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Routine Monitoring of the Availability and Use of Ready-to-use Therapeutic Food (RUTF) at the Last Mile

Options and Considerations for Implementing RUTF
End User Monitoring

April 2018

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ACRONYMS

CHW	community health worker
eLMIS	electronic logistics management information system
EUM	End User Monitoring
HF	health facility
HMIS	health management information system
LMIS	logistics management information system
mHealth	mobile health
MOH	Ministry of Health
RUTF	Ready-to-use Therapeutic Food
SAM	severe acute malnutrition
SDP	service delivery point
SMS	short message service
UNICEF	United Nations Children's Fund

End User Monitoring (EUM) of Ready-to-use Therapeutic Food (RUTF) seeks to verify that RUTF is: available at the health facility and community levels; provided in the right quantities with the right instructions to the intended beneficiaries (children with SAM); and is correctly used by those patients.

1. INTRODUCTION

End user monitoring (EUM) activities are typically designed to measure whether health commodities reach and are used correctly by patients that need them. EUM focuses on the last mile of the supply chain where the patient or their caregiver obtains appropriate medicines from their local health facility (HF) or community care provider, and how it is used by patients in the community. It does not however provide visibility into stock levels at every link in the upstream supply chain.

EUM of Ready-to-use Therapeutic Food (RUTF) as outlined in this document is designed to provide select information for policy makers, program and supply chain managers on the effectiveness of the supply chain system in making RUTF available consistently, and on program implementation to ensure correct use of RUTF in the community. The information collected through EUM will identify areas of weakness in the last mile of the system but are not diagnostic; further data collection or exploration through qualitative interviews with stakeholder and implementers may be required to identify the root cause of the problem and inform corrective actions.

The indicators and approaches described in this document are the result of consultations with United Nations Children's Fund (UNICEF) regional and country offices, government Ministries of Health (MOH), and partners, plus country visits and reviews of tools already in use. The options have been chosen to be practical, feasible and useful for the majority of country programs, recognizing that countries have different contexts and priorities within their respective supply chains and nutrition programs which will require some variance or customization.

A companion document, *Guidance on End User Monitoring Using Continuous Surveys: An Approach for Routine Monitoring of the Availability and Use of Ready-to-use Therapeutic Food (RUTF) at the Last Mile*, outlines the option of collecting data for end user monitoring of RUTF via a small scale continuous survey.

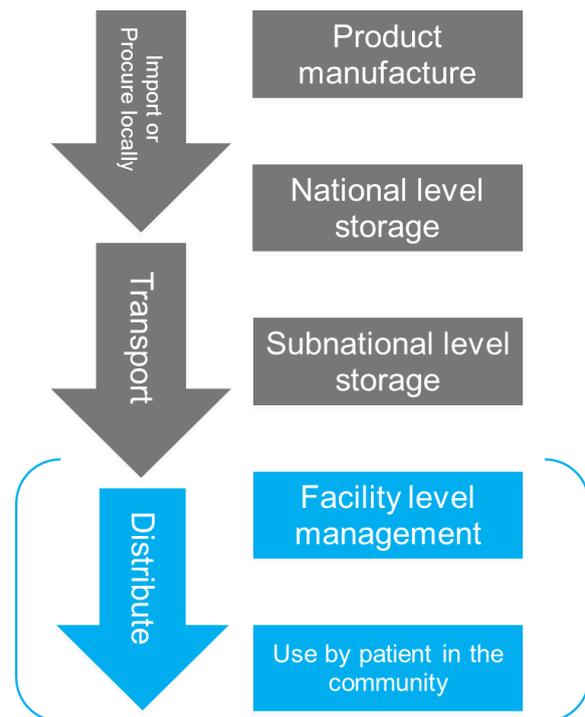
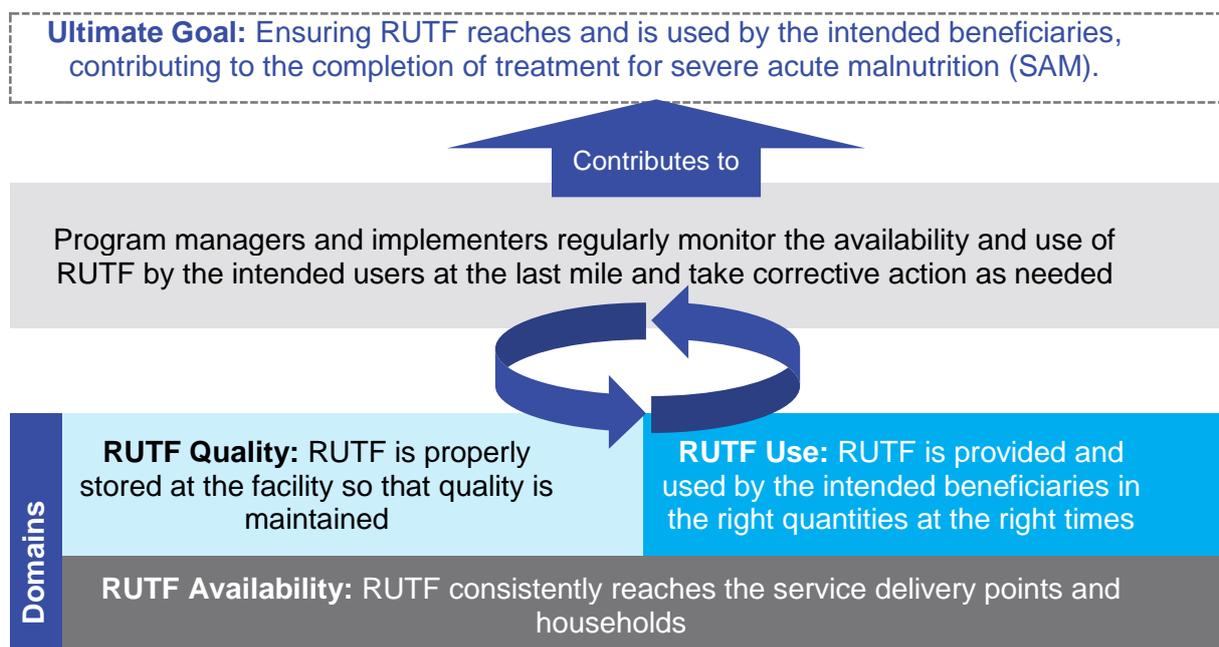


