

INDEPENDENT EVALUATION OF CMAM SURGE MODEL PILOT



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ACKNOWLEDGEMENTS

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Disclaimer: The views expressed in this report are those of the evaluator. They do not represent those of any of the institutions and people referred to in the report.

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1. EXECUTIVE SUMMARY

This report is the result of an Independent Evaluation of the Pilot CMAM Surge Model project conducted in two sub-counties of Marsabit between May 2012 and October 2014.

1.1 BACKGROUND

In May 2011, the president of Kenya declared the drought of 2010/2011 a national disaster¹. It is estimated that the 2011 drought in Kenya resulted in an estimated 3.75 million Kenyans and 500,000 refugees requiring food aid, while over 300,000 children were affected by acute malnutrition². The worst affected were the Arid and Semi-Arid Lands (ASALs) of north and north-eastern Kenya, where rates of global acute malnutrition in some areas vastly exceeded emergency thresholds. Concern Worldwide (Concern) was part of the humanitarian response in Marsabit County, one of the areas that was affected by the drought. A post analysis of the response by Concern and Sub County Health Management Teams (SCHMTs) revealed that there was a lack of pre-emergency planning (despite slow onset of the emergency and early warning); limited use of available data and contextual analysis; and, limited understanding of how and when to scale up interventions³. These lessons as well as the release of the “Suggested New Design Framework for CMAM programming”⁴, prompted Concern and SCHMT to develop the CMAM surge model.

1.2 THE CMAM SURGE MODEL PILOT

The aim of the CMAM surge model is to strengthen the capacity of government health systems to effectively manage increased caseloads of severe acute malnutrition (SAM) and moderate acute malnutrition (MAM), during predictable emergencies without undermining ongoing health and nutrition systems strengthening efforts. It is based on one of the fundamental principles of CMAM; that early detection of malnutrition leads to improved treatment outcomes and fewer cases of SAM, as children are treated before their malnutrition becomes severe.

The pilot project was initiated by Concern in collaboration with the SCHMT as well as health facility staff in May 2012, in 14 health facilities drawn from Moyale, Chalbi and Sololo (Moyale and North Horr Sub-Counties) in Marsabit County. This pilot project was part of a larger ECHO funded project the ‘Marsabit County Emergency Recovery Project (March 2012 to February 2013)’ whose aim was to assist the two SCHMTs in Moyale and North Horr to strengthen their contingency planning capacity by February 2013.

Concern designed the Integrated Management of Acute Malnutrition (IMAM) Surge Model to enable a health system to cope with spikes in cases of acute malnutrition. The pilot has been conducted in 14 health facilities and the pilot programme was initiated in May 2012. Operational feedback has shown that the model is technically feasible generating interest from the Ministry of Health and other stakeholders, with regard to rolling out the approach in a wider area of Kenya, with a view to making the Model part of the health system in the fragile areas of Kenya.

1.3 EVALUATION OBJECTIVES

Therefore, it was agreed that an evaluation of the model be carried out prior to any scale up of the model. The evaluation aims to

- Examine if the model works in the way that it had been conceived,
- Share lessons learnt as others implement the model.

Should the evaluation recommend further scale up as part of the process to prepare the scale up it is envisaged that a manual and other tools including a costed budget for scale up will be developed.

¹Food Assistance Integrity Study - Analysis of the 2011 drought response in Kenya; Transparency International 2012

²The Africa Portal Backgrounder series, No.33 > July 2012

³Regine Kopplow, Yacob Yishak, Gabrielle Appleford and Wendy Erasmus (2014). Meeting demand peaks for CMAM in government health services in Kenya. Field Exchange 47, April 2014. p3. www.enonline.net/fex/47/meeting

⁴Peter Hailey and Daniel Tewoldeberha (2010). Suggested New Design Framework for CMAM Programming. Field Exchange 39, September 2010. p41. www.enonline.net/fex/39/suggested

The principal evaluation question is:

Can the CMAM Surge Model strengthen the health system to manage increased caseloads of acute malnutrition during predictable emergencies without undermining ongoing health systems strengthening efforts?

The evaluation is based around Concern's ongoing programme in Chalbi, Moyale and Sololo in Marsabit County, where the model has been implemented for 29 months in 14 pilot health facilities. These facilities provide an essential package of health and nutrition services including IMAM.

The objectives of the evaluation are as follows:

- To determine whether the model is effective in setting realistic threshold levels and whether the interventions proposed take place and are appropriate when thresholds are reached
- To determine whether the model positively or negatively influences other health system activities (facility and district level)
- To determine the acceptability of the model to the various stakeholders
- To determine whether the model is more cost-effective than previous standard practice of external non-integrated support
- To determine the sustainability of the model
- To share lessons learned with involved stakeholders

Concern has defined the IMAM Surge Model as “an innovation that enables the health system to predict and cope with surges in cases of acute malnutrition through the setting of caseload thresholds and a set of phased actions to respond flexibly to a threshold being met”.

This definition and the ideas framed in the main evaluation question indicate that there are two main objectives of the IMAM Surge Model;

- Strengthening the health system to manage periodic surges in caseloads of acute malnutrition,
- Support the health system to predict, and plan to respond to periodic and predictable surges in caseloads of acute malnutrition.

I.e. a planning and preparedness objective and a response objective. The evaluation has reviewed both aspects of the model.

1.4 METHODOLOGY

The review used a mixed methods design. Methods included key informant interviews and focus group discussions at health facility, sub-county and county level. Selected key informant interviews were also conducted at National Level. A desk review of relevant internal and external data and documents was also conducted. Nine Health Facilities were visited, three in Chalbi, two in Moyale, three in Sololo (1 an outreach site) and one in Marsabit Central.

Description of Data.

Four admissions for morbidities were monitored throughout 2012 and 2013;

- Severe Acute Malnutrition (SAM) admissions to Out-patient Therapeutic Programmes (OTPs),
- Moderate Acute Malnutrition (MAM) admissions to Targeted Supplementary Feeding Programmes (TSFPs),
- Diarrhoea admissions, and
- Pneumonia admissions⁵.

Overall, admissions of all four morbidities were higher in 2014 than 2013 and the three year average. Nutrition admissions showed no seasonal pattern and surges in numbers of children admitted seemed to be mostly related to programming issues such as mass screenings or local conflict causing rapid in-flows and out-flows of malnourished children. On the other hand diarrhoea and pneumonia admission do show pronounced seasonal patterns with diarrhoea in particular being related to both rainy seasons and pneumonia increases related to the long rains. Significant changes

⁵Throughout the report the term pneumonia has been used as a synonym for respiratory infections rather than referring only to the official definition of pneumonia.

in admissions of these two morbidities do not appear to be related to programme issues, local conflict, changes in malnutrition admissions or other issues such as transhumance.

1.5 EVALUATION RESULTS MATRIX AND FINDINGS

The findings of the evaluation and an overall ranking have been summarized in the tables below. The ranking system used is as follows:

1. Poor- Highly non satisfactory
2. Fair- Non satisfactory
3. Good - Moderately satisfactory
4. Very good - Satisfactory
5. Excellent - Highly satisfactory

The principal evaluation question was posed as follows:

Can the IMAM Surge Model strengthen the health system to manage increased caseloads of acute malnutrition during predictable emergencies without undermining ongoing health systems strengthening efforts?

Overall the evaluation rated the Surge Model Pilot to be **4. VERY GOOD – SATISFACTORY**. The pilot was able to show that it has contributed to strengthening the health system to increased caseloads of acute malnutrition during predictable AND un-predictable emergencies without undermining ongoing health system strengthening efforts.

Therefore, the evaluation recommends further scale up within the pilot sub-counties and at a wider scale in Kenya and elsewhere.

Criteria	Rating (1= Low, 5= High)					Rationale
	1	2	3	4	5	
Effectiveness				X		The Surge Model pilot has shown that the approach is effective in supporting the local government health systems to effectively manage increased caseloads of SAM and MAM without undermining ongoing health and nutrition systems. The costed planning and response matrix can be simplified and further integrated into the functioning of the health system at health facility, sub-county and county level. The study also found that the Surge Model provides a framework for both planning and preparedness and the response objectives. However, in the next phase a more forward thinking approach could be taken to using data and contextual analysis to ensure that all levels of the health system are preparing and planning for predictable surges.
Impact					X	The Surge Model pilot has demonstrated that, when coupled with a Health System Strengthening approach, it can significantly contribute to the impact of the health and nutrition programme in terms of coverage. No negative impacts were noted either on the quality of the nutrition programme or on the overall health service. The surge model approach has significant positive impacts on the use of data for management and in promoting effective communication between the Health Facility and the SCHMT
Efficiency		X				Overall the evidence that the Surge Model has resulted in reduced costs when compared to the traditional approach is weak. It is not possible to draw a conclusion about the actual costs and efficiency of implementing the Surge Model because there is a lack of a specific monitoring and evaluation approach to collecting the required data.
Acceptance/ Relevance					X	The approach was found to be acceptable to all stakeholders and very relevant for the staff and SCHMT.
Sustainability				X		The Pilot was seen to have established the foundations towards a sustainable approach. The next phase will require a significant effort from the Government, UNICEF, INGO and Donors to ensure long term sustainability. The Pilot Surge Model was found to have considerable potential in bridging emergency and development programming to promote Health Systems resilience. The next phase will need to concentrate on achieving this potential.

1.6 RECOMMENDATIONS

The report has reviewed each aspect of the pilot project in detail and has made several recommendations that may be taken into account in the next phases of the scale up of the Surge Model. The recommendations can be found throughout the report. The most notable recommendations for the next phase are as follows:

- As the pilot is scaled up to full sub-counties and counties in Kenya, specific attention should be given to establishing the lead and ownership of the County Health Management Team. This will be of particular importance for issues of human resources and supply responses to triggers, especially for the higher thresholds.
- The sustainability of the financing of the Surge Model should be given particular attention. It appears that the specific surge costs of responding to all but the largest surges are low, as many of the health systems strengthening activities contribute to surge responses. It is suggested that the Surge Model can support Health System Resilience in areas where shocks and stresses are common. In this case, the use of the Surge Model approach to develop Health System costed contingency plans based on internal capacity assessment could represent a low cost and adapted approach to dealing with the Health Systems need to be resilient in the face of constant shocks and stresses experienced in these areas. The data collected during the pilot period also suggest that the approach could be extended to other morbidities such as diarrhoea that put a strain on the capacity of the health system when stresses and shocks occur.
- In the shorter term it is important that the next phase of the Surge Model better demonstrates its efficiency (especially financial) both as an alternative to episodic injections of emergency aid and as a system that develops the capacity of the health system to respond better to and cope with emergencies. For fund raising and support from Government's Health Systems and International donor's a clear demonstration of this new approaches' value for money and relevance is urgently required so that it can replace the more traditional approach to nutrition and health emergencies.
- The noted significant improvements in the Health Facilities use of data for planning and management of nutrition programmes and effective communications between levels of the health system could be duplicated at the SCHMT and CHMT levels. Adaptation of the tools and threshold approaches to monitoring challenges to the health systems capacity would allow the County Management Team to adapt and focus their response to shocks based on a real time analysis of where the needs for what support are and when.
- The use of capacity based thresholds to clarify when, where and what external health system support is needed can be extended to clarify the linkage between the Health Systems response to shocks and when there is a need for further support from NDMA, and other external emergency resources, in response to an extraordinary and rare surge in needs.
- The study noted that despite improved coverage there remains a delink between the numbers predicated by nutrition surveys and the actual numbers of children admitted to nutrition treatment programmes in the health system. Thus fewer acutely malnourished children are managed by the health system than would be forecast by the survey. It is suggested that a distinction is made between a Health System emergency and an emergency indicated by a nutrition survey or early warning. Therefore, it is suggested that the Surge Model approach is used to plan, predict and provide additional resources to the health system to mitigate the possibilities of health system emergencies. Nutrition surveys and related early warning would then be used to identify the very rare extraordinary emergencies that require significant external resources. The border between the two would be established by the Health Systems regular analysis of its capacity to cope with surges in need. Thus the threshold for investment of external resources would be set based on each counties health systems own analysis of its ability to cope. The threshold would change over time, hopefully upwards, as the County Health System increases its capacity through support to Health System Strengthening.

2. INTRODUCTION

2.1 BACKGROUND INFORMATION

In May 2011, the president of Kenya declared the drought of 2010/2011 a national disaster⁶. It is estimated that the 2011 drought in Kenya resulted in an estimated 3.75 million Kenyans and 500,000 refugees requiring food aid, while over 300,000 children were affected by acute malnutrition⁷. The worst affected were the Arid and Semi- Arid Lands (ASALs) of north and north-eastern Kenya, where rates of global acute malnutrition in some areas vastly exceeded emergency thresholds. Concern Worldwide (Concern) was part of the humanitarian response in Marsabit County, one of the areas that was affected by the drought. A post analysis of the response by Concern and Sub County Health Management Teams (SCHMTs) revealed that there was a lack of pre-emergency planning (despite slow onset of the emergency and early warning); limited use of available data and contextual analysis; and, limited understanding of how and when to scale up interventions⁸. These lessons as well as the release of the “Suggested New Design Framework for CMAM programming”⁹, prompted Concern and SCHMT to develop the CMAM surge model.

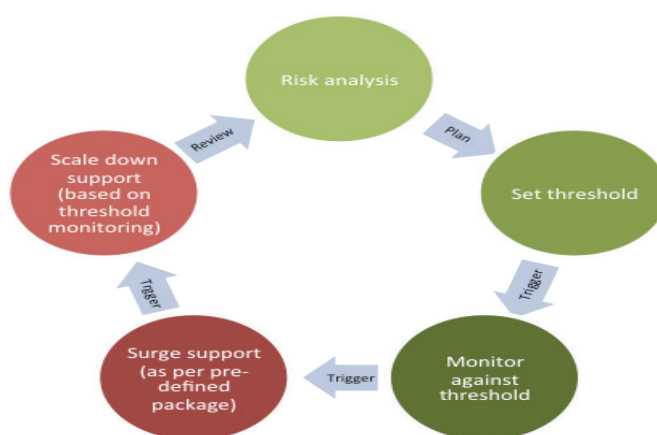
2.2 CMAM SURGE MODEL

The CMAM Surge Model was developed in May 2012 in a workshop attended by Concern staff and Ministry of Health (MoH) staff from Moyale, Chalbi and Sololo districts, currently Moyale and North Horr sub-counties in Marsabit County. A representative from UNICEF based in Marsabit as well as one from MoH national level were also present. A review of the pilot progress and some of the components of the model was conducted in November 2012. In these locations, the application of this surge model is by MoH staff at health facility and sub-county levels with technical support from Concern.

2.2.1 CMAM SURGE MODEL PRINCIPLES AND OBJECTIVES:

The aim of the CMAM surge model is to strengthen the capacity of government health systems to effectively manage increased caseloads of severe acute malnutrition (SAM) and moderate acute malnutrition (MAM), during predictable emergencies without undermining ongoing health and nutrition systems strengthening efforts. It is based on one of the fundamental principles of CMAM; that early detection of malnutrition leads to improved treatment outcomes and fewer cases of SAM, as children are treated before their malnutrition becomes severe.

Figure 1: Components of the CMAM surge capacity model



Source: Concern Worldwide reports.

2.2.2 SURGE COMPONENTS:

The CMAM Surge Model is made up of 5 surge components as shown in the diagram below.

The relationship between these components is cyclic in that one triggers the other and so forth. This relationship is explained in figure 1.

⁶Food Assistance Integrity Study - Analysis of the 2011 drought response in Kenya; Transparency International 2012

⁷The Africa Portal Backgrounder series, No.33 > July 2012

⁸Regine Kopplow, Yacob Yishak, Gabrielle Appleford and Wendy Erasmus (2014). Meeting demand peaks for CMAM in government health services in Kenya. Field Exchange 47, April 2014. p3. www.ennonline.net/fex/47/meeting

⁹Peter Hailey and Daniel Tewoldeberha (2010). Suggested New Design Framework for CMAM Programming. Field Exchange 39, September 2010. p41. www.ennonline.net/fex/39/suggested

Risk Analysis: The health facilities implementing the Surge Model define what, in their context, causes and increase caseloads of acute malnutrition as well as influences of health seeking behavior. This information is then triangulated and used to form a basis for defining a “normal” situation as well as determining situational changes expected to cause spikes in the number of caseloads.

Threshold Setting: Thresholds are then defined by the health facility staff based on their capacity to respond to health and nutritional needs. These thresholds define limits in number of caseloads above which the type of response and support required changes. That the historic caseloads of SAM, MAM, pneumonia, diarrhea of the previous months as well as health facility staff experiences are used in the process of defining realistic thresholds. These thresholds are classified into 4 levels namely; normal, alert, serious and emergency.

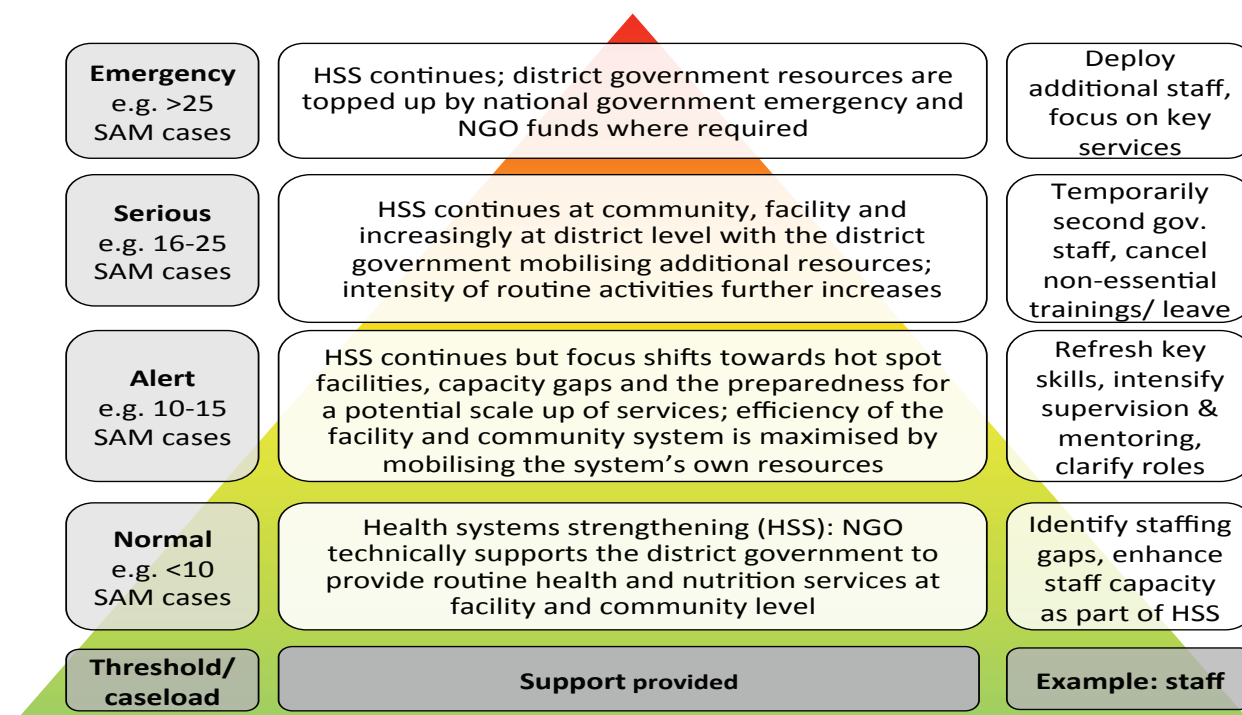
Monitoring Against Thresholds: Caseloads are monitored against the set thresholds. If a threshold is exceeded, the health facility informs the SCHMT, mobilizes its own resources and, if needed, requests for additional support based on a pre-defined and jointly agreed support package. This support package entails what is known as surge elements which are basically the activities and/or measures required by the health facility to allow them to cope with the increase in the number of SAM and MAM admissions without jeopardizing the quality of other health services provided (details later in the report).

