



# DARFUR NUTRITION UPDATE

Summary Issue 29: covering July, August and September 2011



Photographs from Kassala CMAM coverage assessment, September 2011.

## SUMMARY

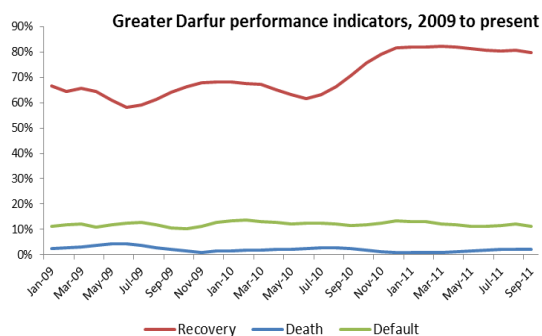
Nutrition surveys conducted at the start of the hunger gap and cleared this quarter showed higher prevalence's of malnutrition than trends over the last few years in some locations of North and South Darfur. In some of these locations prevalence of malnutrition by MUAC is also elevated, however mortality rates have so far remained stable and below emergency thresholds.

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Currently, this situation is aggravated by poor rain performance which is predicted to result in a poor harvest across much of Sudan, including the agricultural rich Eastern State of Gedaref, which usually produces the bulk of Sudan's staple crop, sorghum. Harvest failure in Gedaref is likely to result in further price rises in sorghum throughout the country. Coupled with this food security data has shown a steady rise in food prices over the last five years with sharp rises during 2011, and current rising inflation is triggering public unrest regarding the steadily increasing cost of living.

Graph 1: Greater Darfur performance indicators over time



Greater Darfur therapeutic performance indicators over the last three years, illustrated to show changes due to season and trend (Graph 1) show that cure rates rose during 2010 and have stayed higher throughout 2011

than those recorded in 2009. Defaulter rates are remarkably stable, showing no affect by season, while mortality rates rise slightly during the period of May to July which corresponds with the highest peaks in admissions and the hunger gap. Improved cure rates are likely due to reduced non-response rates suggesting an improvement in programming (for example better adherence to protocol by both care providers (ensuring correct medication is given) and beneficiaries (less sharing of rations at home) is likely to improve non-response).



## Greater Darfur

### Selective feeding programme admissions

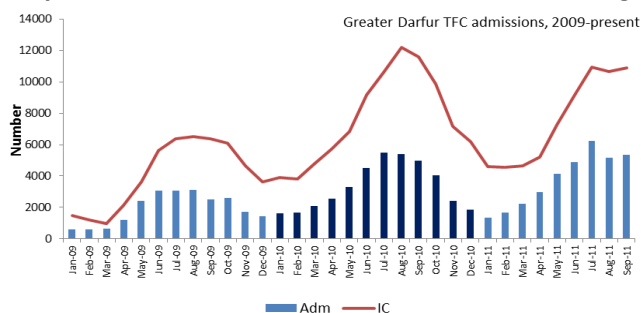
Following annual trends, admissions to both supplementary and therapeutic feeding centres have declined in August and September as the hunger gap draws to a close. A total of 16,716 new cases<sup>1</sup> of severely malnourished children have been treated over this quarter, approximately 1000 more than were treated during the same period in 2010. As compared to 2010, approximately 2,500 more severely malnourished children have been reached through CMAM services so far this year. This is likely due to improvements in service delivery. Over this quarter, 164 of the total 190 in- and out-patient centres have been operational and submitting reports. It is important to note that some operational centres have not submitted reports during the quarter, which will lead to an under-reporting of numbers of children treated. Two new OTPs have been opened in South Darfur and one in West Darfur.

**Table 1: Total number of sites per State<sup>2</sup>**

| State                | SMOH      |           |           | NGO      |            |            | TOTAL      | TOTAL      |
|----------------------|-----------|-----------|-----------|----------|------------|------------|------------|------------|
|                      | IP        | OP        | SFC       | IP       | OP         | SFC        | IP/OP      | SFC        |
| North Darfur         | 11        | 12        | 5         | 1        | 18         | 23         | 42         | 28         |
| South Darfur         | 6         | 10        | 6         | 4        | 43         | 36         | 63         | 42         |
| West Darfur          | 11        | 13        | 5         | 2        | 59         | 52         | 85         | 57         |
| <b>Total Darfurs</b> | <b>28</b> | <b>35</b> | <b>16</b> | <b>7</b> | <b>120</b> | <b>111</b> | <b>190</b> | <b>127</b> |

