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NAME: ANGUA GETRUDE

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RESEARCH REPORT

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DECLARATION

I **Angua Getrude**, the under signed candidate hereby declare that the research was prepared by me and it has not been duplicated, reproduced and published elsewhere.

31st July 2019

Sign…….. **Date**……

Angua Getrude

Research Candidate

DEDICATION

This research is dedicated to my beloved Sister **Mrs. Beatrice Juan,** my beloved brother **Sunday Ivu**, my parents and my entire family members who have been standing with me through my studies and also thanks for the support. I also dedicate this research to my lovely siblings who are ever encouraging me to work hard during my studies.

This research is also dedicated to the Almighty God for granting me wisdom during the research project because without God nothing is possible.

I would also want to express my sincere thanks and appreciation to the various people who helped and supported me in one way or the other during my general studies and my research project.

Special thanks go to African Institute for Project Management Studies and its entire staffs for the knowledge and skills they have offered to me throughout the course as their Human Nutrition Student, Thanks to you all and may God bless you.

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ABBREVIATIONS

- **SSEML** : South Sudan Essential Medicine List
- **WHO** : World Health Organization
- **UNICEF** : United Nations Children's Fund
- **WHE** : World Health Emergencies
- **RUTFs** : Ready to Use Therapeutic Food
- **PTWG** : Pharmaceutical Technical Working Group
- **EML** : Essential Medicines List
- **CMAM** : Community Management of Acute Malnutrition
- **WFP** : World Food Programme
- **RUSF** : Ready to use Supplementary Food
- **UNFPA** : United Nations Population Fund
- **IPC** : Integrated Food Security Phase Classification
- **SAM/MC** : Severe Acute Malnutrition with Medical Complication
- **WHA** : World Health Assembly

ABSTRACT

South Sudan is experiencing a deteriorating nutrition situation, owing to the conflict, severe food insecurity, high prevalence of infectious diseases, limited access to health services, mass displacement and economic crisis. The burden of acute under nutrition remains significantly high in 2018, with over 1 million children under the age of 5 years acutely undernourished; of these, 261 424 have severe acute under nutrition. This paper focuses on the processes undertaken by the Ministry of Health of the Republic of South Sudan, the World Health Organization (WHO) and other partners, to update the South Sudan Essential Medicine List to include specialized nutrition related health products. The overarching goal was to include all medicines needed to treat common conditions and to define the level of care at which they should be available in South Sudan. This was achieved through a bottom-up inclusive policy dialogue and the process led to alignment with and contribution to the World Health Organization (WHO) Thirteenth General Programme of Work 2019–2023, for advancing universal health coverage and addressing health emergencies and well-being; strengthened integration for the management in the health-care system of severe acute under nutrition in infants and children, through improved procurement of supplies; and alignment with the national guidelines and description of the use of specialized nutrition-related health prod

Chapter One

1.0 Introduction

Since 2014, South Sudan has experienced a deteriorating nutrition situation, owing to unprecedented levels of food insecurity, spread of communicable diseases, poor infant and child feeding practices, a fragile health system, protracted conflict and economic crisis. The cost of living has continued to escalate. The humanitarian outlook for 2018 remained alarming, with over seven million people in need of humanitarian assistance

The Integrated Food Security Phase Classification showed that from February to April 2018, 6.3 million people in South Sudan (57% of the population) experienced severe food insecurity. The burden of acute malnutrition remained significantly high in 2018, with 1 082 414 infants and children under 5 years of age acutely.

Undernourished and 261 424 of these with severe acute under nutrition. These figures indicate an extremely serious situation, where acute under nutrition remains a major public health problem and cause of morbidity and mortality among infants and children aged less than 5 years. In this scenario, improved child survival depends on preventing wasting[1] and on ensuring that timely and appropriate life-saving actions are available.

1.1 Background information

The history of public health is derived from many historical ideas, trial and error and the development of basic sciences, technology, and epidemiology. ... The history of public health is a story of the search for effective means of securing health and preventing disease in the population.

The focus of public health is on the health, safety and well-being of entire populations, the public health approach is rooted in the scientific method and It can be applied to violence and other health problems that affect populations.