Provision of Surge Support: The type and level of support given is based on an already agreed upon support package. There is a support package aligned to each of the threshold levels mentioned above. These packages are jointly defined and agreed in a MoU prior to the spike. The activation of surge aims to cover any capacity gaps due to the spike in the caseloads.

Scaling down surge support: The additional support only covers capacity gaps during the surge phase. As the caseloads reduce to the pre-defined “normal” levels, the surge support should be scaled down as well.

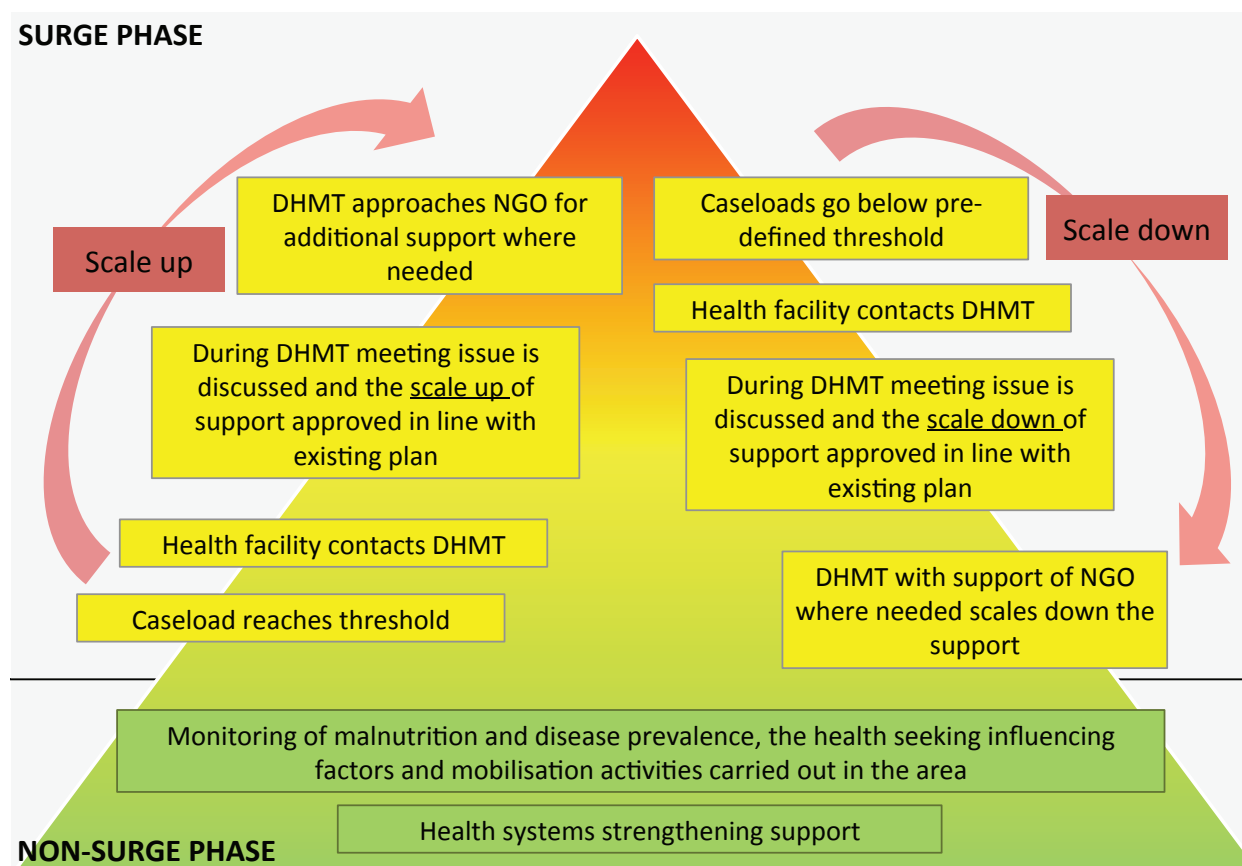
The diagrams below show the flow of support within the surge model and the scale up and down mechanism alongside the threshold levels discussed above.

Figure 2: Example of external support envisaged in the model:



Source: Concern Worldwide Reports

Figure 3: Scale up and down mechanism:



Source: Concern Worldwide Reports

2.3 SUMMARY OF THE CMAM SURGE MODEL PILOT PROJECT:

The pilot project was initiated by Concern in collaboration with the SCHMT as well as health facility staff in May 2012, in 14 health facilities drawn from Moyale, Chalbi and Sololo (Moyale and North Horr Sub-Counties) in Marsabit County. This pilot project was part of a larger ECHO funded project the 'Marsabit County Emergency Recovery Project (March 2012 to February 2013)' whose aim was to assist the two SCHMTs in Moyale and North Horr to strengthen their contingency planning capacity by February 2013. The distribution of the selected health facilities across the 3 sub-counties were as follows:-

Table 1: Health facilities included in the Pilot Project¹⁰

District	Weak performance	Average performance	Strong performance
Chalbi (4 facilities out of 7)	Folore (level 2) Kalacha (level 2)	Hurri Hills (level 2)	Turbi (level 2)
Moyale (5 facilities out of 12)	Bori (level 2)	Godoma (level 3)	Dabel (level 3) Nana (level 2) Butiye (level 2)
Sololo (5 facilities out of 9)	Walda (level 3)	Uran (level 3)	Ramata (level 3) Waye Godha (level 2) Golole (level 2)

Source: Concern Worldwide reports.

¹⁰ Classification of health centres performance was conducted during Surge Model Inception Workshop based on the subjective assessment of the Concern and MoH staff present at the meeting. No formal assessment was conducted.

3. EVALUATION OBJECTIVES AND SCOPE

Concern designed the Integrated Management of Acute Malnutrition (IMAM) Surge Model to enable a health system to cope with spikes in cases of acute malnutrition. The pilot has been conducted in 14 health facilities and the pilot programme was initiated in May 2012. Operational feedback has shown that the model is technically feasible generating interest from the Ministry of Health and other stakeholders, with regard to rolling out the approach in a wider area of Kenya, with a view to making the Model part of the health system in the fragile areas of Kenya.

Therefore, it was agreed that an evaluation of the model be carried out prior to any scale up of the model. The evaluation aims to

- Examine if the model works in the way that it had been conceived,
- Share lessons learnt as others implement the model.

Should the evaluation recommend further scale up as part of the process to prepare the scale up it is envisaged that a manual and other tools including a costed budget for scale up will be developed.

The principal evaluation question is:

Can the IMAM Surge Model strengthen the health system to manage increased caseloads of acute malnutrition during predictable emergencies without undermining ongoing health systems strengthening efforts?

The evaluation is based around Concern's ongoing programme in Chalbi, Moyale and Sololo in Marsabit County, where the model has been implemented for 29 months in 14 pilot health facilities. These facilities provide an essential package of health and nutrition services including IMAM.

The objectives of the evaluation are as follows:

- To determine whether the model is effective in setting realistic threshold levels and whether the interventions proposed take place and are appropriate when thresholds are reached
- To determine whether the model positively or negatively influences other health system activities (facility and district level)
- To determine the acceptability of the model to the various stakeholders
- To determine whether the model is more cost-effective than previous standard practice of external non-integrated support
- To determine the sustainability of the model
- To share lessons learned with involved stakeholders

The study will answer the following specific evaluation questions:

3.1 EFFECTIVENESS

Q.1. Are clinics able to set realistic threshold levels based on a good analysis and understanding of their data and context?

Q.2. Are key CMAM indicators meeting sphere standards at all stages of the model – i.e. at all threshold levels?

Q.3. When thresholds are met are the clinics recognizing this and requesting support in a timely manner according to the guidelines?

Q.4. When the SCHMT receives requests for support is this being responded to in an efficient and timely manner according to the guidelines?

Q.5. Is the surge package at each stage comprehensive enough?

3.2 IMPACT

- Q.1. Are key CMAM indicators (cured, died, defaulted) better for the surge response than the traditional model?
- Q.2. Is coverage affected by the model?
- Q.3. During the surge were other activities at the clinic impacted?
- Q.4. Are there unintended consequences of the intervention?

3.3 EFFICIENCY

- Q.1. How do the costs of the scaled up surge support compare to the traditional emergency response in 2010/ 2011?
- Q.2. Were the projected costs to the SCHMT realistic based on the actual costs of responding to the thresholds being exceeded?

3.4 ACCEPTANCE/RELEVANCE

- Q.1. Is the approach acceptable to the clinic staff, SCHMT, community, donors and NGOs?

3.5 SUSTAINABILITY

- Q.1. Has a sustainable approach been taken?
- Q.2. How can the role of the NGO, international donor be phased out?
- Q.3. How is the model linked to other DRR efforts at district and community level?

3.6 ADDITIONAL ASPECTS OF EVALUATION

In piloting the IMAM Surge Model Concern has concentrated on the Health Facility and Sub-County Health Management Team (SCHMT) subsystem as the part of the health system that responds immediately to spikes. Nevertheless as mentioned, the pilot and evaluation also envisages informing the potential scale up of the Surge Model to becoming a part of the larger health system and the IMAM Surge model is underpinned by a Nutrition/Health System Strengthening (N/HSS) approach. Therefore, the evaluation has reviewed the surge model at each level of the health system but has paid particular attention to the SCHMT and Health Facility roles in the operation of the surge model.

The pilot Surge Model has interacted with several levels of the health system

- Community health system,
- Health Facilities,
- Sub-county Health Management Team (SCHMT),
- County Health Management Team (CHMT),
- National Ministry of Health.

So observations and recommendations will also be made in five principal areas;

- How can the health facility and SCHMT surge model be improved? (The evaluation questions principally apply to this area of work).
- How should the Governance and Leadership role of the SCHMT and the CHMT for the Surge Model be developed?
- How should the Surge Model ensure more community based health system inclusion in the surge model approach?
- How can the Surge Model better link to the on-going Health and Nutrition System Strengthening (H/NSS) programming?
- How can the surge model monitoring system link to and inform the early warning and response mechanisms for Northern Kenya?

Concern has defined the IMAM Surge Model as “**an innovation that enables the health system to predict and cope with surges in cases of acute malnutrition through the setting of caseload thresholds and a set of phased actions to respond flexibly to a threshold being met**”.

This definition and the ideas framed in the main evaluation question indicate that there are two main objectives of the IMAM Surge Model;

- Strengthening the health system to manage periodic surges in caseloads of acute malnutrition,
- Support the health system to predict, and plan to respond to periodic and predictable surges in caseloads of acute malnutrition.

I.e. a planning and preparedness objective and a response objective.

Therefore, the evaluation has been structured around reviewing each objective. Connections between the two objectives have been noted throughout this report.

3.7 LIMITATIONS OF STUDY

During the 29 months under study (May 2012 – September 2014) and in the 14 pilot centres in two sub-counties of Marsabit no large scale increase in the number of new nutrition admissions were observed. Of 406 monthly reports for pilot OTPs only 5% experienced an increase of more than 3 times in new admissions (from a mean of 3 new admissions a month to about 10 new admissions a month or more in OTPs) and just over 1% experienced a 5 times increase in admissions (from a mean of 3 new admissions a month to more than 15 new admissions a month in OTPs). A similar assessment is made below for SFP, diarrhoea and pneumonia. Therefore, the study has limited scope to assess if the surge model is fit for purpose in preparing and responding to a large scale nutrition or diarrhoea emergency. Nevertheless, basic principles that relate to the theory of how the surge model supports an emergency response have been discussed.

The pilot project was designed using pilot and control health centres in each sub-county. However, the surge model is being piloted by an NGO and a health system that is simultaneously strengthening the health and nutrition system across all health facilities. As will be discussed later and as acknowledged in the design of the model there are many overlaps and synergies between the activities and objectives of the capacity development through the Health and Nutrition System Strengthening (H/NSS) programme and those of the Surge Model. In fact the Model specifically states that it is underpinned by H/NSS activities. Therefore, during implementation it was extremely difficult for the Ministry and the Concern staff to isolate many of the activities conducted in each programme. Equally the evaluation was not able to be very specific in pinpointing what were strengths of the system that related to using the surge model and what was due to the H/NSS activities. Consequently these comparative analyses were usually not possible. However, throughout the report attempts have been made to further clarify what might be the particular objectives of the surge model as a sub-set of activities encompassed by H/NSS objectives.

The surge model was started just before the advent of the County and Sub-county system. The devolution of the health system created considerable change, much of it positive, but also created disruption during the surge pilot period. On several issues it is difficult to attribute the capacity of the health and nutrition system to the work of the surge model or the new County systems impact on the capacity and response to surges in admissions. E.g. Health centres, particularly in Chalbi, had a significant increase in numbers of staff during the pilot period and as availability of human resources is a major bottleneck to H/NSS and surge response many of the positive impacts noted in the health facilities were not attributable to one part of the support alone.

The evaluation TOR was written to specifically look at the health facility, SCHMT pair and how they respond to surges in admissions and how the surge model has affected this response. Therefore, the theory of change and the evaluation questions do not allow a full examination of the surge model and the community based health system, the linkages of the surge model at facility and sub-county level to the county, National Drought Management Agency (NDMA) and national level. As one of the principal aims of the pilot and the evaluation is to inform the future scale up of the IMAM Surge Model within the Health System as mentioned above the evaluation has considered some of these issues throughout the report.

An underlying question to be informed by the study and evaluation is whether the Surge Model is appropriate to be used across the whole of the ASAL areas. Whilst the report has examined basic principles that could be applied across all ASAL counties, it has to be noted that the time allowed for the study and consultations did not allow for comparisons between the specific experience in the piloted sub-counties of Marsabit and other ASAL areas. It is likely that there are significant differences in environment, barriers, opportunities and the organisation and capacity of the Health System in other areas of the ASAL areas. Therefore, if the model is scaled up across more sub-counties further phased monitoring and evaluation steps will be required.

4. DESCRIPTION OF THE HEALTH FACILITY MALNUTRITION AND MORBIDITY ADMISSIONS DATA

4.1 MONTHLY NUTRITION CENTRE DATA.

The evaluation had access to OTP, SFP, diarrhoea and pneumonia admissions data from Concern supported programmes from January 2011 to September 2014 for Moyale and Sololo and January 2012 to September 2014 for Chalbi for all 14 pilot centres.

The chart (Figure 6) shows that for MAM there are four big nutrition centres, two in Chalbi (Kalacha and Turbi) and two in Moyale (Dabel and Godoma). Four OTPs in Moyale and one in Chalbi are bigger than the others and as a result Moyale has an OTP caseload around three times as large as that found in Sololo and Chalbi. This reflects the estimated higher population in Moyale when compared to Sololo (approx. 15,000 Sololo and approx. 38,000 Moyale). Moyale and Chalbi have similar estimated populations. Finally the SFP caseload in general is about three times greater than the OTP caseload.

Diarrhoea is three times more common than pneumonia overall. Moyale and Sololo have much higher diarrhoea new admissions and Moyale also has higher pneumonia admissions. Chalbi sees many less child cases of diarrhoea and pneumonia¹¹ than the other two sub-counties (Figure 5).

Figure 4: New Nutrition Admissions 14 Pilot Health Centers Jan 2012 to Sep 2014

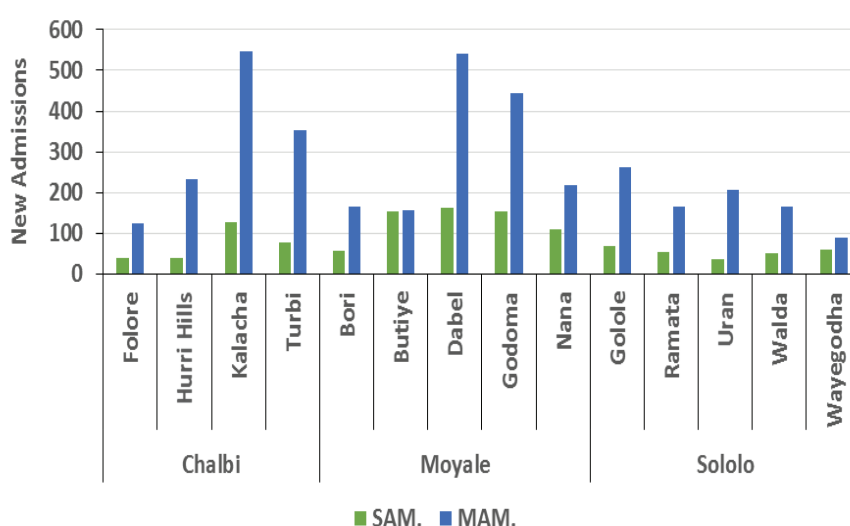
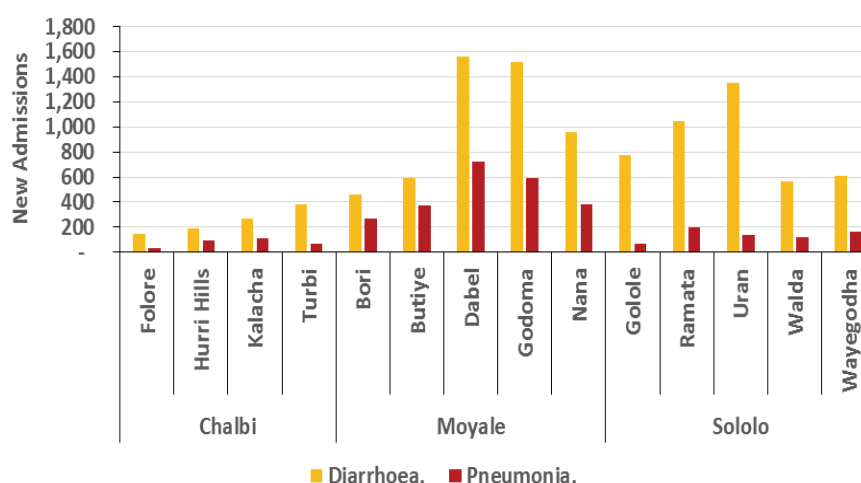


Figure 5: New Admissions in 14 Pilot Health Centers Jan 2012 to Sep 2014



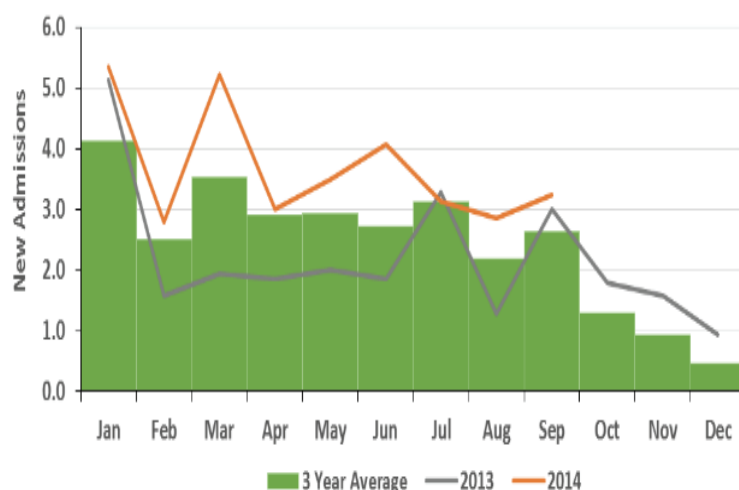
¹¹Throughout the report the term pneumonia has been used as a synonym for respiratory infections rather than referring only to the official definition of pneumonia.

4.2 TRENDS IN ADMISSIONS

i) OTP

The chart shows that 2014 experienced higher new OTP admissions than that in 2013 and in most months higher than the three year average. Note: October – December average is only a two year average. Over the 3 years represented in the chart the highest average monthly new OTP admissions was 5.4 children and the lowest 0.5 children, with an average of 3.1 children per centre admitted every month for the last 3 years in the 14 pilot centres.

