

---

**Particularities of the Implementation of the PCIMA Surge Approach to the URENI/Case of the URENI of the Kayes Reference Health Center**

Authors: Samou Diarra, Issa Goïta, Awa Diallo, Balan Macalou, Yiriba Diarra, Florent Dakouo, Souleymane Sidibé, Mohamed Cissé, Check Tidiane Koné, Inhissa B. Bengaly, Seydou Doumbia, Youssouf Traore, Ibrahim Fall, Thierno A. Dia, Souleymane Coulibaly.

Author Correspondent: Samou Diarra, Health Center of Reference of Kayes, Mali, Region of Kayes, Area: Lafiabougou: Tel: 75 16 60 07/62 30 55 22.

**Abstract**

In Mali, the management of acute malnutrition has been carried out for several years in public health establishments on the basis of the national protocol of the PCIMA (Integrated Management of Acute Malnutrition). The patients are treated in different units which are: URENAM, URENAS and URENI.

The URENI of the Kayes CSRéf (referral health center) regularly faces peak admissions of up to 19 patients in these periods for a capacity of eight beds, four nurses and a support doctor.

In 2018, some health districts in Mali were trained on a new approach applied to the management of peaks of malnutrition called PCIMA Surge, the outcome of which is the strengthening of the health system. After this training, the district decided to implement the approach in 30 health centers and the URENI of the CSRéf. In the establishment, particularities appeared between the health centers and the URENI. As the surge approach is new, this work deals with these particularities with a view to sharing with the surge actors the experience of the Kayes health district in the matter. The particularities encountered are found at all stages of the implementation. They are especially accentuated at the level of the actors involved, the determination of thresholds, the identification of surge actions and the monitoring of thresholds. The implementation of the surge approach in health centers does not follow the same dynamic as in a URENI. The details must be known and highlighted to improve the implementation of URENI.

**Keywords:** PCIMA Surge, URENI, Kayes.

**Introduction**

In Mali, the management of acute malnutrition has been carried out for several years in public health establishments on the basis of the national protocol of the PCIMA (Integrated Management of Acute Malnutrition). Patients are treated in different units which are: URENAM (recovery unit and moderate ambulatory nutritional education), URENAS (recovery unit and severe ambulatory nutrition education) and URENI (recovery unit recovery and intensive nutritional education). URENAS and URENAM are generally located in health centers and ASC (community health worker) sites. URENIs are generally located in referral health centers (CSRéf) and hospitals.

URENI receives malnourished people with complications and their treatment is done on the basis of the national PCIMA protocol, the last revised version of which dates from 2017 [1].

The Kayes district has a URENI at the CSRéf. At the end of 2019, the district covered 53 URENAS/URENAM and 45 ASC sites which refer to URENI.

The URENI, housed in the CSRéf enclosure, includes two hospital rooms with 4 beds each. She is part of the nutrition unit which includes 4 nurses, a doctor and volunteers. The agents are versatile and each takes care of a program. URENI regularly faces periodic peaks that can hospitalize up to 19 patients during these periods. The care of hospitalized patients is provided daily by an agent who, if necessary, resorts to the support doctor. Its performance indicators have met the sphere standard over the past four years. The rate of patients successfully treated fluctuated between 97.41 and 99.3% (normal above 75%) from 2016 to 2019. During the same period, the drop-out rate fluctuated between 0 and 0.63% (less than 15%). As for the death rate, it fluctuated between 0.34 and 2.02% (normal less than 10%) [1, DHIS 2].

It is in this context that in 2018, some health districts of Mali were trained on a new approach applied to the management of peaks of malnutrition called PCIMA Surge in the Malian context. After this training, the district decided to implement it in 30 health centers and the URENI of the CSRéf. In the establishment, particularities appeared between the health centers and the URENI. The surge approach being new, the present work deals with said particularities with a view to sharing the experience of the Kayes health district in the matter.