IP=in-patient | OP=out-patient | SFC=supplementary feeding centre

**Graph 2: Greater Darfur TFC admissions and in-charge**



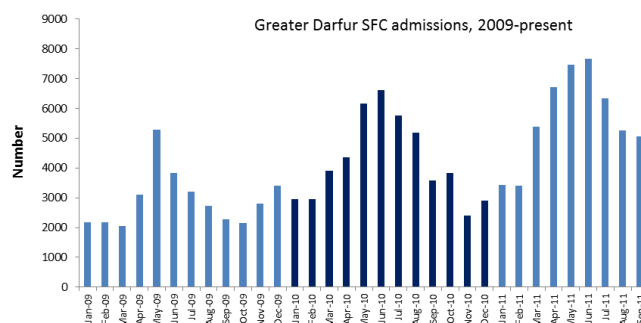
The average number of children admitted per centre has decreased slightly compared to the same time last year, suggesting that programme coverage needs to be improved as well as geographic coverage. Graph 2 shows the annual trends in admissions (Adm) over the last 2 years with monthly work-load shown by the numbers in-charge (IC, the number of children who attend the programme on a monthly basis).

<sup>1</sup> With the introduction of the CMAM-adapted database, new and old cases of malnutrition are counted separately for admission. This avoids double counting of cases between the different arms of CMAM. New admissions are reported to accurately reflect number of cases treated.

<sup>2</sup> Note: this table includes non-operational centers. The increase in number of centers in South Darfur is due to separate counting of 3 OP centers that were previously reported together with IP centers.

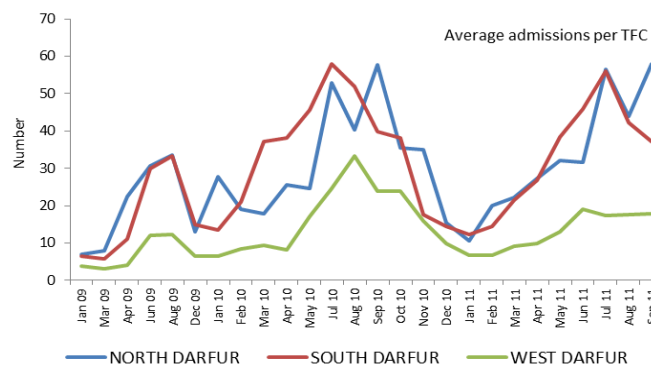
A total of 16,653 moderately malnourished children (new cases) have been treated during this quarter through a total of 118 operational supplementary feeding centres. This is an increase of just over 2,000 children compared to the same quarter last year (Graph 3).

**Graph 3: Greater Darfur SFC admissions**

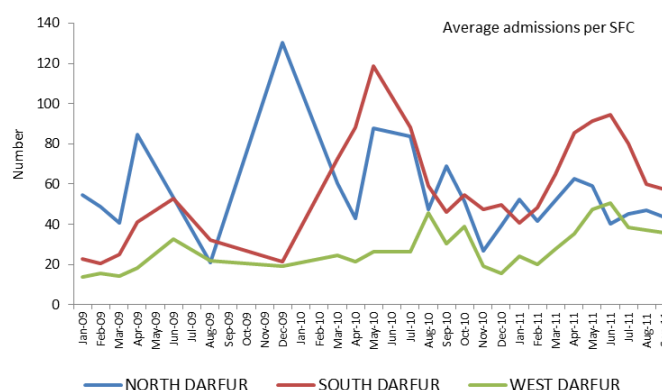


Average admissions per centre is an indicator that is more comparable over time as it is not affected by factors such as changes in the number of operational centres. Graphs 4 and 5, below, show that average number of children treated per centre are starting to reduce as overall admissions drop, following a similar pattern to last year.