Figure 1: Schematic situating end user monitoring of RUTF in the supply chain

2. RUTF EUM FRAMEWORK

The key purpose of EUM is to improve visibility of data that will enable program managers and implementers to better monitor the availability and use of RUTF by the intended users at the last mile. The following framework highlights three key domains that are critical to the success of a program offering treatment for severe acute malnutrition (SAM): consistent **availability** of product at service delivery points; that the **quality** of the product is maintained through proper storage; and that it is dispensed and **used** correctly by those who need it.

Figure 2: RUTF EUM Theory of Change Framework



The domains describe the ideal functioning of the program with regards to management and use of RUTF at the last mile of the system. If these domains are functioning as described in this framework, end-use can be considered optimal and this will contribute to improved treatment completion rates. (Many other factors within and outside the control of the program also play a role in achieving the ultimate goal). Therefore, EUM indicators and tools are designed to measure the status of these domains.

The framework also emphasizes that for change to occur program managers and implementers must analyze and use the data collected to make informed decisions to address weaknesses and strengthen these domains. For this reason, there is a circular arrow that indicates that data should be continuously reviewed, analyzed and actions taken to strengthen these domains towards the ideal if the ultimate goal is to be achieved.

3. RUTF END-USE INDICATORS

A minimum set of key indicators have been designed to measure availability, quality and use as per the evaluation framework (Full list included in Annex 1). This list of minimum indicators can be collected using a number of different approaches.

Each country should review the indicators with stakeholders and determine if it is applicable and possible to collect in their programmatic context. However as shown in the EUM framework, availability of RUTF is a precursor or foundation for the other domains. As such, the indicators that determine the availability of RUTF have a higher priority than others. The sources of information used to collect data on use may vary from country to country. The indicators have been written assuming a survey will be used to collect the data, however these indicators could be adapted to reflect data collection through other means.

4. DESIGNING RUTF EUM ACTIVITIES

Design of EUM activities should be done using a consultative approach that engages key local stakeholders, including MOH, donors, and implementing partners. These stakeholders must agree on an approach for implementing EUM that complements and strengthens existing activities. Stakeholders may also want to incorporate additional indicators, commodities, or questions. These kinds of additions can help ensure the EUM results are as useful as possible to in-country stakeholders even though they may delay implementation or lengthen presence in facilities or households.

The following sections outline the different approaches or methodologies for data collection and the considerations for selecting, tailoring, and implementing the methodology. This document provides guidance to allow for planning but it is recommended that the approach and refinement of the tools in each country is led by a trained monitoring and evaluation expert.

Countries that elect to move forward with EUM for RUTF may choose to do so starting in a limited geographic area or other targeted manner, in order to learn from and improve the approach before taking it to broader scale. If “piloting” is part of the strategy, countries should at minimum include opportunities in the EUM rollout plan to gather, process, and make training/staffing/protocol improvements based on feedback from those collecting and analyzing the data. Questions might include:

Overall - were you able to carry out your assigned activities (e.g. visit the appropriate number of facilities on the specified timeline)? If not, which ones? Why not?

Specific protocol elements – did you encounter any challenges completing [form]? If so, please describe (which question or data element)? What did you do about it? How could the protocol/process/form be improved?

Data visibility – did program/supply managers’ visibility into data on availability and use at facility and community levels improve, compared to before the EUM activity, or compared to regions where the EUM activity has not yet begun? How?

Such feedback will help the activity managers to identify and address challenges, or build on opportunities to streamline or improve the EUM activity and the improved visibility it is meant to produce. Feedback opportunities could be in the form of written comment or a focus group, for instance.

5. SELECTION OF A MONITORING APPROACH

There are a number of different approaches that can be used to implement end user monitoring. The ones presented here are the most common methods used in countries at the time of writing this document. The indicators that accompany this document could be adapted to enable, or be integrated into, a variety of data collection methodologies. For example, the tools could be used for small-scale continuous surveys or large annual surveys, they could be incorporated into routine reporting or monitoring/supervision systems, and they could be collected using mobile or digital tools. The data collection could also be conducted by various cadres throughout the system, such as central managers, district managers, HF staff, or community health workers (CHWs).

The indicators that accompany this document reflect a quantitative focus that is best suited for large scale data collection as well as for comparisons across time and among populations. However, countries could elect to add more open-ended or qualitative questions to their surveys if they so choose; they would simply need to be mindful of the increase in complexity of data collection, analysis, and comparison that this entails. Please see Annex 3 for some examples.

