Bottleneck Analysis (BNA) for the integrated management of Severe Acute Malnutrition (SAM) services in Cunene, Angola

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Executive Summary

Angola is currently implementing a national programme for the integrated management of acute malnutrition (IMAM/GIDA). The IMAM program has had a history of challenges affecting the quality of service delivery leading to poor program performance. There is no systematic way of identifying, prioritizing and addressing bottlenecks to access, coverage and quality of care of the IMAM program. In May 2019, an initial bottleneck analysis (BNA) stakeholder workshop of the national SAM programme was conducted but the exercise was not completed.

In early 2020 a clear strategy for the scale up of quality CMAM services at national aimed to meet the increasing needs of the affected populations is much needed. In order to inform this strategy the BNA exercise that was started in Luanda in May 2019 was completed for the province of Cunene on the month of November 2019 since Cunene is the province with higher needs but also where government and partner's efforts are bigger. We present here the main results of that exercise.

The local IMAM databases from DPS (Provincial Directorate for Health) were reviewed and relevant data extracted for demand and quality indicators. Supply and demand determinants were defined and indicators selected. A causal analysis focused on those determinants with worst performance was conducted with the aim of identifying the root causes of the bottleneck and guide solutions.
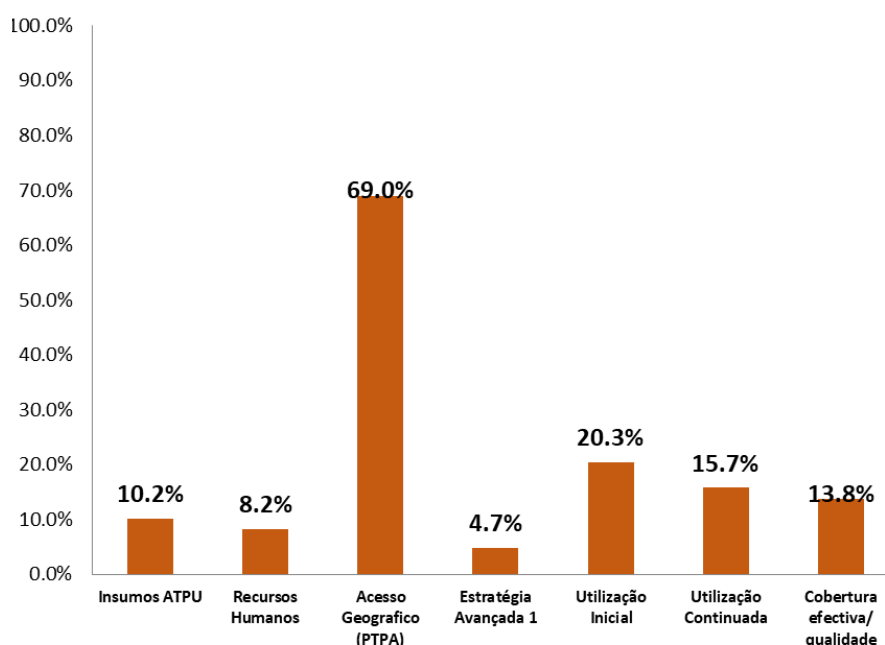
The teams selected 2 main bottlenecks to address in the next coming months: Commodities and community outreach but some teams worked also on the human resources´ bottleneck.

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1. Background

The malnutrition situation in Angola changes widely from province to province due to the big geographical size of the country and the different contexts. A chronic nutrition crisis caused by cyclic droughts/ floods phenomena has affected the southern provinces of Angola over recent years. The latest evidence published in Integrated Phase Classification (IPC 2019/20) shows that at present about 421,127 families live in acute food insecurity and the trend is that about 561,840 families will face the same situation in the period from October 2019 to February 2020 if the scenario continues.[1]

The situation continued to deteriorate in November 2019, due to drought conditions that are exacerbated by below-average, erratic rainfall and inadequate humanitarian response to address the most urgent needs, particularly in the hardest hit southern provinces of Cunene, Huíla, Namibe. These three provinces are the focus of the Government drought recovery framework 2018-2022 and are indicated as the most affected by drought.

The latest official data on prevalence estimates is from a DHS survey (Demographic and Health Survey or Inquérito de Indicadores Múltiplos e de Saúde (IIMS)) implemented in 2015-2016. The province of Cunene showed the highest rates of acute malnutrition with a SAM (Severe Acute Malnutrition) prevalence of 3.6% and a GAM (Global Acute Malnutrition) prevalence of 10.5. The provinces of Huila, Namibe and Cuando Kubango reported 0.5% and 4.6%, 0.6% and 4.5%, 0.3% and 5.3% respectively. Infant and Young Child feeding indicators such as early initiation of breastfeeding (48%), exclusive breastfeeding (38%) and anaemia (65% of children 6 to 59 months) are also suboptimal. Since then no official surveys have been implemented but data from active and passive screenings conducted in Huila and Cunene have shown a deterioration of the nutrition situation.

World Vision´s situation report for October 2019 based on 1189 children screen by MUAC in Huila and 3478 in Cunene show rates of SAM and GAM of 15.0% and 30.2% in Huila ; and 6.9% and 28.9% in Cunene. But this data should be taken with caution due to the limited geographical coverage of WV activities. Data from active screenings by Community Health Workers and passive screenings in health centres and hospitals using MUAC tape, as reported officially in the provinces of Huila and Cunene, show SAM rates of 4.4% and GAM of 11.6%. As can be seen in figure 1, the trends show that the situation has deteriorated significantly in 2019 when compared to 2018 and 2017.

