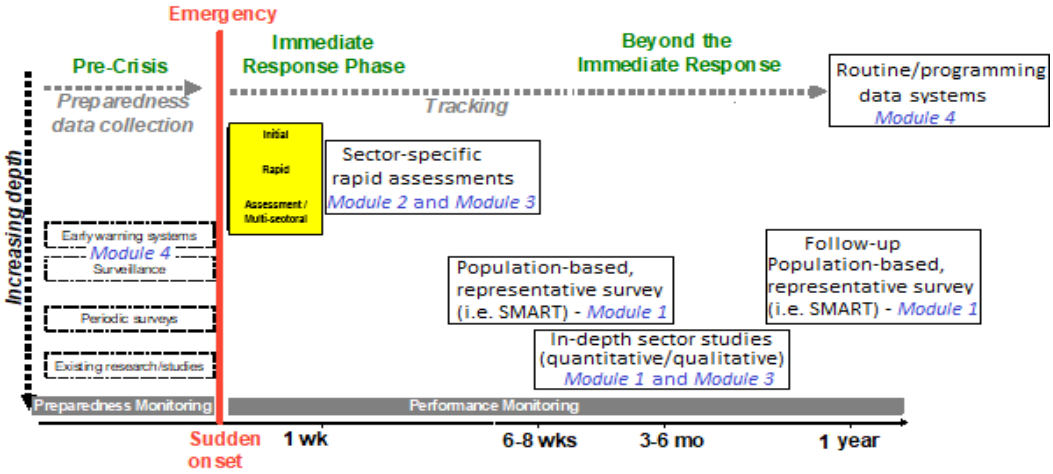
When conducting assessments or surveys, it is understandable that there is a desire to get a full picture of the situation, however the "picture" of the humanitarian and fragile context is forever changing (SC 2017).

Undertaking different types of assessments and surveys (using triangulation and different methodologies) over time provide different pieces of the whole rapidly changing picture when conducted at subnational/local levels. Being clear on the goal of the assessment, time availability, and relevancy of the information for response, decision-making purposes should help to determine the critical pieces of information required versus what may be useful (realizing that the situation will change, and more detailed assessments/surveys may be needed later). The goal of an IYCF-E assessment aims to:

- Assess the impact on IYCF practices and determine the likely scenarios and evolution of the situation, taking into account secondary information, including food security, health and WASH and overall response to the humanitarian and fragile context;
- Determine the groups most affected or at risk in regards to IYCF practices;
- Assess the needs for IYCF-E interventions and identify the most effective measures and programming methods to improve IYCF practices;
- Inform advocacy and support resource mobilisation by highlighting needs;
- Establish IYCF baseline data; or,
- Measure the evolution of IYCF practices through comparison of initial data and follow on assessments to support with the evaluation of programme effectiveness (Tech RRT 2016).

When choosing the most appropriate data collection method, *Figure 5* provides a sequential overview of the guidelines' modules and their application during the different stages of an emergency/humanitarian and fragile context. The earlier that standard IYCF indicators can be used the better to compare information. Although flexible to a certain extent, the goal of the assessment in terms of response, decision-making or monitoring purposes and associated resources[4] (i.e. timeline, personnel, costs, etc.) usually dictates the choice of data collection method. Under-resourced assessments can easily undermine the value of the exercise and affect the interpretation and utilization of its results. Ultimately, the level and type of assessment that is possible in a given humanitarian and fragile context depends on a balance of factors including population access, capacity, stages and type of emergency, and resources for response and decision-making (IFE Core Group 2017).

Figure 5. Adapted figure on the types of assessments and the guidelines' associated modules (Save the Children 2017)



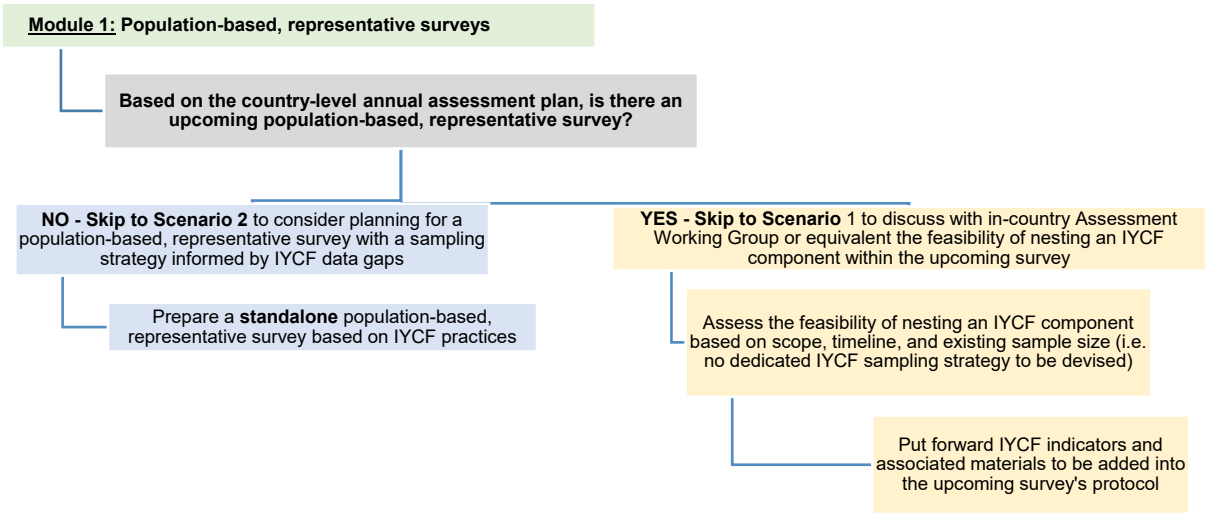
[4] Common cost categories include personnel (e.g., number of field teams, use of an external consultant, etc.), travel (e.g., local transport, per diems), equipment (e.g., tablets or smart phones for mobile/computer-based data collection, computers), materials and their translation, and supplies for training (e.g., venue, food/beverages).

Module 1: Population-based, representative surveys

Population-based, representative surveys provide robust data on the magnitude and distribution of needs for response and decision-making purposes, although not usually possible at the onset of an emergency. This type of survey can also serve as a baseline and endline to monitor the impact of a humanitarian response and detect significant changes given programmes and interventions aimed at improving infant and young child feeding practices of the populations concerned. This type of assessment is often used to accurately estimate the prevalence of multiple indicators at the individual-level in different target groups, and several indicators at the household-level within the same survey to support timely response planning and programme design. Regardless of scope, a population-based, representative survey follows the same widely accepted principles for cross-sectional surveys (e.g., DHS, MICS, SMART, SENS), use internationally accepted sampling methods (simple/systematic random sampling, cluster sampling) to be comparable and consistent, and be impartial, representative and well-coordinated between humanitarian organisations and governments (SPHERE 2018).

Module 1 outlines the necessary thought-process and key considerations for population-based, representative surveys based on the following two scenarios (*Figure 6)*:

Figure 6. Thought-process for population-based, representative IYCF surveys.



First and foremost, it is important to consult whether an annual assessment plan is available at country-level. Managed by the in-country Assessment Working Group or equivalent, the annual assessment plan provides information on upcoming population-based, representative surveys and points of contacts of the lead agency(ies) to enable joint work, boost efficiency and reduce duplication of efforts. When the Inter-Agency Standing Committee (IASC) Cluster system has been activated, this plan should be directly linked to the Humanitarian Programme Cycle, considering seasonal considerations and input from decision-makers as they play an important role in defining units of analysis, geographical coverage and subsequent preparation of Humanitarian Needs Overview and Response Plans.

Depending on the extent of IYCF data gaps identified previously in *Section 2* and whether an upcoming population-based, representative survey is forthcoming, consider these two scenarios as outlined in *Figure 3* above:

> *Scenario 1 – Nesting an IYCF component within an upcoming population-based, representative survey (no dedicated IYCF sampling strategy to be devised);*
>
> *Scenario 2 – Standalone population-based, representative survey with a sampling strategy informed by IYCF data gaps.*

✔ **The ability to meaningfully interpret the results for response, decision-making or monitoring purposes and associated survey resources (i.e. timeline, personnel, costs, etc.) drive the choice between these two scenarios.** Although presented as separate scenarios, it is also possible that after reviewing *Scenario 1's* sampling strategy and its downstream effects on the interpretation of IYCF results, *Scenario 2* may become a better option to pursue.

Scenario 1 – Nesting an IYCF component within an upcoming population-based, representative survey

With an upcoming population-based, representative survey being planned, this scenario may be the opportunity to assess the impact of a given humanitarian and fragile context on IYCF practices. Based on a recent review of the current practices when conducting IYCF-E assessments which identified the need for consensus-driven evidence for field implementation, the majority of IYCF-E assessments are nested/integrated into larger assessments. However, the scope, timeline and sampling strategy do not always allow for precise estimates for all IYCF practices of usual interest given the narrow age ranges for its indicators. Consequently, *Scenario 1* focuses on the thought-process when nesting an IYCF component within an upcoming survey's protocol, aimed at either assessing the severity and magnitude of the humanitarian and fragile context (i.e., needs identification) or programme effectiveness (i.e., baseline/endline).

1.1 Feasibility based on upcoming survey's scope and timeline

Once in contact with the responsible lead agency(ies) of the upcoming survey, it is important to first assess the feasibility of nesting an IYCF component based on the scope, planned timeline and geographic scope in which the survey will be carried out. More specifically, inquire about the following:

- Purpose of the survey, its survey objectives and target population;
- Geographic scope and list (i.e., sampling frame) of areas to be surveyed and those excluded;
- Schedule for planning, training, data collection, analysis, reporting and dissemination;
- Availability of resources (e.g., equipment, personnel, logistics, funding envelope);
- Background of field teams (e.g., educational, past experiences in nutrition and health, or other sections);
- Type of data collection tools being used (e.g., paper-based or mobile/computer-based);
- Obtention of/planning for ethical approval from local or international ethics review board.

This information provides a valuable overview to start discussions on the feasibility of nesting an IYCF component. In addition to the red flags mentioned in *Box B* below*,* remember that adding an IYCF component would add significantly more time and resources to the planning and prolong the overall implementation of the survey, therefore remaining flexible is pivotal during these discussions with the responsible lead agency(ies), the survey steering committee or equivalent, and local counterparts.

***Box B*. When assessing the feasibility of nesting an IYCF component into an upcoming survey, DO NOT:**

- Add an IYCF component in haste without sufficient time for planning, training, data collection, and analysis;
- Assume that a different geographic scope than the one required for IYCF can be extrapolated for decision-making purposes;
- Overlook the added effort onto the field teams (especially if their background is non-nutrition/health-focused) to collect IYCF practices as field teams and household members tend to get tired if the survey is too long, potentially leading to an increased risk of poor quality measurements, response and recording inaccuracy;
- Integrate an IYCF component without sufficient resources given the extra burden it entails on the existing survey's budget;
- Use paper-based questionnaires if those are being planned for the survey – especially for the IYCF component, mobile/computer-assisted data collection greatly reduces the introduction of recording errors when administering the questionnaire. Proper training on mobile/computer-based data collection would need to be incorporated into the training and thus extending the training timeline of the overall survey;
- Assume ethical approval is not necessary, especially if the upcoming survey is assessing malnutrition.