**Graph 4: Average TFC admissions per centre by state, 2008 to present**



**Graph 5: Average SFC admissions per centre by state, 2008 to present**

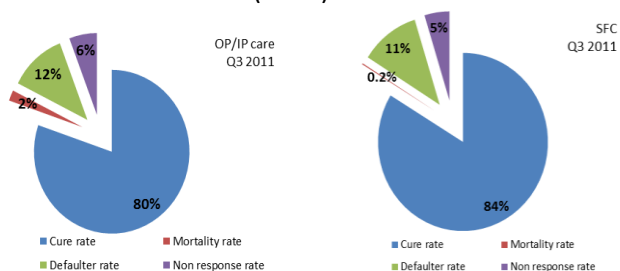




### Selective feeding programme performance

Performance indicators exceeded SPHERE standards across the region for both therapeutic and supplementary services (Graph 6), and at aggregate level have remained remarkably similar throughout the year. This quarter has seen improvements in defaulter rates across the 3 states, possibly as this is the time of year with least time-demands in terms of agricultural activities.

**Graph 6:** Greater Darfur TFC and SFC quarter three performance indicators (2011)



|  |
|--|
| <p>Sphere minimum standards<br/> Cure rate &gt;75%   Mortality rate IP/OP care &lt;5%, SFC &lt;3%   Defaulter rate &lt;15%</p> |
|--|

### Nutrition surveys

Results from a total of 29 surveys have been cleared for release this quarter, most of them conducted during the last quarter (see State up-dates).

## Nutrition Cluster Update

**Key achievements for the Nutrition Cluster during the period from July to September 2011 include:**

The cluster coordinated emergency nutrition responses in particular in North Darfur (Zam Zam). Emergency response included procurement and distribution of emergency food ration (BP5) for children under 5 years and pregnant and lactating women. There was continued provision of therapeutic and supplementary feeding supplies, and anthropometric equipment for various treatment programs.

The cluster maintained operations in 118 out of 127 SFPs, and 164 out of 190 IP/OP centers. A total of 3 OP feeding centers were opened during the quarter in Darfur, some of them attached to existing health units as part of integration of nutrition services into the existing primary health care facilities scale up.

SMOH and cluster partners conducted various Infant and Young Child Feeding activities across Darfur such as advocacy workshops, awareness sessions, training and establishment of safe feeding corners and

women’s support groups with the aim of preventing malnutrition.

The cluster celebrated World Breast Feeding week in West and North Darfur which included local radio and TV events to promote exclusive breast feeding as well as young child feeding.

The nutrition cluster received \$800,000 for the second round of CHF allocation. All the nine proposals that were submitted for CHF funding met the eligibility and technical criteria. Given the high quality of proposals within the sector, those that ranked highest received funding. Successful organisations included Johanniter Unfallhilfe E.V (JI), UNICEF, Tear Fund, IMC and KHPF.

The sector trained 385 SMOH and NGO partners in various nutrition topics such as treatment of malnutrition using the new CMAM protocols, Infant young Child Feeding , SMART and SQUEAC (see special feature in this edition).

Various interagency missions were conducted in Jebel Marra (7 – 14 August, 2011), specifically to Nertit, Kiwilla, Golo, and Killin localities.

### Areas of Concern

The selling of a plumpy nut has become a problem in some areas across Darfur. The cluster partners are working with concerned communities to explore community owned solutions to selling and sharing of plumpy nut that has been observed in some camps.

Insecurity and other operational constraints have continued to impact on access to beneficiaries in some localities in addition to suspension of nutrition activities by some partners.

#### West Darfur

- Geographic areas of concern include all remote rural areas, where nutrition and health services are limited including the gap left by CAM after the suspension of its activities.
- Limited capacity of SMOH to take over nutrition programmes which were handed over by INGOs such as Tearfund in Bedia locality, IMC in Deleig village in Wadi Salih locality and CAM in Geneina locality.
- Phasing out nutrition implementing partners such as MEDAIR as well as NCA in Kurdol in three months’ time.
- Selling of Plumpy-nut in the Market.



## South Darfur

- Elevated malnutrition rates which were reported from localized nutrition surveys in the state during the hunger period. Causes are likely to be indirect, such as morbidity (especially diarrhea), poor infant and young child feeding practices and poor water and environmental sanitation during the rainy season. UNICEF as cluster lead is working hard with implementing partners and other clusters to ensure a timely response.

## North Darfur

- Umkedadda, the 3 ZamZam camps and Al Malha are areas of concern due to high rates of acute malnutrition based on the survey results of May-June 2011.