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[1] Ministério da Agricultura e Florestas, Gabinete de Segurança Alimentar. Sumário da situação de Insegurança Alimentar Aguda IPC 2019/20. Agosto, 2019.

Figure 1: Trend analysis of the proxy prevalence of Severe Acute Malnutrition in Huila and Cunene, between 2017 and 2019 (Community and hospital screening data using MUAC).
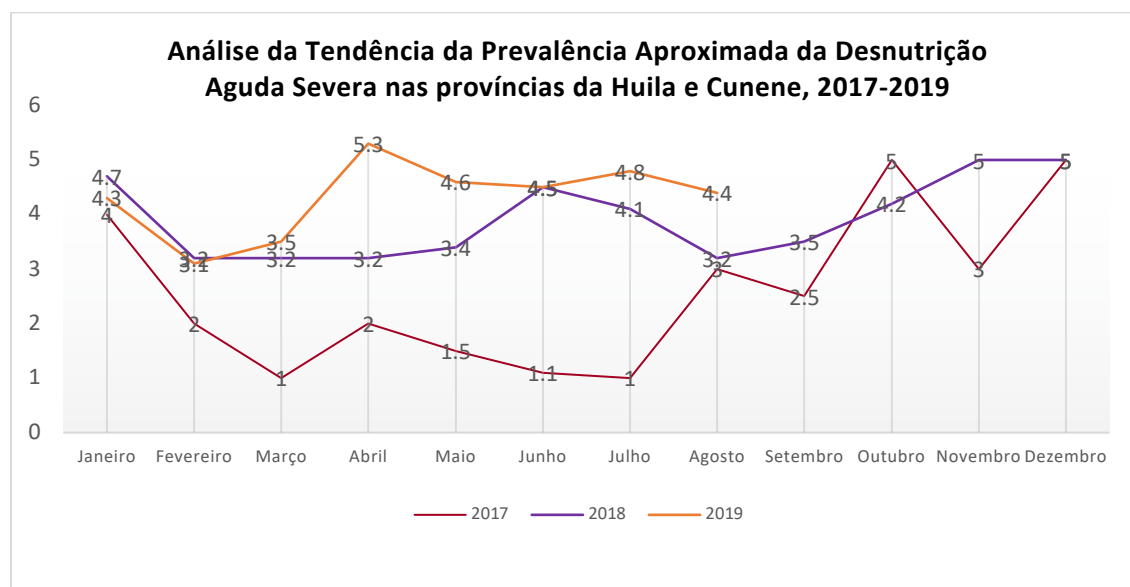
Angola is currently implementing a national programme for the integrated management of acute malnutrition (IMAM/GIDA). The IMAM program has had a history of challenges affecting the quality of service delivery leading to poor program performance. The challenges include:

- Limited community mobilization system,
- Uncoordinated and ineffective supply chain management,
- Sub-optimal quality of IMAM services offered,
- Limited volunteer engagement and support for outreach services,
- Lack of proper follow up system of patients,
- Dual but not consistent monitoring and evaluation systems through the DHIS2,
- Insufficient funding allocated to IMAM,
- A weak enabling environment for IMAM implementation.

Furthermore, there is no systematic way of identifying, prioritizing and addressing bottlenecks to access, coverage and quality of care of the IMAM program. Due to these challenges, UNICEF commissioned Professor Mike Golden and Dr Yvonne Grellety to conduct a 2-week mission in April 2019 and the national protocol for IMAM was updated. In addition, in May 2019, an initial bottleneck analysis (BNA) stakeholder workshop of the national SAM programme was conducted but the exercise was not completed. The BNA has the potential to provide evidence-based indication as to where the SAM programme requires reform, but the analysis was not finalized due to the limited time. Therefore the identification of the root causes and relevant solutions was not performed. Despite this, supply chain challenges were identified as a critical inhibiting factor for the SAM programme in May 2019.

2. The BNA in Cunene in November 2019

It is clear that in early 2020 a strategy for the scale up of quality CMAM services at national delivered through the health system and aimed to meet the increasing needs of the affected populations is much needed. In order to inform this strategy the BNA exercise that was started in Luanda in May 2019 was completed for the province of Cunene on the month of November 2019 since Cunene is the province with higher needs but also where government and partner's efforts are bigger.

Key objectives were as follow:

- Built the technical capacity of UNICEF and MohH on undertaking the bottleneck analysis at provincial level
- Reviewed and endorsed the BNA conducted in May
- Identify root causes of the most limiting bottlenecks
- Discuss possible solutions at provincial level.

The Cunene BNA focused on SAM since MAM treatment is not available at the moment and was developed as a consultative and participatory process with the objective of promoting and building capacity of government and partners in the scale up of the treatment of acute malnutrition. The process was jointly led by a CMAM expert form the Rapid Response Team and by the United Nations Children's Fund (UNICEF).Data collection and preparation took place on the first week of November and a workshop that included training of local stakeholders, data analyses and identification of causes took place from November 12th to 14th. (see evaluation of the workshop by participants in annex 1)

This reports presents the main findings and the causality analysis with the hope that it will serve the UNICEF team, including a surge staff member scheduled to arrive in 2020, to develop a work plan to address the identified bottle necks and to scale up a quality CMAM service.