1.2 Definition of public health.

Public health, the art and science of preventing disease, prolonging life, and promoting physical and mental *health*, sanitation, personal hygiene, control of infectious diseases, and organization of *health* services

Communicable diseases are the most common causes of death, illness and disability in the African region. While these diseases present a large threat to the well-being of African communities, there are well known interventions that are available for controlling and preventing them. Surveillance data can help health

personnel in decision making needed to implement the proper strategies for disease control and lead to activities for preventing future case

Surveillance is a watchful vigilant approach to information gathering that serves to improve or maintain the health of the population .A functional disease surveillance system is essential for defining problems and taking action. Using epidemiological methods in the service of surveillance equips county and local health teams to set priorities, plans, interventions, mobilize and allocate resources and provide or predict early detection of outbreaks

Depending on the goal of the disease prevention programme, the surveillance activity objectives guides program me managers towards selecting data that would be the most useful to collect and use for making evidenced –based decisions for public health and action.

There are so many disease outbreaks within the country as detected by the Emergency Preparedness and Response(EP&R)team as they study disease outbreaks and respond immediately. The health professionals by the help of emergency operation Centre are able study different disease outbreaks and implement effective public health decisions and plans.

1.3 Problem Statement

Severe food insecurity is based on the Integrated Food Security Phase Classification. Acute food insecurity occurs in a specific location when at least 20% of households have significant food consumption gaps or are marginally able to meet minimum food needs only with irreversible coping strategies such as liquidating livelihood assets. Levels of acute malnutrition are high and above normal. Emergency food insecurity occurs in a specific location when at least 20% of households face extreme food-consumption gaps, resulting in very high levels of acute under nutrition and excess mortality; or households face an extreme loss of livelihood assets that will probably lead to food-consumption gaps. Humanitarian catastrophe occurs in a specific location when at least 20% of households face a complete lack of food and/or other basic needs; starvation, death and destitution are evident; the prevalence of acute malnutrition exceeds 30%; and mortality rates exceed 2/10 000/day.

1.4 Justification

The health and nutrition supply system, led by partners, has periodically suffered stock outs and gaps. A community perception assessment showed that 73% of responders reported that health facilities are open in their communities, but only 54% of these facilities have the capacity to deliver services; 73% had perceptions that health facilities experience critical gaps such as shortages of essential medicines; and 54% had perceptions that there was no adequate equipment.

The term used in some documents is “severe acute malnutrition”, although with the World Health Organization (WHO) broader definition of malnutrition in all its

forms, which includes undernutrition (wasting, stunting, underweight), inadequate vitamins or minerals, overweight, obesity, and resulting diet-related non-communicable diseases, the term "undernutrition" is used herewith to convey that reference is made to under nutrition only and not to all other types of malnutrition. The terms malnutrition or under nutrition are used interchangeably in this article.

Wasting refers to a child who is too thin for his or her height. Wasting is the result of recent rapid weight loss or failure to gain weight. A child who is moderately or severely wasted is at increased risk of death, but treatment is possible.

1.5 General Objective

This paper describes a case-study of South Sudan, focusing on the processes undertaken by the Ministry of Health, WHO and other partners to review and update the South Sudan Essential Medicine List 2018 (SSEML 2018), to include specialized nutrition-related health products.

1.6 **The specific objectives of the case study are**

(i) To describe the South Sudanese context and the processes of reviewing the SSEML, including stakeholders' engagement, and assessment of the inclusion of specialized nutrition-related health products in the SSEML;
(ii) To describe the rationale for including nutrition-related health products in the SSEML 2018 (like evidence of benefits and safety, intended use, availability and procurement, and public health relevance);
(iii) To consider stakeholders' perspectives, which can be seen as replicable criteria in other contexts;
(iv) To describe the use of specialized nutrition-related health products in the South Sudan health guidelines;
(v) To summarize the expected results, impacts, resources and barriers in the process.

Ensuring the inclusion of specialized nutrition-related health products in the SSEML 2018 is therefore a key strategy to improve access to and availability of treatment for acute under nutrition. The SSEML 2018 is a South Sudanese Government policy document to ensure provision of cost-effective, safe and efficacious treatment for the majority of communicable and non-communicable diseases in South Sudan. It is the South Sudanese Government-approved selection list of medicines and other commodities that guides their procurement and supply to the public sector and medicine donations.