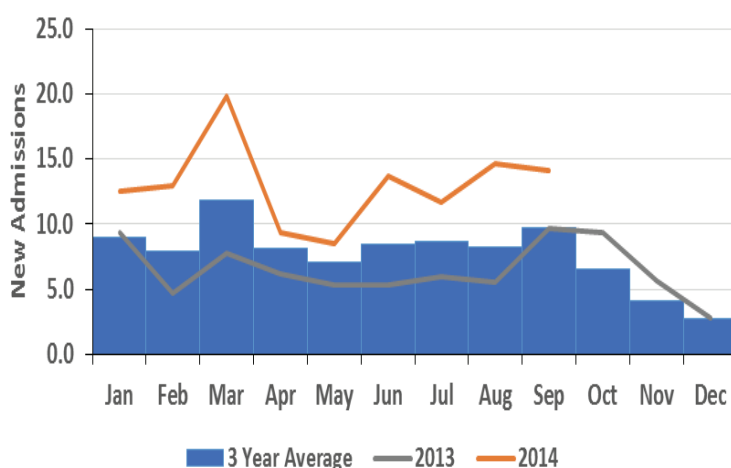
Figure 6: New OTP Admissions (2012 - 2014)



When compared to a three year average (2012-14) in trends in new OTP admissions it can be seen that there is no obvious seasonal pattern to the average OTP admissions across three years and all three sub-counties (Figure 6). This is true if the data is analysed by sub-county (analysis not presented here). However there were some spikes not related to seasons and appear to be mostly related to local conflict in Moyale and the movements of populations either into surrounding health centres causing spikes in those health centres or on cessation of conflict spikes caused by the large scale return of populations from a period of life

in very difficult circumstances. Whilst these spikes are not as predictable as a seasonal spike might be, it is possible to develop contingency plans based on review of previous impacts of conflict on admissions.

Figure 7: New SFP Admissions in 14 Pilot Centers Jan 2012 - Sep 2014



ii) SFP

Across the 14 pilot centres and the three years the highest average monthly admissions to SFP was 11.8 children and the lowest 2.8 children with an overall average of 8.9 new SFP admissions a month. As for OTPs, 2014 shows a higher new SFP admissions than the 3 year average and 2013 for all months.

The SFP data also show little evidence of a seasonal pattern (Figure 7). A peak in March, also seen in 2014 in OTP admissions, is noted. This appears to be related to the issue of local conflict discussed above. Analysis in each Sub-

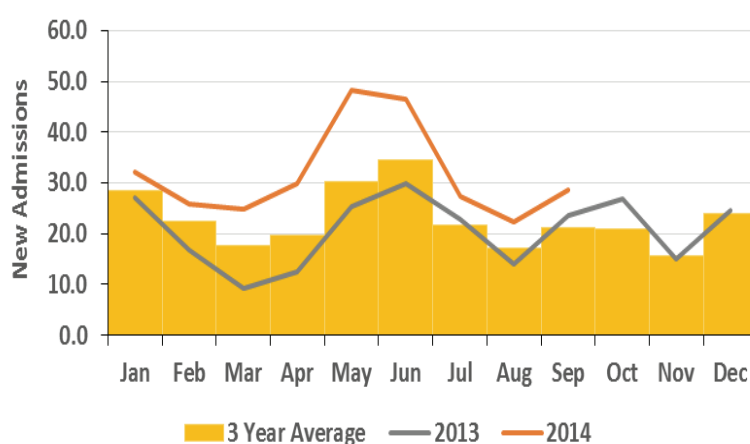
County demonstrates similar patterns in the average admissions across the year. Further analysis discussed later in the report attributes these fluctuations to local smaller scale surges with a weak relationship to the seasons.

iii) Diarrhoea

Again 2014 shows more new diarrhoea admissions than the 3 year average and 2013. On average over the three years 23.2 new cases are admitted every month in the 14 pilot centres. With a monthly high of 34.6 and a low of 15.7 children admitted with diarrhoea.

Diarrhoea appears to demonstrate a seasonal trend (Figure 8). There appear to be peaks in diarrhoea in May and June (corresponding to the end of the long rains) and December and January corresponding to the end of the short rains). A slightly different situation to that hypothesised above. This result also has implications for the theory of seasonal fluctuations in acute malnutrition if diarrhoea is considered to be a major causal factor for acute malnutrition. The result should be treated with caution as the data only represents a 3 year average with variable rains timing. Other spikes in the admissions do not appear to be related to malnutrition spikes or their suggested causes.

**Figure 8: New Diarrhoea Admissions in 14 Pilot Centers
Jan 2012 - Sep 2014**

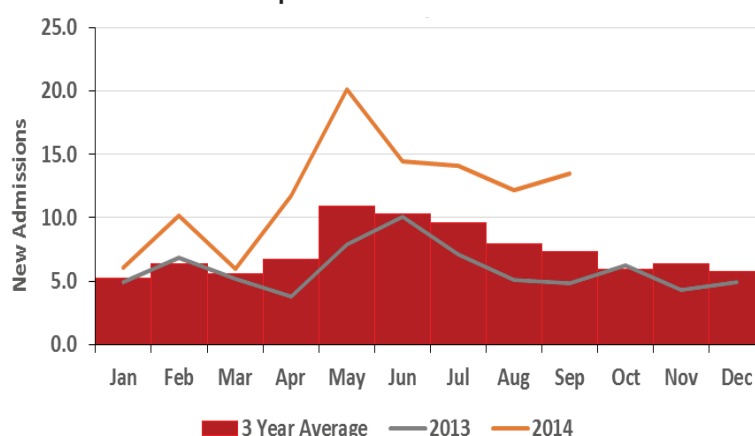


iv) Pneumonia

On average over three years monthly admissions were 7.1 in the 14 pilot centres. The highest monthly average admissions were 10.9 and the lowest 5.2 new admissions.

Pneumonia new admissions shows an increase in May, June and July in the 3 year average and in 2013 and 2014 (Figure 9). This corresponds to the end of the long rains. Again caution should be used until further data is collected and a more in depth analysis of the actual timing of the rains each season. 2014 shows a significantly higher number of new admissions each month with a big increase from April onwards. The pattern is repeated in the 2013 figures but 2013 had less or the same as the average admissions. As for diarrhoea, pneumonia admissions spikes seem to be principally related to season and not to malnutrition spikes or their assumed causes.

**Figure 9: New Pneumonia Admissions in 14 Pilot Centers
Jan 2012 to Sep 2014**



On examination of sub-counties and individual health centre records the pattern for malnutrition and morbidity is repeated i.e.

1. No clear seasonal influence on malnutrition admissions,
2. Clear seasonal influence on morbidity admissions,
3. Significant influence of other non-seasonal on spikes in malnutrition admissions,
4. Little evidence of other non-seasonal on spikes in morbidity admissions.

5. EFFECTIVENESS

Q. 1. ARE CLINICS ABLE TO SET REALISTIC THRESHOLD LEVELS BASED ON A GOOD ANALYSIS AND UNDERSTANDING OF THEIR DATA AND CONTEXT?

Thresholds are set by the health facility staff themselves. These self-assessed judgements on capacity to cope with increased numbers of admissions are made after a process of reviewing historic data on admissions, changes in admissions, staffing levels etc.

In order to evaluate if the thresholds are realistic and based on a good analysis of the data and understanding of their data and context the study has looked at the following aspects of the system

a. As a phased approach to managing resources according to needs the thresholds should show a pattern of having more alerts than serious and more serious than emergency thresholds. This in turn is a factor of the size of interval between each threshold. Are the thresholds set with realistic intervals between each type of threshold?

b. Is there evidence of self-assessed “capacity to cope” changing with context and time? This is examined through the changes made to thresholds over the last 3 years. Context includes increased capacity due to H/NSS and surge model capacity development efforts, increased investment from the County e.g. increased staffing levels. The analysis assumes that the investment from the Government and Concern in H/NSS and surge model capacity development efforts plus increases in resources to the health facilities through the county management system have resulted in an increase in the capacity of health centres to cope which should be translated into increased threshold levels.

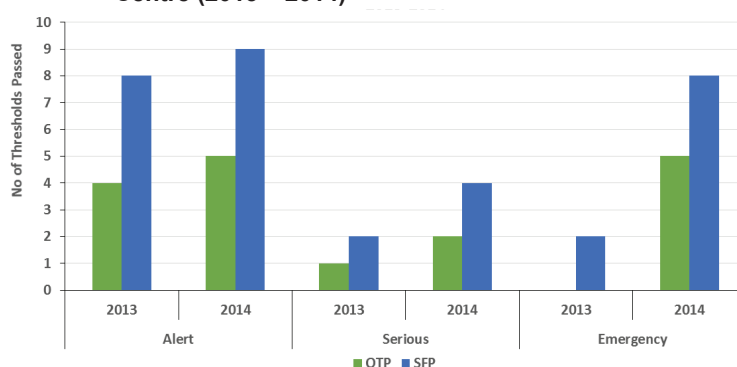
c. Does the pattern of thresholds crossed correspond to events that could have theoretically caused increases in acute malnutrition e.g. seasons, local conflict, population movements and programme management issues? Therefore, how is the analysis of context affecting the relevance of the thresholds?

d. How does the process of setting and updating thresholds need to be improved?

i) Types of Triggers.

In figure 10 it can be seen that more thresholds are crossed by SFP than OTP programmes. And that the same is true for each type of threshold. It also appears that the serious threshold is less often crossed than those for alert and emergency. This observation suggests that the thresholds chosen for Serious are too close to those for Emergency and Alert. Theoretically, there should be more Alerts than Serious and more Serious than Emergency triggers.

Figure 10: Types of Thresholds crossed by Year and Type of Centre (2013 – 2014)



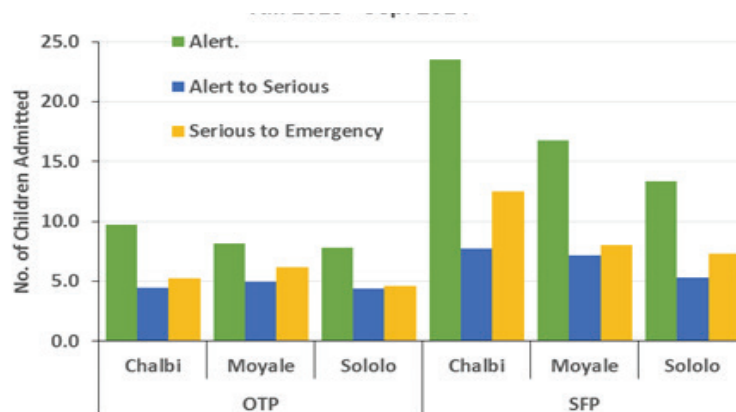
The data shows that for OTPs the average gap between Alert, Serious and Emergency is 5 children. For SFPs it is around 8 children (Figure 11).

This data suggests that wider bands could be considered in setting the thresholds. The objective being to reduce the number of emergency triggers and increase the number of alert triggers. Making wider bands between the thresholds will have implications on how the check list of actions to be taken on passing a threshold is constructed. The checklist is discussed later in the report.

ii) Changes in Thresholds.

Since 2012 10 health centres revised their thresholds. None in 2012, six in 2013 and four in 2014. This pattern probably reflects time for the system to setup in 2012, followed by adjustments in 2013 for 40% (12/28) of the SFP and OTP thresholds in the 14 centres. In 2014 only 8/28 thresholds were changed. This reduction in changes of thresholds happened as numbers for admissions increased in 2014 compared with 2012 and 2013. No pilot health centre has changed more than once.

Figure 11: Intervals between Thresholds by Type of Centre and District.



Effectiveness

Earlier the study showed that 2014 had nearly twice as many triggers as those in 2013. This happened as 10 of the centres increased their thresholds, albeit by small amounts. Thus it appears that for those centres that changed the majority were confident enough in their capacity to increase their thresholds. As numbers admitted increased by more than 40% in 2014, twice as many triggers were passed compared to 2013. It is possible that for the majority of Health Facilities their capacity judgement was that the progress they had made in capacity and confidence was not enough to cope with the increases experienced overall in 2014 (only 4 changes in 2014). However, Surge Model guidelines are clear on how to set thresholds but are unclear on how the review process will be triggered. The lack of changes overall probably reflect a weak system to regularly verify the thresholds against changes in the health facility capacity e.g. new staff. The responsibility for and trigger to initiate a change does not appear to be a clear procedure.

Overall these observations may indicate that the health facility teams were good at a self-assessment of their capacity to cope in 2012 and/or it may indicate that the system is not verifying and adapting the thresholds often enough and/or that the capacity and confidence of the health facilities has only marginally improved. It is probable that the situation is a combination of all three issues.

Recommendation: The Surge Model and the H/NSS programme should prioritise amending the threshold review process so that Health Facilities have more capacity and confidence to review and change, more often and by bigger margins.

During interviews and consultations the main reasons for changes were quoted as having been as a result of Concern staff or SCHMT advising the Health Centre to review the thresholds. The interviews also indicated that upwards changes were almost always as a result of increases in the numbers of staff posted to the centre. Several centres increased their thresholds when arrangements were made for outreach clinics to be run by staff from two health clinics.

If the capacity development associated with the surge and H/NSS programme was having a significant effect at the health facility level and at the same time evidence driven threshold changes were happening at an appropriate frequency it would be expected that thresholds would change upwards, more often and with larger changes when they are changed.

Whilst it is evident that the pilot is operating in a resource poor and unstable environment the stated objective of the Surge Model is to increase capacity of the Health System to manage spikes in admissions without the need for external resources

Recommendation: Despite the difficult background environment, the capacity development component of the programme should be reviewed to examine what are the bottlenecks in creating the conditions, through capacity development efforts, to achieve the objective of the Health Facility only requiring external support from an NGO or SCHMT at higher levels of new admissions. In the next phase of the roll out of the model specific effort should be made to establish a baseline and monitoring approach to evaluate the capacity development approaches being used.

from the NGO. In the case of the health facility this would involve having more confidence and skills to manage without the need for external resources from the SCHMT more often. Within a very difficult environment, only limited progress appears to have been made in building health workers confidence and skills.

iii) Use of data and contextual analysis to set thresholds.

As discussed above the principal method used to set thresholds is historic review of data related to a self-assessment of capacity to cope. Contextual data is used during the participatory evidence based analysis to set and adapt the thresholds but principally to set the scene. The contextual information and data is principally used during the monthly analysis and planning of activities.

Good data is available for thresholds for two years; 2013 and 2014. In 2013 and 2014 fifty thresholds were crossed, 33 for SFPs and 17 in OTPs (Figure 12). The first four months of the year appear to be the most common time for thresholds to be crossed with less and less triggers throughout the year. Note: 2014 does not have data for October to December.

On examining the thresholds crossed during the two years it can be seen that both OTP and SFP experienced more triggers in 2014 than in 2013. As discussed elsewhere there was an increase in the numbers of children admitted to both type of centre across all the districts in 2014 (Figure 13) when compared to 2013 or the three year average.

Therefore, the frequency of triggers does relate to overall increased acute malnutrition admissions.

Equally the increase in acute malnutrition admissions observed in March 2014 coincides with a peak in thresholds crossed at the same period in 2014.

Furthermore for OTP admissions (SAM) the peak in January admissions in 2013 and 2014 and in March in 2014 is mirrored by an increase in OTP thresholds crossed at the same period (Figure 14).

For SFP admissions (MAM) the peak in admissions in March 2014 is matched by an increase in thresholds crossed for SFPs in March 2014. There is less obvious correlation between the small peaks in thresholds crossed in April and July 2013 and February and June 2014 (Figure 15).

Figure 12: Thresholds Crossed by Year and Type of Centre (2013-2014)

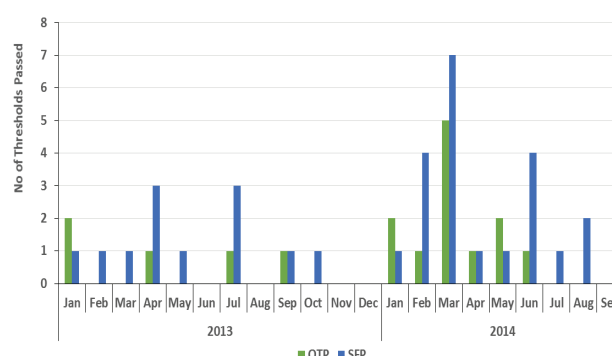


Figure 13: New SAM and MAM Admissions for 14 Pilot Centers. Jan 2012 to Sep 2014

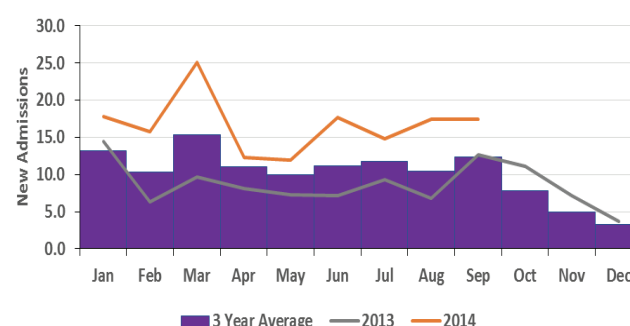
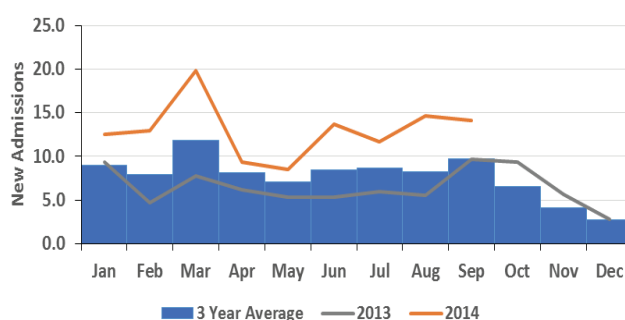


Figure 14: New OTP Admissions for 14 Pilot Centers. Jan 2012 to Sep 2014



Figure 15: New SFP Admissions for 14 Pilot Centers. Jan 2012 to Sep 2014



Overall from an aggregated point of view larger numbers and spikes of SAM and MAM new admissions is correlated with increases in the numbers of thresholds crossed.

Note: This observation may be useful if numbers of thresholds crossed at sub-county or county level are monitored by SCHMT or CHMT. A significant increase in thresholds crossed might be a tool to measure the increasing stress on the capacity of a county or sub-county nutrition system to cope and hence be a warning of a larger emergency to come. This hypothesis would need to be tested before, during and after a larger shock on a nutrition system than those experienced in Marsabit during the period of study.

iv) Triggers by Type of Programme OTP or SFP.

All two sub-counties experienced around double the number of triggers in SFPs when compared to OTPs and this observation holds true across the years for Chalbi and Moyale but not for Sololo. Thus, the health facility staff assess themselves to have more capacity to manage the OTP caseload than they do for SFP new admissions (Table 2).

v) Triggers by Centre.

On examination of the triggers over time, sub-county and pilot health centre it can be seen that there is no apparent pattern in 2013 but in 2014 several issues can be noted (Figure 16).

The biggest SFP pilot centres, Kalacha, Turbi and Dabel and Godoma, also have the most triggers; more than 2 SFP triggers in 2014. In OTP there is a weaker pattern in 2014 where Kalacha, Butiye and Godoma experienced 2 triggers. These findings tend to reinforce the indication that it is the absolute size of the new admissions i.e. SFP and the biggest SFP centres which have the most stress on the self-assessed capacity to cope.

OTP is more technically challenging and more time consuming per case, whilst SFP is more logistically challenging as there are more cases and larger volumes of product transferred (esp. if women's ration is included). Therefore, it is possible that these findings indicate that the self-assessed thresholds are more based on ability to cope with larger logistical issues and numbers of children than with the technical issues of managing each case.