3. Methods

Data collection: The local IMAM databases from DPS (Provincial Directorate for Health) were reviewed and relevant data extracted for demand and quality indicators. A data collection tool was developed to collect data not available in the IMAM database for supply determinants—Commodities, Human Resources, Geographic Access and Outreach Activities and key stakeholders were asked to contribute and fill the gaps. However these were secondary sources and some errors may be present. Also data collection for IMAM is very deficient in the region and the indicators provided should be interpreted with caution. Data was collected for the agreed period of 12 months (1st January to 31st December) for 2018 and 6 months (1st January to 30th of June) for 2019. Data

from privately managed hospitals like the one in Chiulo was also included. Only SAM services were evaluated since MAM services have not been active these past two years.

Indicators´definition: Supply determinants were defined as the inputs required to deliver IMAM services and subdivided into;

   i. Commodities—stock outs for Ready-to-Use Therapeutic food (RUTF) in OTPs and also F75, F100 and antibiotics in SC
   ii. Human resources (facility-based health workers),
   iii. Geographic access and iv) community outreach (screenings by trained community health workers).

On the demand side, determinants were subdivided into,

   a. Community outreach (screenings by trained community health workers).
   b. Initial utilization,
   c. Continued utilization
   d. Effective coverage (quality).

See tables 1 and 2.

Table 1: Indicators for Supply Determinants

Indicators for Supply Determinants		
Determinant	**Indicator**	**Comments**
Commodity	**% of health facilities that did not have stock outs out of the total of existing health facilities implementing IMAM**	For OTPs only RUTF as considered and stock out defined as 7 days or more. For SCs RUTF, F75, F100 and antibiotics were considered and 1 day already considered as stock out
Human Resources	**% of health workers who deliver IMAM treatment out of the total health workers in the province.**	Health workers that delve IMAM treatment in a permanent but not exclusive way.
Geographical Access	**% of health facilities offering SAM management services (OTP or SC)**	Only functioning health facilities were considered

Causality analysis: During the 3-day workshops in Ondjiva a review of bottlenecks was conducted through a systematic analysis of determinants of effective coverage. The analysis focused on those determinants with worst performance with the aim of identifying the root causes of the bottleneck through a causality analysis exercise.

Table 2: Indicators for Demand Determinants

Indicators for Demand Determinants		
Determinant	**Indicators**	**Comments**
Community Outreach	% of children actively screened by trained CHW in the last 6 months	Total number of children obtained from census
Initial utilization	% of children 6-59 months admitted to SAM management services (out of the estimated burden)	**Data sources: OTP/SC databases**
Continuity	% of children 6-59 months who did not default from SAM management services (out of the estimated burden)	
Quality	% of children 6-59 months cured from SAM management services (out of the estimated burden)	

To be noted that this BNA concept is based on the principle of equity: effective coverage was estimated using the burden as the denominator. The indicator for effective coverage is based on the percentage point drop from the initial utilization and it is not a Sphere standard. Although both effective coverage and sphere standards are estimated using program exits as numerators, their denominators differ with the former using the burden while the latter uses actual program exits.

A point should also be made about the burden´s calculation. A webinar on "SAM Incidence Correction Factor Research Findings" was held on 25th February 2019. It presented a new correction factor for Angola of 6.4. This new correction factor has been used during 2019 for burden calculations in Angola. However, after contacting UNICEF and those responsible for this research, we followed their advice and we are using here the standard correction factor of 1.6. Thus SAM burden was calculated as: burden = Population X 0.036 X 2.6 where 3.6% refers to the latest available prevalence for SAM in Cunene

4. Results

It is worth noting that the Human resources indicator selected by this bottleneck analyses differs from the one chosen in the national BNA workshop of May 2019. In May "percentage of health staff trained in IMAM was chosen" while now we chose the "percentage of health staff that delivers IMAM". In May the BNA followed the visit of Mike Golden and the creation of a new IMAM protocol and training of health staff was a priority. However this indicator proved to be non-discriminative with rates of 100% in Cunene but little practical impact, so the team decided to select a new one. Similarly an indicator to measure the number of CHWs trained in screening methods was not considered useful.

In figure 2 and 3 the main results of this BNA can be seen. Detailed results by each municipality of Cunene can be found in the annexes. On the demand side, community outreach was identified as one of the main problems that lead to low rates of initial utilization of IMAM services. In 2018 community outreach activities were non-existent in Namacunde Municipality and almost non-existent in Cuvelai and Ombadja. This situation has improved in Cuvelai and Ombadja in 2019 thanks to new programs from World Vision focusing on CHWs for nutrition but remains low in other municipalities.

Overall, on the demand side, the IMAM program in Cunene has also a bad retention of children with SAM and continuous utilization (program retention) is still a major bottleneck for SAM, especially since it was observed that defaulters are not recorded in many health facilities. Defaulter rates are high (27% in Cunene Province but up to 36% in Curoca and 38% in Cuvelai where geographical access is more challenging) and defaulters are not registered systematically so if registration improves numbers will be much worse. Mortality rates are also high, especially in SC were the provincial average is 13% while some SC sometimes reach >25% monthly mortality rates.