Many countries are already implementing some approach to monitor RUTF availability and use at different levels within the health system. This document encourages countries to consider what efforts are already underway to monitor RUTF availability and use and whether/how they need to be adapted to respond to EUM requirements. Some countries have utilized simple solutions such as transmitting photos of paper reports through Whatsapp which has improved communication of reports. While these solutions can facilitate improved reporting and communication especially in highly insecure or inaccessible areas, they are not discussed in detail in this document as they are not longer-term, sustainable options, but they could certainly be utilized to address certain situations.

Other possible respondents, such as community health workers (CHWs) and community leaders, are potential sources of information for evaluating EUM indicators. They are not explicitly included as respondents in the minimum set of key indicators, because the availability and job description of CHWs, as well as the particular situation of community leaders, varies considerably from country to country, so they were not suitable for inclusion

in a minimum set. However, when designing their EUM activities, each country should carefully consider their particular context and whether these kinds of other respondents may be suitable for inclusion. For example, questions focusing on the availability of RUTF in the market, or the functioning of a community feedback mechanism for RUTF services may be suitable to ask of these additional respondents. However, each country will need to carefully consider how to sample these additional respondents, and consider the tradeoffs of adding additional questions and/or interviews, which will add to the time and cost of EUM data collection efforts.

Table 1 outlines the different approaches, considerations for each tool, costs, indicators collected, and the level of system involved. This table provides a summary of considerations for different approaches that can help countries determine which methodology or methodologies would be best for their context. Each approach is ranked relative to the other approaches, on each consideration. Country contextual factors - for instance status of existing systems, level of integration of RUTF distribution or reporting, reliability of existing supervision activities, or capacity of local partners, etc. are likely to affect the relative assessments. A description of the considerations outlined in the table are in the text below the table. A full description of each approach is included in Annex 2.

Table 1: Approaches to monitoring RUTF availability and use

	Considerations							Costs		Indicators Collected				Staff capacity required				
	Proximity to end user	Typical frequency of new data	Level of urgency	Level of precision attained	Ability to include hard-to-reach places	Startup effort required (training)	Ongoing effort required	Start up costs	Ongoing costs	Availability - Logistics data	Quality - Storage conditions	Use - Services data	Use - Household use	Central MOH staff	Region/District Staff	SDP Staff	Community health workers	
Continuous Survey	SDP	Quarterly	M	M	L	L	M	\$\$	\$\$	x	x	x		A, C	C			
	Household	Quarterly	M	L	L	L	H	\$\$	\$\$\$	x			x	A, C	C			
Point-in-time Survey (small scale)	SDP	One-off	H	L	H	L	N/A	\$	N/A	x	x	x		A, C	C			
	Household	One-off	H	L	H	L	N/A	\$\$	N/A	x			x	A, C	C			
Point-in-time Survey (large scale)	SDP	One-off	L	H	M	H	N/A	\$\$\$	N/A	x	x	x		A, C	C			
	Household	One-off	L	H	L	H	N/A	\$\$\$	N/A	x			x	A, C	C			
Supervision Visits	SDP	Quarterly	M	M*	M	L	L	\$	\$	x	x	x		A	C			
	Household	Quarterly	M	L	M	L	M	\$	\$\$	x			x	A	C			
SMS Survey	SDP	Weekly	M	L	H	M	L	\$\$	\$	x		x		A		C		
	Household	Weekly	L	L	H	M	M	\$\$\$	\$\$\$	x			x	A				
mHealth routine reporting	SDP	Monthly	M	H	H	H	M	\$\$	\$\$	x		x		A		C		
RUTF EUM integrated into existing routine reporting systems	SDP	Monthly	L	H	M	H	M	\$\$\$	\$\$	x		x		A		C		
	Household	Monthly	L	H	M	H	H	\$\$\$	\$\$	x			x	A			C	
			L = Low	M = Medium	H = High													C = Collects data A = Analyzes data
* the level of precision of supervision visits is highly dependent on how supervision sites are selected and what percentage of sites are covered by supervision																		

5.1 Aligning Indicators with Priorities

Questions to consider:

- What are key concerns to monitor in your country context? Which indicators are most applicable to the context? Are there indicators that should be added or refined for your context?

Discussion: If the concerns in the country are primarily around supply management and wastage of RUTF at or beyond the facility level it is important to focus resources on collecting indicators related to availability and supply chain management. If the concern is about the quality of use at the household then it is important to focus resources on indicators related to use.

5.2 Proximity to end user

Questions to consider:

- What levels of the system should the EUM focus on? What levels are SAM services provided? Are all SAM patients managed by the health facility or are community health workers involved in the management of SAM?
- What level are the greatest challenges with availability, quality or use?
- Are there sufficient funds and human resources available to allow data collection from household level?

Discussion: Depending on the strength or level of integration of existing logistics systems, different countries may be interested in focusing their EUM efforts on different levels of the supply chain. In practical terms for EUM, this means focusing on either the facility level or the facility and community/household level. Some countries that have relatively advanced logistics information systems covering the facility level, and may be more concerned with monitoring use of RUTF in the household by clients. In other countries it may be more beneficial to focus on ensuring the availability and quality of RUTF at the facility level.