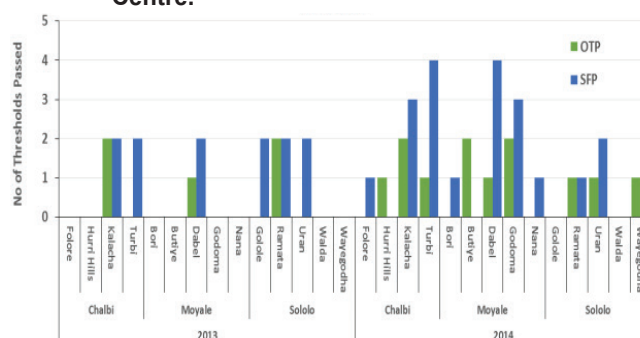
As observed earlier Moyale has more than twice the OTP admissions when compared to Chalbi and Sololo. For SFP admissions Chalbi and Moyale are closer to each other in admissions and Sololo is about half of the other two. Chalbi and Moyale also have about twice the amount of variation in their admissions in OTPs and five times in the SFPs when compared to Sololo. Yet Moyale has more or less the same number of trigger than the other two areas. If numbers of triggers crossed were only related to absolute numbers or size of variations in new admissions Moyale would have twice as many OTP triggers than Chalbi and Sololo. Chalbi and Moyale would have twice as many SFP triggers as Sololo, this is not the case.

OTP new admissions are always less than the SFP admissions, (three times less over three years in the three sub-counties) and the variation in monthly new admissions is very much higher for SFPs. Thus, it appears that the setting of triggers for OTP and SFP reflects bigger caseloads and more variable caseloads especially in SFP programmes.

Table 2: Numbers of Thresholds crossed by Year, Type of Centre and District.

Sub-Counties	OTP	SFP	Total
Chalbi	6	12	18
2013	2	4	6
2014	4	8	12
Moyale	6	11	17
2013	1	2	3
2014	5	9	14
Sololo	5	10	15
2013	2	6	8
2014	3	4	7
Total	17	33	50

Figure 16: Thresholds crossed by District and Pilot Centre.



The numbers indicate that Moyale pilot health staffs consider themselves to have higher capacity to cope with larger and more variable caseloads. This is surprising as later in the report it is clear that of the three sub-counties Moyale has the highest patient to staff ratio.

Thus the setting of thresholds within OTP or SFP programmes appears to be strongly related to self-assessed capacity within the sub-county. Self-assessment is a key positive element of the Surge Model approach. It is also one of the main risks, in that, self-assessment is subjective and is influenced by other motives and lack of confidence etc. The infrequent and relatively small increases in thresholds may be partially related to this issue.

vi) Evidence Based or Participatory Thresholds Setting.

Thus there is a question as to whether the thresholds should continue to be set through a self-assessment or through a more directive use of evidence e.g. only using historic new admissions data to set thresholds. Later in this report the study finds that 75% of the time monthly new admissions remain within a “normal range, 20% of the time there is a 3-5 times increase in monthly admissions, 4% of the time a 5 to 7 times increase and less than 1% of the time a more than 10 times increase. It is suggested that this ratio could be monitored of this ratio and used to provide a framework for the directed threshold setting.

Advantages of directing threshold setting include:

- Health facility staff cannot set thresholds lower or higher than appropriate in order to receive more support or less attention!
- Thresholds and triggers are more comparable across health centres and sub-counties. Presently the analysis above cannot adequately compare the behaviour of thresholds and admissions within centres because the thresholds represent many subjective perspectives of the health facility capacity, weaknesses, and gaps and may be relatively lower for the same number of admissions and staff and resources than a comparable centre simply because of the health staff understanding of other barriers to coping with changes in caseloads.

Disadvantages include:

- Ownership of the thresholds by health staff is weakened,
- A directed mechanism assumes that capacity gaps and challenges in a health centre is directly related to the numbers of new admissions, it is highly likely that this is not the case and at the very least the assumption has not been tested.

Recommendation: *The study supports the continued use of self-assessed thresholds but recommends that more attention is paid to the following issues:*

- * *Getting the intervals between the thresholds more balanced. This might be done by adding directed analysis step to the process of health facilities reviewing their historic data. This will help guide the health staff but still allow them to amend the thresholds based on their assessment of all factors they experience in the centres.*
- * *Independent capacity assessment conducted by the SCHMT (and Concern) with the results added to the threshold review and setting process could add further balance between the objective and subjective elements of the threshold setting process. It is acknowledged that a yearly capacity assessment is already*

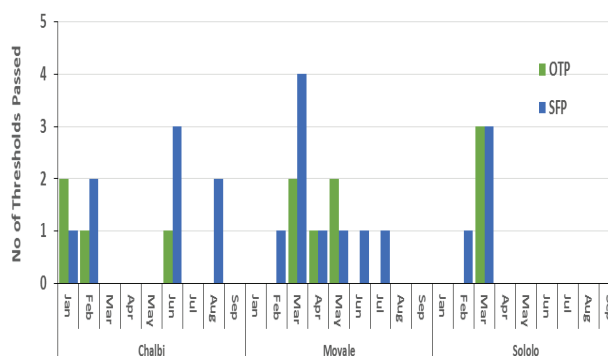
vii) Context Sensitivity of Triggers.

It can be seen from the previous analysis that there is weak evidence of a seasonal pattern in new admissions and increases in numbers of triggers appears to be more related to effects of local conflict and programme issues such as mass screening. The very different patterns of triggers in the three sub-counties reinforce the view that passing thresholds during the two years under study were more related to local factors, in particular local conflict and large MUAC screening exercises rather than seasonal factors affecting sub-counties as a whole or all sub-counties at the same time (Figure 17).

The spikes observed during the time period under study can be categorized into two groups

a. Predictable and health system organisation related. E.g. vaccination campaign screening, mass screenings. In the context of planning and preparing for spikes these types of events could be treated separately within the surge model MoU and list of activities and external support required. A simple protocol for surge actions required at Health Facility and SCHMT prior to and during the short lived surge as a result of a mass screening or EPI campaign would be a proactive approach to many of the small surges challenging the capacity of the health facilities.

Figure 17: Thresholds Crossed by Sub-County



It is important to note that other predictable events included in the contextual analysis e.g. festivals and seasonal population movements do not appear to cause spikes in the records of admissions. Therefore, their use in the contextual analysis is also a more proactive one e.g. moving outreach sites etc.

These suggestions are in line with a discussion later in the report concerning the need for the surge model to examine how to become more proactive as opposed to being reactive based on thresholds. E.g. using historic data analysis to plan activities ahead of time.

b. Difficult to predict events causing spikes in admissions e.g. local conflict. Although there is often some degree of pre-warning of these rapid onset events the scale and duration of conflict is very difficult to predict. These types of events will therefore be more reactive based on contingency planning in the MoU and list of possible activities to initiate once the thresholds start being crossed in each centre. activities.

Recommendation: The use of causal factors in the threshold setting process should include a risk analysis of factors that historically have been shown to cause significant increases in new admissions and are rare events and/or have not occurred in the health facility in the historic time period being considered. These factors should inform upper threshold setting.

During the process of setting of thresholds contextual analysis is used to set the scene for the historical data analysis and self-assessment of capacity. It is important to note that in the case of the review of the thresholds for several of the pilot centres during the last two years any historical analysis of the data would not cover the impact on admissions of rare events that have been shown to cause significant increases in admissions e.g. local conflict. In the case of large seasonal related spikes in admissions a historical analysis of data alone would also not allow these health facilities to gauge upper threshold limits (even in 2011 numbers admitted monthly were relatively small and did not reflect early warning and situation analysis assessment of need probably because of low coverage). Given the increasing coverages achieved by the programme the theoretical link between season and new admissions may be re-established. Therefore care needs to be taken to combine scenario planning for rare events with the analysis of historic data. Consideration of these types of rare events would most likely affect the setting of the upper thresholds and the design of the response package.

Recommendation: During threshold setting and response planning processes, separate scenario planning exercises could be conducted using characterization of the types of shock that have been shown to create surges in the past.

5.1 EFFECTIVENESS: Q.1. FINDINGS.

1. Effectiveness.

Q.1. Are clinics able to set realistic threshold levels based on a good analysis and understanding of their data and context?

The study finds that threshold levels are set based on a mixture of data analysis and self-assessed capacity. In general the thresholds are realistic.

However, the study found:

- a. The thresholds are not being reviewed and changed often enough, to take into account changes in context, especially human resource increases and increases in capacity.
- b. The thresholds do not cover a large enough range of expected changes in new admissions.
- c. The Health Facilities need support to use a better balance of subjective and objective capacity assessment to influence their self-assessment of what they can cope with before requiring external support. This is particularly important for setting the level of the normal threshold.
- d. The upper threshold levels have not been fully tested against very large spikes in admissions and consequently historical analysis of data needs to be adapted to take into account rare events.
- e. Threshold setting and response planning should use separate scenario based approaches for the three types of shock that have been shown to cause spikes in admissions.

Q.2. ARE KEY CMAM INDICATORS MEETING SPHERE STANDARDS AT ALL STAGES OF THE MODEL – I.E. AT ALL THRESHOLD LEVELS?

Data for the OTP and SFP quality indicators cured, defaulters, deaths and non-responders was available from January 2012 until December 2014 for both pilot and non-pilot centres.

The reports show that for a significant number of months there are no exits, and therefore no quality indicators can be calculated. Related to this issue, especially for OTPs, is the quite small number of children in each centre each month. This results in large changes in indicators used to judge against SPHERE standards e.g. if a total of 3 children are discharged in a month and one of them is a defaulter and the other two recovered the SPHERE standards are passed as there will be a 33% defaulter rate.

For OTPs (pilot and non-pilot) over 3 years (2012-14) 2037 children were reported admitted, 1,449 (80.1%) recovered and 220 (12.3%) defaulters. Only 6 children were reported dead, 98 discharged as non-responders, 20 discharged to Stabilization centres and 17 to other OTPs. These last numbers are negligible therefore, further analysis was conducted using only those children recovered and defaulting. When yearly performance was examined there were no significant differences between the performances of the pilot and non-pilot centres. The SPHERE standard for recovery was almost always above 80% for each year and pilot and non-pilot centres alike. The SPHERE standard for defaulters was only passed (>15%) once in 2013 by the pilot centres. This can be explained by one month's (January 2013) very high defaulter rate in one pilot centre (Butiye) only and field reports suggest that this was due to local insecurity at this period causing movements of populations. It is interesting to note that no similar increases in defaulters related to transhumance patterns in these area can be deciphered from the data. On cross referencing the record of triggers and months when centres exceeded SPHERE standards in Recovery or Defaulters, no pattern was found. In other words, no evidence was found of a link between thresholds being crossed and worsening of SPHERE indicators, although the small numbers involved make it difficult to draw a firm conclusion.

In TSFPs (Pilot and Non-pilot) over 3 years (2012 – 14) 6,313 children (6-59 months) were admitted, 4,187 (77.1%) discharged recovered, 722 (13.3%) defaulters and 399 (7.3%) discharged as non-responders. Only 3 children were reported dead, and 58 moved to OTP or 53 moved to other TSFP. When yearly performance was examined there were no significant differences between pilot and non-pilot centres apart from in 2013 when the non-pilot centres had significant increase in defaulters and consequent reduction in cure rates below SPHERE standards. Field reports suggest that this was due to pipeline issues. On more detailed examination of the data there is some weak evidence that higher defaulter rates are related to higher thresholds in the same month. However the numbers of cured, and defaulters fluctuates quite widely in many centres. This is probably due to frequent “cleaning” exercises conducted by the centre and Concern where a thorough review of cases results in larger than normal numbers of children discharged as recovered, defaulters or non-respondents.

5.2 EFFECTIVENESS: Q.2. FINDINGS.

1. Effectiveness

Q.2. Are key CMAM indicators meeting SPHERE standards at all stages of the model – i.e. at all threshold levels?

Overall the SPHERE standards are being met by pilot and non-pilot centres and in most cases this applies whatever threshold levels the centre is operating at. The study finds that for TSFP there is some limited evidence to show that as raised levels of defaulters is related to the threshold level the Health Facility is operating at. However, the low numbers involved, especially for OTPs data make it difficult for a more general or strong conclusion to be made.

Q.3. WHEN THRESHOLDS ARE MET ARE THE CLINICS RECOGNISING THIS AND REQUESTING SUPPORT IN A TIMELY MANNER ACCORDING TO THE GUIDELINES?

Q.4. WHEN THE SCHMT RECEIVES REQUESTS FOR SUPPORT IS THIS BEING RESPONDED TO IN AN EFFICIENT AND TIMELY MANNER ACCORDING TO THE GUIDELINES?

Programme records show that crossing thresholds triggered facility management meetings and actions as well as calls for support in a timely fashion. The majority of the actions triggered happened within 3 days and a few up to one week after crossing the threshold.

It was noted that the Health Facilities and SCHMT had opted for a more formal approach to notification of thresholds met than was originally envisaged in the guidelines. Health Facilities send an official letter of notification of passing a threshold. Many health facilities also reported that they informed the SCHMT (and Concern) by telephone but also sent a formal letter.

There is a probable weakness in the system in that the collating of new admissions through regular Ministry of Health Registers and tally sheets does not happen weekly. Therefore, there may be a danger that review of thresholds is related to the monthly update of the plots on the wall rather than a real time analysis of the new admissions situation with respect to the thresholds.

Recommendation: A review of tools, MoH and additional surge model tools for recording programme data and monitoring thresholds be conducted to ensure that a simple non-duplicative and as real time as possible system is put in place to trigger surge model actions as quickly as possible.

Whilst there have been times when a Health Facility has reported crossing a threshold in the middle of a month the danger remains if there is no explicit approach to avoiding this risk. Programme records and interviews also indicate that the SCHMT respond in a timely fashion, and mostly according to guidelines but with only a small number of activities indicated in guidelines used.

The list of activities discussed during the initiation phase and agreed in the MoU is very comprehensive. A small sub-set of the list activities were actually used in response to thresholds being crossed. At higher threshold levels these issues relate to the probable setting of emergency thresholds too low. Whilst a comprehensive discussion and inclusion of activities at the initiation phase is a very useful knowledge transfer process it is clear that based on the pilot period the actual checklists used in the health facilities and SCHMT action planning based on crossing thresholds could be much simpler and practical.

5.3 EFFECTIVENESS: Q.3. AND Q.4. FINDINGS.

1. Effectiveness.

Q.3. When thresholds are met are the clinics recognizing this and requesting support in a timely manner according to guidelines?

Q.4. When the SCHMT receives requests for support is this being responded to in an efficient and timely manner according to the guidelines?

Programme records show that crossing thresholds triggered facility management meetings and actions as well as calls for support in a timely fashion, mostly according to guidelines but with only a small number of activities indicated in the guidelines actually used.

6. IMPACT

Q.1. ARE KEY CMAM INDICATORS (CURED, DEATH, DEFAULTED) BETTER FOR THE SURGE RESPONSE THAN THE TRADITIONAL MODEL?

The Surge Model Pilot approach to setting thresholds is to use new admissions as the indicator on which to judge the health facilities capacity to cope. This is based on the assumption that the principal stress on the health facility is the number of patients or the patients to staff ratio. The assumption being that as the number of new patients exceeds various thresholds increasingly negative impacts will be felt in the quality and coverage of the services provided.

There is a question whether the judgement on capacity thresholds should be based more directly on the measurements of quality and coverage such as mortality, cured and defaulter rates. These three indicators are linked as they are all calculated using the same common denominator so a reduction or increase in one results in an opposite increase or decrease in one or all of the others.

Theoretically for a given level of competency if health facility staff have less time to provide a quality service cure rates will go down and mortality rates go up etc. Defaulters is a complex indicator that indicates problems in quality e.g. lack of follow up, poor service satisfaction and problems of coverage e.g. poor service satisfaction with long waiting times or rumours about high mortality rates etc. The interaction of causal factors and impact on the rates of these indicators are complex and can indicate many technical capacity barriers as well as logistical barriers.

The analysis and use of the quality and coverage indicators for programme improvement are key components of a quality programme management and are part of an H/NSS approach to developing a quality service. For example the 2014 coverage survey noted, as this study has, that new admissions does not follow a seasonal pattern. However, defaulters does show seasonal fluctuations related to the seasonal movements of populations with their animals in search of pasture and water (Figure 18 and Table 3).

The H/NSS programme has used this data analysis to change the approach to outreaches and active/mass screening so that the negative impact on coverage caused by movement is mitigated.

The study feels that whilst the quality and coverage indicators are indeed indicators of stress on the system changes in their levels act through a complicated causal pathway. Therefore, these indicators should be used and analysed for decision making for quality and coverage improvement of the regular programme but a simpler indicator of likely stress on the capacity of the health facility should be used to trigger extra external support to the health facility. In the analysis of quality data above it can also be seen that given the low average numbers of admissions a very small change of 1 or 2 children moving from one category to the other produces an large change in the quality indicators e.g. if two children are exiting a centre in a month and one exits as a defaulter the defaulter rate would be 50%. Thus within the studied programme these indicators are probably not appropriate for planning, and managing extra external resources.

A further indicator that might be considered in addition to or instead of new admissions to drive the threshold system, would be the “number in charge”. This is the number of clients already admitted and still under treatment. As numbers of new admissions go up those in charge also raises. There is naturally a lag of 2-3 months between the end of a peak in new admissions that caused an increase in numbers in charge to go up and the clients completing the course of treatment, being discharged and a reduction in the numbers in charge. So a one month peak in new admissions creates a 2-3 month peak in those in charge. If it is the logistical capacity or patient to staff ratio that is the driving factor in quality and coverage of a service then this peak in clients in charge is also likely to cause stress to the system and for longer than peaks in new admissions.

Given the relatively calm pilot period for peaks in admissions and numbers in charge it is difficult to test the relative advantages and disadvantages of each indicator using the present set of data.

Figure 18: Chalbi OTP Centre Defaulters Reported and Trend (September 2013 – August 2014)¹².

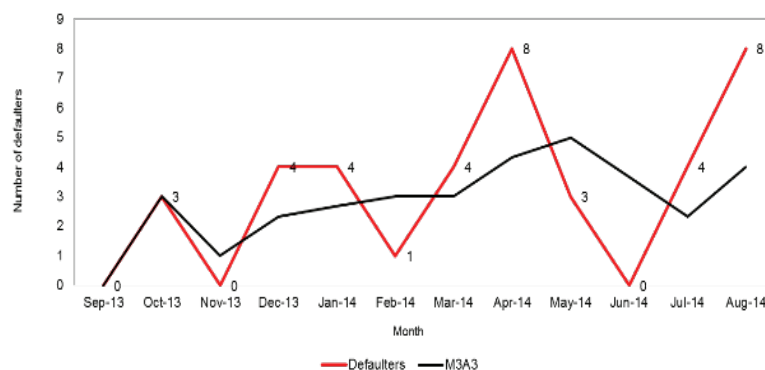


Table 3: Seasonal Calendar Chalbi

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Diarrhoea	++	+++	+++	++	++	+	+	+++	+++	+	+	+	++
Animal Migration	+++	++	+	+	+	+	+++	+++	+++	++	++	++	+++
Maize Price	+++	++	+	+	++	++	+++	++	+	+	+	++	+++
Poor Food Availability	+++	++	+	+	+++	+++	++	+	+	+	++	+++	+++
Temperature	+++	+++	++	++	+++	+++	+++	++	++	+	++	+++	+++
Cultural Festivals	++	++	+	+++	+	+	+	+	+	+++	+++	++	++

Recommendation: In the next phase of the surge model scale up and adaptation consider comparing and contrasting the utility of using new admissions or numbers in charge as the lead indicator for triggering surge actions and external support to the health facility

¹² M3A3 – Polynomial Trend Line.

6.1 IMPACT: Q.1. FINDINGS

2. Impact.

Q.1. Are key CMAM indicators (cured, died, defaulted) better for the surge response than the traditional model?

The study found that the CMAM indicators (cured, died, defaulted) are essential for managing programme quality and coverage but not adapted to use for thresholds for the Surge Model. A simpler indicator such as new admissions is more appropriate for setting and triggering thresholds and related actions. The indicator “Numbers in Charge” may also be appropriate and some further analysis should be conducted on the strengths and weaknesses of this indicator compared to new admissions would be useful.