Figure 2: Cunene BNA 1st January 2018 to 31st December 2018
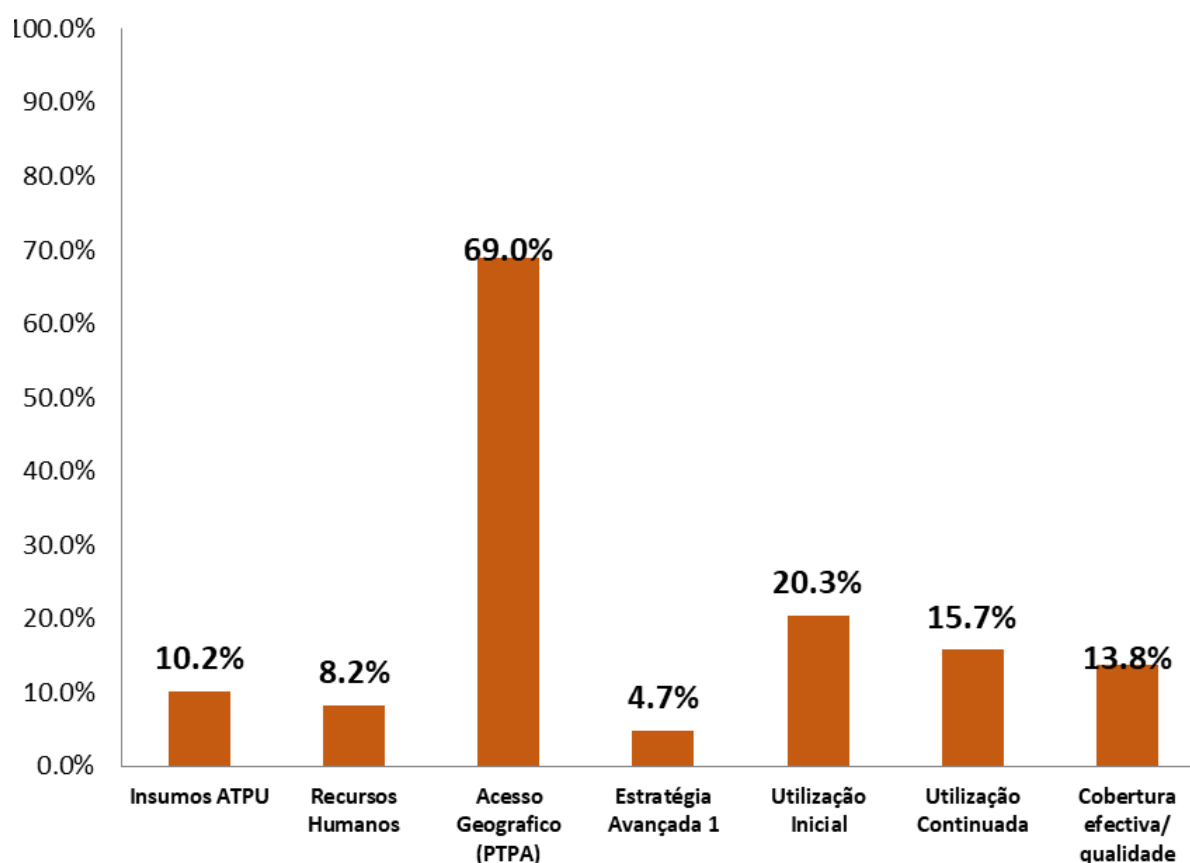
Figure 3: Cunene BNA 1st January 2019 to 30st June 2019
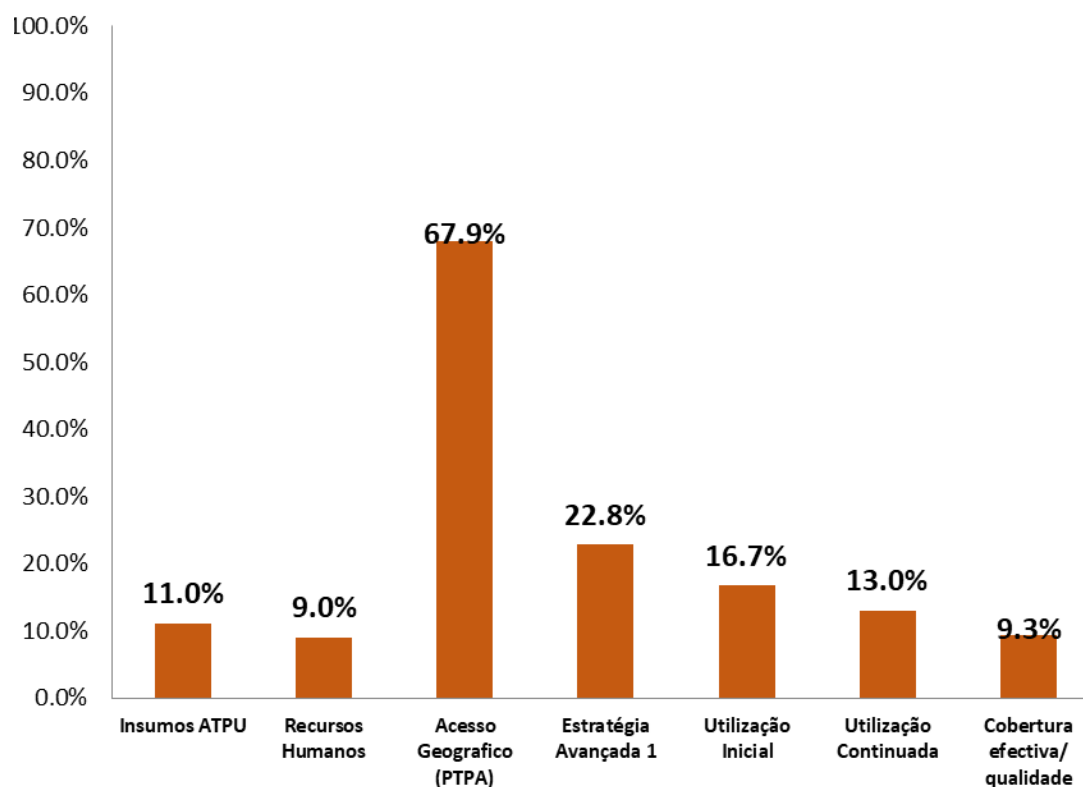
Stock outs have been a major problem in the past 18 months. Only SCs seem to be well stocked. The situation has improved in the past few months, especially at the main towns but those OTP that are far away from the main road still lack RUTF when partners likes World Vision are not around.