Some possible methodologies for implementing the EUM tool will be more appropriate for collecting information at the facility level, while others will be more appropriate for collecting information at the household level (as a complement to already-available data from facilities), so this should be one of the first decision points in which methodology to use. Also collecting data from household level, especially if a representative sample is required, will require more funding and resources than collecting data from facility level.

5.3 Level of urgency

Questions to consider:

- Is there a reason why end user monitoring data is needed quickly? For example, is there an emergency setting and monitoring needs to be implemented quickly?

Discussion: The methodology used to implement EUM needs to respond to the needs of each country with regards to the level of urgency to get answers. Some methodologies will provide more precise, statistically valid answers but take a long time to implement, while others may lack precision and statistical validity but provide rough answers over a short implementation time. In emergency settings a methodology that provides quick answers and updates data frequently may be appropriate because data users want to make tactical decisions to ensure proper distribution of products, while in more routine contexts a longer term approach that involves local capacity building and provides a better, deeper understanding may be appropriate because they are looking to make more strategic decisions about how to best focus resources over the long term, or are simply interested in tracking precise changes in indicators over time to track progress.

5.4 Level of precision attained

Questions to consider:

- Is it necessary to have data that represents the national program? Is it feasible to collect a representative sample?
- Is it possible to target data collection and still have valuable insights into the status of the program at last mile?

Discussion: Tools and practices vary greatly in their granularity and in their statistical rigor. Given a limited budget for monitoring, there will be a tradeoff between breadth and depth of information collected, and how the information is ultimately to be used will be an important determinant in deciding the correct balance here. The level of resources available, the timeframe required for data collection, and the level of information already available upon which EUM will build will all play key parts in deciding the appropriate level of precision required.

5.5 Frequency of new data

Questions to consider:

- How often does the program need or want to see data? How quickly can the program analyze and respond to the data?

Discussion: Some EUM methodologies will provide a “snapshot-in-time” but clear picture of EUM, while others may be less precise but may include frequent updates, allowing program heads to track changes in indicators and make programming decisions based on incoming data. Some methodologies using digital technologies could allow for frequent monitoring such as daily or weekly however the implementation and ongoing costs of these systems may be high.

5.6 Startup effort required

Questions to consider:

- What resources are available to invest in developing and implementing EUM?

-
- What other existing mechanisms are being used to monitor the nutrition program? Does a reliable reporting system exist? Is technology already used for reporting or communication?

Discussion: Some methodologies that can be used to implement EUM require a lot of up-front effort to get set up and collecting data, requiring training of vast numbers of data collectors, while others can be setup in a relatively short time with less effort required in training and setting up new systems to collect and analyze data.

Routine electronic reporting systems (e.g. eLMIS) allows easy and quick data management, visibility, and communication, however they require larger investments upfront for development, training, and implementation. If an electronic logistics management information system (eLMIS) is already in place, consider putting resources into strengthening this and doing only small surveys or monitoring to validate data. If CHWs or households are already reporting through mobile phones, consider adding some EUM questions to those survey forms.

5.7 Ongoing effort required

Questions to consider:

- Who will sustain the EUM activities? What resources do they have to maintain the activities?

Discussion: While some methodologies used to implement EUM will be largely self-sustaining once set up, or indeed one-off, requiring no long-term investment, others may require continual funding and engagement from partners in order to keep going. The availability of resources over the long term, and the commitment of partners will therefore be an important consideration in choosing the best methodology for a particular country.

5.8 Local capacity and Human Resource Requirements

Questions to consider:

- What human resources are available to conduct surveys or report routine information?
- What is their capacity and what would it require to train them?

Discussion: Countries vary greatly in the resources and expertise available to carry out EUM. A key question in determining what methodology should be used to implement EUM will be whether or not cooperating national governments have the capacity, in terms of available expertise, personnel, and financing, to carry out EUM. Please see Table 2 for a summary of key skills and knowledge necessary for carrying out EUM.

In addition, some data collection systems are necessarily easier for a donor or implementing partner to implement as a standalone, because they are less integrated into government systems and easier to do vertically. For example, a one-off point-in-time survey conducted

by a third party may require only minimal logistics capacity on the part of the local health system.

While some methodologies that can be used to implement EUM can be implemented with minimal involvement from the local health system, contributing little to local logistics expertise but being relatively quick and simple to set up, others will rely entirely on local knowledge, and of necessity involve large amounts of training to help build this knowledge, helping to ensure both local buy-in and sustainability. The amount of local capacity building will be an important consideration when selecting an appropriate EUM implementation methodology for a given country.

6. HUMAN RESOURCE CONSIDERATIONS

In designing EUM activities it is important to consider what human resource capacity is in the nutrition program and supply chain management unit both in terms of capacity and availability and what external capacity could be utilized. Nutrition programs can vary among countries, for example some utilize community based health workers for screening and identification of SAM while others only use health facility staff, some contexts include emergency responses in addition to routine services, etc.

- **Community Health Workers:** CHWs are a potential source of information for EUM as they interact frequently and are close to patients and community members. However, CHWs are likely to require training and mentoring support to build their capacity to conduct EUM activities. As there are usually many CHWs this may require significant investment to train and support CHWs to conduct this activity well.
- **Health Facility nutrition staff:** Health facility nutrition staff also are likely to interact with patients and the community however they are often overburdened with reporting. If possible EUM activities could be included with their existing reporting tasks but should not add to their burden if possible.
- **District or Subnational Managers:** There are often sub-national staff that have the capacity to conduct EUM activities and are expected to conduct some supervisory and monitoring activities as part of their duties. District or sub-national managers may not be able to visit all facilities and may not be able to sample enough facilities for representative data as a routine reporting system but in the absence of good systems they can provide enough information to better inform programmatic decisions.
- **Central Program staff:** may be available to conduct these activities quarterly or biannually. If staff availability is a challenge, consider hiring outside data collectors for EUM activities.