Q.2. IS COVERAGE AFFECTED BY THE MODEL?

Coverage could be improved by the Surge Model in two ways, first through the H/NSS effect of improved management and planning of programmes would lead to improved decision making about using tools intended to increase coverage. Second, clients impressions of the service provided is increased so that health/nutrition seeking behaviour increases. The second hypothesis is examined in the section below on acceptance and relevance.

In this section the study examines the likely coverage effects of the combined H/NSS and Surge Model programming on coverage. The section also examines the effect in changes of coverage in the responsiveness of admissions numbers to seasonal shocks.

Coverage Surveys.

During the pilot period two coverage surveys were conducted but only in North Horr sub-county. The first in October 2013 and the second in October 2014. Point coverage results for both OTP and SFP showed significant improvements to levels of coverage at or above global guidance for rural areas.

- OTP Point Coverage increased to 52.8% (38.6% - 66.6%) in October 2014 from 20.2% (10.7% - 35.2%) in October 2013.
- SFP Point Coverage increased to 53.4% (42.4% - 64.4%) in October 2014 from 28.2% (18.9%-39.7%) in October 2013.

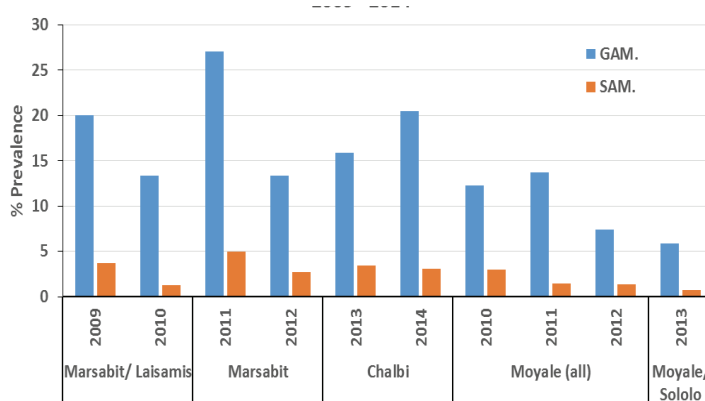
The study found that many factors created this improvement but the careful planning of outreaches and their placement synchronised with the seasonal migration of populations and the use of mass screenings in hot spots and at times of the year when coverage was thought to be affected were two of the main strategies that appear to have produced such a significant improvement. Principal barriers mentioned continue to be the absence of a significant Community Based Health system either CHW or CHEWs. Whilst the above key strategies have boosted coverage they are principally health system driven actions managed from the facility level. The barriers identified in the coverage surveys also indicate that there is still some work to do in improving community involvement in health/nutrition seeking behaviour. A detailed discussion of barriers and boosters in both surveys can be found in the survey reports.

Given these findings it is clear that the combined H/NSS and Surge Model in Chalbi contributed to an impressive and significant improvement in point coverage over one year. Data driven analysis and use of the analysis for management decisions using contextual understanding of how the programme performs over time was certainly the basis of these improvements. As this approach is one of the basic principles of the Surge Model and its support to the health system it could be said that the surge model contributed to improvements in coverage but in the sense of its contribution to H/NSS activities.

Nutrition Surveys.

In the last 6 years a total of 10 nutrition surveys have been conducted covering the two sub-counties (Figure 19). The coverage of the surveys has changed with changing administrative definitions and so are not directly comparable over this time. All surveys were SMART surveys and were screened by the Government before release. Therefore, results should be comparable in terms of methodology and quality. All surveys were conducted between May and August with the majority in June (end of long rains – theoretically the best time of the year for malnutrition) and August (start/middle of long dry season – theoretically the beginning of a worsening situation for malnutrition), thus the surveys are not directly comparable season wise. In conclusion comparing these surveys should be done with caution.

Figure 19: SMART Nutrition Surveys Marsabit and Moyale 2009-2014.



Impact

However, the results show that every year surveyed Moyale and Sololo have lower GAM and SAM prevalence than other parts of Marsabit County. The results also demonstrate the extreme variability in acute malnutrition prevalence in this area with recorded GAM prevalence changing by up to 13.4 percentage points in Marsabit and 7.8 percentage points in Moyale. These observations illustrate the potentially large changes in malnutrition admissions a health and nutrition system would need to cope with. The observations also show that the potential for surges are greatest in Chalbi when compared to Moyale. However, greater Moyale has a larger population than Chalbi so the absolute numbers of children potentially attending a nutrition centre is likely to be higher than that expected in Chalbi.

The data also shows that in 2014 in Chalbi the GAM and SAM rates were high when compared to other previous surveys but not as bad as those recorded in 2011. Previous surveys covered a wider area than Chalbi meaning that this observation should be treated with caution. However, this higher nutrition survey GAM and SAM rate does provide some opportunity for the study to examine an area with an increased GAM and SAM rate, indicated by a survey.

Higher GAM and SAM rates were recorded in June 2014 by the survey in Chalbi district indicating a poor long rains season. Note- according to the assumption above June is a better time of the year for acute malnutrition as the rains create improved access to milk etc. At the same time in the pilot centres in Chalbi were already experiencing a roughly 40% increase in their new admission when compared to 2013 and the 3 year average. In addition, as discussed above, the programme was also in the process of increasing its coverage by over 100%. Yet the admissions in 2014 in Chalbi pilot centres showed no connection to the situation suggested by the nutrition survey i.e. there was no seasonal related increase in new admissions.

The study is unable to ascertain if the overall increased numbers of admissions recorded in 2014 were due to improved coverage, or poor rains or a combination of both. However, what can be said is that with a coverage of around 50% and a GAM rate of around 20.5% and SAM rate of around 3.1% does not appear to produce any surge in new admissions in both OTP and SFP programmes. If programme resource surge decisions at National and County level had been made based on the nutrition survey results and other early warning indicators there could have been a significant over estimation of resources required, reducing the efficiency and value for money of the programme.

Recommendation: At present prediction, planning and management of surges of new admissions of the type experienced over the last 3 years in Chalbi and Moyale should prioritise the use of programme data and historical trends to plan and use extra resources, rather than using nutrition survey results.

If coverage continues to improve and the assumption holds true that there are indeed many seasonal related causal reasons why a seasonal peak is likely then there may be a point where admissions and seasons are relinked and nutrition surveys could be used to plan resources such as supplies, extra staff and funds required in the Health and Nutrition system.

6.2 IMPACT: Q.2. FINDINGS

2. Impact.

Q.2. Is coverage affected by the model?

The study finds that the Surge Model contributed to a significant and impressive increase in both OTP and SFP point coverage in Chalbi. This was achieved through the Surge models interaction with the H/NSS programming.

Q.3. DURING THE SURGE WERE OTHER ACTIVITIES AT THE CLINIC IMPACTED?

Through interviews with health staff and SCHMT no disruptions to other health facility activities were noted despite continued questioning. In the acceptability section below clients and health staff did not mention any direct positive or negative impact of the surge model or its activities on satisfaction. There may have been secondary impacts in the quality of service but the surveys used were not designed to investigate this. (See recommendations in Acceptance/Relevance section).

It is difficult to ascertain if the lack of noted negative impacts is due to the mitigating effects of the surge model or due to the relatively small numbers of children involved and the smaller than modelled increases during surge periods. Or if the H/NSS processes of improving management of the services is also having a mitigating effect.

6.3 IMPACT: Q.3. FINDINGS

2. Impact

Q.3. During the Surge were other activities at the clinic impacted?

No incident of negative or positive impact of surge periods or surge model activities were noted.

Q.4. ARE THERE UNINTENDED CONSEQUENCES OF THE INTERVENTION?

No negative unintended consequences were noted. Positive unintended consequences are mostly related to the reinforcing effects the Surge Model has on H/NSS activities. The improved ownership and use of data for decision making and planning at health facility level is a positive area noted. This approach appears to have contributed to improvements in coverage. Equally the surge model appears to have significantly improved the communication between the health facility and the SCHMT. The MOUs for the surge model and the agreed approaches to responding to triggers have considerably improved the communication and trust between the SCHMT and the Health Facilities.

The surge model pilot has also provided a new element to the debate about the use of early warning indicators and nutrition surveys in relation to programme data for prediction, planning and management of nutrition responses. Finally the surge model may have established a starting point for the discussion on the issue of Health system resilience and its links to community resilience programmes as the health system basic service resilience is an essential part of the human capital element of resilience frameworks. (See below)

Many of the risks and their potential impacts are discussed in the inception and review workshop and examination of some of the key risks are included in this study. However, a risk analysis including potential impacts, mitigating actions and methods to monitor the potential risks has not been formalized in the form of a programme document and monitoring and evaluation

6.4 IMPACT: Q.4. FINDINGS

2. Impact

Q.4. Are there unintended consequences of the intervention?

Several positive potentially unintended consequences of the pilot have been noted. Most notably the improved ownership and use of data at the health facility level and the improved and dynamic communication between the Health Facility and the SCHMT..

7. EFFICIENCY

Q.1. HOW DO THE COSTS OF THE SCALED UP SURGE SUPPORT COMPARE TO THE TRADITIONAL EMERGENCY RESPONSE IN 2010/2011?

The surge model is designed to replace the “emergency” model of nutrition response. The theoretical emergency model is described as being a start – stop model. When early warning or nutrition surveys indicate a crisis or emergency an external organisation starts an emergency nutrition response focused on creating an acute malnutrition management service. Setting up this externally managed services are known to have high costs. In addition the probably later response (it takes time to start a programme) has also been shown to have higher costs than a programme that responds earlier¹³. Once monitoring or surveys demonstrate that the levels of acute malnutrition have returned below crisis levels the programme is closed or stopped and the external actor leaves until the next time.

In Northern Kenya and in Moyale and Sololo the model used by Concern prior to the 2011/12 emergency was a common one in the region and an adaptation of the emergency model. The nutrition programme had been in place since 2006 having been set up in response to the crisis in 2006. The size of programme fluctuated according to the need and availability of funding. So when the signs of the emergency in 2011 and 2012 became obvious Concern were able to scale up from a foundation that had already been put in place and paid for in previous crises. Thus the response was probably cheaper than starting from scratch. At the same time Concern and all nutrition stakeholders in the North have been engaged in the process of integrating the treatment of acute malnutrition into the health system. The H/NSS process continues through emergencies, perhaps at a lower intensity, and is the main focus in the smaller scale programmes in the quiet times. It is assumed that sustained support to the nutrition system will in turn gradually increase capacity of the system and further reduce costs during an emergency response.

In this case the Surge Model assumes that it will create cost savings by contributing to the H/NSS process of increasing capacity and to respond locally to surges, thereby reducing the need for more expensive external aid to respond.

To test this assumption one would need to review the costs of Concern responding with the Government to the 2011/12 emergency in Moyale and Sololo with the costs of responding to roughly equivalent emergencies after a few years of implementing H/NSS and the surge model. The analysis would assess the impact of the H/NSS capacity development on reducing external costs before calculating what has been the contribution of the Surge Model. A difficult proposition given the overlap between the H/NSS and surge model activities and objectives and as there has been no large scale emergency in the pilot period.

¹³ Venton, Courtenay Cabot, et al. "The Economics of Early Response and Disaster Resilience: Lessons from Kenya and Ethiopia." London: DFID (2012).

In Chalbi Concern started programming in September 2011 and initiated the surge model in June 2012. In 2014 the June survey also showed an increase in GAM and SAM rates to crisis levels. Whilst at the same time coverage was measured to have increased from 23% in 2013 to 55% in 2014, In Chalbi. This sequence of events conforms more to the assumptions used in the design of the Surge Model.

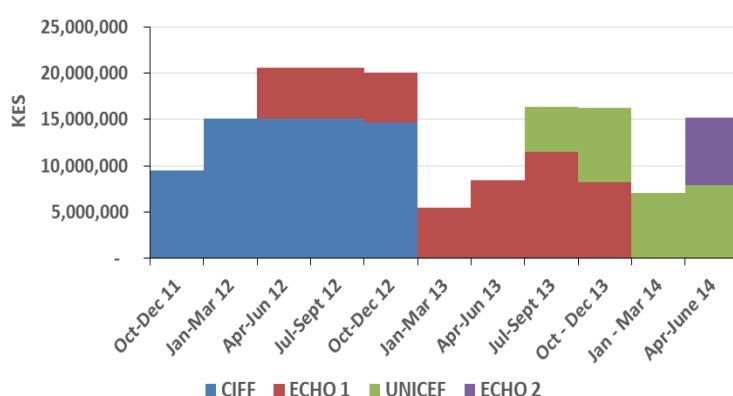
Therefore the expenditure data of Concern in Chalbi from October 2011 to June 2014 were analysed. During this period Concern received funding from Children's Investment Fund Foundation, ECHO and UNICEF for nutrition programming and the Surge Model. The grants also included other sectors DRR and H/NSS activities to varying degrees throughout the period. During the analysis wherever it was clear that the budget line item did not relate to the nutrition programme it was excluded. Budget expenditures that had significant possibilities of contributing to the nutrition programme were included. Fixed costs of Concern programmes such as drivers, vehicle costs, office rent etc were included in the analysis.

As discussed it has proven extremely difficult to isolate the actual costs of the Surge Model because the H/NSS activities and the fixed programme costs of Concern were cross subsidising the Surge Model to a significant extent. When the most obviously Surge activities were extracted and a theoretical annual cost for Chalbi was calculated the yearly cost was very low, less than 10,000 USD/year and were therefore insignificant in the overall programme costs. Therefore, the costs analysis was conducted to test the assumption that from starting up a programme through 2-3 years of H/NSS strengthening and implementation of the surge model capacity and management skills had been increased so that costs were decreasing across the time period. The analysis also examined if there was any increase in costs associated with the results of the 2014 nutrition survey indicating that there was a critical nutrition situation in Chalbi.

In all budgets transport costs are the highest individual category of costs. Many of the transport costs related to the surge model are for outreach programmes, up to 40% of the total programme cost is allocated to outreaches. Outreaches are also part of the "regular" programme and are being used as a solution to ensure higher coverage of services for the highly dispersed population in Chalbi.

Other large categories of costs are the incentives for CHW and health facility staff supported by Concern at various times through the 32 months reviewed, In particular in the last 2 quarters of 2013 and in 2014. Finally the costs of the senior Concern supervisory team contribute a third large amount to the fixed costs.

Figure 20: Quarterly Expenditure Concern WW Chalbi Programme (October 2011 – June 2014)



The data shows some evidence of a more expensive response in the 4 quarters of the 2011/12 emergency response in Chalbi prior to the implementation of the Surge Model when compared to the costs during the Surge Model implementation. The difference is in the order of 5 mKES or around 55,000 USD a quarter. There are no clear increases in costs as a result of the nutrition crisis indicated by the 2014 nutrition survey in Chalbi. Costs appear to be most modulated by the numbers of outreach and the costs of paying extra incentives to health facility staff and CHW.

Nevertheless using cost analysis in this way and improving the quality of the data available should help Concern to examine the value for money of the programme and plan the process of realising the costs dividends of several years of H/NSS in the nutrition programme in these three counties. This discussion is continued in the section on Sustainability.

Recommendation: A value for money approach based on examining the impact of sustained H/NSS and the surge model on reducing costs over time should be adopted as a regular monitoring indicator for organisations such as Concern. Demonstration of the cost savings of the approach adopted by Concern and others to run linked H/NSS, Surge Model and emergency response programmes in parallel for a sustained period of time would be a powerful argument for sustained investment in a system so that it is capable to respond to emergencies in an effective and efficient way.

7.1 EFFICIENCY: Q.1. FINDINGS

3. Efficiency

Q.1. How do the costs of the scaled up surge support compare to the traditional emergency response in 2010/2011.

Using data not designed for this purpose there is weak evidence of a less expensive programme as a result of the H/NSS and surge model programme in 2012-2014 in Chalbi. There is not enough good quality data to determine to what extent the surge model pilot contributed to this cost reduction.

Q.2. WERE THE PROJECTED COSTS OF THE SCHMT REALISTIC BASED ON THE ACTUAL COSTS OF RESPONDING TO THE THRESHOLDS BEING EXCEEDED?

And

EFFECTIVENESS: Q.5. IS THE SURGE PACKAGE AT EACH STAGE COMPREHENSIVE ENOUGH?

The costing framework for the surge model was comprehensive and detailed. The framework used the following areas of programming;

- Availability of technical staff
- Technical knowledge (Joint Supportive Supervision (JSS), On the Job Training (OJT)) and reporting.
- Reference material, stationary, reporting formats, transport.
- Materials (drugs, food) and equipment.
- Working Space
- Leadership and coordination at all levels.

Each area of programming was then split into activities at each threshold level. A general summary of the types of activities included under each programme area are detailed in the Annex A. A large number of activities involve no additional costs. The three biggest planned activity costs were additional outreaches, staff secondment costs, refresher training and additional OJT. The planning calculated costs for each programme area were as follows:

As can be seen as expected the planning costs per threshold increase up the threshold scale. Working space (increased accommodation including tents) was the most expensive programme area, followed by technical support and leadership and coordination at all levels (Table 4).

As discussed elsewhere, on review of the records of responses to thresholds it can be seen that several costed activities within the programme areas did not happen in the actual responses. In particular many of the activities included under the Working Space programme area did not happen, probably as no large scale emergency occurred. Equally no large scale refresher trainings were organised as a result of thresholds being crossed, mostly because training and OJT is so common in the H/NSS programme.

Table 4: Planned costs for Programme Area Activities.

Programme area	Threshold				Total (KES)
	Normal	Alert	Serious	Emergency	
Availability Of Technical staff	-	-	73,000	92,000	165,000
Technical Knowledge (JSS, OJT), reporting	-	120,000	90,000	18,000	228,000
Reference material, stationary, reporting formats, transport	-	5,000	15,000		40,000
Materials (drugs, food) & equipment	-	-	128,000		197,000
Working space	-	-	73,000		283,000
Leadership and coordination at all levels	-	-	60,000		212,000
Total	-	125,000	439,000		1,125,000

Costs for staff secondment were incurred but not as much as planned. The reasons given were the general shortage of qualified health staff restricted flexibility to second staff. Also many of the areas covered by the pilot centres are particularly remote and at times experience tribal related tensions, resulting in reluctance of staff to move to these areas. Finally there appears to be some reluctance by the SCHMT to act on moving staff without clearer guidelines from the CHMT.

The main costs in response to the passing of thresholds was an increase in mass screenings, increases in numbers and movements of out-reach clinics and increases in coordination meetings and transport costs of movements of SCHMT staff, in particular. Some emergency transport costs for supplies were also incurred. Within the budgets it is difficult to attribute some of the costs only to the surge model. For example supplies were moved between health facility and from central stores to health facility as a result of thresholds being passed. However, the supplies could be moved in a vehicle moving between towns and villages on other activities and so costs are hidden in the overall fuel, maintenance and driver costs. The same is true for movements for coordination, JSS and OJT.

An analysis of expenditure on surge activities was attempted but the cross-subsidy issues made the data extremely unreliable in terms of what the actual costs of the surge model were. If the most expensive activities triggered; extra outreaches, and mass screenings are considered the maximum attributable annual costs are estimated at being between 3,500 USD and 6,000 USD per sub-county per year. This is considerably less than the original budgets for the surge model due to cross subsidies. Set up costs for the surge-model are not included in these costs.

Using a comprehensive list of activities was the most appropriate approach to setting up the pilot phase. As recommended elsewhere the planning matrix, including costs, is probably a good planning and sensitization tool to be used in start-up meetings and annual planning exercises. The tool should be reviewed regularly and the activities checked to see if

they are practical and actually happen at the levels described. E.g. additional tents and partitions are planned under the Working Space emergency phase activities. Despite emergency phases being passed this activity was never needed. If as previously recommended the emergency threshold is moved further up this budget line may become more appropriate. An important step in preparation for the next phase of the roll-out of the Surge Model will be to collaboratively review the comprehensive list of activities and examine what is appropriate and what not. This review should also carefully examine why appropriate activities were not used during the pilot phase.