Though many doctors and nurses have been trained in the new IMAM protocols **Human Resources** remains a huge challenge. The recent IMAM trainings conducted earlier in the was mainly theoretical but teaching good clinical practices is still needed and day to day management of cases is not well implemented, protocols are nor follow and OTP and SC staff are too busy with other paediatrics' (and adult´s)pathologies to take care of malnourished children. Cleaning staff is often in charge of weighting and measuring kids, passives screenings are rarely conducted and OTPs prefer to transfer all SAM cases to SC in order to diminish their workloads.

In comparison, **geographical coverage** is relatively good and most health facilities should be providing IMAM services. A point should be made about the stocks and HR´s data of the municipalities of Cahama and Cuanhama: we didn´t have access to direct records and we had to trust the knowledge of some stakeholders. To the best of our knowledge the data is accurate but it should be revised in 2020.

These results are consistent with the initial BNA conducted in May in Luanda with the exception of the Human Resources bottleneck since a different indicator was selected then and it was calculated at 100%. Cunene performs similarly to other neighbouring provinces such as Huila and Namibe though different from more distant provinces where malnutrition is not such a heavy burden and

IMAM is not well implemented. For this reason data availability on IMAM indicators in other provinces is patchy and any comparisons among provinces should be made with extreme care.

Key actions: Overall, stakeholders agreed that adequate availability of a skilled workforce will increase the quality of service delivery, demand and uptake for services and ultimately effective coverage but the need of political commitment, clear strategies and plans (with approved budgets) is imperative to maintain commodities and improve quality. The weak supply chain system for commodities, inadequate integration of MAM and SAM training, inadequate supportive supervision of CHWS and the disproportionate distribution of health workers between urban and rural hard-to-reach areas need to be addressed. A Nutrition Information System (NIS) to track and monitor the nutrition data is require to improve its quality.

Casual analyses

The BNA recommends the use of the "fish bone" method and the corresponding minimum five "5xWHY" to drill down on root causes of bottlenecks. These tools were used in our BNA for Cunene. See figure 4. The teams selected 2 main bottlenecks to address in the next coming months: Commodities and community outreach but some teams worked also on the human resources´ bottleneck. Participants also work in prioritising solutions to the bottlenecks found by scoring their feasibility, affordability, acceptability and equitability. (see figure 5)

Figure 4: Fish Bone method to detect the causes of the bottlenecks identified
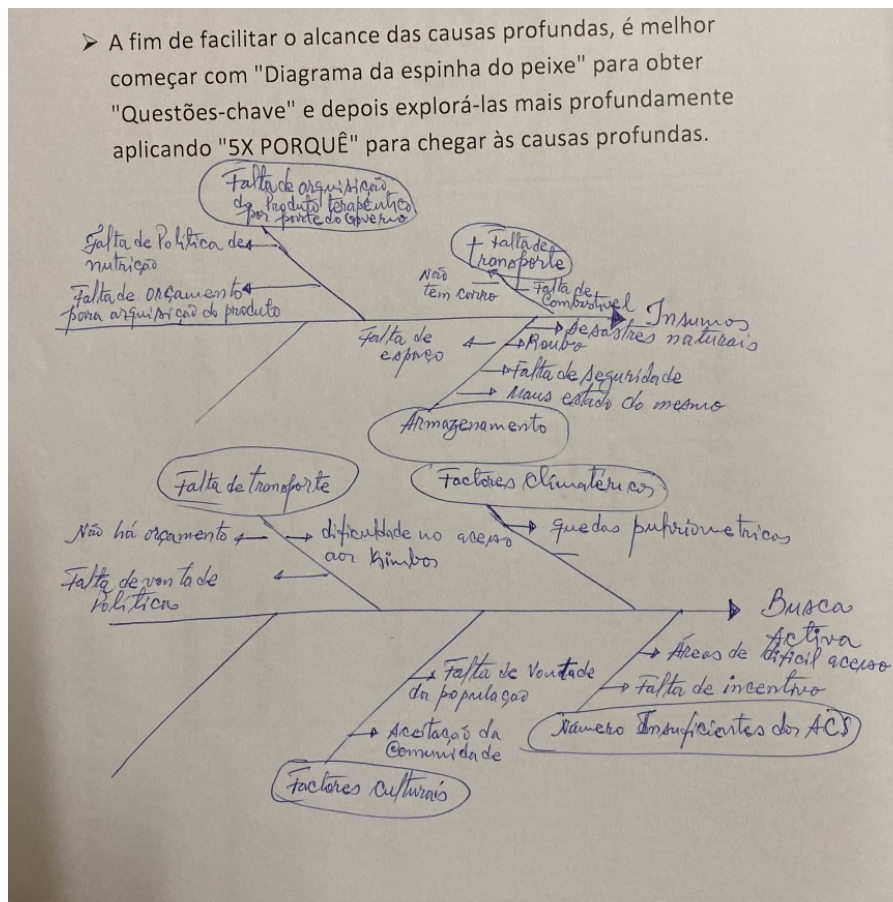
Commodities: Nutrition products are available at many municipalities but there is lack of transportation to distribute them to the OTPs. Or when transport exists there is no money for fuel. When we tried to identify the root causes for this we see that there are no budgets for these activities since nutrition is not a priority for the government. Advocacy at central level and detailed budgets are needed for these activities since stakeholders think that resources are available but not channelled to nutrition activities. A clear nutrition policy should be created by the government but it is the feel that at central level there is no understanding of the nutrition situation in the south since prevalence data and other information is not available. Indeed another common problem is the lack of updated information and trained data managers that can process the data related to stocks. Or if there is data doesn´t reach the health facilities.