### **What is PCIMA Surge**

PCIMA Surge is an approach that increases the resilience of the health system so that it is able to provide quality services for the management of acute malnutrition at all times, especially during periods of high asks when the capacity to save lives should be greatest and without compromising the capacity and responsibility of government health actors [2].

Its principles are: government leadership, effectiveness/efficiency, strengthening and resilience of the health system, adaptation/flexibility, innovation, participatory and transparent, promotion of partnerships, strengthening of the health system, sustainability [2].

According to Concern's operational guide, the approach would be adapted under the following conditions:

- The management of severe acute malnutrition (SAM) (and moderate acute malnutrition (MAM) if it is part of the routine services) is implemented and supported by the government as a standard health activity;
- Recurrent seasonal peaks in the prevalence of acute malnutrition and the demand for CMCP services exist with associated risks of considerable increases in morbidity and mortality;
- The health system functions reasonably well during “normal” periods and continuous efforts of SSR (strengthening of the health system) are in place (if necessary).

### **The approach includes 2 stages and 8 stages which are [2]:**

Stage 1: Implementation, analysis and Planning

Step 1: Analysis of trends and risks

Step 2: Capacity analysis

Step 3: Establishment of thresholds

Step 4: Define the surge actions and quantify their costs

Step 5: Formalization of commitments

Step 2: Monitoring and action in real time

Step 6: Monitoring of thresholds

Step 7: Scaling

Step 8: Review and follow-up of the surge activities

**General objective:** Describe the peculiarities of the implementation of the surge approach at URENI

**Specific objectives:**

- Describe the particularities between the implementation of the surge approach at URENI and in health centers.
- Describe the threshold setting mechanism used at the URENI of the Kayes CSRéf.
- List the surge actions identified in the URENI of the Kayes CSRéf.

**Methodology**

The study takes place at URENI of the CSRéf de Kayes. It is a descriptive, transversal and retrospective study.

**Results**

**1. Particularities between the implementation of the surge approach at URENI and in a health center** (Table I)

**2. Threshold setting mechanism used at the URENI of the Kayes CSRéf**

Unlike the setting of thresholds at the health center where the normal workload is multiplied by 3, 5 and 7 times to determine the phase thresholds; at URENI it's quite different.

In implementing the CSRéf's URENI approach, the thresholds were defined on the basis of two parameters: the number of patients admitted and the types of disease they suffer from.

At URENI, in phase I of treatment, F75 milk is administered at the rate of 6 meals per day in addition to drug treatment. Depending on the pathologies from which hospitalized children suffer, close monitoring may be necessary. In this context an increase in the number of hospitalized patients leads to an increase in the workload. This is why this number was considered to be decisive in setting the thresholds.

The second parameter taken into account is justified by the fact that certain pathologies require more care at the URENI (dehydration, gastric dilation, respiratory distress, etc.). The increase in these types of pathologies, even with a limited number of hospitalized children, increases the workload on the staff.

Thus, in terms of number of patients, the staff estimated that up to 8 admitted patients, the workload does not overflow; which corresponds to the normal phase. From 9 to 12 patients, the workload overflows and corresponds to the alert phase. From 13 to 20 patients, URENI is in serious phase. With more than 20 patients, URENI is in the emergency phase.

With reference to pathologies in hospitalized patients; they were divided into groups A and B.

**Group A diseases (those requiring a high level of care):**

- A1: State of shock,
- A2: Dehydration
- A3: Inconsistent vomiting / profuse diarrhea
- A4: Gastric dilation
- A5: Severe acute respiratory infection (ARI) and or respiratory distress
- A6: Severe anemia (hemoglobin level  $<4$  g / dl)

**Group B diseases (those requiring moderate to low exertion):**

- B1: Pneumonia
- B2: Hyperthermia / Hypothermia
- B3: Severe anemia (hemoglobin level  $> 4 \leq 7$  g / dl)
- B4: Edema with three crosses

Thus, the thresholds were set according to Trableau II

**3. Definition of surge actions**

The identified actions vary according to the phases (see Table III).