Regarding ethical approval, although no formal agreement from an ethical committee is generally needed to conduct a survey aimed at informing a humanitarian response, this depends on the country of implementation and the organisation (TechRRT 2016). At a minimum, authorities, such as the Ministry of Health, Assessment Working Group or equivalent, local authorities, and communities should be informed of the upcoming survey, in addition to respecting key ethical

considerations such as confidentiality and informed consent[5]. For example, in some circumstances, some risks associated with the survey questions may be related to psychological distress when recalling traumatic experiences - field teams should be able to refer the interviewees to adequate services for specific problems, such as medical, protection, etc.

1.2 Nesting IYCF indicators into upcoming survey's sampling protocol

Population-based, representative surveys' sampling protocol is based on primary indicator(s) to determine sample size and overarching sampling strategy, as well as certain secondary indicators or variables to inform subsequent action and programming decision-making. For example, nutrition surveys using SMART or SENS methodologies base their sampling protocol on global acute malnutrition (GAM) in children under-five (6-59 months old) but often collect a limited number of additional indicators for key contributing factors (i.e. causes/drivers of malnutrition) within the same sampling units (i.e. households). These additional indicators for key contributing factors (including IYCF practices) are therefore nested into the overarching sampling protocol without a dedicated sample size being devised.

Because no dedicated sampling strategy for IYCF is to be devised, the upcoming survey's sample size needs be assessed to ensure efficiency of sample size (i.e. minimum level of precision) for interpretation of IYCF results. Contrary to national-level surveys (i.e. DHS, MICS) with extensive sample sizes that can be disaggregated by various target age ranges, overall sample sizes for subnational/local-level surveys conducted in humanitarian and fragile contexts are much smaller.

✔ **To meaningfully interpret nested IYCF indicators, achieving a minimum level of precision is a critical deciding factor.** Otherwise, the obtained IYCF results cannot meaningfully flag major problems or provide trend data on infant and young child feeding practices that may require further investigation and programmatic action. To make an informed decision, *Table 1* outlines the thought-process to assess whether the upcoming survey's planned sample size would produce sufficient precision to meaningfully interpret IYCF indicators of interest in humanitarian and fragile contexts, with the following considerations to keep in mind when interpreting each column:

-Planned SMART/SENS sample size in number of children aged 6-59 months: any sample size for a nutrition surveys using SMART or SENS methodologies (most commonly used for nesting an IYCF component) first determines the number of children under-five (survey subjects) required based the estimated prevalence of GAM, level of desired precision and design effect (with a level of confidence always at 95%), before converting into number of households based on country-level demographics (average household size, percentage of children under-five) to determine the final sampling strategy for fieldwork. Consequently, **country-level demographics do not come into play in *Table 2's* key takeaways.** For planned sample sizes in number of children aged 0-59 for an anthropometric survey, see *Annex 1.*

-Approximate percentage of age groups for IYCF indicators: assuming a balanced distribution[6] of 6-month increments across 6-59 months age group (common target age group when assessing acute malnutrition prevalence in SMART or SENS surveys), it is expected that children aged 0-5 months represent 11% relative to all children under-five, children aged 6-23 months represent 33% and so forth.

-**Estimated denominator for IYCF age groups** multiplies the approximate percentage of age groups to the planned sample size in number of children aged 6-59 months. This provides a rough estimate of the expected denominator for the different IYCF indicators based on its associated age range.

[5] To respect the principle of autonomy, informed consent from the survey subjects must be sought. An autonomous choice means that the choice is made intentionally, with understanding and without controlling influences. Survey subjects must be given enough information, such as the purpose of the study, the type of information asked for and the length of the study, to make an informed choice about whether or not to take part in the survey. Making the choice without controlling influence means that you should ensure that people are not put under pressure to participate (or not) by, for example, health staff, study staff, political/military parties or family members. It must also be clearly stipulated that the participation (or not) in the survey will not affect the potential support that might be received. No controlling influence also entails that participants should not be induced to take part in the survey by being given incentives. Refer to TechRRT 2016 for more details.

[6] This assumes no recent, abrupt and major changes in the fertility (and under-five mortality) rate that would affect the balanced distribution of age groups in the last five years.
Similar percentages were found in upcoming research led by the CDC in 192 SENS surveys conducted in refugee contexts, with an average ratio of IYCF age groups' sample sizes relative to the 6-59 months age group: 44% for children aged 0-23 months, 35% for 6-23 months, 23% for 12-23 months, 10% for 0-5 months and 6% for 6-8 months.

-**Key takeaways** based on the general rule stipulated by WHO and UNICEF: "estimates [for IYCF indicators] should not be presented if less than 25 children (unweighted) are included in the denominator" (page 2) (WHO & UNICEF 2021a). Furthermore, we define in more detail what we consider "minimum acceptable precision" and what sample sizes therefore are needed to achieve it:

> Assuming an expected prevalence of 50% and a design effect very close to 1 (because we will see very few eligible children in a narrow age group per cluster), we require sample size of about 100 to achieve precision of +/-10%, and sample size of about 44 to achieve precision of +/-15%. Therefore, we consider precision of around +/-15% as the minimum acceptable precision[7] and do not recommend reporting estimates for IYCF indicators for which the effective sample size is below 44 observations. Recommendations in the table below are based on this logic.

Table 1. Estimated denominator for IYCF indicators based on planned sample sizes

Planned SMART/SENS sample size in number of <u>children aged 6-59 months</u>	**Approximate percentage of age groups for IYCF indicators (examples of standard, population-level indicators[8])**	**Estimated denominator for IYCF age groups**	**Key takeaways**
≥400* (for example, 10% estimated GAM prevalence, 3 desired precision and 1.5 design effect for cluster sampling) *May also be common for SRS surveys in refugee contexts	44% for indicators with 0-23 (24) months age range (EvBF, EIBF, BoF)	**≥176** children aged 0-23 months	Include all relevant IYCF indicators with an **age range ≥6 months** into your SMART survey – on average, meaningful precision for these target age group is achievable (Do not worry about issued design effects[9] – in general, at least one child aged 0-5 months would be found)
	33% for indicators with 6-23 (18) months age range (MMF, MDD, MAD, MMFF, EFF, SwB, UFC, ZVF)	**≥132** children aged 6-23 months	
	22% for indicators with 12-23 (12) months age range (CBF)	**≥88** children aged 12-23 months	
	11% for indicators with 0-5 (6) months age range (EBF, MixMF)	**≥44** children aged 0-5 months	
	5.5% for indicators with 6-8 (3) months age range (ISSSF)	**≥22** children aged 6-8 months	Problematic in terms of precision (with a denominator less than 25 children) for response and decision-making purposes – ***do not include in nested survey unless planned sample size is*** **≥800 children 6-59 months old**
≥200 (for example, 8% estimated prevalence, 3 desired precision and 1 design effect for SRS surveys)	44% for indicators with 0-23 (24) months age range (EvBF, EIBF, BoF)	**≥88** children aged 0-23 months	Include all relevant IYCF indicators with an **age range ≥12 months** into your SMART survey – on average, meaningful precision for these target age group is achievable
	33% for indicators with 6-23 (18) months age range (EFF, MMF, MDD, MAD)	**≥66** children aged 6-23 months	
	22% for indicators with 12-23 (12) months age range (CBF)	**≥44** children aged 12-23 months	

[7] UNHCR SENS also advocates for a similar "minimal acceptable precision" for WHO indicators with narrow age ranges; any results reporting > ±15% would be excluded from the final analysis because the achieved precision is insufficient for meaningful interpretation. More details on p.28-29 of **<u>2018 UNHCR's *SENS Guidelines for refugee populations - Module 4: Infant and Young Child Feeding (IYCF)*</u>**

[8] This includes (in order presented in Table 2): EvBF – Ever Breastfed 0-23 months; EIBF – Early Initiation of Breastfeeding 0-23 months; BoF – Bottle feeding 0-23 months; MMF – Minimum Meal Frequency 6-23 months; MDD – Minimum Dietary Diversity 6-23 months; MAD – Minimum Acceptable Diet 6-23 months; MMFF – Minimum milk feeding frequency for non-breastfed children 6-23 months; EFF – Egg and/or flesh food consumption 6-23 months; SwB – Sweet Beverage consumption 6-23 months; UFC - Unhealthy Food Consumption 6-23 months; ZVF – Zero vegetable or fruit consumption 6-23 months; CBF – Continued Breastfeeding 12-23 months; EBF – Exclusive breastfeeding under six months; MixMF – Mixed milk feeding under six months; ISSSF – Introduction to solid, semi-solid or soft foods 6-8 months.

[9] Design effect reflects the heterogeneity between clusters with regards to the measured indicator. Because few children aged 0-5 months are expected per cluster (in general, at least 30 clusters are planned for), this small cluster size of 1-2 children would automatically incur low clustering with design effects close to 1.

To put *Table* 1 into context, review the following example drawing from a recent SMART survey in Nepal:

Example: SMART Survey in a district in Nepal

Survey objective: To evaluate the nutritional status of 6-59 months children, along with other indicators like retrospective mortality, IYCF, WASH, and nutritional status of mothers 15-49 years old with children under-five.

Planned sample size in number of children under-five: 457 children aged 6-59 months.

Demographics of the population: average household size at 5.5 and 10% children under-five.

Planned final sampling strategy: 48 clusters with 20 households in each cluster.

Takeaways from *Table 1:* Since the planned sample size is 457 > 400 children aged 6-59 months, all IYCF indicators with an age range **≥6 months** can be integrated and collected based on the planned survey's sample size. This excludes *Introduction to solid, semi-solid or soft foods* (ISSSF) indicator with a narrower age range of 3 months, where it is estimated that 6% (24 children aged 6-8 months) were be obtained, being unlikely to achieve a sufficient precision to meaningfully interpret obtained results. Based on the sampling strategy, 1-2 children 0-5 months old should be found in each of the 48 clusters.

Obtained sample size: 171 children aged 0-23 months, 89 children aged 12-23 months old, and 34 children aged 0-5 months; sure enough, only 20 children aged 6-8 months were surveyed, resulting in insufficient precision to meaningfully interpret the results for the *Introduction of solid, semi-solid or soft foods* indicator.

Thought-process for an upcoming non-nutrition survey

In certain humanitarian and fragile contexts, the possibility of nesting/integrating an IYCF into a non-nutrition survey (e.g., Food Security) depends once again on the efficiency of sample size (i.e. minimum level of acceptable precision) for interpretation of IYCF results. Because no dedicated sampling strategy for IYCF is to be devised, the upcoming non-nutrition survey's sample size expressed in number of households needs be assessed to ensure enough children aged 0-23 months are found during fieldwork.

✔ **Country-level demographics of the humanitarian and fragile context play a key role in this assessment process. Because *Table 1's* takeaways are based on the number of planned children 6-59 months, the sample size in number of households from the upcoming non-nutrition survey needs to be first converted into the number of children aged 6-59 months using the formula outlined in *Figure 7:***

Figure 7. Formula to convert sample size in number of households into number of children aged 6-59 months

$$n_{\text{Children 6-59 months}} = (\text{HH size} \times \textit{\% of Under 5} \times 0.9) \times n_{HH} \times (\text{1-\% of non-response rate})$$

n_{HH} = non-nutrition sample size in terms of households

$n_{children}$ = sample size in terms of children aged 6-59 months

HH size = average household size

% of Under 5 = proportion of children under-five in the population

(x 0.9 since sampling children 6-59 months, representing 90% of children aged 0-59 months).

% of non-response rate – generally between 5-10%

Example: Food Security Survey of Syrian households in Gaziantep and Hatay, Turkey

Survey objective: To evaluate household dietary habits, food diversity, and consumption of Syrian households, along with other indicators like including IYCF practices in children under-two.

Planned sample size in number of households: 900 Syrian households.