Figure 5: Prioritization of solutions

Human Resources: Discussions were heated under this topic but the main causes for this bottlenecks can be summarizes in three points:

1. There is not enough HR for health
2. There is insufficient training for health staff on malnutrition
3. It is difficult for people to accept remote destinations and staff in these locations are demotivated.

The lack of HR is not just a matter of economical resources. There seems to be a lack of tools to develop a professional career and very limited public tenders health positions. When these happened the exams were not adapted to the context so this demotivates people: the last one include questions like: "*What is the currency of Zambia*", "*where is the Kwanza River* " "*what is the highest mountain in Africa*", "what is the name of our Health minister" etc..

Regarding training, it is not enough to train doctors and nurses during one week on the new IMAM protocols but supervision and clinical management of cases is needed. There are also no conferences, studies or presentations that reach the provincial levels, much less the municipalities.

The biggest problem however remains the concentration of Health Staff in Luanda and the lack of health staff at the local level. The isolation allowance ("subsidio de isolamento") is not well implemented and there are very few incentives to work in remote areas. Those that are based in these remote settings are not well motivated due to the long daily hours, the lack of incentives and the little mobility of the posts, meaning that once you accept one it is difficult to progress to a better location.

Community outreach: Lack of information in the community and lack of incentives for CHWs were the most immediate causes together with the big distances and difficult geographical access. Mobile teams could be a solution to the difficult geographical access but lack of transportation systems is also a problem here. There is not enough CHWs but the few ones that exist receive very few incentives and are not recognised

We also lack data on the community outreach activities and supervision is almost non-existent., often because lack of transportation. Local cultural factors among the population also limit their engagement on nutrition activities and we need to arise more interest in the local community with well-designed community development program

Limitations

Due to a measles outbreak and other commitments of the central MoH the initial idea of completing the BNA for the whole country was discarded and it was decided to focus on the region of Cunene where the droughts are more persistent and the undernutrition more severe. This BNA did not fully benefit from that wide range of expertise across the relevant disciplines because some of them could not commit to attend the workshop and activities in Ondjiva. Future BNA should endeavour to involve the corresponding multi-disciplinary team encompassing a diversity of cross-cutting technical skills along the spectrum of the determinants of effective coverage; enabling environment, supply and demand. In this sense it was recognised that we should have included the directors of each municipality of Cunene and not only the nutrition focal points. The BNA took long to complete since its start in May 2019 due to lack of specialised CMAM experts.

The absence of a functional central NIS limited some of the data that could be collected and data on commodities, HR and geographic access was not readily available. The estimation of the denominator (burden) assumed that the population was static. Yet population displacement resulting from drought and pastoralism was noted during the past months.

5. Recommendations

IMAM scale up strategy and costed operational plan of action

This BNA is part of a broader attempt to create a scaling up IMAM strategy. A UNICEF´s surge staff member scheduled to arrive in 2020 should prioritise the development of a work plan to address the identified bottle necks and to scale up a quality CMAM service. A corresponding costed roll out plan will define the specific actions required to address the different bottlenecks related to frequent stock out of commodities, inadequate supply of skilled service providers and limited community outreach activities.

The root causes of these bottlenecks often converge on the need for government advocacy to better inform the central policies and request to have a clear funded budget for nutrition. A nutrition survey in Cunene to have recent prevalence estimates for SAM and MAM will facilitate these advocacy actions.

In the meantime, while the scale up strategy and the costed operational plan are being developed, some recommendations can be applied to the main bottlenecks identifies.

The SAM commodities

Stock outs of RUTF are a serious limiting factor often mention in BNA. In Cunene there are enough products at the main towns of a municipality but remote OTPS are often in stock outs. The lack of vehicles is the main limiting factor. Some of the ideas raised during the BNA with the highest scored during the prioritization exercise include to work with local companies for storage and to impose those private companies that have long-term contracts with government (years) to support social activities such as transport of RUTF

It is important to start raising awareness of the malnutrition situation in Cunene and stakeholders should create forums to present data and results. These could be led by the the Vice-Gobernadora (deputy governor). The idea of dedicating one annual day to acute malnutrition with presentations at the provincial hospital and scientific meetings is also easy to implement and could help to advocate for more funds for SAM treatment in the future.