- **NGOs or external:** where government health programs are understaffed it might be necessary to hire external data collectors or to use implementing partners to assist in data collection and analysis.

To assist in planning, a competency framework has been developed that outlines the skills required to collect the full range of indicators listed below. This competency framework can assist countries in determining which staff have the appropriate skills for conducting data collection and which staff may require training.

Table 2: Skills and knowledge required for EUM

Topic	Skills required
Physical count	Data collectors must know how to count the usable products, this includes separating usable from unusable products, understanding importance of unit of issue, ensuring that products are counted in all parts of a facility (not just the storeroom), and familiarity with standard packaging
Expiry dates	Data collectors must understand how to find and read an expiry date
Storage	Data collectors must understand good storage practices and be able to assess the storage conditions in a storage area
Chart reviews	Data collectors must be able to find information in charts and extract the correct information for each question
Interview techniques	Data collectors must understand good interview techniques to ensure good data quality and so as not to bias the respondents' answers If collecting qualitative information, data collectors must be able to probe/formulate follow-up questions

In addition to training data collectors it is necessary to ensure program managers have the skills to analyze and take action on data. Staff need to have the skills or be trained in how to organize, visualize and interpret the data. Country-specific design and development of training materials should be part of a preliminary phase of testing or piloting EUM for RUTF, and will become examples from which other countries can learn.

7. REPORTING & DISSEMINATION OF RESULTS

Data availability alone is not enough for supply chains and health systems to improve performance and get critical health products into the hands of clients. In addition to building end user monitoring activities or systems it is important to plan how the results will be disseminated to stakeholders – for instance as part of existing operational and strategic

meetings in the health system – to make decisions and take actions to improve performance. This document will not outline how this is to be done, but is listed here to ensure it is included in planning for EUM. Standard reporting templates should be designed during any testing or piloting of EUM for RUTF; though they will need to be tailored to the particular implementation of any given country.

ANNEX 1: “MINIMUM STANDARD” SET OF RUTF EUM INDICATORS

Indicator	Rationale	Numerator/Denominator
Availability		
Percentage of facilities surveyed with usable (undamaged, unexpired) RUTF in stock	To determine if RUTF is reaching and available at sampled facilities	<i>Numerator:</i> All facilities where Physical Inventory of usable RUTF \neq 0
		<i>Denominator:</i> All facilities surveyed
Average number of days facilities surveyed were stocked out of RUTF in the last three months	To determine if there is a persistent problem with availability	<i>Numerator:</i> Total number of days stocked out across all facilities surveyed
		<i>Denominator:</i> All facilities surveyed
Percentage of facilities surveyed appropriately stocked according to established max/min policies, out of facilities that have records available	To determine extent of stock imbalances / whether quantity of product in stock is sufficient to meet user needs / and whether there is risk of stock out or expiry	<i>Numerator:</i> Number of facilities that have appropriate stock levels according to national min/max stock guidelines
		<i>Denominator:</i> All facilities surveyed
Percentage of facilities in [period] with usable RUTF on hand as per LMIS report	To determine if RUTF is reported as available at all facilities	<i>Numerator:</i> All facilities where reported balance of RUTF \neq 0
		<i>Denominator:</i> All facilities that reported
Quality		
Percentage of facilities surveyed with expired RUTF	To determine if RUTF is expiring before being issued to patients	<i>Numerator:</i> Total number of facilities surveyed that had expired RUTF
		<i>Denominator:</i> All facilities surveyed
Percentage of facilities surveyed with damaged RUTF	To determine if RUTF is being damaged before reaching patients	<i>Numerator:</i> Total number of facilities surveyed that had damaged RUTF
		<i>Denominator:</i> All facilities surveyed
Average number of RUTF sachets that are unusable per facility	To determine the extent of problems with expiries and damages	<i>Numerator:</i> Total quantity of RUTF reported as unusable in all facilities surveyed
		<i>Denominator:</i> All facilities surveyed