The SSEML 2018 builds on the public health concept of essential medicines, which has been defined to include the following tenets: essential medicines are those that satisfy the priority health-care needs of the population, selected with due regard to public health relevance, evidence on efficacy and safety, and comparative cost-effectiveness. Given the dynamic nature of therapeutic products, standard and prevention-treatment guidelines and essential lists need to be updated regularly to maintain their credibility and relevance. In South Sudan, new guidelines for the treatment and prevention of acute under nutrition have been developed and others have been revised by different Ministry of Health programs, including the nutrition

Programme; new commodities, nutrition-related health products and medicines suitable for children with under nutrition have subsequently been added into therapeutic practice. The classification of medicines by level of health-care facility utilization has changed in light of the adoption of “The Boma Health Initiative” and the National Health Policy 2016–2026 in South Sudan.

Therapeutic nutrition-related health products were not included in the SSEML 2007. The rationale built on to include specialized nutrition-related health products in the SSEML 2018 is outlined in the Methodology section of this document.

CHAPTER TWO

2.0 Methodology;

Review and update process for the South Sudan Essential Medicine List 2018.

The National Health Policy 2016–2026 and the Health Sector Strategic Plan 2017–2022 for South Sudan have articulated the priority of the Government and the Ministry of Health to tackle under nutrition as a major public health problem. Under these national frameworks, the national Community management of acute malnutrition [CMAM] guidelines was developed in South Sudan in 2017–2018, to ensure delivery of quality nutrition services at community and health-care-facility levels. Underlying the provision of appropriate, equitable and good-quality health care is the consistent availability of essential medicines at every health service delivery point, combined with an efficient monitoring and evaluation system.

The Ministry of Health, cognizant of the role that an updated evidence-based essential medicines list plays in ensuring cost-effective use of resources; appropriate management of medicines, commodities and supplies; and enhanced quality of care, initiated the process of reviewing the essential medicines list in 2016. This is part of the process for improving medicines, commodities and supply availability, and their proper use within the health-care system in public and private health facilities. The SSEML 2018 was compiled based on recommendations from a multidisciplinary group of health professionals and experts at the Ministry of Health or their partners, and within the health facilities across different states in South Sudan. Consideration was given to the recommendations in the 20th WHO Model List of Essential Medicines (EML) and 6th Model List of Essential Medicines for Children, published in 2017. The overarching goal was to include all medicines needed to treat or prevent common conditions and to define the level of care at which they should be available in South Sudan. Given the burden of childhood wasting in South Sudan, and the need to provide life-saving nutritional treatments to address this condition on a very large scale, the policy of the Ministry of Health aimed to ensure appropriate procurement of safe, efficacious and quality essential medicines in public institutions, through the inclusion of key therapeutic nutrition-related health products in the SSEML 2018.

The review and update of the SSEML 2007 commenced in 2016, when the Ministry of Health, in collaboration with WHO, the Health Pooled Fund and the United Nations Population Fund, revived earlier efforts made by the United States Agency for International Development to support the review of the SSEML 2018. Forms for inclusion, change or deletion of products from the essential medicines list were sent to health facilities in the counties and states. The review and update of the SSEML was achieved through a bottom up policy dialogue, with participatory and inclusive processes. The latter included extensive desk review of

global, regional and in-country documents and the EML 2017; technical consultative processes with national and international experts and stakeholders; and technical assistance from the WHO Country Office, the WHO Regional Office for Africa, the Inter country Support Team for East and Southern Africa and WHO headquarters. The Pharmaceutical Technical Working Group (PTWG) led the review and the consultative and validation processes, following the overarching principle that selecting key medicines that meet the majority needs of the population ensures that health workers are trained better on how to use them; the pharmaceutical supply-chain processes are optimized; and the purchaser can negotiate for lower prices because of the higher quantities involved.

In 2016, the Ministry of Health, with technical assistance from WHO, an extensive desk review of relevant grey and published literature on the EML and the SSEML 2007, was conducted. Case-studies from other countries, reflecting experiences on the inclusion of ready-to-use therapeutic food (RUTFs) in the SSEML, were sought. This was followed by meetings with key Ministry of Health authorities and health-sector partners, with a view to identifying 46 key informants, who were interviewed at the state and national levels. This process was put on hold, owing to a resurgence of conflict in 2016.