Recommendation: Conduct a review of the comprehensive list of activities designed for the pilot phase to ascertain appropriate and non-appropriate activities and why some appropriate activities are not systematically used.

Given the very close relationship between the Surge Model and H/NSS activities the planning of finances for the two activities should continue to be conducted together in annual work planning exercises with the SCHMT and Concern and other stakeholders, with the Surge Model approach acting as the framework for the contingency planning and costing component of the planning process. It is probably most efficient to only cost those activities that are clearly additional and involve significant costs in the Surge Model/Contingency plan budget. These will include costs of additional outreach activities, additional screenings, community action days, a proportion of transport costs for coordination and moving supplies and secondment costs.

7.2 EFFICIENCY: Q.2. AND EFFECTIVENESS: Q.5. FINDINGS.

3. Efficiency

Q.2. Were the projected costs to the SCHMT realistic based on the actual costs of responding to the thresholds being exceeded?

And

1. Effectiveness

Q.5. Is the surge package at each stage comprehensive enough?

The planning matrix including costed lists of activities in each programme area was not realistic and overestimated, in terms of the actual costs to the surge model and the surge budgets provided to the SCHMTs. This may have been due to the pilot phase being as comprehensive as possible but in the next phase a simplification of the package is probably necessary. The surge package contained too many activities and thus was overly comprehensive.

8. ACCEPTANCE/RELEVANCE

Q.1. IS THE APPROACH ACCEPTABLE TO THE CLINIC STAFF, SCHMT, COMMUNITY, DONORS AND NGOS?

As part of the prospective data collection for this study Concern conducted two rapid surveys of acceptability. One for the health staff and one for the caregivers using the health services. The results from these studies can be found in the summary reports. Highlights of the findings are as follows:

Patients Satisfaction:

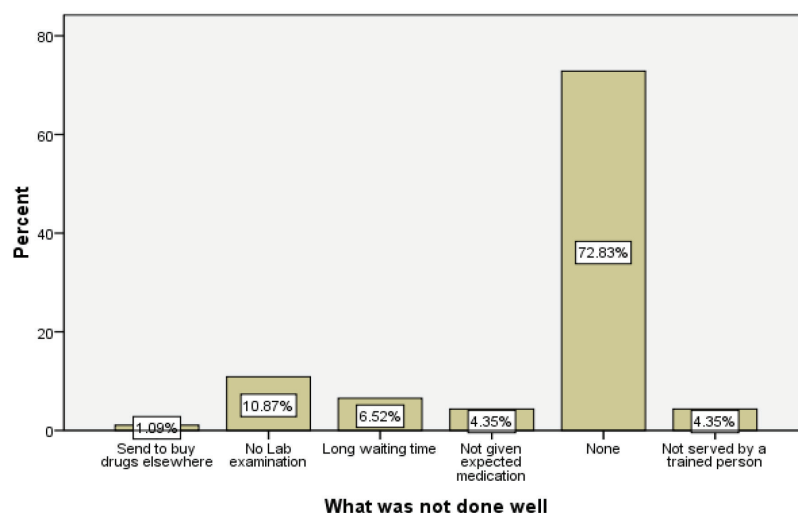
A survey was conducted in all 14 sites in August 2014. It is assumed that as patient numbers increase and resources in the health facility reach their limits patients will start to become more dissatisfied. Some of the causes of the dissatisfaction are thought to be long waiting times, less qualified staff providing the service, less time for examinations, less attention paid to giving a polite and courteous service and shortfalls in drugs and other items.

Overall the patients were very satisfied with the health facility services. 97.8% of the patients found the services to be good or very good. Waiting times were less than 2 hours and in the vast majority of cases less than 1 hour. More than two thirds of the patients were served by qualified staff. Issues that were important in these good perceptions included the fact that an examination and history were done, waiting time was short, hospitality was good and medication was provided. The type of medication given had an important role to play in satisfaction scores; an injection gave more satisfaction than an oral tablet and any kind of prescribed treatment gave a great deal more satisfaction than being sent home with nothing physical. The second biggest factor correlating with dissatisfaction was whether the patient was attended to by a qualified person or a CHW. Finally lack of specific equipment and being made to pay for the drugs were important markers of dissatisfaction (Figure 21).

The survey requested patients to recall a time they had visited the health centre previously, before the Surge Model was implemented. Nearly 85% noticed no change and of those noticing a change nearly 93% noticed a positive change. More Chalbi patients noticed a change and the vast majority saw this as being a positive change. This may be related to the Surge Model, the start of Concern support to the programme or the increased County investment in the sub-county.

In conclusion, although no baseline was conducted it can be seen that the advent of the surge model has not resulted in negative changes and perceptions of the patients. The assumptions that increased patient numbers will result in decreased satisfaction through the causal analysis above does not seem to have come to pass in these centres despite 7 of the 14 health facilities surveyed being above alert thresholds at the time of the survey.

Figure 21: Patient Satisfaction.



Recommendation: As an important element of the Surge Model and for accountability purposes, customer satisfaction monitoring should become a more regular and targeted element of the Surge Model large scale pilots. Monitoring of satisfaction at Health Facilities experiencing numbers passed serious and emergency thresholds should be systematic and results used to adjust response activities and thresholds.

Health Workers Satisfaction:

As with patients it is assumed that as numbers demanding services in a health facility increases and reaches the limits of a health facility and its staff to cope and to provide a quality service the satisfaction of the health workers falls. A study on health workers satisfaction was also conducted in June 2014.

This survey compared pilot and non-pilot health centres in the same sub-counties. 29 centres were surveyed and all but one of the pilot centres included in the sample (One HC was above a normal threshold and was therefore excluded). Four non-pilot centres did not reply as the only qualified staff was on leave at the time of the survey. Nearly half (48%) of the centres surveyed had only one qualified staff. Chalbi had no sites with less than two qualified staff and 71% had more than five staff. In Moyale 64% (14/22) had only one qualified staff member. This was the same situation for pilot and non-pilot sites.

A small majority of Health Workers had been in their post for one year or less, although all in the sites sampled in Chalbi had been in their post for longer than a year.

Staffing ratio in Moyale is more varied and includes a ratio of 1 qualified staff for up to 40 patients. In Chalbi the highest ratio is 1 staff for 13 patients (Table 5 and Figure 22).

These results together indicates a staffing issue in Moyale, which should be taken into account when the Surge Model is considered in Moyale.

On examination of patient: staff ratios for pilot and control centres no clear pattern emerges.

Table 5: Patient: Staff Ratio by District.

Staff: Patient	3	5	7	10	13	15	20	30	40	Total
Chalbi				1	5	1				7
Control					2	1				3
Pilot				1	3					4
Moyale	1	1		3	1	2	8	3	3	22
Control	1	1		2			5	3	1	13
Pilot				1	1	2	3		2	9
Total	1	1	1	8	2	2	8	3	3	29

Overall 62% of the staff in all centres believed that the workload was manageable or better. Again Moyale had more staff who felt overloaded (45% in Moyale vs 14% in Chalbi). Pilot centres felt slightly more positive about the workload than non-pilot centres (69% to 56%) and high patient: staff ratios do not appear to have a clear influence on staff assessment of the workload. This finding indicates the strong influence of personal perceptions of workload.

However, there is a difference between satisfaction in Chalbi and Moyale superimposed on the larger patient: staff ratio in Moyale.

Therefore, it is clear that absolute staffing rates and patient: staff ratios have an effect on staff perception on manageability of the workload. An important assumption used in the design of the Surge Model. A slightly better staff appreciation of workload is noted in pilot centres (below the alert threshold) compared to control centres despite there being a variety of patient: staff ratios etc.

Figure 22: Health Facility Patient: Staff Ratio June 2014.

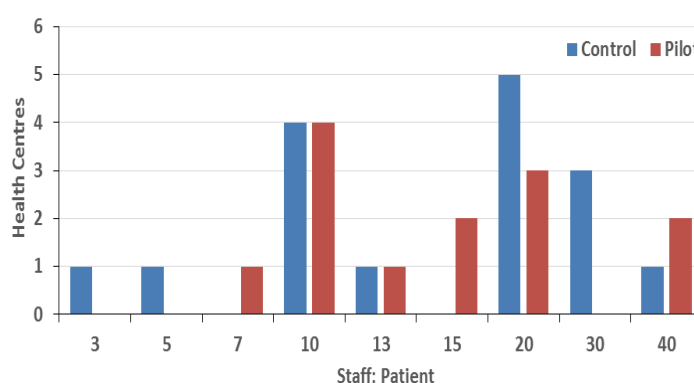
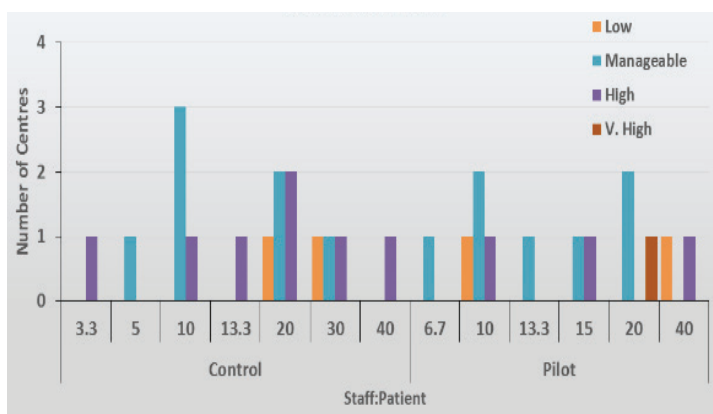


Figure 23: Health Centre Staff Perceived Workload versus Patient: Staff Ratio June 2014



The time in the post is also a factor in this staff perception, with more experienced staff being more positive. Finally it is clear that the views of individual staff interviewed are varied when considering their workload.

About half of the centres reported that they had periods when the numbers of malnutrition cases caused disruption in other healthcare services. Again only 2/7 had experienced this situation in Chalbi and 12/22 in Moyale. 5/13 pilot centres had experienced this situation and 9/16 control centres. This suggests a slightly better situation in the pilot centres. Pilot centres in Chalbi had never experienced this situation whereas 7/13 pilot centres in Moyale had. Once again indicating the centrality of staffing levels and experience in perceived capacity to cope and work satisfaction.

The Surge Model pilot is operating in an area with good staffing levels (Chalbi) and one with poorer staffing levels (Moyale). Individual health facilities in these areas have a variety of patient: staff ratios. It is likely that the type of support required as numbers increase will be different as thresholds are crossed. It is also likely that the staffing levels should contribute to higher thresholds being set in Chalbi than in Moyale.

For the pilot centres there is no clear relationship between thresholds crossed and patient: staff ratio. In fact it appears that higher patient: staff ratios have less thresholds crossed, keeping in mind this is a very small sample. The result may again indicate the need to be more directive in setting thresholds and using patient: staff ratios as guidance to support the discussion.

The Health Facility leads reported that they had all received support from the SCHMT when they passed thresholds. All pilot facilities reported that this support was adequate but the 2/2 facilities in Chalbi reported high levels of satisfaction and 4/4 in Moyale medium levels of satisfaction. The field visit for this study also identified the capacity and involvement of the SCHMT in Moyale to be lower than that in Chalbi.

During the survey staff were asked to state strategies they would use if they had staff or supplies shortages. In general there were few differences for pilot or non-pilot centres. Although more non pilot centres could not mention any strategies. The survey also suggest that the pilot facilities have a greater variety of and more practical strategies. In conclusion the satisfaction surveys of patients and health workers show good evidence to suggest that the pilot model does not negatively affect satisfaction and some evidence that the model has contributed to improved satisfaction with services. Overall as expected the question of staff numbers and patient: staff ratio appears to be the key modulating factor in determining satisfaction with services.

Many of the assumptions about the surge model being a method to maintain quality and coverage of services during increased stress and shocks in the Health Facility relate to the attitudes and satisfaction of the clients and health facility staff. Therefore, regular studies of the kind above should continue to be conducted. The Satisfaction surveys should build on these baselines and investigate some of the key issues further. These issues include:

- Once qualified staff levels reach a more appropriate level what are the limiting factors to responding to emergencies at the facility level that effect staff and patient satisfaction.
- How can the surge model improve the health facilities staff understanding of the coping measures to be taken and how are the coping measures connected to satisfaction of the staff and patients?
- As a large emergency happens how does the surge model mitigate the expected impacts on staff and client satisfaction?

Recommendation: Conduct regular staff and client satisfaction surveys to follow progress and iteratively improve the surge models impact on satisfaction with services even through an emergency.

During this study it is clear that SCHMT, key donor's and other NGOs are very positive about the Surge Model.

During interviews SCHMT teams expressed only positive perceptions of the Surge Model and despite pressing could not give any negative examples of the issues during the pilot period. It is clear that these positive views are connected to the prolonged and intensive work carried out by the Concern teams in ensuring a close and working relationships with the SCHMTs.

Key support from Concern includes regular planning, review and consultation meetings with the SCHMT including being represented in many of the regular SCHMT meetings. Support to the movements of SCHMT staff and supplies for supportive supervision, restocking including visiting, resupplying and supporting HF when they pass thresholds. Concern also support some of the costs of SCHMT staff being involved in outreach and screening monitoring. Capacity development activities are also targeted to the SCHMT. Given this level of support acceptability is high. In the discussion on Sustainability this issue is discussed further.

The study discussed with one NGO that is already piloting the Surge Model after training with Concern. The NGO has made an international commitment to piloting the Surge Model in several countries including Kenya.

The study interviewed two donor's, ECHO and UNICEF Kenya concerning the Surge Model. Both donor's consider the model to be an important addition to the nutrition programmes in Kenya. ECHO has been encouraging other NGOs to bring the model to the areas they support including the use of the model in South Sudan. UNICEF is eager to move to the next phase of the Surge Model pilot to scale up and test at a wider scale in Kenya.

8.1 ACCEPTANCE/RELEVANCE: Q.1. FINDINGS

4. Acceptance/Relevance

Q.1. Is the approach acceptable to the clinic staff, SCHMT, community, donors and NGOs?

The approach was found to be acceptable for all stakeholders and relevant for the staff, SCHMT, donors and NGOs interviewed.

9. SUSTAINABILITY

Q.1. HAS A SUSTAINABLE APPROACH BEEN TAKEN?

AND

Q.2. HOW CAN THE ROLE OF THE NGO, INTERNATIONAL DONOR BE PHASED OUT?

Sustainability is defined as a state where the benefits of an activity continue after donor funding has been withdrawn. It can also be defined as a state where the activities of a project or programme continue through the Government system after external donor funding has been withdrawn.

The study TOR suggests that the key question is whether the Surge Model pilot has taken a sustainable approach to handing the model over to the Government and the study will attempt to answer this question.

As this study takes place at the end of a pilot project testing a new approach to programming in Northern Kenya the process of moving to hand over the programme to the Government is still in its early stages. Considering the Surge Model as a Health System this study has used the WHO building blocks for health systems as a framework to structure the analysis. Six building blocks were considered:

- Leadership and Governance
- Health Workforce.
- Service Delivery
- Commodities
- Information Management
- Financing.

Health Facility.

As mentioned above the pilot has concentrated on the health facility and SCHMT partnership, with the primary focus being on the health facility. The leadership and governance aspects of the surge model at the facility level appears to be advanced in terms of sustainability. The health facility teams include surge issues in their regular meetings. Tools and guidance provided are mostly understood and used. Collaboration and communication with the SCHMT using thresholds as triggers for action also seems to work effectively and in a timely fashion.

In the Health Facilities all pilot centres visited were able to use the training and tools, including the charts on the wall, in a detailed and knowledgeable way.

The study found that the comprehensive support package of surge activities agreed in the MoU and its translation into tools in the Health Facility tools used in the centre were overly complicated and required simplification. The list of actions, included in the MoU and kept on file in the Health Facility is very comprehensive. On review of the agreed actions, against the actual actions recorded to have been taken it can be seen that there are some lessons to be learnt. Several of the actions at the lower thresholds (normal/alert and alert/serious) can be overlapping with regular H/NSS activities e.g. OJT. As a result of such a comprehensive model the list of activities kept on file in the health facility and the SCHMT offices is quite difficult to read and use. Many activities that may need to happen at an emergency level did not happen, probably because the emergency thresholds are set at too low a level in the majority of the Health Facilities.

Whilst at the higher end of the scale (serious/emergency and above) several of the activities listed did not happen because the “emergency” was not large enough e.g. extra space requirements including tents etc. In the discussion on the thresholds above it was highlighted that the thresholds were too close together and that the upper threshold is probably not high enough. If the threshold setting process is amended to take this point into account then the framework of activities at the higher threshold levels could also be reviewed to make them more appropriate to the new levels of the thresholds.

The wall charts were taking too much space and rely on flip chart paper and hand drawn charts in most cases. Concern and the Government are aware of this issue and are working on new versions.

Recommendations: The study suggest the following issues are taken into account:

a. Data Trends Chart: It would be easier to predict and plan using the data trends chart if the present year was superimposed on a long term average and last year's data. This could be done by printing new posters each year.

b. Activities Chart: Use the chart prospectively and retrospectively. At the moment facilities are using the data retrospectively to record what was done. The chart is filled in at the end of each month recording what has been done. Reference to last year's data should allow the facility team to plan up to three months in advance for predictable changes in the situation. The activities chart should allow space for both planning ahead and actual records of what was done.

c. Surge activities: The present system is too complicated with multiple printed pages form an excel sheet. During the process, recommended above, of reviewing the actions to be taken as each threshold is passed the response chart should be simplified to a simple list of actions in a checklist that can be laminated

Many of the health workforce issues related to the surge model at the health facility level are out of the control of the health facility, including the numbers of staff and the secondment of extra staff to the facility or outreach. However for those issues that are within the control of the health facility good positive progress has been seen. Staff leave schedules are clearly planned and managed according to the knowledge and information collected and analysed through the surge model process. All staff interviewed demonstrated their willingness to use and respond to the data analysis often outside of their normal working requirements.

Equally collaboration and communication with other nearby health facilities on sharing human resources for outreaches and scaled up outreach services seems to be a positive sign of a sustainable approach to using data to manage surges.

In terms of sustainability as discussed above 2-3 of the most important service delivery actions taken by the facility in response to passing a threshold involve increased expenditure e.g. more outreach or mass screening. The degree to which some of these expenses could be decentralised to the health facility budget should be considered. Greater flexibility and discretionary ability to make decisions on responses to thresholds passed will build ownership and sustainability of the system at health facility level.

The same approach should be considered for the issues of supplies. As the Government and UNICEF are in the process of reviewing supply chain systems for nutrition products Concern could consider a Surge Model orientated analysis of how to boost Health Facility management of emergency stocks of RUTF and other essential items.

Recommendation: Consider decentralizing some budgetary aspects of financing the Surge Model to Health Facility budgets. Include the Surge Model planning and management approach to emergency stock issues at the Health Facility level.

SCHMT and County Health Management Teams.

The leadership and governance of the surge model at the SCHMT level has also started in a very good way. Positive steps taken have been the very close working relationship established with the SCHMT in Moyale and Chalbi. The partnership extends from planning through budgeting, funds allocation and disbursement, joint visits, responses and decision making. The SCHMT, in both locations, made it clear that they were fully involved in all processes of the H/NSS and Surge Model.

This is not the case for the Surge Model at the County level. As the Surge Model implementation straddled the establishment of the County Health System and the first stage of implementation was viewed as a pilot there has been limited engagement with the County Health Team concerning the Surge Model. Establishing the leadership of the Surge Model by the County Health Team is a very clear priority for the next phase. This cannot be done alone by Concern. A national level commitment from UNICEF and the National Ministry of Health will be required to establish the model as a Government approach and to facilitate the process of setting up the systems to manage the Surge Model through the county level mechanisms.