**Discussions**

**Establishment of thresholds**

The surge approach seeks to adapt the capacity of staff to the workload to maintain the quality of care during peaks. If the evaluation of the phases (monitoring of the thresholds) is done on a monthly basis in the health centers; at URENI the daily rhythm is essential. Daily, at the rise of the guards, the phase is evaluated with widening of actions if necessary. If a monthly rate was maintained there, at the end of the month, the number of patients cared for would be high while the number of children hospitalized on this day may be below. And the days when the workloads have overwhelmed the staff will be missed. This specificity of URENI is not addressed in the operational guide for Concern Worldwide [2]. Also in the evaluation report of the CMAM Surge pilot project in Kenya, no mention was made of care in URENI [3]. The same is true for the Kenya Ministry of Health's surge implementation guide [4].

**Hospitalized patients**

Patients admitted to health centers (community health center and secondary health center) are received at URENAS and followed up on an outpatient basis. At this stage of the implementation of the approach in Mali, only new admissions are taken into account to determine the phase thresholds. In contrast to URENI, all hospitalized children are taken into account. New admissions are taken into account in addition to the other types of admissions (Relapse, Readmission and Transfer) to determine the phase thresholds. These aspects of the surge approach have not been addressed in our discussion papers [2, 3, and 4].

**Threshold monitoring**

The filling of monitoring tools (calendar of events, MAS admission curve and long-term planning table) is done at URENI daily while it is monthly in health centers. The Concern operational guide does not mention this [2].

### **Actions surge at URENI**

If the actions surge in the health centers can support some delays in their deployment; it's very different at URENI because the situation is urgent when you consider the high risk of mortality that the severity of malnutrition poses to hospitalized children. URENI must act quickly to save lives. This fact is all the more poignant, when we take into account the context of care in most CSRéfs. Indeed, most managers of CSRéf consider URENI as budget-consuming and unprofitable (financially). As a result, she receives very little support (either the care of admitted children is provided by the guard from another unit, or it is the NGOs that recruit staff to provide care). These facts do not do justice to the prominent role of URENI in saving the lives of malnourished children. Analysis of this situation leads to a sharing of responsibility. On the one hand, the State, having made the treatment of malnutrition free for patients, does not pay any compensation to the treatment structures, unlike the caesarean section where reimbursement of the costs of surgery and hospitalization is ensured. [5]. However, it should be noted that there is a subsidy that the state allocates to nutrition, which can be mobilized by the municipalities. On the other hand, communities being responsible for health at the local level are generally not inclined to take additional actions in favor of nutrition. As part of the implementation of the surge approach in the Kayes health district in 2019, out of 28 town halls, only two town halls had contributed to the management of surge actions in health centers.

The deployment of surge actions at URENI being essentially financial (childcare costs, catering) is much more sensitive to the context described. An additional advocacy effort must be provided by surge managers to further educate decision-makers from different sides to facilitate the implementation of surge actions.

### **Conclusion**

The implementation of the surge approach in health centers does not follow the same dynamic as in a URENI. The peculiarities exist and concern almost all stages. They are especially accentuated in terms of determining thresholds, identifying surge actions and the actors involved. They must be known and highlighted to improve the implementation of the surge approach at URENI.

### **Bibliography**

1. Protocol for the integrated management of acute malnutrition in Mali. Version revised in 2017. p230.
2. Comprehensive approach in the context of community management of acute malnutrition. Operational Guide. Concern Worldwide. 2017. p68.
3. Independent evaluation of the cmam model surge pilot. Concern Worldwide, Center for Humanitaria Change 2015. p60.
4. Ministry of Health. Surge approach for. Integrated management of acute malnutrition. Operational guidelines for health workers. Volume 1, August 2016. p73.
5. Arrêté Interministériel N° 09 0754 /MS/MF/MDAC/MATCL/SG du 03 avril 2019 Fixant les modalités de remboursement des coûts liés à la prise en charge gratuite de la césarienne.