With return to normalcy in 2017, the process was resumed. The Ministry of Health convened a meeting with participants from the PTWG, a technical advisory group of the Ministry of Health, with the aim of accelerating the process, which had already taken a long time. A committee was formed from PTWG members, to work with an external lead consultant reviewing the SSEML. The lead (external) consultant was hired by WHO and the Ministry of Health, in order to support the review of the SSEML. A series of consultative meetings were scheduled with various stakeholders, who procured, distributed and prescribed essential medicines. Of the 510 essential medicines proposal forms received from health facilities, 349 (requested items) were for inclusion in the SSEML 2018. Some of the items that were requested included addition of specialized nutrition-related health products. These were requested by the Department of Nutrition in the Ministry of Health, the United Nations Children's Fund (UNICEF), the WHO Health Emergencies Programme (WHE), and other stakeholders implementing programs with nutrition interventions. It was considered an important mechanism for future integration of specialized nutrition-related health products in the supply chains.

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interventions. It was considered an important mechanism for future integration of specialized nutrition-related health products in the supply chains.

One proposed strategy for improving access to RUTFs was to include them in the SSEML. Furthermore, community-based management of acute under nutrition delivered by community health workers and using RUTFs is a cost-effective strategy compared with inpatient treatment, and compares well with the cost effectiveness of other common child survival interventions. These arguments were presented by major stakeholders providing nutrition-related health services. A meeting with a large group of clinical specialists (46 key informants), in Juba Teaching Hospital in November 2017, was convened to discuss the merits of including new products and removing those that were obsolete. Whereas discussions on medicines were straightforward, addition of RUTFs was debated extensively. The main issues for discussion were related to supply-chain management and financing issues. Some key informants urged that addition of RUTFs would stretch an already weak supply chain. They noted that addition of RUTFs to the SSEML could imply that the product was a medicine and therefore liable for stringent quality assurance, which is still at a nascent stage in South Sudan.

Despite the arguments against inclusion of RUTFs, the current rate of under nutrition in South Sudan caused by the conflict and its inherent effects (such as food insecurity, economic crisis, huge populations in displacement camps) was highlighted as a significant factor in favor of adding RUTFs to the SSEML. Successful use of RUTFs has been recognized in the treatment of severe acute under nutrition and in large scale programs. Evidence from cases-studies of two countries in the region (Nigeria, Zimbabwe) that have included RUTFs in their national essential medicines lists demonstrated a successful process of inclusion and integration of the products into broader health services, particularly management of childhood illness. Since 90% of medicines in South Sudan are donor funded, the case for excluding RUTFs from a financing perspective was deemed unreasonable. Other participants and key informants argued that essential medicines lists are revised regularly (every 2–5 years), depending on a country's ability and context. The product would be removed from the essential medicines list if the situation changed, and rates of severe acute under nutrition in children aged under 5 years were properly addressed and, as a result, significantly reduced.

After wide consultation, the document was shared with all partners and key stakeholders within the country, region and WHO headquarters. The Ministry of Health organized a technical consultative workshop with key national stakeholders (Ministry of Health, partners, academia, researchers and civil society organizations), to validate the reviewed SSEML in July 2018. During the workshop, rigorous analysis was conducted for each item on the list. With the introduction of nutrition-related health products, such as RUTFs, to the SSEML, a clear method to measure the impact of inclusion was identified as a necessary step to serve as a case-study for South Sudan that could be tested or compared with other countries.

2.1 Rationale

The rationale built on to include nutrition-related health products in the SSEML 2018, in the context of South Sudan, is linked to three main elements:

(i) The public health relevance of the use of specialized nutrition related health products in the treatment of acute under nutrition in infants and children, in an exceptionally high-burden and deteriorating emergency context;
(ii) The efficacy and safety of these products and their use, as recommended by the national CMAM guidelines.
(iii) Procurement considerations to minimize fragmentation and close gaps in terms of guidance for procurement.

2.2 Public health relevance

The public health relevance of including nutrition-related health products in the SSEML 2018 is seen from the perspective of the severity, magnitude and scale of the nutrition crisis in South Sudan, which has followed an unrelenting course and constitutes a dramatic and life-threatening public health challenge, affecting over 1 million children aged under 5 years, out of a population of fewer than 12 million people (19). The burden of acute under nutrition among children in South Sudan, which has deepened over the past 5 years of war (2013– 2018), despite a concerted response, urges full-scale implementation of community-based management of acute malnutrition.