The next challenge for sustainability of the surge model will be establishing the leadership of the SCHMT in sub-county decision making for the surge model. In particular for health workforce and financing decisions. It will be important that roles, responsibilities and mechanisms for financing staff secondments are more clearly defined and agreed with the County Health Team.

Recommendation: National Ministry of Health, UNICEF and INGOs, such as Concern, should ensure that the County Health Management team lead and manage the Surge Model system. This will involve developing and putting in place the Leadership and Governance structures required to make the Surge Model part of the regular health system.

There is clearly an SCHMT led process of annual costed planning for both H/NSS and Surge Model budgets with Concern. In the report above the study found that the budgets planned for the Surge Model were overestimated due to an overly comprehensive costed activities framework and considerably cross subsidy from the H/NSS programme. This has resulted in the quarterly Surge Model budgets released to the SCHMT being significantly reduced. As recommended above a rationalization of the Surge Model budget and inclusion of the budget in the SCHMT contingency planning budget as part of the annual Government budget will be a first step in making the Surge Model budgets realistic, and moving towards a reduction in the need for Concern to subsidize this budget. Above it has been estimated that the Surge Model Contingency budget may be as little as 10,000 USD/year for a sub-county.

As discussed for Health Facilities above there is also a need to agree on what is the role of the SCHMT and CHMT in managing emergency stocks available to respond to surges in numbers of children. At present the KEMSA do not appear to have a surge component to their regular supply process for drugs and other medical supplies. As nutrition supplies move (from partial UNICEF and partners control) to being directly managed by KEMSA it will be important to ensure that consideration is made of the Surge Model requirements at health facility, SCHMT and CHMT levels as part of the national H/NSS process.

The Surge Model pilot rightly concentrated on the use and analysis of data at the health facility level. As the lessons learnt from the pilot are factored into the next phase at the facility level it will be important that an information analysis and decision making process is developed for the SCHMT and CHMT. At present there is a tendency for the SCHMT to be involved only after receiving notification of a threshold being passed.

To be able to manage strategic issues such as staff movements, supplies movements and financial issues the SCHMT and CHMT need a more real time monitoring system designed to use the Surge Model as its framework. The information system should allow a view of each health facility under their mandate but also the overall situation in the Sub County or County. At present DHIS does not easily allow this type of analysis. Therefore it is suggested that a simple Surge Dashboard of the same type of essential information be developed for use by the sub-county and county.

Recommendation: *With reference to other on-going H/NSS financing initiatives the next phase of the surge model should develop a clear approach to roles and responsibilities for management of surge finances to the fullest extent possible, at the health facility, SC and county levels. The final objective being full financial management of the Surge Model by the Government at different levels within the County.*

Recommendation: *Surge Model data and analysis processes should be adapted to develop simple dashboards for the SCHMT and CHMT to have a more real time overview of the nutrition centre situation in their area. The system should allow the management teams to better manage supplies, staff and finances to respond to individual triggers and groups of triggers as a situation worsens.*

Recommendation: *The next phase of the Surge Model should influence the ongoing UNICEF work on handing over the nutrition supply chain to the Government and KEMSA control, taking into account the need for surge responses. Whilst at the same time Concern should consider developing an interim system of emergency stocks at health facility Sub-county and County level in collaboration with UNICEF to ensure more rapid and proportionate responses to thresholds being crossed.*

Recommendation: *A clarification of roles and responsibilities for the movement and secondment of staff in response to triggers is required, in particular, between the CHMT and the SCHMT. It is likely that given shortages of staff and the difficulties of recruiting for these hardship duty stations there will be a need for a formal Government secondment system for some time. It is also likely that there is a need for an external support to this system with additional qualified staff being made available perhaps through the Red Cross or other mechanisms. The Red Cross mechanism is already in place but a more detailed review of how it can directly relate to the Surge Model planning would probably be beneficial.*

9.1 SUSTAINABILITY: Q.1. AND Q.2. FINDINGS

5. Sustainability

Q.1. Has a sustainable approach been taken?

Q.2. How can the role of the NGO, international donor be phased out?

The Surge Model Pilot was found to have laid the foundations for a sustainable approach.

The study found that the process to phase out external support should focus on establishing the roles and responsibilities of the SCHMT and CHMT in leadership and governance of the Surge Model, in particular for human resources, supplies and financial issues.

Q.3. HOW IS THE MODEL LINKED TO OTHER DRR EFFORTS AT DISTRICT AND COMMUNITY LEVEL?

Since the Surge Model began piloting the Resilience approach to programming has also become an increasingly popular perspective on how best design programmes working in areas such as Marsabit and Moyale. There is still some debate as to how DRR and Resilience relate to each other so the following discussion will review how the Surge Model might connect to DRR and Resilience.

Table 6: Description of Data.

Any discussion on DRR and Resilience should start from a risk analysis in terms of what shocks and stresses to expect within the health facilities. Analysis of the OTP, SFP, diarrhoea and pneumonia new admissions since 2012 (57 months) in the 14 pilot centres (461 centre months) across the three sub-counties is summarized as follows;

Monthly New Admissions	SAM	MAM	Diarrhoea	Pneumonia
Mean	3.1	8.9	23.2	7.1
Median	2	6	17	3
Max	27	91	170	138
Min	0	0	0	0
75% Percentile	4	11	33	10
95% Percentile	11	30	70.9	25.9
99% Percentile	17.6	58.8	101.4	51

The data shows that for all four morbidities 75% of the centre months are close to the average monthly new admissions. Increases in monthly new admissions of up to about three times only occurred in 5% of centre months. Increases of between five and seven times increases in average monthly new admissions were only experienced in 1% of centre months. In other words the admissions data shows that increases in new admissions for all four morbidities only happen 20% of the total time and that medium increases (more than 3 times “normal”) only happen 4% of the time and significant increases 1% of the time¹⁴.

The data also shows that for the largest increases in monthly new admissions for all four morbidities the increase usually only lasts for one month, in a few cases two months and only once for three months¹⁵. The longer spikes seem to relate most clearly to local conflict events and impacts.

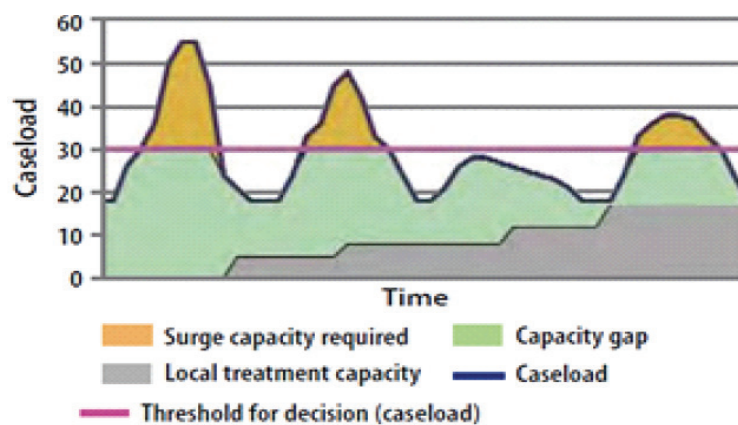
¹⁴ It should also be noted that on deeper examination of the data a not insignificant proportion of monthly reports record zero admissions. In the case of OTP/SAM 30% of the centre months analysed recorded zero admissions. 15% of SFP/MAM, 26% of pneumonia and 6% of diarrhoea centre months recorded no new admissions. Concern report that very few reports were missing or missing data. Therefore, it appears that for 30% of the time in the last 3 years the OTP pilot centres had no new admissions similar levels are noted for SFP and diarrhoea admissions. It should also be noted that the normal levels of admissions for OTP and SFP are very small; 3.1 and 8.9 respectively with a small but significant number of months with no new admissions of each morbidity. This pattern of small, medium and large shocks in the facility may not be the same in areas where larger numbers are usually attending.

¹⁵As discussed above no large scale emergency was experienced during the period evaluated in the sub-counties and health facilities covered by the evaluation.

Thus the picture for the health/nutrition system is one of many short term lower intensity increases in admissions (20% of the time), some medium shocks (4% of the time) and very few large shocks (1% of the time). It is likely that very big shocks only happen less than 1% of the time in these areas of Marsabit but no such shock resulting in very significant increases in new admissions for the 4 conditions was experienced in these areas of Marsabit for the last 3 years.

It is very likely that the proportions will be different in other sub-counties and at other periods of time. However it is also likely that there is a common pattern of many smaller shocks as opposed to large shocks and that the duration of the majority of these shocks is usually over one month and rarely more than two months. In the original paper suggesting the Surge Model¹⁶ the analysis of the behaviour of the prevalence acute malnutrition in response to shocks and therefore the requirements of the system to manage these changes was summarized in the following diagram.

Figure 26: Original Surge Model Diagram.



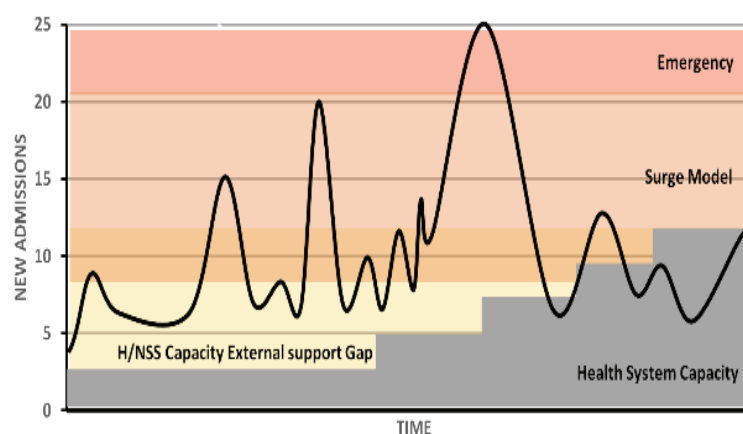
The model assumed that the shocks on the system, that would challenge the system's capacity, were relatively large (more than 30 new OTP admissions a month) and lasting for several months (4- 6 months). The shocks were also envisaged to be mostly related to seasonal fluctuations¹⁷.

Overall the evaluation has found that the actual situation in the two sub-counties studied requires the original assumptions to be adapted so that its links to DRR, emergency, resilience and development programming can be more appropriate.

A modified version of the surge model assumes that it is the many small to medium shocks impacts on new admissions that have the greatest potential to affect the quality, coverage and the ability of the system to cope as opposed to rare large shocks such as drought.

Thus the diagram of the model could be adjusted to be more appropriate for the conditions in Northern Kenya suggested by the detailed study of the two sub-counties in Marsabit country¹⁸.

Figure 27: Suggested Modified Surge Model Diagram



¹⁶

¹⁷ The diagram also illustrated the assumption that the surge model is superimposed on an H/NSS approach and through its support to the H/NSS approach would better prepare the system to prepare and to disasters (DRR and emergency) or in other words develop the resilience of the Health System to absorb, adapt and transform the system to cope with seasonal fluctuations

¹⁸ It is also possible that the frequency of these shocks could have a multiplication effect on the challenges to the capacity of the system to cope. Finally, it is also possible that the severity and size of the impact of a large shock such as a failed rainy season is a combination of the primary shock, i.e poor rains, and an increased frequency of smaller shocks in the same areas affected by the poor rains. The study is not able to determine if these possibilities are true or to what extent they are true.

These modified assumptions to use the capacity of the local system as the lens with which to examine;

- a. The development of capacity through health/nutrition system strengthening processes.
- b. Management (absorb, adapt and transform) of shorter term smaller scale challenges to capacity (Health System Resilience)
- c. Preparedness and response to a rare and large scale emergency (DRR and emergency),
- d. The use of early warning systems and other data for planning and resource management for a facility based service delivery system.

The pilot has shown that the Surge Model can add as a crisis modifier for the on-going H/NSS programmes developing resilience of the health system to an environment characterised by many small and medium shocks and a few rare large emergencies. In Marsabit County several Health System Strengthening Programmes such as APHIA Plus, the DFID funded “Reducing Maternal and New Born Deaths in Kenya”, the SHARE Programme funded by EU through UNICEF and other health and nutrition related programmes all have objectives related to DRR and Resilience for the Health System. Adoption, scaling up and widening of the Surge Model approach could provide an opportunity for these programmes to develop the resilience of the Health System in Marsabit.

The Ending Drought Emergencies (EDE) Country Programming Framework is a ten year programme to end drought emergencies by 2022. It demonstrates the GoK and partners commitment to ensure that communities in drought-prone areas are more resilient to drought and other effects of climate change, and the impacts of drought are contained. The EDE has three areas of emphasis:

- Eliminating the conditions that perpetuate vulnerability
- Enhancing the productive potential of the region, and
- Strengthening the institutional capacity for effective risk management in Kenya.

The EDE Medium Term Plan (MTP) for the period 2013-17 has six pillars: peace and security; climate-proofed infrastructure; human capital, sustainable livelihoods; drought risk management & coordination; and institutional development and knowledge management. The first four result areas provide the foundations for development while the last two address the institutional capacities for drought risk management. County governments have both the political mandate and the resources to make a substantial contribution to the EDE CPF through their County Integrated Development Plans (CIDPs), complemented by national mechanisms such as the Equalisation Fund.

The Surge Model for health facilities has a potential to contribute to the third area of emphasis through the Human Capital, Drought Risk Management and Coordination and Institutional Development and Knowledge Management Pillars.

In addition to the H/NSS and health system resilience link discussed above the modified Surge Model will also have implications for the use of early warning to plan and predict drought emergencies and in the Ministry of Health and National Drought Management Authorities management of emergencies.

The application of early warning models to nutrition has branched out of the use of early warning for food security related emergencies such as drought related emergencies. The results of nutrition anthropometric survey have come to be one of the definitive early warning indicators, even if considered to be a late indicator. As discussed above the nutrition survey result has also been used to plan and predict caseloads and resource requirements. The results are also used in the accompanying advocacy for increased resources.

The poor results from the 2014 nutrition survey were not mirrored by a raised seasonal increase in numbers of children admitted for acute malnutrition. In fact there was no significant seasonal increases in the health facilities self-assessment of their capacity to cope with increased caseloads during the period that the nutrition survey, and other food security indicators, suggested that there was an increase in acute malnutrition. This observation indicates that coverage is an issue for the health system. It also suggests that in order to plan and manage resources for emergencies in the health system it is more appropriate to use health system data and assessment of capacity than to use assessments of the need in the communities.

In other words if resources had been planned and disbursed based on the results of the nutrition survey there would have been a significant over estimation of the health system's needs. In fact the health system did not experience a high level of stress/emergency despite a doubling in coverage (in Chalbi) during the same period. Notwithstanding additional resources and accelerated efforts by Concern and the County Government to identify and refer extra cases of acute malnutrition¹⁹ to avoid excess deaths during the period no corresponding seasonal increase in numbers of children with acute malnutrition was noted. Thus, a distinction should be made between a Health System Emergency and an emergency indicated by a nutrition survey or early warning.

Therefore, it is suggested the idea of a Health System Emergency is used for planning, prediction and provision of additional resources to the health system for nutrition spikes. Early warning and nutrition surveys could then be seen as a system to identify, plan and predict the rare large spikes in worsening nutritional status. In the case of the data analysed in the two sub-counties this would mean using early warning and nutrition surveys for planning for emergencies that only happen less than 1% of the time and would probably involve increases in caseloads of more than 10 times the usual average caseloads.

As discussed earlier in the report the process of setting of thresholds could include a more directive approach combined with the health facilities own assessment of their capacity. It is possible that the pattern of 75% ("normal" admissions), 20% (raised admissions), 4% (medium surges) and 1% (large surges) could be used to position the Alert, Serious and Emergency threshold levels. As previously stated in the time period and areas studied there were no extra-ordinary health systems emergencies noted. However, the Surge Model does not need to develop contingency plans for this 4th category of threshold. As discussed below these plans would need to be developed in consultation with both the MoH and the NDMA.

At the level of capacity of the health system and coverage of the programmes that are currently the case in these areas of Marsabit, a Nutrition GAM rate of around 20% and SAM of 3% does not predict a health system emergency despite rigorous efforts to increase coverage and prevent excess deaths caused by the deterioration in food security conditions. Since the most common large scale risk in these areas is drought it is likely to be early drought related indicators, rather than nutrition survey results, that would serve best for early warning of rare very large nutrition shocks.

This approach would mean that for more than 99% of the time the Ministry of Health and partners would use the Surge Model approach to predict, plan and manage small (alert), medium (serious) and large (emergency) spikes in acute malnutrition. Additional resource requirements would be predicted, planned and managed in the same way as a health facility does for its own local spikes, with support from the SCHMT and CHMT based on capacity and a pre-agreed budgeted plan. The NDMA, early warning and nutrition surveys would then use the concept of predicting, planning, and budgeting additional resource requirements only for very rare large emergencies which occur less than 1% of time, in this area. The use of nutrition survey GAM prevalence triggers for this process would also have to be adjusted to local context taking into account coverage and health system capacity²⁰.

If this approach is taken some of the issues that will need to be discussed will be:

- How the MoH and county nutrition staff can ensure that the MoH budgeted contingency plan and action plans use the Surge Model approach.
- How can the surge model trigger system be replicated at SCHMT, CHMT and be transmitted to the county NDMA system so that the NDMA system also has capacity related information with which to decide when to trigger a response. These trigger monitoring systems would be combined with other more status type indicators such as MUAC screening and NDVI to build a picture as to where the system is on a "likelihood of emergency" scale.
- The use of surveys estimated GAM and SAM as triggers would need to be adapted to local context by taking into account local health system coverage and capacity. Triggers would only be required for very large shocks.
- How are contingency funds for very large shocks planned, triggered and used through a coordinated system between the NDMA and the MoH at county level?

²⁰ Adapting nutrition survey thresholds using local coverage and capacity conditions and using health system capacity approaches to plan for, predict, respond to and manage spikes in acute malnutrition admissions means that resource requirements are based on capacity to respond and not on needs. This approach may be an anathema to humanitarian principals but the reality appears to be that despite additional resources and efforts to make services available to the additional caseload, admissions numbers did not respond. For the vast majority of the time the remedy for this de-link between capacity and needs is development of sustainable capacity and coverage of the health and nutrition system not just more the application of more resources at times when thresholds are passed. A few extra-ordinary events when local capacities are totally overwhelmed may merit significant time limited external resources but it is not guaranteed that the resources alone will improve the coverage enough to cover the needs gap as was the case in the first half of 2014.

¹⁹ Health Facilities with support from the SCHMT, CHMT, NDMA funds and Concern increased the numbers of outreaches, and screenings in response to the nutrition survey results. In these areas of Marsabit screening and increased numbers of outreach clinics are tools used both to increase coverage in "normal" programming and as a response to predicted significant increases in acute malnutrition.

A key element of integrating health system resilience within the wider resilience agenda will involve the development of a community based health/nutrition programme, at scale, to complement the facility based nutrition system. This will be important both for prevention and promotion activities, for early identification and referral but also for early warning and rapid response to very large emergencies.

In an ideal situation the health system coverage would be high enough to re-establish a link between the actual situation on the ground as estimated by the nutrition survey and the numbers of children admitted to the health system. At the same time the capacity of the health system would be resilient enough (at times with external support) to cope with the very changeable environment in the ASAL areas. A key element of re-establishing this link and building capacity of the health system to cope is the community health/nutrition system.

Some approaches used in the Surge Model to promote Health Facility resilience could also be adapted to community based nutrition resilience programmes. For example adding a more risk informed approach to the design of Behaviour Change interventions would allow mothers and families to adapt their knowledge on basic child care practices to the small, medium and large shocks they face all of the time. The numbers and sizes of the shocks demonstrated in the health facility are the manifestations of the same pattern of shocks in the household and community. A risk informed understanding of barriers and capacities of households and communities could be used to design a threshold based approach directing the use of external support in supporting capacities and addressing vulnerabilities at the household and community level that result in increases in numbers of acute malnutrition.