Demographics of the population: average household size at 6 and 13.8% children under-five.

Non-response rate: 10% to account for potential more refusals given recent COVID-19 pandemic.

Calculation using formula in *Figure 7*: $n_{\text{Children aged 6-59 months}}$ = (6 x 13.8% x 0.9) x 900x (1-10%) = 604 children aged 6-59 months.

Takeaways from *Table 1:* Since the calculated sample size in number of children is 600 > 400 children aged 6-59 months, all IYCF indicators with an age range **≥6 months** can be integrated/nested and collected based on the upcoming survey's sample size in number of households. This still excludes *Introduction to solid, semi-solid or soft foods* (ISSSF) indicator with a narrower age range of 3 months.

In addition to assessing the efficiency of resulting denominator for IYCF indicators, it is equally as important to ensure representativeness of the sampling methods being used across target groups. More specifically, inquire about: 1) sampling design being used – simple/systematic random sampling (SRS), cluster sampling or other; 2) household selection methods; and if cluster/two-stage sampling design, details on methods for cluster assignment and number of clusters planned. Consequently, the points outlined in *Box C* should not be overlooked:

***Box C.* When assessing the upcoming survey's sampling protocol, DO NOT:**

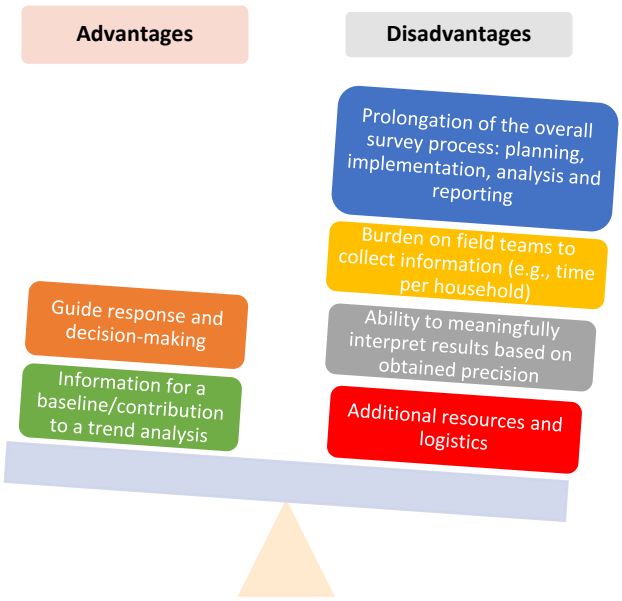
- Assume significant differences in IYCF practices behaviors can be detected (baseline versus endline data) as likely the level of precision achieved will not be sufficient;
- Collect data on the introduction of solid, semi-solid or soft foods in children aged 6-8 months and any other indicator with an age range <6 months unless the planned sample size in number of children aged 0/6-59 months is ≥800;
- **Directly apply the same takeaways from *Table 2* on sample sizes expressed in number of households – country-level demographics play a critical role in this conversion, resulting in insufficient precision to interpret IYCF indicators;**
- Integrate an IYCF component into a sampling design that does not employ standard methods for a cross-sectional survey and appropriate random/probabilistic sampling procedures to order to generate accurate, statistically sound and internationally comparable estimates intended to be representative of a geographically-defined subnational population;
- Move forward with the nesting of an IYCF component if the upcoming survey will not be applying:
  1) final sampling strategy expressed in number of households to consolidate indicators into a common metric that can facilitate fieldwork
  2) probability proportional to size if and when clusters are being assigned;
  3) random/probabilistic sampling methods for household selection.

1.3 Putting forward IYCF indicators to be nested into upcoming survey

Based on the aforementioned considerations, discuss with the responsible lead agency(ies) which IYCF indicators would make sense to nest within the upcoming survey upon weighing their advantages and disadvantages (see *Figure 8).* It is possible that the inputs from the in-country Assessment Working Group or equivalent may also be useful at this pivotal stage. Once a consensus is reached, the following information provides the means to adequately incorporate the IYCF component into the upcoming survey protocol to guide the training preparation, field work and analysis:

- IYCF indicators to be measured and their definition – see list *Figure 4* in *Section 2* above;
- Considerations during survey protocol development (*Annex 2);*
- Questionnaire development and estimated time to administer the full IYCF questionnaire based on chosen indicators assuming the use of mobile/computer-based data collection equipment to significantly reduce the introduction of data entry errors *(Annex 2);*
- Locally adapted list of food groups and pilot-tested mobile/computer-based questionnaire for the field work, along with a paper-version for the final report (*Annex 2)*;
- Associated IYCF training materials and curriculum with additional support to ensure key concepts and methods are well understood (*Annex 2)*;
- Data analysis plan including the coding for analysis given the complexity of IYCF indicators and specific guidance on how to handle missing information as this affects the issued results – see *Section 4* and *Annex 2*;
- Infant feeding area graph templates to illustrate the results – see *Section 4* and *Annex 2*;
- Assistance in analyzing and reviewing the data quality of the IYCF component before it is incorporated into the final report – see *Section 4* for key considerations and associated survey results.

Figure 8. Advantages versus disadvantages of nesting an IYCF component



Scenario 2 – Standalone population-based, representative survey with a dedicated IYCF sampling strategy

In certain humanitarian and fragile contexts, the scope, timeline and resources allow for a standalone, population-based, representative survey where precise estimates (dedicated sampling protocol) on IYCF practices are required for decision-making. This scenario encompasses the following survey objectives:

- Assess the severity and magnitude of the humanitarian and fragile context on IYCF practices; or,
- Establish precise IYCF estimates for baseline, monitoring or endline (post-interventions) use.

Once again, this scenario for a more detailed, in-depth IYCF population-based, representative survey follows the same widely accepted principles for cross-sectional surveys to be comparable and consistent for collecting timely and reliable data on IYCF practices from the field.

2.1 Definition of geographic scope

In designing the survey, the geographic area and the population to be surveyed need to be carefully defined. A detailed map of the survey area is useful to outline the areas included and those excluded (due to insecurity, accessibility constraints) from the survey. The geographic scope is usually defined based on needs flagged in a rapid assessment or during interviews with key informants, migrants and refugees, or administrative areas most affected by a given humanitarian and fragile context where programming can occur (see example below). As with *Scenario 1*, a review of the ethical requirements should be done **prior** to starting the planning process – see *Section 1.1* above for key considerations.

Example: Two independent IYCF surveys in Cox's Bazar

Survey objective: To determine key breastfeeding and complementary feeding practices from caregivers of children aged 0-23 months – all globally accepted indicators were included from WHO and UNICEF's guidance (2021a).

Geographic scope: one survey in the Rohingya refugee camps and a separate survey in host communities in 8 upazilas.

2.2 Sampling design

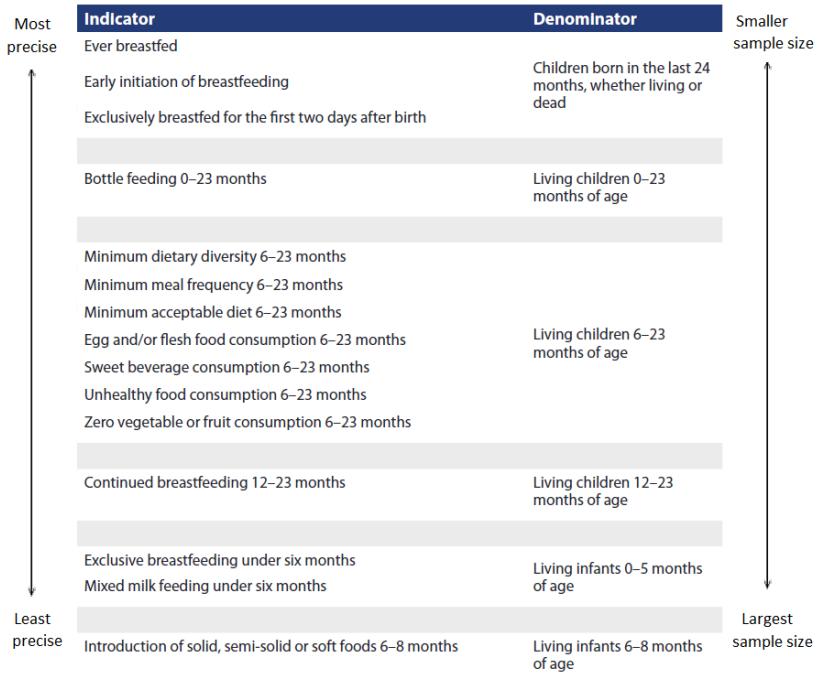
✔ **The recommended sampling design for a standalone population-based, representative survey on IYCF practices constitutes a simple or a systematic random survey (SRS).** Because IYCF indicators have narrow age ranges and thus difficult to find the target population**,** it is not recommended to conduct a cluster survey. Although a cluster survey is often the most common sampling design in humanitarian and fragile contexts for other types of surveys (see *Section 1.1* above), a cluster sampling design would incur much more time and resources during data collection to achieve the desired precision by going to various clusters, and then household to household to assess children aged 0-23 months old and their caregivers. A standalone cluster survey with a dedicated sampling strategy based on IYCF practices is a **last resort** only if a SRS cannot be conducted or there aren't any upcoming population-based, representative surveys to nest IYCF indicators for response planning and decision-making purposes (in this rare instance, refer to *Annex 3).*

2.3 Sample size calculation

To calculate an adequate sample size to meaningfully interpret the IYCF results, it is important to take note of the relationship between precision and sample size per IYCF indicator illustrated in *Figure 9*. A larger sample size increases the precision of the results but does not guarantee the absence of bias which affects the validity or accuracy of the estimate (SMART 2017). When the sample size is very large, quality control becomes difficult because of the high number of teams to train and supervise, and there may be a higher risk of bias even if the sample is selected randomly and representatively.

✔ **Preventing bias is critical: never try to achieve higher precision at the expense of introducing bias.**

Figure 9. Adapted figure on the precision of indicators* (WHO & UNICEF 2021a)



It might be better to have a smaller sample size with less precision but much less bias. For example, a poorly translated questionnaire would introduce (measurement) bias as the respondents are not answering the actual question to inform the desired indicators. This key concept is important to keep in mind before starting sample size calculations.

Moreover, to ensure comparability with other population-based, representative survey results, determining the sample size based on an expected change per IYCF practice by the end of a project[10] is not recommended. Instead, the level of desired precision can detect a significant change between time points as per the following SRS sample size formula (*Figure 10)* with the level of confidence always set at 95%:

Figure 10. Sample size formula for simple or systematic random surveys (SMART 2017)

$$n = \left[z^2 \times \frac{p \times q}{d^2} \right]$$

Where:
- n = sample size
- z = linked to 95% confidence interval (use 1.96)
- p = expected prevalence (as fraction of 1)
- q = 1- p (expected non-prevalence)
- d = relative desired precision

Based on the IYCF data gaps previously identified, the survey objectives shape which indicators and associated target group are used for sample size calculation. Given the relationship outlined in *Figure 9*, **the overarching (largest) sample size is derived based on the prevalence of the IYCF indicator with the narrowest age range:**

Assess the severity and magnitude of the humanitarian and fragile context on IYCF practices
- Sample size is based on **Exclusive breastfeeding under six months (EBF)** in children aged 0-5 months (6 months age range)

Establish precise IYCF estimates for baseline, monitoring or endline (post-interventions) use
- Sample size is based on **Introduction of solid, semi-solid or soft foods (ISSSF)** in children aged 6-8 months (3 months age range)

In rare instances where recent information on ISSSF and EBF are readily available and relevant for decision-making and response purposes, the overarching sample size would be based on the IYCF indicators with a wider age range (0-23 months or 6-23 months) – in this case, it may be better suited to nest these IYCF indicators into an upcoming survey versus a standalone in terms of time and resources required.