**Table I: Summary of the particularities between URENI and the health center in the implementation of the surge approach**

SURGE COMPONENTS	PARTICULARS	
	URENI	HEALTH CENTERS
The actors involved in the implementation	Support doctor, URENI staff, chief doctor (CHIEF PHYSICIAN, CHAIR OF CIRCLE COUNCIL) of CSRéf, chairman of the district council, chairman of Felascom (Local Federation of Community Health Associations), RND (district nutrition manager), the nutrition focal point of the regional health directorate (DRS), the district nutrition partners, the district facilitator, the prefect of the circle.	The members of the governing bodies of the health centers (asaco, management committee), the DTC (technical director of the center), the staff of the health center, the mayor, community leaders, community relays, community health workers (ASC), members of GSAN (support group for nutrition activities), local nutrition partners, the district facilitator, the sub-prefect.
Event calendar	Analysis of the factors as a function of time that impact management. URENI does not have a population like health centers; actions in the community in response to the events identified are difficult to carry out.	Analysis of the factors as a function of time that impact the occurrence of malnutrition. Possibility of community actions based on lessons learned from step 1.
Analysis of the morbidity curve	At URENI, only MAS admissions with complications are taken into account	The health centers carrying out the curative consultation take into account several morbidities (ARI, Diarrhea, Malaria, SAM)
Capacity assessment	The identification of the gaps relates to the activity of management of SAM with complication. The normal workload (manageable by the staff without difficulty) is determined according to the number of patients admitted. The normal workload includes new admissions (i.e. patients who make their first episodes) in addition to cases of transfer (patients who are already on	The identification of gaps relates to the minimum package of activities (PMA). The normal workload is a function of the number of new MAS admissions without complications. Here, only new MAS admissions are taken into account. Other admission types and patients in the program are not taken into account.

	treatment), readmission (patient who has abandoned and reintegrated into the program in less than two months) and relapse (patient admitted after being cured or after having abandoned the program for more than two months. Patients already hospitalized are also taken into account.	
Setting thresholds	The phase thresholds are set according to the staff's estimate of being able to cope with the workload or of feeling overwhelmed to varying degrees. The threshold is assessed daily.	The normal workload being determined, a coefficient is applied to it to determine the thresholds of the different phases. The threshold assessment is monthly.
Identification and budgeting of surge actions	The surge actions take into account the identified gaps (in patient care), the challenges related to increasing the number of patients without intervention in the community.	The actions take into account the gaps identified on the PMA offer, the challenges related to increasing the number of patients with the possibility of intervention in the community.
Tracking tools	The MAS admission curve is entered daily. The long-term planning table is exclusively focused on URENI activities.	The admission curve is completed on a monthly basis. The long-term planning table may include community activities.
Extension and reduction of surge actions	The transition from a higher phase to a lower phase or vice versa is rapid at URENI since the evaluation of the thresholds is daily and the length of stay being on average short. This will be accompanied by rapid change in the actions to be taken or reduced.	The transition from a higher phase to a lower phase or vice versa lasts at least one month due to the fact that the threshold only takes into account new MAS admissions at a monthly rate.