### **Key priorities in the coming months for the nutrition cluster in Darfur include:**

- The coming months will be essential for coordinated actions in developing the 2012 humanitarian work plan and the CHF process.
- Continued pre-positioning of nutrition supplies for all partners to increase the emergency stock reserve. Substantial amount of plumpy nut and SFP supplies have already been pre-positioned and more supplies are en-route to the states.
- Continuous and close monitoring of the nutrition situation during the rainy season to provide a timely response in case of emergency
- Ensuring continued operations for all selective feeding programs with the impending departure of some cluster partners as well as the expansion of feeding programmes.

## Food Security<sup>3</sup>

Rainfall in August and September has been better than the poor rainfall during June and July, however due to the late onset and poor quality of the rains, crops were planted late and their full ripening will depend on continued rainfall throughout October. Fore-casts are predicting below-normal rainfall, therefore crop production is likely to be below average this season.

FEWSNet reports that the size of the food insecure population in Sudan has increased from 4.0 million people in August to 4.5 million in September, due

<sup>3</sup> Sources: 1. FEWSNet: <http://www.fews.net/pages/country.aspx?gb=sd>

2. SIFSA: Sudan Monthly Market Update, August 2011: [http://www.fao.org/fileadmin/user\\_upload/sifsa/docs/Sudan%20Monthly%20Market%20Update%20August%202011%20\(2\).pdf](http://www.fao.org/fileadmin/user_upload/sifsa/docs/Sudan%20Monthly%20Market%20Update%20August%202011%20(2).pdf)

3. Ministry of Agriculture, FSTS, FEWS NET and FAO-SIFSA; Mid-season assessment mission report, August 2011

largely to recent fighting in Blue Nile and South Kordofan states. Food security has deteriorated from no acute food insecurity (IPC Phase 1) to Stressed (IPC Phase 2) and Crisis (IPC Phase 3) levels.

July 2011 sorghum prices were 50% higher compared to the previous five year average (2007-2010). Prices are expected to increase further in the coming few months because many farmers have depleted what they held in storage and traders are also holding stocks (for speculation) due to the poor prospect of the 2011/12 season.

Access to food in markets is hindered by insecurity, there is high inflation due to the sharp increase in food prices, and this quarter has seen local currency devaluation. The persistent high food prices will have a continuous negative impact on areas of major food security concern which have limited food access, and are likely to reduce food diversity intake by poor households in both rural and urban settings. The higher levels of cereals and livestock prices have a negative effect on access to food for poor households as on average people in Sudan spend 61% of their income on food. The poorest (20% of the population) spends about 72% of their income on food. Hence any food price increase will have a significant impact on the poor. This is particularly the case in highly food insecure areas of South Kordofan, Darfur and Abyei and some parts of Red Sea and Kassala.

Conflict continues to affect livelihoods across Sudan; displacement occurred this year during the planting season meaning that area cultivated is greatly reduced this year. In addition, traditional animal routes have been closed this year due to conflict, affecting an estimated 40 million head of animals of pastoralist and agro-pastoralist communities. OCHA currently estimates the number of internally displaced people at 1.9 million in Darfur (OCHA, Oct 2011).

## Sentinel site surveillance

A key component of the Darfur Nutrition Information System is data from Sentinel Site Surveillance (SSS). This surveillance aims to provide a means of monitoring community level trends in nutrition and related sectors to be able to detect changes at a local level and decide when action is required. Sites are selected based upon their relative vulnerability in order to provide first-alert information in a timely fashion.



The Darfur sentinel site surveillance system has been reviewed and re-designed during the first half of this year and is currently under trial. It is expected to be further improved in the coming months, and standardised to allow expansion outside of Darfur.

Sentinel site surveillance data cannot be compared to nutrition survey data as it is collected using a different methodology, it collects data from a different target group (6-23 months as opposed to 6-59 months) and it reports levels of malnutrition according to a different measure (MUAC as opposed to weight for height).

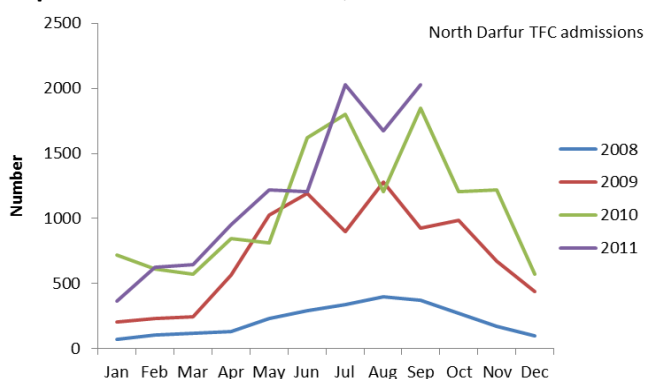
The strength of the sentinel site surveillance is that data collection is repeated frequently through time and long-term trends can be collected and analysed. As yet, more rounds of data are needed to make a meaningful comparison of trends over time. Data is collected at six time points over the year, more frequently during the hunger gap and less frequently during the harvest season.