Indicator	Rationale	Numerator/Denominator
Average percentage of proper storage practices for RUTF demonstrated by facilities	To measure the extent to which appropriate storage conditions exist	<i>Numerator:</i> Total score on a list of essential storage criteria demonstrated by all facilities surveyed <i>Denominator:</i> All facilities surveyed * total number of storage criteria assessed
Use		
Percentage of charts reviewed where child received correct amount of RUTF per national guidelines	To determine if correct quantities are being dispensed	<i>Numerator:</i> number of charts where the quantity dispensed is appropriate per national treatment guidelines <i>Denominator:</i> All charts surveyed
Percentage of facilities where nutrition staff know the correct quantity per day for a child per protocol	To determine if Health Facility staff understand how to use RUTF	<i>Numerator:</i> Number of facilities where the staff in charge of prescribing dosages correctly describe national protocol <i>Denominator:</i> All facilities surveyed
Percentage of facilities where staff report RUTF is being sold on the market	To determine if selling in the market is common	<i>Numerator:</i> Number of health facilities where at least one nutrition staff reported that RUTF is sold on the market <i>Denominator:</i> All facilities surveyed
Rate of recovery/cure for patients in outpatient SAM treatment	To determine if nutrition outcomes are improving	<i>Numerator:</i> Number of SAM patients in outpatient treatment discharged as recovered/cured in the last three months, from records reviewed <i>Denominator:</i> Total number of patient records reviewed where the child was not transferred to another treatment center
Average length of stay in treatment of children discharged as cured/recovered from SAM treatment	To determine how effective the treatment is for children in treatment	<i>Numerator:</i> Total number of days in treatment for all patients records reviewed that were discharged as cured/recovered <i>Denominator:</i> Total number of patients records reviewed that were discharged as cured/recovered
Average weight gain, in grams per kilogram per day, of children discharged as cured/recovered from SAM treatment	To determine how effective the treatment is for children in treatment	<i>Numerator:</i> sum of individual weight gains of patient records reviewed that were discharged as cured/recovered <i>Denominator:</i> Total number of patient records reviewed for patients that were discharged as cured/recovered

Annex 1

Indicator	Rationale	Numerator/Denominator
Percentage of caregivers that recognize RUTF and know what it is for	To determine if caregivers know what RUTF is and what it is used for	<i>Numerator:</i> Number of caregivers who answered correctly
		<i>Denominator:</i> All surveyed caregivers for SAM patients
Percentage of caregivers surveyed that received RUTF at last visit	To determine if caregivers were able to receive RUTF at last visit	<i>Numerator:</i> Number of caregivers who receive RUTF at the last visit
		<i>Denominator:</i> All surveyed caregivers for SAM patients
Percentage of caregivers surveyed that did not receive RUTF at last visit because it was stocked out	To determine if stock outs were a barrier to caregivers receiving RUTF at last visit	<i>Numerator:</i> Number of caregivers who did not receive RUTF at last visit because it was stocked out
		<i>Denominator:</i> All surveyed caregivers for SAM patients
Percentage of caregivers surveyed that did not receive RUTF at last visit because there were no appropriate staff to provide it	To determine if non-availability of staff was a barrier to caregivers receiving RUTF at last visit	<i>Numerator:</i> Number of caregivers who did not receive RUTF at last visit because there were no appropriate staff to provide it
		<i>Denominator:</i> All surveyed caregivers for SAM patients
Percent of caregivers who have the correct number of sachets of RUTF remaining on hand, per distribution schedule	To determine if caregivers are providing RUTF to patients at correct rate between HF visits	<i>Numerator:</i> Number of caregivers who had an appropriate number of sachets remaining on hand, per prescribed dosage and distribution schedule
		<i>Denominator:</i> All surveyed caregivers for SAM patients
Percentage of caregivers given the correct information on RUTF use by the health worker	To determine if health workers are providing appropriate instruction to caregivers in RUTF use	<i>Numerator:</i> Number of caregivers that correctly answer a series of questions on RUTF use
		<i>Denominator:</i> All surveyed caregivers for SAM patients
Percentage of caregivers that know the correct daily dose for the child	To determine if caregivers understand correct dosage of RUTF	<i>Numerator:</i> Number of caregivers who report the correct dosage, according to facility record of prescribed dosage
		<i>Denominator:</i> All surveyed caregivers for SAM patients

Annex 1

Indicator	Rationale	Numerator/Denominator
<p>Percentage of caregivers that gave the correct quantity (correct number and fully finished) to their child the day before the survey</p>	<p>To determine if patients are receiving and finishing correct dosage</p>	<p><i>Numerator:</i> Number of caregivers reporting they gave the correct quantity and it was fully finished the previous day</p> <p><i>Denominator:</i> All surveyed caregivers for SAM patients</p>
<p>Percentage of caregivers that report sharing RUTF with other person/s in household</p>	<p>To determine extent of sharing</p>	<p><i>Numerator:</i> Number of caregivers reporting they share RUTF</p> <p><i>Denominator:</i> All surveyed caregivers for SAM patients</p>
<p>Percentage of caregivers that report RUTF is being sold or exchanged</p>	<p>To determine if there is leakage through selling/exchanging</p>	<p><i>Numerator:</i> Number of caregivers reporting RUTF is sold/exchanged</p> <p><i>Denominator:</i> All surveyed caregivers for SAM patients</p>
<p>Percentage of caregivers satisfied with the amount of RUTF they received</p>	<p>To determine level of satisfaction with the program</p>	<p><i>Numerator:</i> Number of caregivers reporting satisfaction with quantity of RUTF received</p> <p><i>Denominator:</i> All surveyed caregivers for SAM patients</p>

ANNEX 2: APPROACHES TO EUM DATA COLLECTION

Continuous Survey

Description: Small survey conducted regularly at a small number of sites, building up a statistically representative sample over several rounds of smaller surveys.

Level: Depending on the time available for data collection the survey can be conducted at the facility level and through community household visits.

Precision of Data: Typically, data is collected from a small, non-statistically representative sample several times a year, often quarterly. Different sites are visited each round of data collection and over the course of the year they will aggregate to a nationally representative survey.