[10] In reference to CARE (2010) Infant and Young Child Feeding Practices – collecting and using data: a step-by-step guide.

Determining sample size in number of children aged 0-23 months

Once it is determined whether ISSSF or EBF will be the primary IYCF indicator for sample size calculation, the following steps outlines how the sample size in number of children aged 0-23 months is chosen using *Table 2*[11] below:

1.Estimated prevalence of EBF (*Exclusive breastfeeding under six months)* **or ISSSF** (*Introduction of solid, semi-solid or soft foods*):

- Review any recent DHS/MICS/NNS/SMART surveys conducted at national-level and/or sub-national level programme records in case a monitoring system is already in place – a great starting point is UNICEF's expanded IYCF database[12];
- Look at results of previous surveys conducted in the survey area or at national-level and consider confidence intervals reported in these surveys. If no surveys exist, try to estimate the prevalence using data from rapid assessments, anecdotal reports, feeding programme admissions' trends, etc.
- Adjust previous estimates according to your understanding of how and if the situation changed since last surveys were conducted, for example the likely effect of any aggravating factors;
- Determine a range of values where you think the current prevalence might be. To be on the safe side, use the higher limit of this range to guide which prevalence to look at in *Table 2* below;

2. Desired precision of ±10% - suitable to guide an IYCF-E response in humanitarian and fragile contexts;

3. Sample size in number of children aged 6-8 months or 0-5 months depending on which primary IYCF indicator for sample size calculation using *Figure 9's* formula;

4. Sample size in number of children aged 0-23 months based on a simple conversion using the proportion of either 6-8 months (3 months age range) or 0-5 months (6 months age range) to the 0-23 months age range – noting that this sample size excludes non-response rate[13]**.**

Table 2. Sample size parameters and recommended sample size in number of children 0-23 months for a standalone SRS on IYCF

1.Prevalence (p) % of EBF or ISSSF	2.Desired precision (d)	3. Sample size based on either EBF (children aged 0-5 months) or ISSSF (children aged 6-8 months)	4. Sample size in number of children aged 0-23 months
25-75%	± 10%	100 children aged 0-5 months	**400 children aged 0-23 months**
		100 children aged 6-8 months	**800 children aged 0-23 months**
<25% or >75%	± 10%	70 children aged 0-5 months	**280 children aged 0-23 months**
		70 children aged 6-8 months	**560 children aged 0-23 months**

[11] ENA for SMART was used to calculate the number of children using the formula in *Figure 9*.

[12] This database includes all publicly available MICS and DHS (phase 5-7) that have been reanalysed to produce standardized estimates across years and surveys programs. Along with national estimates, the database contains estimates by various disaggregation such as place of residence, geographic location, or age.

[13] Non-response rate (e.g., refusal, absenteeism) is calculated by taking the sample size in number of children aged 0-23 months divided by (1-non-response rate). If non-response rate is predicted at 5%, then the sample size is divided by (1-0.95) – formula is detailed in *Figure 10* below. This calculation would need to be done manually depending on the context.

To put the recommendations of *Table 2* into context, review the following examples:

A. Purpose of the survey: To assess the severity and magnitude of the humanitarian and fragile context on IYCF practices in certain districts (enumeration areas) in Northern Burkina Faso.
Prevalence of EBF based on previous national survey: 57.9% (54.3-61.4 95%) from a National Nutrition Survey done in 2019.
Context: presence of several aggravating factors (i.e., displacement, conflict) which may have affected IYCF practices
Estimated prevalence: 45% for EBF given potential effect of aggravating factors.

Takeaways from *Table 2:* Since 45% EBF prevalence was chosen based on the current context, 400 children aged 0-23 months is required.

B. Purpose of the survey: To establish precise IYCF estimates for endline purposes to evaluate the effectiveness of IYCF-E programming in 2021 earthquake-affected areas of Haiti.
Prevalence of ISSSF based on previous national survey: 91.3% (86.4-95.4 95%) from 2017 Demographic Health Survey.
Context: IYCF-E programming has been in place for two years.
Estimated prevalence: 95% for ISSSF given potential effectiveness of IYCF-E programming over the past two years.

Takeaways from *Table 2:* Since 95% ISSSF prevalence was chosen, 560 children aged 0-23 months is required.

Thought-process for determining final sampling strategy

For a standalone population-based, representative survey on IYCF practices using a simple or a systematic random survey design, the final sampling strategy depends on the country-level demographics of the population of interest. In certain humanitarian and fragile contexts, the sample size in number of children aged 0-23 months can be converted into number of households (to find the sample size in number of children aged 0-23 months) before starting fieldwork, while in other contexts it is simply not feasible and a sampling frame/list of caregivers/households with children 0-23 months would need to be used for the selection of sampling units.

Figure 11 shows the formula for this conversion into number of households while accounting for the non-response rate, with two examples to contextualize the feasibility of its use when determining the final sampling strategy.

Figure 11. Formula to convert number of children 0-23 months into number of households

$$n_{HH} = \frac{n_{Children\ 0\text{-}23\ months}}{(HH\ size \times \%\ of\ Under\ 5 \times 0.4)} \times \frac{1}{(1\text{-}\%\ of\ non\text{-}response\ rate)}$$

n_{HH} = sample size in terms of households
$n_{children}$ = sample size in terms of children
HH size = average household size
% of Under 5 = proportion of children under-five in the population
(x 0.4 since sampling children 0-23 months, representing 40% of children aged 0-59 months).
% of non-response rate – generally between 5-10%

High fertility rate and large average household size:

Taking the previous example from Burkina Faso with an average household size of 6 persons per household and 16.2% percentage of children under-five with 5% non-response rate, 1,083 households would need to be visited in the field to find 400 children aged 0-23 months – practically-speaking, in approximately every fourth household it is expected to find 1 child aged 0-23 months.

$$1{,}083 = \frac{400}{(6 \times 16.2\%\ of\ Under\ 5 \times 0.4)} \times \frac{1}{(1 - 5\%\ of\ non\text{-}response\ rate)}$$

The final sampling strategy can be converted into number of households. Assuming 25 randomly-selected households can be safely visited per day per team and there are 4 field teams, fieldwork would last about 11 days – deemed feasible to guide an IYCF-E response.

Low fertility rate and small average household size:

In a context like Ukraine with an average household size of 3 persons per household and 4% percentage of children under-five with the same non-response rate of 5%, **8,772 households would need to be visited to find 400 children aged 0-23 months – this is not feasible for fieldwork.**

$$8{,}772 = \frac{400}{(3 \times 4\%\ of\ Under\ 5 \times 0.4)} \times \frac{1}{(1 - 5\%\ of\ non\text{-}response\ rate)}$$

Therefore, in this type of humanitarian and fragile context, the planned sample size in number of children aged 0-23 months cannot be converted into number of households. **The final sampling strategy remains in number of children 0-23 months, requiring a list (known as a sampling frame) of children 0-23 months to be obtained or built with inputs from key informants already supporting the nutrition and health response (more details provided in the next section).**

Table 3 further illustrates the role of country-level demographics on determining the final sampling strategy for a standalone IYCF population-based representative survey, highlighting the limited feasibility and inefficiency of converting into number of households to guide fieldwork in humanitarian and fragile contexts with low fertility rate and/or small average household size. The key takeaways assume field teams can safely visit 25 randomly-selected households using simple or systematic random sampling methods, and the duration of data collection is less than two weeks with four field teams – this is a common timeline to guide decision-making for an IYCF-E response.

Table 3. Role of country-level demographics on determining the final sampling strategy

Sample size in number of children 0-23 months (see *Table 2* above)	Country-level demographics to determine number of households (Caution in terms of planning)			Key takeaways when determining final sampling strategy in either number of children or number of households
	High fertility rate (≥15% children under-five) Large average HH size (≥5.5 persons per household)	Fertility rate (≥10% children under-five) Large average HH size (≥5.5 persons per household)	Low fertility rate (<5% children under-five) Small average HH size (≤3 persons per household)	
280 children aged 0-23 months	**894 households**	**1,341 households**	**6,147 households**	Final sampling strategy can be converted into households in contexts with a population of children under-five ≥10% and a large average household size (≥5.5 persons)
400 children aged 0-23 months	**1,276 households**	**1,914 households**	**8,772 households**	Final sampling strategy can be converted into households ONLY in contexts with a population of children under-five ≥15% and a large average household size
560 children aged 0-23 months	**1,788 households**	**2,682 households**	**12,293 households**	Do not convert into number of households – The final sampling strategy remains in number of children 0-23 months, requiring a list/sampling frame of children 0-23 months
800 children aged 0-23 months	**2,451 households**	**3,676 households**	**16,849 households**	

2.4 Sampling frame preparation (when relevant)

In humanitarian and fragile contexts with a final sampling strategy expressed in number of children aged 0-23 months, a complete, up-to-date list (known as a *sampling frame*) of the sampling units (e.g. households or individuals) with children aged 0-23 months is required for the defined geographic scope. Sampling units from this up-to-date, complete list are selected using random, probabilistic methods either by using a random number generator/application/table (simple) or a sampling interval derived from the total number of sampling units (systematic). Randomness ensures the statistical representativeness of the sample, where each sampling unit has a known, non-zero chance or probability of being selected, and the selection of one sampling unit is independent from the selection of another. Therefore, careful consideration on obtaining an up-to-date, complete sampling frame or list of all households or individuals with children aged 0-23 months is pivotal before random selection is undertaken.

✔ **Due diligence on the completeness and recent relevancy given recent shock(s) of the sampling frame is critical to ensure IYCF results remain representative.** This requires coordination across multiple entities to update or build a comprehensive list through the triangulation of provided information; the Office for the Coordination of Humanitarian Affairs (OCHA) as well as the Assessment Working Group or equivalent can generally provide a starting sampling frame as a base. This step entails a significant amount of planning so it should not be left to the last minute.

When updating or building the sampling frame of households/individuals with children aged 0-23 months, consider the following:

- Review the consistency of the metric (households[14] or individuals with children aged 0-23 months) used – a simple conversion can be done using the average household size from a previous national-level survey (e.g., DHS, MICS);
- Check whether the same sampling universe based on the defined geographic scope, population from which the sample will be drawn from, is in alignment in terms of geographic scope, similar population characteristics (e.g., displaced versus host communities), or relevancy if too outdated given recent shock(s);
- Incorporate information from registries held by local health clinics to capture newborns;
- Inquire whether any recent distributions of humanitarian assistance for caregivers of young children have been led, as well as any vaccination campaigns as their lists tend to be more exhaustive and up-to-date.

✔ **Amidst all due diligence to update or build the most comprehensive sampling frame, there will always be an inherent caveat that this list is not fully representative of all eligible households/individuals with children aged 0-23 months within the defined geographic scope.**

This sacrifice of representativeness permits the timely collection of data to inform IYCF-E response planning and programmatic decision-making in humanitarian and fragile contexts. This differs significantly from the purpose of national-level surveys and the level of representativeness of their sampling frames. Therefore, *Box D* should always be explicitly outlined in the survey report.

***Box D*. When outlining the inherent limitations of the sampling frame's representativeness in the survey protocol and final report, highlight:**

- Data sources used, with authors/key agency(ies) and associated dates of development;
- Inclusion and exclusion criteria of the sampling frame;
- Potential pitfalls and threats to representativeness – i.e. who may be missed?