Implement rapid nutrition evaluations will also determine and increase the capacity of service providers on planning, quantification, storage capacity and buffer stocking.

The community outreach

More CHWs and better incentives are needed. Until more resources are available some easy to implement activities could have a great impact on improving the quality if CHWs´work: monetary incentives are not the only solution. There is a need to recognise CHWs as public health workers and making them part of the public workforce. They require more training and more professional opportunities. Their efforts can be acknowledge by created certificates for those villages that screen their children regularly, similarly to those certificates already existing given to clean village, village with not open defecation etc. It is not strange to see old people working as CHWs but their work not being recognised.

The other point that needs improvement is supervision of CHWs. Though the role of CHW Supervisor exist these are merely senior CHWs with little knowledge to implement effective supervision activities. Municipal nutrition focal points should make an effort to supervise the community outreach activities monthly and meet with CHWs and CHW supervisors regularly at municipal level to present results, know local problems, analyse monthly data etc. At the moment there is little contact between CHWS, OTP´s staff and municipal focal points for nutrition. A plan to integrate this into monthly supervision activities is much needed. These could include doing exercises together with more training and professional opportunities for the CHWs. Collecting the minutes of monthly gatherings with CHWs is an indicator that could help ensuring these activities are happening.

The idea of involving the vaccination teams in MUAC screenings was mention by different stakeholders and it should be considered but experiences form other countries are not positive in this regard

The human resource challenge

Though many challenges on number of health staff and their trainings have already been discussed in this report one aspect received special attention during the prioritization exercises: the problem of human resources in remote locations. In order to facilitate this more flexibility should be given to those willing to work in such contexts since at the moment there is very little demand from health professional for these posts due to the lack of incentives and the difficulty of progress professionally once accepted such a post.

There should be more flexibility to go out and be trained and improve professionally and to allow health professionals to continue their training without depriving them of their salaries making scholarships for the training of health professionals. There should be a clear budget line for the criterion of isolation, at the moment to work more than 30 km from a national road but not implemented regularly.

The exams to access a health post also require improvements by adapting and contextualizing the access´s tests by using clinical directors during the elaboration of the public contests.

Finally the curricula of health studies should be revised to include nutrition topics and a permanent training in CMAM should be developed, not just occasional sessions when the protocol is updated.

It exists the temptation to rely on humanitarian actors such as CUAMM and WV when nutritional emergencies are in sight, however their ability to attract and hire qualified staff largely depends on availability of donor funding. Also the high turnover of NGO staff due to fluctuating funding will frustrate many of the efforts to address this bottleneck. Therefore, addressing this bottleneck requires a long term human resource capacity development strategy including the integration of IMAM in pre-service training curricular and a system to recruit, retain and track the equitable deployment of skilled staff in rural and urban settings. To ensure a sustainable in-service training and capacity building we recommend the creation of centres of excellence in collaboration with academic institutions.

The concept of TSFP and OTP integration

At the moment there are no commodities (and no implementation plan) to treat MAM in Cunene. The delivery of services for the management of acute malnutrition is premised on the principle of integration. MAM and SAM treatment ideally should occur along a continuum of care thus enabling the seamless transition of patients across the different components of the program. The presence of WFP is also very weak in Angola making this integration harder but ideally OTPs and TSFP should operate under the same roof with same implementation plans, CHWs should screen also for MAM and referrals should be standardised.

Dissemination and Communication of results

These results should be communicated in simple language to policy makers for advocacy and to support knowledge translation and capacity strengthening through policy briefs laying a foundation on which IMAM scale up initiatives can be supported. Results from the BNA should not be interpreted or used in isolation but rather triangulated with the findings of SMART surveys and annual data reports. The dissemination of results will ensure that the key messages are communicated to decision-makers including donors to mobilize support for IMAM scale up based on a robust evidence base.

Nutrition Information System

The availability of a fully functioning database with no limitation for access to both SAM and MAM data will save time and money in collecting the necessary data for future BNAs. Ideally such database should be part of a wider Nutrition Information System clearly defined and strategized. At present an EXCEL based database with all this information exists but it is not robust enough nor disseminated widely. We suggest creating a task force to start developing an Angolan NIS.

Future BNAs.s

BNA for Cunene should be repeated every 6 months and the BNA model should be included in other sectors since nutrition is a multisectorial activity

6. **Conclusions**

The BNAs of Cunene was a much welcomed exercised that has brought to light a range of bottlenecks requiring action. It focused on commodities, human resources and community outreach. If addressed we strongly believe IMAM programs will improve significantly. This report concluded the BNA started in May 2019 and could serve to design new BNAs in 2020.