In light of this, the humanitarian nutrition sector, which includes nutrition cluster humanitarian partners, ranks the management of severe and moderate under nutrition as a top-priority activity, targeting 1.4 million people (78% of the total population in need of an emergency nutrition response) in 2018. As of August 2018, the number of operational outpatient therapeutic Programme sites, each for the treatment of six children aged 6–59 months with severe acute malnutrition, was 858 and the number of targeted supplementary feeding programs for the treatment of moderate acute malnutrition was 803. This marks an average increase of 19.7% in the number of targeted supplementary feeding programs, and an average increase of 24.2% in the number of outpatient therapeutic program sites, compared with 2017. The nutrition response achievements from January to July 2018 reported that 60% of the annual targeted cases of severe acute under nutrition beneficiaries, and 47% of the annual targeted moderate under nutrition (also referred to as moderate acute malnutrition) beneficiaries had been reached, out of the 261 424 children with severe acute under nutrition and 827 324 children with moderate acute under nutrition targeted in 2018 by the whole humanitarian nutrition response (see Table A3.4.1).

Table A3.4.1. Summary of nutrition case-load and treatment coverage in South Sudan, 2018

Programme	People in need	Cluster target	New admission	Achieved versus people in need, %	Achieved versus target, %
Severe acute malnutrition	261 424	209 140	124 998	48%	60%
Moderate acute malnutrition	827 324	512 941	240 571	29%	47%
Pregnant and lactating women	672 562	356 458	191 929	29%	54%

Feeding is a critical part of the management of severe acute under nutrition. Children admitted to outpatient therapeutic programs and targeted supplementary feeding programs are treated with RUTFs and ready-to-use supplementary foods (RUSFs), respectively, for the management of acute malnutrition, as per the national guidelines for community-based management. Children with severe acute under nutrition and medical complications admitted to stabilization centers are estimated to comprise at least 15% of the total annual case-load of severe acute under nutrition. As of June 2018, the total number of children reportedly admitted to stabilization centers was nearly 3000. Therapeutic milks (F-75, F-100) are the commodities used to treat children with severe acute under nutrition with medical complications in an inpatient setting (i.e. hospitalized). These figures are indicative of a large number of beneficiaries of nutrition commodities; based on the massive use of these products, they have therefore been included in the SSEML 2018.

Together with the Basic Package of Health and Nutrition Health Services and the national Prevention and treatment guidelines for primary health care centers and hospitals, the SSEML 2018 is expected to significantly improve the delivery of a quality essential health-care package for the South Sudanese population, moving towards universal health coverage through development and humanitarian programs.

CHAPTER THREE

3.0 Efficacy and safety of the products and their use recommended by the national community management of acute malnutrition guidelines

Evidence shows the efficacy and safety of home-based nutritional treatments for severe and moderate acute under nutrition and the therapeutic milks (F-75, F-100) used for the management of hospitalized children with severe acute under nutrition and with medical complications.

RUTFs are treatments for severe acute under nutrition that can be consumed at home, with follow up of cases usually done at a health facility. They are an adaptation of the therapeutic milk formulation F-100, which has revolutionized the treatment of severe under nutrition by providing foods that are safe to use at home and ensure rapid weight gain in severely undernourished children. The advantage of RUTFs is that they are formulated as ready-to-use pastes that do not need to be mixed with water, thereby avoiding the risk of bacterial proliferation. RUTFs require no cooking, mixing or dilution and are easy to consume. They are usually based on peanut butter mixed with dried skimmed milk, vitamins and minerals; can be consumed directly by the child; and provide sufficient nutrient intake for complete recovery. Most RUTFs can be stored for up to 3–4 months without refrigeration, even at tropical temperatures. The nutrients in RUTFs are easily absorbed and do not alter the acid–base metabolism in people with severe acute under nutrition. Food safety policy is in place to ensure that a complete quality-management system based on a hazard analysis and critical control points approach is implemented. Reference standards also apply and constitute requirements for any organization in the food chain (e.g. recommended international code of practice, general principles of food hygiene, food safety management systems).