2.5 Selection of sampling units

Regardless of whether the final sampling strategy is expressed in households or number of children aged 0-23 months, the sampling units are selected by either simple or systematic random sampling. As detailed above in *Section 2.2*, a random number generator/table/application is used for simple random sampling, while a sampling interval (total number of sampling units in the sampling frame divided by the sample size) is used for systematic random sampling.

[14] Country-specific definition of household needs to be determined for the survey protocol. In general, a household should be defined as a person or a group of persons, related or unrelated, who live together in the same dwelling unit, who make common provisions for food and regularly take their food from the same pot or share the same grain store, or who pool their income for the purpose of purchasing food (DHS 2017).

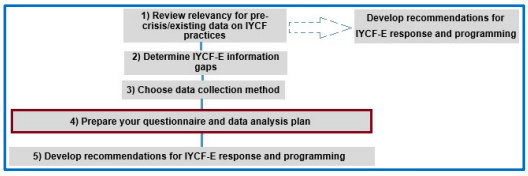
*The figure does not include the indicator "Minimum milk feeding frequency for nonbreastfed children 6–23 months of age" because its precision varies with the number of non-breastfed children in the sample. In samples where very few infant and young children are not breastfed, its precision will be low.

✔ **If households constitute the final sampling strategy, teams will skip all randomly-selected households without any children 0-23 months.** All households with children 0-23 months and their caregivers are eligible to be included into the survey. Training of field teams should include instructions on special cases (e.g., absent versus abandoned households).

2.6 Survey protocol development

To assist with the development of the survey protocol, review existing survey guidelines and associated tools to ensure its completeness and robustness for validation by the in-country Assessment Working Group or equivalent, survey steering committee, and/or relevant humanitarian coordination bodies (*Annex 2).* At a minimum, the following information should be clearly outlined:

- Objectives, type of population, survey timeline, geographic scope and areas excluded from the sampling frame;
- Final sampling strategy expressed in either number of children aged 0-23 months or households within the defined geographic scope;
- Sampling design, limitations of the sampling frame (see *Box C in Section 2.4)*, definition of the sampling units (e.g., local household definition), probabilistic methods for selecting sampling units;
- Assumptions for sample size calculation and final sampling strategy;
- Recruitment of field teams, including but not limited to local language, physicality, literacy requirements;
- Questionnaire development and its contextualization, equipment for questionnaire administration, pre-testing, and its translated versions – see *Section 4* below;
- Training schedule, content, facilitation, field testing procedures (*Section 4)*;
- Data tabulation plan, statistical software for analysis, procedures to check data quality (*Section 4)*;
- Methodological limitations and plan for results sharing and dissemination, including involved stakeholders and feedback to the surveyed population.



4) Prepare data collection tools, field teams training and data analysis plan

Based on the chosen type of data collection method and its implications for the IYCF information gaps previously identified, a final list of priority IYCF indicators drives questionnaire development. The questionnaire is a critical measurement instrument and each of its components require careful attention to ensure relevancy to the local context and purpose of the assessment. Building on the guidance provided by 2019 WHO and UNICEF's *Recommendations for data collection, analysis and reporting on anthropometric indicators in children under 5 years old*, all IYCF questionnaires should include:

- **Introduction of field team and informed consent:** purpose of the survey, estimated length to administer the full questionnaire, confidentiality measures of data collected, selection of sampling units (e.g., random and not targeted), no penalty for refusal, informed consent process, and clarity that acceptance to participate does not lead to any incentives;
- **Identifier variables**: survey date, team number, number of household (and cluster if applicable), unique ID;
- **Tracking sheet of each questionnaire outcome per sampling unit** (e.g., complete, refusal, incomplete, etc.);
- **Accompanying local events calendar**: to guide accurate child age estimation in number of completed months if no date of birth is available. In many countries, vital registration is not universal and documentary evidence of the date of birth may not be available in the household; the actual date of birth may be unknown. In addition to existing resources outlined in *Annex 2,* consider the following:
    - Specify the calendar's timeline- if data collection lasts more than one month, adding a new month and deleting the last eligible month should be anticipated and discussed when developing the events calendar;
    - Pre-test and adapt prior to the survey data collection - when pre-testing the local events calendar, it should include children whose date of birth is known in order to verify that it functions properly;

  - Invest adequate time to train field teams properly in order to be able to accurately estimate each child's age, during both theoretical training and the field test.

- **Standard set of questions based on globally-accepted IYCF indicators** (defined numerators and denominators) with contextualized list of liquids and foods and with fixed recent recall period of "yesterday" (last 24 hours);
- **Limited number of additional variables:** to be kept at a minimum and any additional variable/indicator must be clearly justified by decision-making relevance - the longer the questionnaire, the higher the risk of respondent fatigue and erroneous entries (WHO & UNICEF 2019).

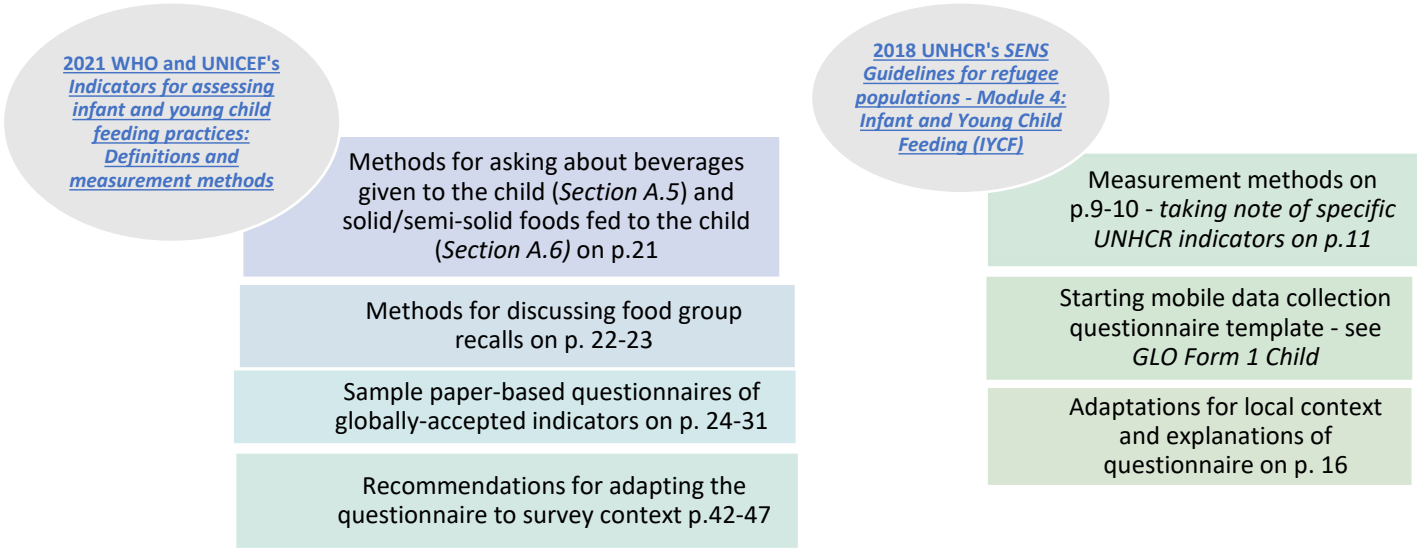
✔ **Harmonisation of questions used for the collection of IYCF indicators allows for comparison of results, but also limits the introduction of bias at indicator-level with the exact same questions and number of questions being asked.** The same key sources from the following *Figure* provide questionnaire templates, in addition to *Annex 2.* In instances where IYCF data is being collected on an annual basis as part of a surveillance system, a shorter questionnaire and thus less time to administer the questionnaire should be considered during the planning stage (WHO & UNICEF 2021a).

Contextualization of the questionnaire and its pre-testing

Contextualization (or local adaptation) refers to the process of tailoring the standard IYCF questionnaire to the population or setting in which the assessment is being conducted using established criteria and approaches, while ensuring that indicators derived from the collected data remain globally comparable (WHO and UNICEF 2021a).

For population-based, representative surveys, these two sources provide useful tips for contextualization (in addition to any lessons learned from previous data collection activities) and templates for questionnaire development (**link embedded in their title and each box -** *Figure 12)*:

Figure 12. Key resources to consult when contextualizing the questionnaire during its development



Once the questionnaire is developed and its components contextualized, care should be taken during its proper translation[15]. The questionnaire should be in all languages or main dialects included in the geographic scope. Mistranslations of key terms and concepts can lead to measurement bias, affecting the overall accuracy of the results. For example, if a popular food has more than one common name, consider including several names in the questionnaire based on discussions with individuals familiar with local names used throughout the survey area (WHO & UNICEF 2021a). If any additional variables are included, their Individual questions may be leading, misleading, double-barrelled (asking two questions at the same time), ambiguous, or not relevant to the objectives of the survey (SMART 2017). Therefore, every IYCF questionnaire should undergo the **process of translation and back-translation** by a separate translator to ensure proper questions are being asked. This is critical to avoid any mistranslations or on-the-spot translation by the field teams.

[15] Check out Cross-Cultural Survey Guidelines (2016) or Survey Organization Manual for Demographic and Health Surveys (2012).

✔ **After translating and back-translating the questionnaire, it is strongly recommended to always convert the questionnaire into a mobile/computer-assisted format to greatly reduce the introduction of recording errors when administering the questionnaire with pre-programmed skip patterns or a restricted range of possible responses.**

Before the questionnaire is ready for training purposes, it should be **pre-tested** for content, translation and length with local community members to ensure that all its contents are easily understood by both interviewers and respondents. Additional comments from the field teams can also be incorporated during the training.

Training of field teams and attention to data quality

Poorly trained or inexperienced field teams results in measurement and selection bias of the assessment, affecting the reliability of results. For example, questions are being asked incorrectly and/or recorded the answers incorrectly or skipped (altogether) in an effort to finish quickly. Accurate and meaningful information can be collected only if field teams are thoroughly familiar with all the field instructions and procedures (UNICEF 2019; WHO & UNICEF 2019).

✔ **Adequate time to adapt, deliver and ensure full comprehension of training content by the field teams is crucial to the success of the IYCF assessment.** The development of an assessment manual provides a guide for teams with clear instructions on their roles and responsibilities as well as key information on how to identify randomly-selected sampling units with instructions on special cases (e.g., absent, possibility of returning to complete full questionnaire i.e. call-backs), identify eligible children and their respondent(s), and administer questionnaires in an uniform manner. Proper training on mobile/computer-based data collection also needs to be adequately incorporated into the training content and timeline, to allow plenty of time to practice before the field test. Furthermore, when composing field teams at the end of the training, be sensitive to the local setting in terms of gender, ethnicity and language skills, where ideally some members should have a local knowledge of the survey area. For IYCF, there should **always be at least one woman per team** to ensure that respondents may speak freely and in confidentiality on perhaps sensitive matters.

At a minimum, the training should include:

- Mixture of theory including interview techniques (introduction, consent, confidentiality, etc), practical exercises (especially role plays) as well as a written and verbal test. Role plays ensure standard procedures are understood and being followed so that field teams communicate effectively and respectfully with the respondents;
- Practice with the local event to make sure age is accurately estimated in number of completed months if no date of birth is readily available – for example, 0-5 months means 0-5.9 months (a period of 6 completed months), 6-8 months means 6-8.9 months (a 3-month period), etc.;
- One/two full day(s) on the contextualized questionnaire in its mobile/computer-assisted format with clear instructions on special cases (e.g., refusal, incomplete) and how to address common issues immediately in the field versus waiting until the end of the day (UNHCR 2018). Instructions for daily questionnaire checks for consistency, completeness, number of "don't know" answers and missing data includes:
    - reviewing questionnaires without consent or refusals to help clarify any misunderstandings, concerns of misconceptions with the community being surveyed;
    - reviewing the amount of missing values to flag more due diligence by the field teams when administering the questionnaire;
    - reviewing the number of "*don't know*" and if this is a trend for certain field teams – special attention should be given to follow these teams to check the administration of the questionnaire.
- Field test to check the understanding of random selection techniques for sampling units, practice administering the questionnaire in a similar (non-selected) local community, and any logistical issues encountered.