The causality analysis phase should be followed by the development of action plans to address the identified root causes of the bottleneck. Not only national but local specific action plans with realistic targets and indicators to measure progress should be developed. The challenges identified and the solutions presented here can guide the UNICEF team, including a surge staff member scheduled to arrive in 2020, to develop a work plan to address the identified bottle necks and to scale up a quality CMAM service

7. Annex 1: EVALUATION OF THE BNA WORKSHOP

As can be seen in the graph below, 85% of the participants considered the training positive, having marked the categories "Satisfactory", "Very satisfactory" or "Exceptional". 25% marked "Not very satisfactory" in at least one of the questions, except for the question on general evaluation of the workshop whose answers were 100% positive.
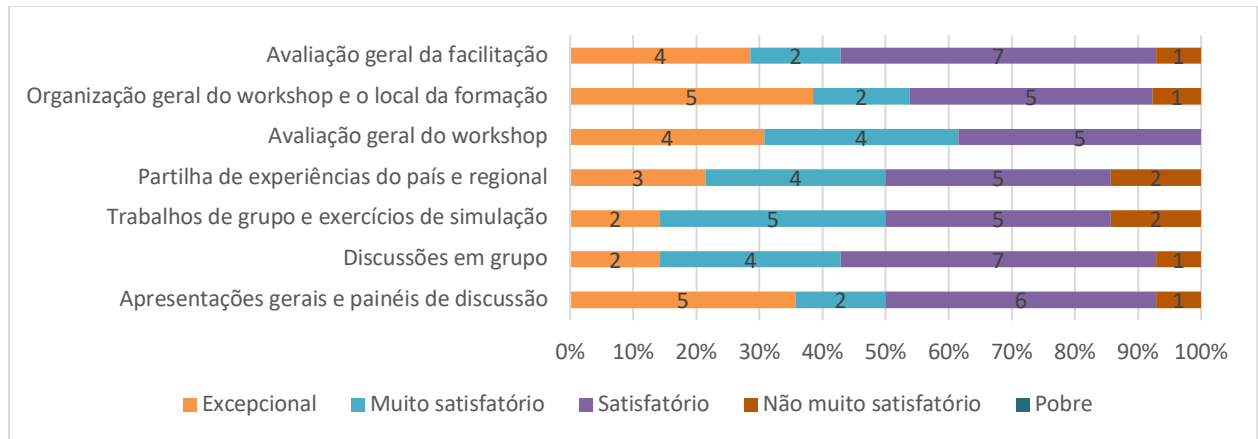
At the beginning of the training the participants did not master the concept of bottlenecks and the expectations were that the training could provide tools for the treatment, management and reduction of malnutrition, some participants hoped to learn more about Nutrition and a small portion hoped to get instructions on the statistical treatment of IMAM data in order to create information for decision making.

As such, it can be considered that the training exceeded participants' **expectations**, since most of them did not have a clear understanding of the data generated by their health facility or municipality, let alone how to assess the quality and weaknesses of the programme. Therefore, the methodology applied in this workshop was refined to give them new knowledge on how to identify the root causes of sub-optimal performance in the IMAM program and propose viable solutions for them.

When asked about the **most valuable** aspects of the training, 5 (five) participants answered that it was the approach about the types of coverage and their main determinants, 4 (four) people stated that it was the learning about the bottleneck indicators for IMAM, for 7 (seven) people it was how to identify the bottlenecks, create the graph and be able to learn how to solve the bottlenecks. 2 (two) participants claim to have acquired new knowledge and solidified the previous ones, the sharing of experiences (group work) was also positive, as well as the analyses of prevalence, surveys and malnutrition in the world and in Angola.

With regard to the **less valuable aspects**, they considered the process of identifying indicators, the need to understand the factors involved in the poor coverage of IMAM, the timing of training (it was reduced from 4 days to 3 days due to a national holliday), the lack of printed material and lunch.

In the field of **suggestions** and improvements, 2 (two) participants suggest that the agents come with the complete data and that the date of the training be brought forward, there was a suggestion that more professionals should participate, and 9 (nine) people suggest that Municipal Directors or

primary care chiefs should participate in the next meetings. 4 (four) people suggest that training should be repeated more often because this will improve the indicators. The participants also suggest increasing the duration of the training so that the contents can be assimilated more calmly, and for this it would be important to have the support material in physical format (the presentations), to have more debates/feedback and in the end to give certificates of participation.

Some comments from participants.

- "Agradeço pela formação, informo que aprendi aspectos que não sabia e espero que se repita. A formação foi boa e a comida também";
- "Gostei da formação e dos formadores pelos conhecimentos adquiridos, é com formação que o técnico consegue trabalhar e transmitir os seus conhecimentos às populações";
- "A formação foi muito benéfica para o programa de Nutrição";
- "Que no princípio de 2020 tenha a mesma formação para avaliarmos a prevalência da desnutrição em 2019";
- "Que a nutrição seja um problema multissectorial e não apenas do Ministério da Saúde"
- "A minha visão do encontro foi muito boa, conseguimos entrar profundo no problema da saúde neste caso a nutrição, identificando todos os problemas que afectam o programa GIDA. A comida foi muito boa";
- "A formação foi bastante proveitosa, engrandeceu-me muito, saio daqui com mais informação a respeitos do tema abordado. Insistir na progressão da formação, queremos e gostamos de aumentar o nosso nível profissional para melhor servir a população. Ajudem-me a conseguir ingressar na especialidade de Pediatria Geral por amor de Deus, eu quero ser Pediatra.";
- "Parabenizar a equipa pela maneira como me fizeram entender sobre o estrangulamento no qual consegui entender quais são os maiores estrangulamentos da nossa província e solucionar os mesmos, o que ao final irá melhorar o meu trabalho".

8. Annex 2: EXCEL DATA SETS

BNA Cunene.xls