3.1 Procurement considerations

The procurement and supply chain for RUTFs are predominantly managed by the UNICEF Supply Division, the largest buyer of RUTFs, with some occasional purchases made by Médecins san Frontières projects. The South Sudanese Ministry of Health participates in the planning process for orders of RUTFs, but it faces capacity challenges in the organization and management of the supply chain. This situation has a significant bearing on national budgetary implications when planning for resources for the health system. Thus, inclusion of RUTFs in the SSEML 2018 could create the political will to prioritize treatment of severe acute under nutrition in the health-care facilities and communities in the country, and ultimately allocation of resources to treatment and more awareness at the facility and community levels.

The pharmaceutical supply chain is thought to be weak, owing to poor infrastructure and limited accurate data management systems. Including RUTFs as a commodity in the SSEML 2018 could ease integration into the national supply chain and foster health system-strengthening efforts that would have been directed towards a vertical programme. Integration could also allow sharing of best

practices on collaborative approaches for strategic procurement and development of normative guidance. Capacity-building on the procurement and supply chain could complement efforts made by other building blocks of the health system.

3.1.1 Results

The participatory process was successful in adding the specialized nutrition-related health products listed in Table A3.1.1 to the SSEML 2018. This listing in the national essential medicines list aligns with the WHO Thirteenth General Program of Work 2019–2023 and national guidelines, which allow for strengthened integration and delivery.

Table A3.1.1 Specialized nutrition-related health products included in the South Sudan Essential Medicine List 2018

Product	Form	Constituents
F-75	Powder	75 kcal + 0.9 g protein/100 mL
F-100	Powder	100 kcal + 2.9 g protein/100 mL
Super Cereal Plus	Packets	787 kcal, 33 g protein, 20 g fat
Lipid-based nutrient supplements	Sachets	500 kcal, 13 g protein, 31 g fat
Ready-to-use therapeutic foods	Paste 500 kcal (92 g)	30% full-fat milk, 28% sugar, 15% vegetable oil, 15% peanut butter, 1.6% mineral–vitamin mix
Oral rehydration salts solution for severely undernourished children (ReSoMal)	Sachet	42 mg sachet/1 L

Each medicine or commodity in the SSEML 2018 has been assigned a level of use within the health-care system in South Sudan. It implies the medicine or commodity should be made available and can be prescribed and dispensed at this and higher levels in the health system. The designation of each medicine or commodity is in line with the diagnostic and clinical knowledge, competencies, skills and health infrastructure expected to be existing at that level.

Table A3.1.2 shows the levels of care stated in the SSEML 2018 and the corresponding highest-level professional cadre expected at each level of health facility and the community.

Table A3.1.2 Levels of care in the South Sudan Essential Medicine List 2018 where specialized nutrition-related health products will be used

Level of care	Type of facility	Highest cadre of health worker
Referral	Teaching and specialized hospitals	Consultant/specialist
Hospital	State and county hospitals	Consultant or medical officer
Primary health-care centre	Primary health-care centres	Clinical officer
Primary health-care unit	Primary health-care units	Enrolled comprehensive nurse
Boma health team	Community/boma	Community health worker

3.2 Alignment with the WHO Thirteenth General Programme of Work 2019–2023

In alignment with the WHO Thirteenth General Programme of Work 2019–2023, advancing universal health coverage is the utmost priority for WHO. Under this framework, the WHO response in South Sudan aims to increase access to essential health services for all and to reduce rates of acute under nutrition. Within the scope of reaching the marginalized or underserved populations through tackling determinants of health, WHO South Sudan will prioritize reducing wasting among infants and children aged 6–59 months. This entails improving access to good-quality nutrition treatment delivered through specialized nutrition-related health products that are available as part of the recommended country-level management of severe and moderate acute under nutrition.

One of the strategies to address the burden of under nutrition was to ensure the inclusion of specialized nutrition-related health products in the SSEML 2018, to improve provision of cost-effective, safe and efficacious treatment for acute under nutrition in South Sudan.