✔ **Attention to data quality starts with the proper administration of each questionnaire during fieldwork; limiting the introduction of missing information ("*don't know*" responses, accidently skipped questions, or responses with inconsistent or illogical codes owing to recording or data entry errors) makes a significant difference when calculating and generating the results for interpretation (WHO & UNICEF 2021a).** *Annex 2* outlines some useful tools and tips for training, data collection/entry and recording, and data analysis including excluding syntax that can support in ensuring good data quality when generating results of the IYCF assessment.

Presentation of results

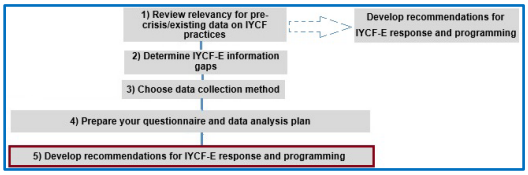
Once the assessment has been completed and analysed with close attention to data quality, then the IYCF results and any other variables collected need to be presented and shared with relevant stakeholders for validation and action.

✔ **All assessment reports and associated summaries should present results in a clear fashion including the following:**

- **Rationale for the assessment:** clear details of the methodology, survey protocol namely the sampling design and strategy, the population to which the results apply;
- **Sample description:** achieved sample size in number of sampling units compared to those planned in the survey protocol (and clusters if applicable), disaggregated by sex and age categories (e.g.,0-5 months) and details on the number of children with estimated age vs. date of birth;
- **IYCF results presented as proportions with 95% confidence intervals and associated age ranges,** including disaggregation by sex and disability – if cluster survey, **issued design effects** as well. Remember the general rule stipulated by WHO and UNICEF: "estimates [for IYCF indicators] should not be presented if less than 25 children (unweighted) are included in the denominator" (page 2) (WHO & UNICEF 2021a).
- **Area graphs** useful in understanding patterns of exclusive breastfeeding at different age groups across the 0–5 month window, and provide insight into the types of beverages (and in some cases solid foods) being consumed in addition to breastmilk at each age across these six categories: exclusively BF; BF and plain water only; BF and non-milk liquids (no solid or semi-solid foods and no animal milk-based liquids or infant formula); BF and animal milk or formula (no solid or semi-solid foods); BF and solid or semi-solid foods; or not BF - for more information, consult 2021a WHO & UNICEF's Indicators for assessing infant and young child feeding practices: definitions and measurement methods p.15, 40-41 and Annex 7;
- **Assessment of trends** when applicable – see *Annex 2*;
- **Comparison with assumptions made in the survey protocol, other studies and global thresholds** (*Annex 2* below);
- **Statistical analysis to compare time periods or groups** (e.g., boys vs. girls, SES, disability, etc.);
- **Limitations of the assessment**: geographic scope, accessibility issues, problems encountered etc.

In addition, graphs and figures are useful tools to present findings. A report card may also be used to help share information with community members, colleagues and donors on IYCF practices at different stages of programme implementation in an effort to track progress and performance – consult 2010 CARE's Infant and Young Child Feeding Practices: Collecting and Using Data: A Step-by-Step Guide p.109-111.

5) Develop evidence-informed recommendations for IYCF-E response



Whether to identify needs based on the severity and magnitude of the humanitarian and fragile context or to measure programme effectiveness, the IYCF results from population-based, representative surveys should be validated and reviewed by the Assessment Working Group or equivalent. Careful considerations to data quality affect the level of interpretability of IYCF indicators, whether in terms of precision or bias. Once validated, the IYCF results can be compared to the following thresholds of *Table 4* to feed into a situation analysis for the Humanitarian Needs Overview (HNO), IPC Acute Malnutrition Analysis (IPC AMN) or Humanitarian Response Plan (HRP), taking note:

- **Alignment with IPC AMN's Analytical framework**: nutritional status indicators, mortality indicators, immediate and underlying causes, and other issues;
- **Humanitarian consequences:** relevant for nutrition "*Physical and Mental Well-being*" and "*Living Standards*" which will be important later in the analysis when determining key population figures for response planning;

- **Thresholds and their sources:** available for each indicator applied in the severity phases (based on IPC/OCHA terminology), with some being preliminary in nature only in cases where global thresholds for that indicator are currently unavailable.

Table 4. Subset of recommended indicators to guide the Nutrition Situation Analysis as per* 2021 Global Nutrition Cluster's *Nutrition Humanitarian Needs Analysis

			Severity Scale based on IPC/OCHA phases					
Alignment with *IPC AMN Analytical framework*	**Core Nutrition Indicators to guide response planning**	**Humanitarian Consequence**	**Phase 1** Acceptable/ Minimal	**Phase 2** Alert/ Stress	**Phase 3** Serious/ Severe	**Phase 4** Critical/ Extreme	**Phase 5** Extremely Critical/ Catastrophic	**Sources used for the thresholds**
Immediate causes (*Food consumption*)	Minimum Dietary Diversity in children 6 to 23 months	*Living Standards*	**>70%**	**40-70%**	**20-39.9%**	**10-19.9%**	**<10%**	*Preliminary thresholds* suggested by IFE Core Group
	Minimum Acceptable Diet in children 6 to 23 months*	*Living Standards*	**>70%**	**40-70%**	**20-39.9%**	**10-19.9%**	**<10%**	*Preliminary thresholds* suggested by IFE Core Group
	Exclusive breastfeeding for infants 0-5 months	*Living Standards*	**>70%**	**50-70%**	**30-49.9%**	**11-29.9%**	**<11%**	Adapted from UNICEF Breastfeeding Score Card
Underlying causes (*Caring and feeding practices*)	Infants **0-5 months** that are not breastfed who have access to Breast Milk Substitutes supplies and support in line with the Code and the IFE Operational Guidance's standards and recommendations	*Living Standards*	**>60%**	**40-60%**	**20-39.9%**	**10-19.9%**	**<10%**	*Preliminary thresholds* suggested by IFE Core Group
	Infants **6-11 months** that are not breastfed who have access to Breast Milk Substitutes supplies and support in line with the Code and the IFE Operational Guidance's standards and recommendations	*Living Standards*	**>60%**	**40-60%**	**20-39.9%**	**10-19.9%**	**<10%**	*Preliminary thresholds* suggested by IFE Core Group

When contributing the IYCF results to a situation analysis for the HNO, the results of the situation analysis lay the foundation for a coherent and efficient humanitarian response based on the magnitude (number of People in Need - PiN) identified, namely through the HRP, and its monitoring based on 4W (Who, What, Where and When) along with other reporting and monitoring tools. Whenever applicable, information concerning refugees and their distinct context, needs, vulnerabilities, and situation should also be incorporated.

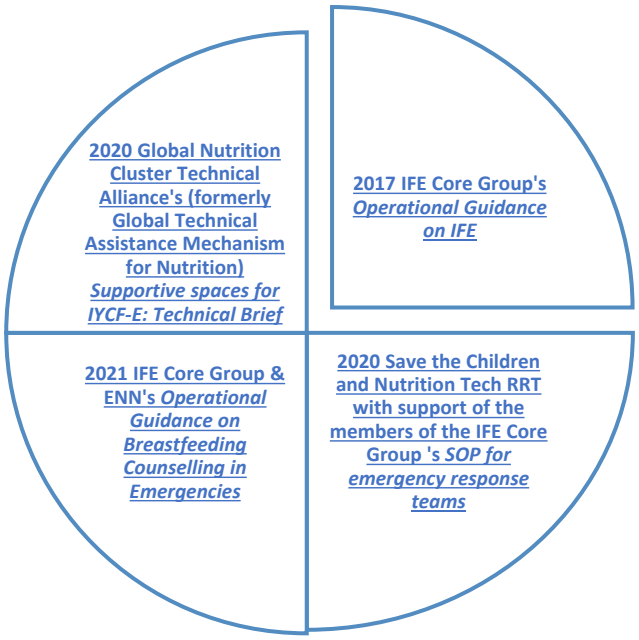
In alignment with WHO's High Impact Nutrition Interventions (HINI) and Essential Nutrition Actions, **consult the PiN calculation formulas per IYCF practice disaggregated by sex, age group and disability** from 2021 Global Nutrition Cluster's *Nutrition Humanitarian Needs Analysis - Table 4B*.

✔ **To further the utilization of the IYCF results, specific, evidence-informed recommendations for response, decision-making or monitoring purposes should be discussed amongst all involved parties working in the humanitarian and fragile context: MOH and other government staff; humanitarian practitioners (i.e., IYCF-E Advisors or Managers) from UN agencies, international and local NGOs; decision-makers and donors; and local and national authorities including national survey organizations.**

These discussions support a coordinated IYCF response planning and decision-making that provides context-specific, technically informed direction on IFE to all responders, identifies critical vulnerabilities and response gaps and actions to ensure that these are quickly addressed; and monitors the adequacy of response (IFE Core Group 2017). A wealth of resources aimed at specifically supporting IYCF programming in humanitarian and fragile contexts exist; at a minimum, the ones outlined in *Figure 13* (**link embedded in its title**) to be consulted. For example, the OG-IFE outlines six actions to support mothers and caregivers in feeding infants and young children in emergencies to maximize health and minimize morbidity and mortality. Interventions were based on preparedness and investment in IYCF programs, including the Baby-Friendly Hospital Initiative (BFHI), nutrition counselling, and implementation of the Code, which could then be expanded as needed in response to changes in context.

In refugee contexts, 2018 UNHCR's *IYCF in refugee situations: a multisectoral framework for action* would be more pertinent for the development of an action plan to guide response planning and decision-making.