Indicator Types:

- ✓ Availability - facility logistics data
- ✓ Quality - facility storage conditions
- ✓ Use - services data
- ✓ Use - household use

Data collector Skills Required

- ✓ Physical count
- ✓ Proper storage conditions
- ✓ Expiry dates
- ✓ Charts
- ✓ Interview techniques

Human Resource Considerations:

- Requires a long-term commitment from the national government and from the assigned data collectors themselves, as data collection requires the regular cooperation of team members several times a year.
- If conducted by national or subnational MOH program staff it is important to ensure these staff who have many competing activities do not delay or miss a period of data collection. If missed a representative sample may not be collected in one year.
- Staff will require training to setup this team and technical assistance may be necessary for the first year or more.
- Data collectors should have some supply chain and/or program knowledge and experience conducting survey data collection.
- If adequate program staff are not available within the program it might be necessary to use implementing partner staff or use an external service provider, such as a private company or university.

Point-in-time Survey (small or large scale)

Description: One-off surveys conducted either to a small number of sites or a nationally representative number of sites. Because they are typically conducted on a one-off basis, they therefore do not require an ongoing commitment.

Level: Depending on the time available data collection can be conducted at the facility level and through community household visits.

Point-in-time Survey (small or large scale)

Precision of Data:

- Point in time surveys are typically powered to provide statistically representative results at least at the national level.
- A small scale survey without representative data may be conducted if urgent data is required to make a particular decision, i.e. in emergency settings where resources are limited.
- Large scale surveys could include all or many of the levels of the supply chain, from the central level down to the household level depending on resources and time available.

Indicator Types:

- ✓ Availability - facility logistics data
- ✓ Quality - facility storage conditions
- ✓ Use - services data
- ✓ Use - household use

Data Collector Skills Required:

- ✓ Physical count
- ✓ Proper storage conditions
- ✓ Expiry dates
- ✓ Charts
- ✓ Interview techniques

Human Resource Considerations:

- Often conducted by private contractors, meaning that less in-house expertise, either at the contracting organization or in the national government, is needed. However, governments do need to have the capacity to assess, award and manage the contractor.
- Use of mobile phones or tablets for data collection can reduce the time required for cleaning and analysis.

Supervision

Description: Incorporating EUM data collection into routine supervision activities. This may require adding quantitative data collection to supervision tools and implementing a system for transmission of data from supervisors to the program level.

Level: Depending on the time available data collection can be conducted at the facility level and through community household visits.

Precision of Data:

- If well implemented and supported, supervision could provide representative data as all service delivery points should be visited at least annually.
- However, data collection schedules are often dictated by supervision needs rather than statistical sampling practices, so building nationally representative samples can be difficult.
- The quality of data is difficult to guarantee as there are often many supervisors in a health system and training them to collect data using a consistent approach may be difficult.

Indicator Types:

- ✓ Availability - facility logistics data
- ✓ Quality - facility storage conditions
- ✓ Use - services data
- ✓ Use - household use

Data collector Skills Required

- ✓ Physical count
- ✓ Proper storage conditions
- ✓ Expiry dates
- ✓ Chart reviews
- ✓ Interview techniques

Supervision

Human Resource Considerations:

- Supervision typically focuses on identifying and correcting issues and building capacity via on-the-job training, rather than on actual data collection for reporting to the national level.
- Training supervisors will be critical to ensure that the data collection is consistent and of good quality. As there are often many supervisors at each level of the system this could require a lot of resources.

Other factors to consider

- Any data that are collected may be kept by the individual supervisor and not reported to the sub-national or national levels, therefore it may be necessary to design a data collection tool and method for transmitting data either using paper based reports or digital tools.
- Adding data collection on RUTF programs as part of existing supervision of other programs runs the risk of decreasing data collector's focus on each program supervised, "diluting" the quality of data collected.
- Since supervision visits are typically carried out with funding from the subnational administrative level, when funding is tight these supervision visits can become less reliably routine than intended.

SMS Survey

Description: Using mobile technologies to send survey questions to health facility staff, CHWs or patients to collect data on availability or use.

Level: Depending on the resources available for implementation data can be collected from the facility level and the community level

Precision of Data

- Could provide data from many service delivery points and households; however this requires a high response rate. To get a high response rate it will be necessary to spend time and resources to properly sensitize community members, CHWs and other health workers.

Indicator Types:

- ✓ Availability - facility logistics data
- ✓ Use - services data
- ✓ Use - household use

Data collector Skills Required

- ✓ Responding using SMS

Human Resource Considerations:

- Must carefully design the survey to be short and not too frequent so as to encourage responses. If too many surveys are sent out they might start to be ignored. It might be necessary to consider incentives such as airtime to encourage responses.

Other factors to consider

- It is necessary that users have relatively reliable cell phone service, and the ability to keep a device charged.
- Where possible automate the collection of responses to reduce data entry and reduce the time required for data analysis and use.

mHealth Routine Reporting

Description: Using mobile technologies to report data, often data that would otherwise be included in paper LMIS or HMIS reporting forms. Mobile technologies include SMS, mobile applications, Whatsapp.

Level: Depending on the resources available for implementation, data can be collected from the facility level and the community level.

Precision of Data

- If well implemented and supported could provide data from all service delivery points and the community level, however this would require large resources for training and ongoing monitoring and supervision. Data quality is unlikely to be as reliable as a survey due to the large number of people reporting, and without good supervision there may be missing or incorrect figures entered.