3.3 Alignment with national guidelines and description of use of specialized nutrition related health products

The national CMAM guidelines were developed in South Sudan in 2017–2018, to ensure quality nutrition services at both community and health-care-facility levels. These guidelines are comprehensive and are intended for the management of acute malnutrition along the continuum of care, across components of the community

management approach, including community care, outpatient therapeutic care, supplementary feeding Programmes and inpatient therapeutic Programmes. The availability of therapeutic foods is a decisive condition to reduce acute under nutrition. The CMAM guidelines for South Sudan recommend the use of RUTFs, RUSFs, fortified-blended foods and therapeutic milks (F-75, F100) as part of the management of malnutrition. Nutritional treatments are defined in the guidelines, according to the severity of acute malnutrition they are intended to address.

The nutritional treatment for children aged 6–59 months with moderate acute malnutrition is based on the provision of RUSFs – pre-packaged energy- and nutrient-dense products designed to treat moderate acute under nutrition without medical complications. The nutritional treatment in targeted supplementary feeding Programmes aims to provide additional energy and nutrients to the existing home-based diet, to support catch-up growth in children aged 6–59 months with moderate acute under nutrition. This means adding at least 25% more energy and sufficient micronutrients. The guidelines also provide alternatives if RUSFs are not available, which consist of the provision of fortified blended foods (Super Cereal Plus)

3.4 Strengthened integration of management of severe and moderate acute undernutrition in the health-care system through improved procurement of supplies

The inclusion of specialized nutrition-related health products in the SSEML 2018 is expected to strengthen the integration of management of severe and moderate acute undernutrition within the existing health-care system in South Sudan. This expected result builds on the prospect that products prioritized through the SSEML 2018 will be made available, prescribed, dispensed and used at the level of the community (boma) and health-care facilities. The boma and health-care facilities are where primary health-care services are delivered, in the context of a government-led and government-owned process, and take into account the government's obligation to prioritize and enable the procurement of essential medicines and products, as per the updated list. On the same basis, the supply-chain process to procure RUTFs, RUSFs, F-100, F-75 and ReSoMal is expected to be harmonized and optimized and, as it applies for each commodity in the SSELM 2018, the purchaser can negotiate for lower prices because of the higher quantities involved.

3.5 Discussion

The fragile health system of South Sudan experiences chronic shortages of essential medicines and supplies, which hamper its capacity to deliver effective and immediate treatment to address acute undernutrition and other conditions. The capacity of the Ministry of Health of South Sudan to manage health and nutrition services at the national or subnational level remains limited. This is particularly bad in conflict-affected and insecure areas, where currently few Ministry of Health-managed health facilities are operating; basic health services are delivered in inadequate modalities; and the referral pathway suffers major disruptions. However, the review and update of the SSEML 2007 has taken longer than anticipated because of interruptions caused by reasons beyond the review process

itself. The inclusion of the specialized nutrition-related health products listed in the updated SSEML 2018 (see Table A3.4.2) is expected to lead to better health care, supply, storage and distribution and lower costs.

The levels of care shown in Table A3.4.3 can guide the supply-chain planning and procurement of medicines by the central medical stores, health-sector partners and health facilities, and eventually influence supply-chain management – that is, the composition of medicine kits for different health facilities.

To respond to the crisis and to the poor nutrition situation, with global acute undernutrition persistently above the emergency threshold in the vast majority of assessed counties, community-based management of acute malnutrition is implemented in South Sudan, essentially based on the presence of humanitarian partners carrying out health and nutrition programs. The United Nations' World Food Programme (WFP), UNICEF and WHO, which operate through implementing partners and under the coordination of the nutrition cluster, are committed to tackling context-specific nutritional concerns, characterized by acute undernutrition. Capitalizing on field presence and ability to work with governments and other stakeholders, United Nations agencies work in partnership to enhance the management of acute undernutrition, with the WFP and UNICEF notably supporting the outpatient treatment and prevention of moderate and severe acute undernutrition, respectively, and WHO putting increased efforts into supporting the management of children with severe acute undernutrition with medical complications, who are admitted to stabilization centers.

Financial constraints remain an overall issue, impacting the procurement and provision of supplies for treatment and prevention of undernutrition. In this context, the inclusion of RUTFs, RUSFs and therapeutic milks F-100 and F-75 in the SSEML 2018 is aimed at improving the availability of and access to specialized nutrition-related health products for beneficiaries. This can support national-level prioritization, procurement and streamlining of their distribution and use through the existing health-care system. The SSEML 2018 is an application of the WHO essential medicines concept that aims to promote the efficient use of resources by establishing and using a limited list of carefully selected medicines. Selection of these medicines is made with due regard to the disease burden and prevalence in South Sudan, and evidence of efficacy, safety and comparative cost-effectiveness, and is done in an extensive consultative process with multiple stakeholders at national and subnational levels.