**Table II: Thresholds of the different phases at URENI**

FIXING SURGE THRESHOLDS		
DISEASES	SURGE PHASES	THRESHOLDS
<b>GROUP A DISEASES:</b> A1: State of shock A2: Dehydration A3: Incomercible vomiting / Profuse diarrhea A4: Gastric dilation A5: Severe ARI and or respiratory distress A6: severe anemia	<b>NORMAL</b>	0 - 8 patients admitted without disease A or B or with 1 to 2 diseases B
	<b>ALERT</b>	9 - 12 patients without disease A or B; or with 1 to 2 B diseases; or Presence of 3 B diseases or Presence of disease A
<b>GROUP B DISEASES:</b> B1: Pneumonia B2: Hyperthermia / Hypothermia B3: Severe anemia (tx of hb> 4 ≤7 g / dl) B4: Edema with three crosses	<b>SERIOUS</b>	13– 20 patients without disease A or B or with 1 to 3 diseases B; or Presence of 4 or more B diseases; or Presence of 2 A diseases
	<b>EMERGENCY</b>	21 or more patients without A or B disease or with 1 to 4 or more B diseases Presence of 3 or more A diseases

**Table III: surge actions identified according to the phases**

PHASES	THRESHOLDS	SURGE ACTIONS	IN CHARGE OF
<b>NORMAL</b>	0 - 8 patients admitted without disease A or B; or with 1 to 2 B diseases	Recycling of nutrition assistants	Chief Doctor, President of the Circle Council / Partners / URENI Manager
		Training of URENI staff (Doctor, Nurse, Nutrition assistant) on the implementation report to URENI of the surge approach	
		Refectory opening at URENI	
		Checking the availability and functionality of materials and their inventories on a weekly basis (Balance, thermometer, pulse oximeter, oxygen extractor, mask, tensiometer) URENI monthly supervision	
		Provision of inputs (Milk F75, Milk F100, Plumpy Nut, Ceftriaxone, Gentamycin, cloxacillin inj, Fluconazole,	



		ciprofloxacin, metronidazole, Flamazine, Single strip, Cotton, Betadine dermal, glucose serum, Ringer Lactate, Resomal, etc.) Verification of the filling of the supports during the staffs Staff organization every Monday and Friday Against daily visit (nurse) Custody is provided by a single agent	
<b>ALERT</b>	If 9 - 12 patients without disease A or B / or with 1 to 2 diseases B	Staff organization every Monday, Wednesday, Friday.	Chief Doctor, President of the Circle Council / Partners / URENI Manager
		Guard team: Nurse and nutrition assistant.	
		Daily visit and counter visit.	
		Adjustment of needs for nutritional materials and inputs.	
	If 3 B diseases or 1 A disease	Increase in the number of rooms and beds.	
		Staff organization every Monday, Wednesday, Friday.	
		Guard team: Doctor (on-call) Nurse and nutrition assistant.	
		Daily visit and counter visit.	
<b>SERIOUS</b>	If 13–20 patients without disease A or B / or with 1 disease A / or with 1 to 3 diseases B	Adjustment of needs for nutritional materials and inputs	
		Increase in the number of rooms and beds.	
		Staff organization every Monday, Tuesday, Wednesday, Thursday and Friday.	
		Guard team: Nurse and 2 nutrition assistants.	
	If 4 or more diseases B or 2 diseases A	Daily visit and counter visit (Doctor).	
		Staff organization every Monday, Tuesday, Wednesday, Thursday and Friday.	
		Guard team: Doctor (24h guard) Nurse and 2 nutrition assistants.	

		Daily visit and counter visit (Doctor).	
		Adjustment of needs for nutritional materials and inputs.	
<b>EMERGENCY</b>	If 21 or more patients without A or B disease / or with 4 or more B diseases presence of 3 or more A diseases	Staff organization every Monday, Tuesday, Wednesday, Thursday and Friday.	Chief Doctor, President of the Circle Council / Partners / URENI Manager
		Two 24-hour duty teams: Doctor, Nurse and 2 nutrition assistants.	
		Daily visit and counter visit (Doctor).	
		Support by volunteers	
		Support staff recruited by partners	
		Financial motivation of the staff (bonus during the emergency period).	
		Limited duration of stay to what is strictly necessary.	
		Increase in the number of ward, hospital bed.	
		Adjustment of needs for nutritional materials and inputs.	