Figure 13. Key resources to support response planning and decision-making based on IYCF results



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Save the Children & UNHCR (2018) Infant and young child feeding (IYCF) in refugee situations: A multi-sectoral framework for action

Save the Children and the Nutrition Technical Rapid Response Team (Tech RRT) with the support of the members of the IFE Core Group (2020) IYCF-E Standard Operating Procedure (SOP) For Emergency Response Teams

Save the Children and the IFE Core Group (2022) Infant and Young Child Feeding in Emergencies: 10 Years of Progress

Sphere Association (2018) The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response – Chapter 6: Food Security and Nutrition, fourth edition

Standardized Monitoring and Assessment of Relief and Transitions (SMART) (2017) Measuring mortality, nutritional status, and food security in crisis situations: SMART methodology

Technical Rapid Response Team (TechRRT) (2016) Fact sheet on Infant and young child feeding practices assessment in emergencies

UNHCR (n.d.) Standardised expanded nutrition survey

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United Nations Children's Fund (UNICEF) (n.d.) NutriDash 3.0

United Nations Children's Fund (UNICEF) (n.d.) Infant and young child feeding

United Nations Children's Fund (UNICEF) (2013) Nutrition cluster handbook: A practical guide for country-level action

United Nations Children's Fund (UNICEF), Save the Children, and the Global Nutrition Cluster (2020) IYCF-E – East and Southern Africa Region (ESAR) Capacity Mapping and assessment Tool

Victora, C.G., Bahl, R., Barros, A.J., Franca, G.V., Horton, S., Krasevec, J., Murch, S., Sankar, M.J., Walker, N., Rollins, N.C. (2016) Lancet Breastfeeding Series Group. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect

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Annexes

Annex 1: Estimated denominator for IYCF indicators based on planned sample size in number of children aged 0-59 months

Planned sample size in number of children aged 0-59 months	**Approximate percentage of age groups for IYCF indicators (examples of globally-accepted indicators[16])**	**Estimated denominator for IYCF age groups**	**Key takeaways**
≥400* (for example, 10% estimated GAM prevalence, 3 desired precision and 1.5 design effect for cluster sampling) *May also be common for SRS surveys in refugee contexts	40% for indicators with 0-23 (24) months age range (EvBF, EIBF, BoF)	**≥160** children aged 0-23 months	Include all relevant IYCF indicators with an **age range ≥6 months** into your SMART survey – on average, meaningful precision for these target age group is achievable (Do not worry about issued design effects[17] – in general, at least one child aged 0-5 months would be found)
	30% for indicators with 6-23 (18) months age range (MMF, MDD, MAD, MMFF, EFF, SwB, UFC, ZVF)	**≥120** children aged 6-23 months	
	20% for indicators with 12-23 (12) months age range (CBF)	**≥80** children aged 12-23 months	
	10% for indicators with 0-5 (6) months age range (EBF, MixMF)	**≥40** children aged 0-5 months	
	5% for indicators with 6-8 (3) months age range (ISSSF)	**≥20** children aged 6-8 months	Problematic in terms of precision for response and decision-making purposes – ***do not include in nested survey unless planned sample size is*** **≥800 children 6-59 months old**
≥200 (for example, 8% estimated prevalence, 3 desired precision and 1 design effect for SRS surveys)	40% for indicators with 0-23 (24) months age range (EvBF, EIBF, BoF)	**≥88** children aged 0-23 months	Include all relevant IYCF indicators with an **age range ≥12 months** into your SMART survey – on average, meaningful precision for these target age group is achievable
	30% for indicators with 6-23 (18) months age range (EFF, MMF, MDD, MAD)	**≥70** children aged 6-23 months	
	20% for indicators with 12-23 (12) months age range (CBF)	**≥46** children aged 12-23 months	

[16] This includes (in order presented in Table 2): EvBF – Ever Breastfed 0-23 months; EIBF – Early Initiation of Breastfeeding 0-23 months; BoF – Bottle feeding 0-23 months; MMF – Minimum Meal Frequency 6-23 months; MDD – Minimum Dietary Diversity 6-23 months; MAD – Minimum Acceptable Diet 6-23 months; MMFF – Minimum milk feeding frequency for non-breastfed children 6-23 months; EFF – Egg and/or flesh food consumption 6-23 months; SwB – Sweet Beverage consumption 6-23 months; UFC - Unhealthy Food Consumption 6-23 months; ZVF – Zero vegetable or fruit consumption 6-23 months; CBF – Continued Breastfeeding 12-23 months; EBF – Exclusive breastfeeding under six months; MixMF – Mixed milk feeding under six months; ISSSF – Introduction to solid, semi-solid or soft foods 6-8 months.

[17] Design effect reflects the heterogeneity between clusters with regards to the measured indicator. Because few children aged 0-5 months are expected per cluster (in general, at least 30 clusters are planned for), this small cluster size of 1-2 children would automatically incur low clustering with design effects close to 1.

Annex 2: Additional guidance to support step-by-step process, organized by main/contributing author

Authors of key guidance (as lead or contributor)	IFE Core Group	Save the Children	WHO and/or UNICEF	SMART	UNHCR	SPHERE	Global Nutrition Cluster (including Tech RRT)
Preparedness - Pre-crisis, existing data	Operational Guidance for Emergency Relief Staff and Programme Managers: p.6 & 14 IYCF-E Standard Operating Procedure (SOP) For Emergency Response Teams p.18-20	IYCF-E Toolkit: Guidance on health equity & language in emergency preparedness context, emergency preparedness, including guidelines on reaching out to shelters and milk banks, handling and storage of RTF/instant formula, guidance on cleaning feeding items and alternative feeding methods, etc.	IYCF programming guide p.27		IYCF in Refugee situations: A multi-sectoral Framework for action: p.33-36	The Sphere Handbook	Nutrition Cluster Handbook: p.154-157 Nutrition Humanitarian Needs Analysis Guidance - assessment of reliability of nutritional need data p.15 Nutrition Cluster Coordination Toolkit
Human Resources, Capacity and Coordination	Operational Guidance for Emergency Relief Staff and Programme Managers v3, 2017 : p.7-9 Global Progress Report: Capacity mapping in Kenya, Somalia, and South Sudan p.31-32	IYCF-E Toolkit v3 - Example job descriptions: IYCF-E Breastfeeding counsellor, IYCF-E Counsellor/ Community mobilizer/ Psychosocial Worker/ MEAL Officer or Supervisor; IYCF-E Program Officer/ Supervisor/ Manager IYCF-E Consultant.	Infant and Young Child Feeding in Emergencies (IYCF-E) Capacity Mapping and Assessment Toolkit		IYCF in Refugee situations: A multi-sectoral Framework for action: p.40-42		GNC IYC-E checklist p.1-6 Request GNC-TA support
Survey Planning and budget			Indicators for assessing infant and young child feeding practices: definitions and measurement methods: Annex 4 Multiple Indicator Cluster Survey MICS 6: Survey plan template & budget calculations template	Manual: survey planning p.8-11, Annex 1	SENS example survey timeline p.26-27 Survey Budget p.9 SENS Pre-Module tool: [Tool 1 - Survey Budget], Survey equipment, Survey consultant Terms of Reference	The Sphere Handbook- Appendix 3: Nutrition assessment checklist, guidance on p.169	Nutrition Humanitarian Needs Analysis Guidance: annual assessment plan p.13-14, Indicators guiding nutrition situation analysis (Table 1, p. 18) Factsheet: Survey timeline, venue suggestions, etc. p.14-15, budget p.16
Recruitment	Global Progress Report: p. 34-35, Case Study 3: Syria -		Recommendations for data collection, analysis and reporting on		SENS -Survey consultant ToR, Annex 2 provides		

	awareness & training (p. 37-38)	anthropometric indicators in children under 5 years old: Survey team selection process detailed on p. 5, job descriptions in Annex 2, recommended use of DHS data collection form for fieldworks		theory, practical exercises, and written/verbal test -Guidance for survey managers & teams p.15		
Sampling		Multiple Indicator Cluster Survey MICS 6: Manual for mapping and household listing	SMART Manual - p.27-34, sample size calculation parameters (based on anthropometry) p.35-44; number of clusters p.43-45	SENS - Sampling and survey design guidance p.31-43, Sampling decision tree p.33, Annex 1 - Sample size calculation & sampling example, Annex 2 Correction for small population size	The Sphere Handbook- Random sampling, systematic sampling, or cluster sampling (p. 171)	Factsheet: exhaustive surveys & random-sampled surveys, i.e. simple random sampling, systematic sampling, cluster sampling (p.3)
Questionnaire		Indicators for assessing infant and young child feeding practices: definitions and measurement methods: Indicators p.20 and methods for discussing food group recalls p.22-23, Sample questionnaires p.24-31 -Discussion of adapting food group recall p.43 Multiple Indicator Cluster Survey MICS 6: GPS data collection manual & questionnaire, questionnaire templates		SENS - Recommendations on how to build liquid list, indicators, etc p.9, Technical forms for MDC surveys, Paper questionnaires for paper-based surveys (always carry extra copies), SENS IYCF questionnaire for children 0-23 months is shown in Annex 1 or see SENS Pre-Module tool: [Tool 12- Full SENS Questionnaire with Instructions] -Adaptations for local context and explanations of questionnaire p.16		
Training		Indicators for assessing infant and young child feeding practices: definitions and	SMART Manual - p.12-13, Field test on p.24-26,	SENS - Annex 2 provides theory, practical exercises, and written/verbal		Factsheet: Interview guidance & ethical considerations p. 12-13

		measurement methods: Interviewer training p.47-48; fieldwork practice p.53-55 Multiple Indicator Cluster Survey MICS 6: Fieldwork training recommendations and template agenda	Estimating Age p.60	test, guidance for survey managers & teams p.15	
Data Collection & Recording		Recommendations for data collection, analysis and reporting on anthropometric indicators in children under 5 years old: Data collection p.36-37; data capture/entry p.44, Fieldwork guidance, equipment, and common errors (p. 38-43) Multiple Indicator Cluster Survey MICS6: Listing and fieldwork duration, staff and supply estimates template, instructions for interviewers and supervisors, field check tables, GPS data recording example monitoring sheet, digital data collection system developer's guide	SMART Manual - Second Stage sampling p.45-52	SENS - common errors and challenges in data collection listed p.14, Annex 3 - Data collection control sheet, Guidance on survey data file naming p.62-63, Annex 4 - Guidance on Key EPI Info commands	
Data Analysis Plan		Indicators for assessing infant and young child feeding practices: handling missing information p.32-33, Calculations (numerators & denominators) (p. 32-41), Syntax for calculating indicators & constructing area graphs - Annex 7 Multiple Indicator Cluster	SMART Manual - Types of bias p.64, Annex 1	SENS - Calculations for WHO and UNHCR indicators provided p.10 -Tables 14-15 and Annex 3 provide analysis procedures -Indicators, challenges in data analysis, and common errors p.33-38	The Sphere Handbook- Suggested models/approaches on p. 171, link to Food security and nutrition assessments standard 1.1: Food security assessment.

		Survey MICS 6 Tabulation Plan, SPSS syntax files				
Presentation and Interpretation of results, evidence-informed recommendations	Global Progress Rep. -Action 3: Coordinate operations to support IYCF-E (p. 39-41) -Case Study 4: Coordinating emergency nutrition response in Nigeria (p.44-45) -Case Study 7: Multi-sectoral engagement (p. 60)	Recommendations for data collection, analysis and reporting on anthropometric indicators in children under 5 years old: Good reporting practices p.83-86, 88 Multiple Indicator Cluster Survey MICS 6: Survey findings report (with report & snapshot guidelines), cover template (with instructions), tutorials on customizing snapshots, statistical snapshots including IYCF example	SMART Manual - p.116	SENS - Indicators & precision thresholds given p.28-32, Recommendations p.28), Annex 5 - Assessing trends & changes; Annex 6 - Statistical comparisons between 2 surveys	The SPHERE Handbook Data disaggrega-tion suggestions p. 189	Nutrition Humanitarian Needs Analysis Guidance: Overview of figures and summary facts to be reported p.33

Annex 3: Last resort - conducting a standalone cluster IYCF survey

In rare instances where there is no upcoming survey being planned across a **vast geographic scope** and a list of sampling units with children 0-23 months cannot be obtained, then the final resort consists of conducting a cluster survey, a multi-stage probabilistic random sampling method. A limited number of smaller geographic areas (clusters) are chosen across the large geographic spread of affected areas in which simple or systematic random sampling can be conducted. As mentioned previously, this entails significantly more time and resources during data collection to achieve a meaningful level of desired precision to interpret the IYCF results.