Indicator Types:

- ✓ Availability - facility logistics data
- ✓ Use - services data
- ✓ Use - household use

Data collector Skills Required

- ✓ Preparing data from records
- ✓ Reporting using SMS

Human Resource Considerations:

- All users will need to be trained either on how to report via SMS or a mobile application. Who is reporting will affect training costs. For example if CHWs are to report this will require substantial training costs as there are usually many CHWs.
- Carefully design the reporting system to not add a lot of burden on the health worker who is reporting. If the frequency of reporting data is often or the amount of data reported is a lot, it may add burden to busy health workers who should be focusing on patients.

Other factors to consider

- Decide whether the program will be able to provide mobile phones to health facility staff or community health workers, and consider what the sustainability plan will be for replacement of lost or broken phones. If not providing phones, then the application design must be based on the phones users have available to them and work on multiple hardware and software platforms.
- It is necessary that users have relatively reliable cell phone service, and the ability to keep a device charged.
- SMS reporting needs to be kept simple so that the messages are not too long. This will mean only a small amount of data can be collected via SMS.
- Mobile applications will only work on smartphones. The applications do need to be maintained and upgraded from time to time.
- If using an SMS or mobile tool consider where the data will be transmitted to, where it will be stored, and how it will be visualized. Ideally this happens automatically and does not require someone at a higher level receiving the data and entering it manually into another system.

Integration of RUTF into existing routine reporting systems

Description: End user monitoring data for RUTF is included in regular logistics management information system (LMIS) or health management information system (HMIS) data collection.

Level: All levels of the system.

Precision of Data: Data quality is unlikely to be as reliable as a survey due to the large number of people reporting, and without good supervision there may be missing or incorrect figures entered.

Integration of RUTF into existing routine reporting systems

Indicator Types:

- ✓ Availability - facility logistics data
- ✓ Use - consumption data
- ✓ Use - services data
- ✓ Use - household use

Data collector Skills Required

- ✓ Preparing data from records
- ✓ Reporting using digital tool

Human Resource Considerations:

- Inclusive of all levels of health personnel, including both facility staff and community care providers.
- Massive training rollout campaigns are required as well as regular refresher training.

Other factors to consider

- This methodology is particularly relevant where RUTF is integrated in the health system supply chain as health workers should ideally be able to report on RUTF with other commodities. However this may mean that the program has less control on what indicators are collected. The routine systems could also be supplemented by infrequent continuous surveys that collect missing indicators and also validate data collected through LMIS or HMIS.
- High running costs associated with these systems unless well-integrated into other routine data collection activities or systems.
- Logistics Management Information Systems collect logistics or commodity data, whereas Health Management Information Systems or medical records collect client or service data. An LMIS will typically provide useful indicators for EUM with regards to availability and HMIS will collect data on use.
- To get a full picture for end use monitoring it might be necessary to pull the data from each into a central place either manually using something like Excel or through interoperability which is a costly process that requires software development expertise.

ANNEX 3: EXAMPLE ADDITIONAL COMMUNITY-LEVEL QUESTIONS

Below are some further examples of questions not included in the “minimum standard” EUM survey tool, but that might be of interest to countries depending on their priorities for EUM. Some of these questions are more open-ended or qualitative, which in a small-scale survey or focus group could yield insights valuable to program managers, but which would be more challenging to collect and analyze on a large scale.

Respondent	Questions
<p>CHWs</p> <p>Other community members (e.g. community leaders), as relevant</p>	<ul style="list-style-type: none"> • What is your involvement in diagnosis, treatment, or tracking of SAM clients in your community? • Do you check whether clients you have diagnosed and referred to the facility actually enroll in treatment? • Do you have registers or other tools that you use to track the children in your community who are receiving RUTF treatment for SAM? (Can you please show them to me?) • What indicators do you capture (e.g. MUAC? weight? recoveries/deaths/defaults among clients enrolled?) • Do you carry out any other activities or checks (e.g. home visits) to ensure the children in SAM treatment are using the RUTF prescribed/dispensed to them? • How many children with SAM do you have in your community that you follow? • How much time do you spend on SAM diagnosis or follow-up each week? (E.g. 1 hour per client?) • Do you experience any challenges carrying out diagnosis or follow-up of SAM clients? • What other strategies are used in the community to ensure children in SAM treatment are using the RUTF prescribed/dispensed to them? • Do you consider RUTF a food or a medicine? • Can you tell me about community members’ perceptions of SAM treatment for children? Of RUTF the product? Do you have any examples of children or caregivers that aren’t using RUTF because they don’t like it for some reason? Do the children or caregivers you track perceive RUTF as a food or a medicine? • Have you heard of problems with availability of RUTF at the facility/treatment center? • Is there a way for clients/caregivers to provide feedback to the health worker on RUTF services? • Have you heard of other family members/other people sharing the RUTF prescribed to a child?

Respondent	Questions
Clients (caregivers of patients with SAM)	<ul style="list-style-type: none"> • How many children under 5 years of age slept in your household last night? • When was the last time [child] visited the clinic for a nutrition checkup [weight check]? • How many RUTF packets did you receive for [child]? • When did you give the RUTF to [child] yesterday? • While [child] has been receiving RUTF, did you go to renew the prescription and find there was no RUTF for [child] at the facility? • Is there a way for you to provide feedback to the health worker on RUTF services? • Do you receive visits from community health workers in your home or elsewhere in your community? How frequently do they visit you? • What do you talk about with the community health worker related to [child's] treatment with RUTF?

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