An example of prioritizing medicines included in the SSEML during emergencies is given by the WHO Emergency Nutrition Response in South Sudan. An improved inpatient care component of community based management of malnutrition in South Sudan called for measures to address the critical shortage of medicines through timely procurement of essential medicines, ensuring coverage countrywide, including in conflict-affected areas and protection-of-civilian's sites. In this challenging context, WHO South Sudan identified the provision of a medical kit for stabilization centers as a successful strategy to support the

management of severe acute undernutrition with medical complications. The innovative procurement strategy shaped by WHO in South Sudan entailed the design and technical development of an innovative kit that has been distributed in South Sudan and has been available in the online WHO catalogue since April 2016. Standardization of the set of medicines needed in stabilization centers was carefully aligned to the SSEML 2007 and national medicines usage, taking into consideration the quality, safety and efficacy of the medicines supplied.

The inclusion of specialized nutrition-related health products in the SSEML 2018 ideally leads to improved supply, storage and distribution and lower costs, and eventually to use and uptake by beneficiaries. Government ownership and accountability of the overall process is critical to guide the supply-chain planning and procurement of nutritional products by the central medical stores, health-sector partners and health facilities, and to ensure regular quality control.

The identification and inclusion of nutritional products in the SSEML 2018 implies recognition of these products as high-priority commodities of public health relevance at the national level, by the Government of South Sudan, and it can therefore oblige (and enable) the Ministry of Health to make them available and affordable more systematically, also advocating for increasing resources being invested and allocated to the treatment of acute undernutrition.

The greater awareness of the importance of the treatment, its prioritization and the possibly higher financial resources allocated to procuring specialized nutrition-related health products will potentially stimulate local or regional production; will address the chronic shortage of supplies recurrently experienced across the country; and will serve as a stop-gap measure for prioritizing the procurement of nutritional products rather than non-prioritized products. This would entail a national-level and Ministry of Health-led monitoring of data on stock availability and consumption, and projections of supply requirements and quantifications. Moreover, besides government-led processes, medicines and products included in the SSEML are also generally prioritized during

emergencies, by humanitarian partners and donors. The following are some of the challenges that might affect implementation of the SSEML 2018 and the distribution and use of specialized nutrition-related health products:

- The South Sudanese Government's capacity and expenditure for health, including essential medicines and specialized nutrition-related health products;
- Substantial evidence documenting the effectiveness of specialized nutritional products in the treatment of acute undernutrition;
- Addressing the risk that adding RUTFs, RUSFs and F-100 and F-75 to the SSEML could be seen as a way to promote a product-based approach to acute undernutrition, undermining or distracting from other preventive or mitigating interventions, such as promotion of breastfeeding;

- Misuse of specialized nutrition-related health products, which are sometimes used improperly by family members, thus depriving children of treatment and creating fictitious demand.

3.6 Conclusion

This case-study has demonstrated that, through multi-stakeholder engagements and dialogue at the national and subnational levels, it is possible for the Ministry of Health and partners to include nutrition-related health products in the SSEML. The main rationale and justification for the inclusion were the high burden of undernutrition in South Sudan; the country context and health systems; the public health relevance; and the availability of supporting policy frameworks and guidelines. Although there were divided opinions, through extensive policy dialogue and technical discussions with experts, the country stakeholders were able to reach consensus and agreed to include the nutrition-related health products.

It is envisaged that addition of the nutrition-related health products to the SSEML 2018 will facilitate and improve access to these products and contribute to improved management of undernutrition and treatment outcomes. This can be replicated in similar contexts with protracted conflicts and fragile health systems and a high burden of undernutrition. The addition of specialized nutrition-related health products will contribute towards attainment of universal health coverage and the triple billion goals (1 billion more people benefiting from universal health coverage; 1 billion more people better protected from health emergencies; 1 billion more people enjoying better health and well-being) under the endorsed WHO Thirteenth Global Programme of Work in selected countries. Future studies could explore the impact of this in the medium to long term, and the contribution to improving procurement and supply-chain management.

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