✔ **The main objective for a cluster IYCF survey is to assess the severity and magnitude of the humanitarian and fragile context on IYCF practices; therefore, EBF is used to determine the overarching sample size with a fixed desired precision of ± 10% to inform response planning and decision-making purposes.**

The sample size formula for cluster surveys is slightly different than the one for SRS, with the addition of design effect (DEFF) and different value for the constant *t* (*Figure 14).* DEFF refers a "correction factor" to account for the heterogeneity between clusters with regards to the measured indicator. In cluster sampling, although nutrition outcomes are known to generally create relatively low design effects[18], it remains unclear whether the same applies for IYCF practices across humanitarian and fragile contexts[19]. Since issued design effects for IYCF practices are not being readily generated from cluster survey findings, the **default design effect of 1.5** put forward by the SMART methodology when there aren't any previous survey results is recommended.

Figure 14. Sample size formula for cluster surveys (SMART 2017)

$$n = \frac{t^2 \times (p) \times (1-p)}{d^2} \times DEFF$$

n = sample size
t = constant (2.045 for df=29 and p=0.05)
p = expected prevalence (fraction of 1)
d = relative desired precision (fraction of 1)
DEFF = Design Effect for Cluster Surveys

Thought-process for determining final sampling strategy for cluster IYCF survey

The following steps outlines the thought-process to streamline which final sampling strategy is chosen using *Table 4* below:

1. Estimated prevalence of EBF:

- Review any recent DHS/MICS/NNS/SMART surveys conducted at national-level and/or sub-national level program records in case a monitoring system is already in place – a great starting point is UNICEF's expanded IYCF database[20];
- Look at results of previous surveys conducted in the survey area or at national-level and consider confidence intervals reported in these surveys. If no surveys exist, try to estimate the prevalence from using data from rapid assessments, anecdotal reports, feeding program admissions' trends, etc.
- Adjust previous estimates according to your understanding of how and if the situation changed since last surveys were conducted, for example the likely effect of any aggravating factors;
- Determine a range of values where you think the current prevalence might be. To be on the safe side, use the higher limit of this range to guide which prevalence to look at in *Table 6;*

2. Sample size in number of children aged 0-5 months – depending on which EBF's prevalence is used in *Figure 12's* formula, assuming a **fixed desired precision of ± 10%** and **1.5 design effect** (see considerations above);

3. Country-level demographics of humanitarian and fragile context of interest: review recent national demographic information is required based on figures provided by OCHA, DHS, MICS, World Bank or Global Health Observatory[21]. In most humanitarian and fragile contexts, the proportion of children under-five does not reach 20%. If discordant estimates are provided, it is best to go with the lowest number to ensure sufficient children are accounted for.

[18] Bilukha (2008) Old and new cluster designs in emergency field surveys: in search of a one-fits-all solution.

[19] Upcoming research led by the CDC in 192 SENS surveys conducted in refugee contexts found an average issued design effects for EBF of 1.32; however given the unique characteristics of refugee populations, this finding likely does not apply in most humanitarian and fragile contexts and therefore not being recommended until further research confirms the observed low heterogeneity of EBF.

[20] This database includes all publicly available MICS and DHS (phase 5-7) that have been reanalysed to produce standardized estimates across years and surveys programs. Along with national estimates, the database contains estimates by various disaggregation such as place of residence, geographic location, or age.

[21] WHO (n.d.,) Global Health Observatory data repository

4. Sample size in number of households[22]**:** a large sample size in number of households is expected; however, a cluster survey is simply not logistically feasible in certain humanitarian and fragile contexts. Additional planning considerations are provided below with regards to fieldwork planning.

5. Final sampling strategy depending on how many days each field team visits each cluster:

- To simplify and standardize the final sampling strategy, it is assumed that **a cluster size of a minimum of 25 households** to not overload the field team each day of data collection.
- In survey areas that may have limited accessibility due to security or recent shocks (i.e., earthquake), it is best to assume 1 day per cluster per team; if there aren't any accessibility issues, explore the logistical considerations of having field teams spend 2 days per cluster thus resulting in larger cluster sizes.

Table 5. Final sampling strategy for a standalone, cluster IYCF survey depending on country-level demographics

1.Prevalence of EBF (p) %	2. Sample size in number of children 0-5 months	3.Country-level demographics of the humanitarian and fragile context of interest	4.Sample size in number of households[18]	5.Final sampling strategy (Caution in terms of planning)
25-75%	**150 children aged 0-5 months**	High fertility rate (≥15% children under-five) Large average household size (≥5.5 persons per household)	**2,000 households**	80 clusters of 25 households each
				40 clusters of 25 households each assuming 2 days in each cluster
		Fertility rate (≥10% children under-five) Large average household size (≥5.5 persons per household)	**3,001 households**	120 clusters of 25 households each (likely not logistically feasible)
				60 clusters of 25 households each assuming 2 days in each cluster
		Low fertility rate (<5% children under-five) Small average household size (≤3 persons per household)	**13,757 households**	Do not conduct a cluster survey in this humanitarian and fragile context – instead consult the feasibility of Scenarios 1 and 2 above
<25% or >75%	**115 children aged 0-5 months**	High fertility rate (≥15% children under-five) Large average household size (≥5.5 persons per household)	**1,460 households**	59 clusters of 25 households each
				29 clusters of 25 households each assuming 2 days in each cluster
		Fertility rate (≥10% children under-five) Large average household size (≥5.5 persons per household)	**2,190 households**	88 clusters of 25 households each (likely not logistically feasible)
				44 clusters of 25 households each assuming 2 days in each cluster
		Low fertility rate (<5% children under-five) Small average household size (≤3 persons per household)	**10,037 households**	Do not conduct a cluster survey in this humanitarian and fragile context – instead consult the feasibility of Scenarios 1 and 2 above

[22] ENA for SMART was used to convert the number of children using formula from *Figure 10* into number of households adjusting for average household size and the proportion of children 0-23 months (24 months age range) to the percentage of children under-five, representing 40% of children under-five. A non-response rate of 5% was then applied and rounded up to the nearest integer.

To put the recommendations of *Table 4* into context, review the following hypothetical example:

Example: conducting a cluster IYCF survey

Purpose of the survey: To assess the severity and magnitude of the humanitarian and fragile context on IYCF practices across 2022 flood-affected areas of Pakistan. No sampling frame of households/caregivers with children aged 0-23 months or under-five could be made available or constructed.
Prevalence of EBF based on previous national survey: 47.8% (46.2-49.2 95%) from a National Nutrition Survey done in 2018.
Demographics: 6.4 average household size and a high fertility rate (3.8 children per women) (IFRC 2023)
Context: presence of several aggravating factors (i.e., displacement, flood) which have greatly affected IYCF practices. Limited accessibility in clusters.
Estimated prevalence: 50% for EBF given potential effect of aggravating factors.

Sample size (formula in *Figure 14)* in number of children: $n = 2.045^2 \times \frac{(50\%) \times (1-50\%)}{(10\%)^2} \times 1.5 = 157$ children aged 0-5 months.

Takeaways from *Table 6:* Based on the demographics and limited accessibility considerations, the final sample size is **2,000 households** and the final sampling strategy is **80 clusters of 25 households each** to identify the necessary 157 children aged 0-5 months.

Planning for the large number of households to be surveyed

A large sample size in number of households is **expected.** Remember that a cluster survey is the last resort only in humanitarian and fragile contexts where a sampling frame of households/caregivers with children 0-23 months (or children under-five) is not achievable – see *Section 2.2*. Therefore, this large number of households serves as a ballpark to guide fieldwork for the collection of IYCF data to meaningfully interpret the results based on the EBF sample size.

✔ **During fieldwork, teams will skip all households without any children 0-23 months.** Applying the same averages outlined in *Table 1* in *Section 1.2*, around 10 households (40%) of the planned 25 households will have eligible children. This trend is illustrated with the random allocation of these 11 households in orange amongst the 25 households randomly selected and visited (*Figure 15).* Certain data collection days may find more or less number of households with the eligible target group. Similarly, it is estimated that 2-3 households would have children aged 0-5 months and about 1-2 households with children aged 6-8 months.

Figure 15. Example of the random distribution of eligible households amongst the fixed cluster size of 25 households during fieldwork

Careful considerations on whether the level of accessibility and distances between randomly selected clusters across the geographic scope may cater for different approaches when determining the final sampling strategy (*Table 6)*:

- 1 day per cluster where each team can randomly select and visit 25 households, or;
- 2 days per cluster where each team goes back-and-forth 2 days in a row to gather data on 50 (25x2) households per cluster. In areas with a compact geographical scope (i.e., randomly selected clusters are relatively close to another) and the level of accessibility is not an issue, a final sampling strategy of 1 day per cluster with 50 (25x2) households each can be explored.

First-stage: selection of clusters

Once the final sampling strategy is determined, the first stage of selection for a cluster survey requires a list of the approximate population sizes of each area (e.g. block/section/village) included within the geographic scope of interest.

This list refers to the sampling frame of smallest available geographic units, known as primary sampling units (PSU), based on the most recent population and housing census. The Assessment Working Group or equivalent can generally provide a starting sampling frame built off recent national-level surveys (e.g., DHS, MICS). To ensure the completeness of the sampling frame and its relevancy given recent shock(s), the following steps should be taken (with a Sampling Statistician if locally available) before cluster selection:

1) Review the sampling frame to make sure each PSU has a known, non-zero population size, based on either number of households or number of individuals. The metric (households or individuals) should be consistent throughout the sampling frame and a simple conversion can be done using the average household size used for sample size calculation;
2) Inquire whether the most recent MICS and DHS reports contains a sampling frame evaluation which can be reviewed to ensure major changes in population distribution due to conflict, natural disasters, or high population growth are considered and potentially accounted for based on rough proportions;
3) Check that each PSU has a large enough population in terms of number of households to contain one cluster; in other words, it should not have less than the number of households determined previously in the final sampling strategy. Some buffer could also be considered to be on the safe side – for example, if 15 households can be safely be visited per day, then no PSU should have less than 25 households;
4) When feasible, discuss with local authorities if large PSU such as an urban area, with significantly more population than the other PSU can be broken down further by sub-divisions or neighbourhoods. This step would facilitate the eventual household selection within selected PSU.

Upon completion of these steps, the finalised sampling frame is ready for cluster allocation using probability proportional to size (PPS). Because PSU are of various sizes, PPS ensures that all households in any division have the same known, non-zero (equal) probability of being selected. In essence, this randomized scientific sampling method PPS allows all PSU a probability of selection that is proportional to their size.

Taking the total number of clusters from the final sampling strategy, cluster allocation is generally performed using ENA for SMART software. Additional clusters called Reserve Clusters (RC) are automatically chosen - see 2017 SMART's Manual's *Assigning Clusters* p. 43-45 for more details. Towards the end of fieldwork, **all RC** should be incorporated into the fieldwork planning in the following two scenarios:

1) 10% or more of the planned number of clusters were impossible to reach; or,
2) Final sample size in number of individuals is less than 80% of the required number.

Second-stage: selection of households during fieldwork

To be a population-based, representative survey, household selection must make use of a randomized probabilistic methods to allow all households in each selected PSU (if doing a cluster survey) to have at least a non-zero probability of selection (ideally an equal probability of selection). In addition to the points outlined for simple or systematic random sampling in *Section 2.5,* another method used during fieldwork is segmentation, in large or very dispersed areas. This method aims to render the survey area more manageable for field teams by dividing the village or PSU into smaller segments and randomly choosing one segment to include all households to be randomly selected by either simple or systematic random sampling. Consistent guidance on how to do household mapping and selection based on the context is critical – often a sampling decision tree for household selection is devised as part of the survey protocol. Depending on the survey manager, one sampling method or a variety of three sampling methods (segmentation, simple and systematic) is put forward with clear instructions on when to do each.