9.2 SUSTAINABILITY: Q.3. FINDINGS

5. Sustainability.

Q.3. How is the model linked to other DRR efforts at district and community level?

The model has multiple links to DRR, Resilience, Development and Emergency efforts at facility, community and sub-county and county level.

10. CONCLUSION

The evaluation aims to

1. Examine if the model works in the way that it had been conceived,
2. Share lessons learnt as other implement the model.

The principal evaluation question is:

Can the IMAM Surge Model strengthen the health system to manage increased caseloads of acute malnutrition during predictable emergencies without undermining ongoing health systems strengthening efforts?

The evaluation finds that the Surge Model has strengthened the health system to manage increased caseloads of acute malnutrition as a result of shocks on the health system. The evaluation finds that there are no signs of the Surge Model having undermined ongoing health systems strengthening efforts. On the contrary the Surge Model was found to have a strong positive link with the H/NSS process, particularly improving data analysis and interpretation, communication in the health system and leadership and governance at the health facility and SCHMT level. The Surge Model was also found to have a strong potential to provide a framework for developing Health System Resilience using a real time, context specific, evidence and capacity based approach to manage a highly changeable environment. In times of extra-ordinary nutrition emergencies the study found that the Surge Model has potential to serve as a crisis modifier linking the H/NSS approaches and emergency responses.

Therefore the study recommends the following:

Recommendation: *The IMAM Surge Model should move to the next phase of development.*

This phase will include the following steps:

- a. Scale up within pilot sub-counties and in other selected counties and sub-counties.*
- b. Development of Guidelines and tools for the IMAM Surge Model.*
- c. Development of new monitoring and evaluation research plan for phase 2 of the IMAM Surge Model process.*

The evaluation found that there are elements of the operational approach used that should be adapted based on the lessons learnt identified during the evaluation. Recommendations in these areas have been included throughout the text. Nevertheless the basic principles of the model have been proven by the pilot period.

Recommendations of particular note included the proposal to expand the IMAM Surge Model to include the CHMT, NDMA and the community health and nutrition system. This expansion will require the nutrition sector as a whole to adopt the surge model as part of the approach used in the ASAL. Surge Model tools for predicting, planning, budgeting and managing surge response activities will need to be adapted for the other levels of the Health System.

The evaluation also found that in these sub-counties of Marsabit the pattern of shocks and response of the health system to these shocks will require a wider discussion with stakeholders involved in the early warning system for the ASAL counties. The study suggests that as nutrition programmes in these areas have moved from an emergency response based approach to becoming one of the services in the health system, the assumptions used in the development of early warning systems for nutrition have not adapted, particularly for the management of acute malnutrition. The study suggest that it is more appropriate to predict, plan and manage Health/Nutrition Systems Emergencies using the Surge Model approach rather than giving priority to monitoring of changes in the causal factors for acute malnutrition to predict, plan and manage nutrition emergencies.

ANNEX A: DETAILS OF ACTIVITIES INCLUDED IN FRAMEWORK OF ACTIVITIES USED IN RESPONSE TO CROSSING THRESHOLDS

(The symbol (C) indicates the activity involves a programme cost):

Availability of technical staff.

- Secondment of staff and incentives (C)
- Staff leave planning,
- Overtime compensation, (C)
- Increased communication costs (air time) (C)
- Extension of working hours
- Focus on lifesaving activities.

Technical knowledge (Joint Supportive Supervision (JSS), On The Job Training (OJT)) and reporting.

- Regular capacity gap analysis
- Surge Support MOU
- Monthly reporting
- HF monthly plotting, analysis and planning using data
- Monitoring thresholds and reporting thresholds crossed.
- Increased OJT, JSS and communications between HF and DCHMT. (C)
- Use of simplified job aids.

Reference material, stationary, reporting formats, transport.

- Availability of reference materials and reporting formats.
- OJT on use of printed materials.
- Reproduction of materials (C)
- Mass Screening. (C)

Materials (drugs, food) and equipment.

- Equipment management (inventories, repairs, buffer stocks and replacement) (C)
- Drugs management
- Therapeutic food management.
- Transport of supplies (C).
- Communications costs. (C)

Working Space.

- HF working space repair and cleanliness.
- Patient flow.
- Increased and prioritization of HF working space.
- Increased outreaches. (C)
- Temporary accommodation (partitions, tents, extensions. (C)

Leadership and coordination at all levels.

- Coordination meetings (C)
- Additional community action and mobilization days. (C)
- Communication costs (C)

ANNEX B: EVALUATION TOR

Purpose of the evaluation

The Community-based Management of Acute Malnutrition (CMAM) Surge Capacity Model was designed by Concern to enable the health system to cope with spikes in cases of acute malnutrition. A pilot programme implemented in Kenya since 2013 found that the approach was technically feasible and there has been a lot of interest from the Ministry of Health and the donor community in rolling out the approach. There is therefore an urgent need to evaluate the model. The main evaluation question is *Can the CMAM Surge Capacity Model strengthen the health system to manage increased caseloads of acute malnutrition during predictable emergencies without undermining ongoing health systems strengthening (HSS) efforts?*

Description of the social, economic and political context

Marsabit County is prone to recurring food security crises due to both drought and conflict. Concern's experience in this area and in other poor vulnerable contexts which have weak health systems are that when food crises occur the resulting increase in cases of malnutrition overwhelm the health system. This frequently results in an NGO setting up an emergency malnutrition treatment programme. The urgency of the problem and the rush to get children treated as quickly as possible means that the NGO frequently does not work through the existing health system, or when they do, they have unrealistic expectations of what the health centre can do. A sustainable health system strengthening approach is usually not taken.

Concern expects a surge in cases of acute malnutrition during 2014 in Marsabit County either from drought and conflict (a true surge) or through increased monitoring and referral (artificial surge).

Description of the subject of the evaluation

The CMAM Surge Capacity Model is an innovation that enables the health system to predict and cope with surges in cases of acute malnutrition through the setting of caseload thresholds and a set of phased actions to respond flexibly to a threshold being met.

Current practice during a spike in cases of acute malnutrition among children is frequently to mount an emergency response, often led by NGOs. This can either happen in parallel to an existing health service or be integrated into the health facility in some form. When integrated, all the resources within the health centre tend to get drawn to dealing with the nutrition crises and other services suffer. Waiting times at the clinics are increased leaving service users dissatisfied and often not treated. Health worker become quickly burnt out as they cannot cope with the demands of the increased malnutrition caseload.

The CMAM surge capacity model helps to predict a surge in cases and then institutes a tiered level of support. The model affirms that strengthening the capacity of the entire health system to better withstand and recover from short-term increases in demand in services is essential to ensuring quality health services in the longer term.

Using the CMAM surge model Concern anticipates improved outcomes in three areas:

- 1) The quality of CMAM services should improve as increased resources will be provided as caseloads increase substantially. Therefore under staffed clinics and lack of supplies should be addressed quickly if they occur. The surge model is also underpinned by a health systems strengthening approach and therefore service quality should constantly be improving.
- 2) The quality of other services at the health centre should improve. Because a surge in cases of acute malnutrition will be met with increased resources then existing services such as ante-natal care, integrated management of childhood illnesses, vaccination services should not be negatively impacted. With health systems strengthening these services should ultimately improve.
- 3) The capacity of health facility staff and the district health management team should increase as they gain experience in setting thresholds, adapting them as needed, and responding to increases in thresholds. They will also gain experience

in deploying resources efficiently and risk management. In time the NGO inputs should be able to phase out as the government plans and budgets more for emergencies.

Concern has experience of a small scale introduction of the model in Uganda which seemed to work although it was not formally evaluated. During 2013 this model was introduced into a small number of clinics in Marsabit County as a pre pilot. It was well accepted by ministry staff but has not been evaluated

There has been great interest in Kenya over the last year as Concern has shared this concept with the government, UNICEF and other stakeholders and there seems to be a real momentum to scale up this model. However, this model has never been evaluated so that is critical before it is scaled up 1) to ensure the model works in the way that has been conceived and 2) to share lessons learned as others implement the model and 3) to develop a manual and other tools included a costed budget for scale-up. This evaluation aims to cover 1 and 2.

Evaluation objectives and scope

This evaluation will be based around Concern's ongoing programme in Chalbi, Moyale and Sololo districts of Marsabit County in Kenya where the Model has been implemented into 14 health facilities. These facilities provide a basic package of health and nutrition services including CMAM. CMAM consists of community detection and referral by CHWs to the health facilities that then provide treatment to the severely and moderately acute malnourished children. In Kenya CMAM has been integrated into the MOH system and is commonly referred to as Integrated Management of Acute Malnutrition (IMAM).

Objectives

- To determine whether the model is effective in setting realistic threshold levels and whether the interventions proposed take place and are appropriate when thresholds are reached
- To determine whether the model positively or negatively influences other health system activities (facility and district level)
- To determine the acceptability of the model to the various stakeholders
- To determine whether the model is more cost-effective than previous standard practice of external non-integrated support
- To determine the sustainability of the model
- To share lessons learned with involved stakeholders

Evaluation questions

- Effectiveness
 - Are clinics able to set realistic threshold levels based on a good analysis and understanding of their data and context?
 - Are key CMAM indicators meeting sphere standards at all stages of the model – i.e. at all threshold levels?
 - When thresholds are met are the clinics recognizing this and requesting support in a timely manner according to the guidelines?
 - When the SCHMT receives requests for support is this being responded to in an efficient and timely manner according to the guidelines?
 - Is the surge package at each stage comprehensive enough?
- Impact
 - Are key CMAM indicators (cured, died, defaulted) better for the surge response than the traditional model?

- Is coverage affected by the model?
- During the surge were other activities at the clinic impacted?
- Are there unintended consequences of the intervention?
- Efficiency
- How do the costs of the scaled up surge support compare to the traditional emergency response in 2010/ 2011?
- Were the projected costs to the SCHMT realistic based on the actual costs of responding to the thresholds being exceeded?
- Acceptance/Relevance
- Is the approach acceptable to the clinic staff, SCHMT, community, donors and NGOs?
- Sustainability
- Has a sustainable approach been taken?
- How can the role of the NGO, international donor be phased out?
- How is the model linked to other DRR efforts at district and community level?

Elements of an Approach

This evaluation will require use of a number of qualitative and quantitative tools listed below. Some of these will be used by Concern in preparation of the evaluation and findings will be made available to the consultant in time. The consultant is expected to further analyse these findings, and to interpret them together with findings derived from tools used by the consultant as part of his/ her assignment.

1) CMAM Coverage Survey

A CMAM Coverage Survey allows the programme to determine how well it is meeting the need. A first coverage survey was conducted in Chalbi in September/ October 2013 and another one is planned for October 2014 prior to the Model evaluation (funding not yet secured). The endline coverage survey will allow monitoring of how well the Model responded to spikes and was able to maintain coverage levels. The SQUEAC will also help to identify barriers to seeking care which can be addressed as part of ongoing health system strengthening. This will help to measure objective one.

2) Health Facility Assessment (HFA)

A number of HFAs were carried out in pilot and non-pilot facilities to determine the capacity health facilities have in providing a defined package of High Impact Nutrition interventions (HINI). The next HFA will be carried out by Concern in October 2014 prior to this evaluation. This activity will assist in achieving objective two by measuring any changes in health facility functioning. The qualitative data discussed below will help to determine whether any changes in health facility functioning are attributable to the Model or to other causes.

3) In-depth interviews

These qualitative methodologies will be carried out by the external consultant and will primarily determine acceptance of the Model among the stakeholders. In addition it will determine a) if there were any unanticipated positive or negative consequences b) whether the surge response at each level is comprehensive enough and c) whether the Model is linked to other DRR and early warning system efforts at district and community level. This activity will help to answer objectives 1, 2 and 3.

Prior to the evaluation Concern will conduct exit interviews with patients to determine service satisfaction at normal and at surge times. Similar interviews will be carried out with health facility staff. Furthermore a small survey is scheduled with health facility in-charges of pilot and non-pilot sites to determine differences in understanding and knowledge around causes of malnutrition and the ability to predict and plan for spikes in caseloads. The interview outcomes will be available to the external consultant before he/ she will visit at least four pilot facilities to talk to facility staff and patients and before meeting with the Sub-County Health Management Teams (SCHMT) from North Horr and Moyale. Furthermore meetings with donors, UN agencies, NGOs and Concern staff will be held by the consultant.

4) Monitoring of key CMAM indicators

Key CMAM indicators such as cure rates, default rates will be monitored through the course of the project to determine whether they meet the SPHERE standards and whether they continue to meet these standards during any surge response.

5) Monitoring response to a surge

According to the model different interventions are due to take place when various thresholds are met. This will be monitored through gathering of weekly caseloads and completion of a monitoring form to report what action has been taken. Health facilities will also report whether the action they requested was carried out.

6) Efficiency of the model

Costs for implementing the Model in 2014 are currently tracked by Concern and will be analysed by the Consultant. This will include determining whether the projected costs to the SCHMT were realistic based on the actual costs of responding to the thresholds being exceeded. Furthermore Concern will calculate retrospective the costs per child for the emergency response 2010/2011 assuming surge support was provided using the 2014 caseload thresholds and surge support activities and compared to the actual emergency response costs using the more traditional approach.

7) Nutrition Survey

Nutrition surveys using the SMART methodology will determine the GAM and SAM prevalence rates. Between the annual surveys conducted (June 2011, July 2012, August 2013, July 2014) Concern is using a community-based surveillance approach to monitor trends in key nutrition indicators including acute malnutrition prevalence.

Indicators of success

The following indicators of success are to be considered in the CMAM Surge Capacity Model evaluation:

- 1) An improvement in key CMAM indicators (cured, died, defaulted)
- 2) An improvement in CMAM coverage rates
- 3) An improvement in staff (health facility and SCHMT) self-rated capacity and satisfaction scores
- 4) An improvement in the number of health facilities that recognise when a threshold is reached, request support, receive support in an appropriate and timely manner, and support is scaled down when thresholds return to normal.
- 5) An improvement in findings from the health facility assessment. Such as reduction of the number of stock outs or essential drugs and RUTF, unchanged or increased vaccination rates, unchanged or reduction in clinic waiting times for CMAM and routine services.
- 6) Qualitative data shows satisfaction with the service by service users, reports of increased ability to cope with workloads by clinic staff, and no anticipated negative effects of the model.
- 7) The project will also be considered successful if lessons learned are written up and disseminated and an implementation manual (including tools) is developed along with a costed budget to facilitate scale-up.
- 8) A significantly lower cost with the model in terms of cost per child treated

The above data will be compiled by the consultant into a final evaluation report in December 2014 and a presentation will be made to the various stakeholders. The findings may be written up by Concern (and if interested by the consultant) for peer review publication.

Expected products

The following milestones and end products are expected from the consultant:

- 1) On arrival in Kenya the consultant has a general understanding of the context and the surge capacity model and is familiar with the monitoring and evaluation data provided in advance (outcome of week 1).
- 2) The consultant visits 5 pilot and 2 non-pilot health facilities, conducts key informant interviews with medical staff and patients. Meetings with the 2 SCHMTs are conducted (outcome week 2).
- 3) The consultant met with various relevant health and nutrition actors and donors, and with Concern managers, advisors and finance officers in Nairobi (outcome week 3 and 4).
- 4) A drafted evaluation report is submitted to Concern for review looking at the indicators outlined in the M&E matrix and referring to the Theory of Change (annex 1) (outcome week 5 and 6).
- 5) A final evaluation report is submitted to Concern containing stand-alone executive summary and practical and targeted recommendations (outcome week 7).
- 6) Evaluation findings are presented at Concern head office in Dublin (January 2015).

Composition, skills and experience of the evaluation team

This evaluation is carried out by an external consultant with administrative and technical support through the Concern Kenya Office, the head office based Nutrition Advisor and the Desk Officer.

The consultant carrying out the CMAM Surge Capacity Model evaluation should have extensive experience in health systems strengthening approaches in development and emergency contexts. Knowledge about disease surveillance systems and early warning systems are also essential. Understanding CMAM is also important but mainly the aspects of how treatment of severe acute malnutrition can effectively be provided through government health systems'. Knowing the linkages between health and nutrition is desirable. One aspect of the evaluation is to assess whether the CMAM Surge Capacity Model has a financial advantage over the traditionally used approach and therefore having some experience in the cost analysis of interventions is an asset. Furthermore understanding health systems in Kenya is an advantage.

Plan for evaluation implementation

The evaluation is planned for around six weeks in November/ December 2014. There is time for reading of background information from home in the first week followed by a trip to Kenya (Nairobi and Marsabit) in weeks 2-4. On return the consultant will pull together the findings and write a draft report (week 5 and 6) for Concern to review before the final report is due to Concern by the 19th of December. Concern traditionally has its annual Health Support Unit (HSU) review and planning meeting in early January in Dublin and would appreciate a presentation of the evaluation findings by the consultant during this event.

Evaluation Agenda				
Date	Day	Duration	Location	Activity
Week 1: 3. - 9. Nov	Wed - Fri	3 working days	Home	Reading of background documents: surge model description, workshop reports, description of the health system in Kenya, ASAL context, surge model reports and monitoring data
	Sat			off
	Sun			travel to Kenya
Week 2: 10. - 16. Nov	Mon	6 working days	Moyale	Flight Nairobi to Moyale; meet Moyale SCHMT and Concern staff
	Tue		Moyale	Visit 2 health facilities in Moyale; overnight in Sololo
	Wed		Sololo	Visit 1 health facility in Sololo; meet Sololo Concern staff; overnight in Turbi
	Thu		Chalbi	Visit up to 3 health facilities in Chalbi; overnight in Maikona
	Fri		Marsabit	Visit 1 health facility and travel from Maikona to Marsabit; meet North Horr SCHMT
	Sat		Marsabit	Meet Concern staff in Marsabit and UNICEF
	Sun		Marsabit	off
Week 3: 17. - 23. Nov	Mon - Fri	5 working days	Nairobi	Meeting with different stakeholders: CD, ACDP, H&N Programme Director, Surge Project Officer, Nutrition Advisor; UNICEF; KIMETRICA; Save the Children; Oxfam; Concern finance; MOH national level
	Sat/ Sun			off
Week 4: 24. - 30. Nov	Mon	5 working days	Nairobi	Summarising preliminary findings; verification of information as per need
	Tue		Nairobi	Working on cost analysis; meeting with Concern finance
	Wed		Nairobi	Meeting with national level nutrition working group on surge model way forward/ scale up
	Thu		Nairobi	Debriefing with CD, ACDP, H&N Programme Director, Nutrition Advisor
	Fri			Return home
	Sat/ Sun			off
Week 5: 1. - 7. Dec	Mon - Fri	5 working days	Home	Compilation of findings/ report writing
	Sat/ Sun			off
Week 6: 8. - 14. Dec	Mon - Fri	1 working day	Home	Finalisation and submission of drafted report (review of the drafted report by Concern for 2 days; return of final comments to the consultant by Friday)
	Sat/ Sun			off
Week 7: 18. - 19. Dec	Mon - Fri	2 working days	Home	Finalisation of the report by consultant; submission of final version
January 2015	1 day + travel		Dublin	Present the evaluation findings during the HSU annual/ SAL meeting

In preparation for the external evaluation Concern has developed a detailed M&E matrix outlining what information

needs to be collected during the evaluation by the consultant and also what can be collected or at least prepared for by Concern in advance. The Surge Project Officer based in Marsabit is currently busy ensuring that as much of the data required by the consultant is already captured in monthly reports or other documents and is systematically compiled and ready before November.

Concern's Surge Project Officer will accompany the consultant during the Marsabit visit and will ensure transport, accommodation and meetings are arranged as per need. The Concern Kenya Country Director, Assistant Country Director, Health and Nutrition Programme Director and the Nutrition Advisor from the head office will be available during the consultant's stay in Nairobi. The Health and Nutrition Programme Director will arrange for the Nairobi level meetings with representatives from the Government, UN, NGO and Nutrition Technical Forum. **Annex 1: Theory of Change**