## North Darfur

### Selective feeding programme admissions

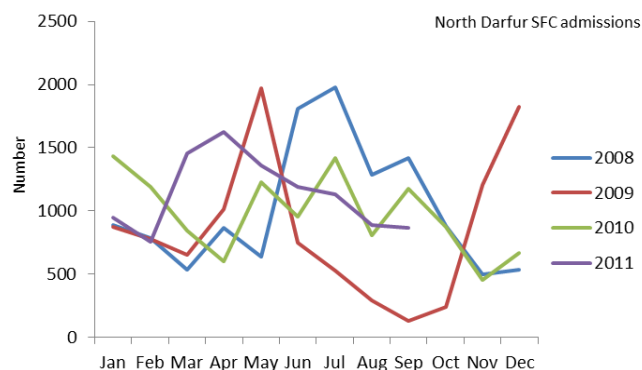
At the end of September 2011, there were a total of 61 operational and reporting selective feeding centres (36 therapeutic centres and 25 SFCs<sup>4</sup>) in North Darfur. New admissions into therapeutic feeding services are following a very similar trend to last year with a dip in August, and numbers are remaining above those admitted last year (Graph 7). Admissions into supplementary services are lower than those recorded for the last 2 years (Graph 8). This quarter, community-based MUAC screening covered a total of 14,194 children aged 6-59 months, referring over 3 thousand for feeding programmes (either supplementary or therapeutic).

**Graph 7: TFC new admissions, North Darfur**



<sup>4</sup> NB: some operational centers did not submit reports during the quarter. This will mean that the number of children treated is likely to be under-reported.

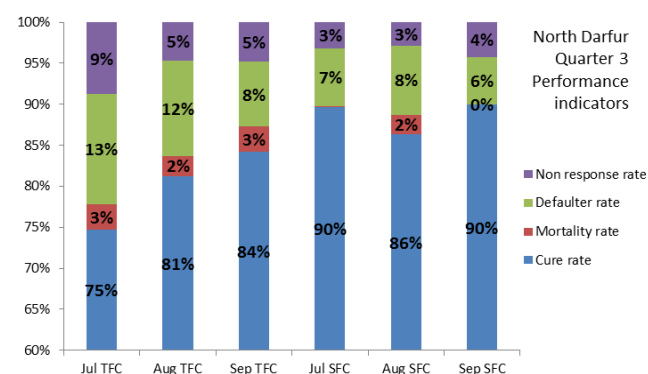
**Graph 8: SFC admissions 2008-2011, North Darfur**



### Selective feeding programme performance

Defaulter rates from therapeutic services have reduced further this quarter, with a corresponding improvement in cure rates (Graph 9). The non-response rate has decreased this quarter in comparison to last. Performance indicators for SFPs are exceeding SPHERE minimum standards.

**Graph 9: North Darfur quarter three performance indicators (TFC and SFC)**



### Localised nutrition surveys

**Table 2: North Darfur hunger gap survey results**

| Area                | Date       | WHZ (WHO GS)     |                 | MUAC <125mm %GAM | MUAC <115mm %SAM | CMR (95% CI)     | USMR (95% CI)    | SMART quality score % |
|---------------------|------------|------------------|-----------------|------------------|------------------|------------------|------------------|-----------------------|
|                     |            | GAM (95% CI)     | SAM (95% CI)    |                  |                  |                  |                  |                       |
| El Fasher Town      | 6-10 May   | 15.5 (13.0-18.5) | 2.4 (1.3-4.2)   | 5.6 (4.0-7.8)    | 1.1 (0.5-2.4)    | 0.98 (0.64-1.5)  | 2.38 (0.88-6.29) | 0                     |
| Mellit              | 9-13 June  | 24.5 (19.9-29.7) | 4.7 (3.0-7.5)   | 9.9 (7.3-13.4)   | 1.5 (0.8-2.7)    | 0.48 (0.23-0.99) | 1.23 (0.59-2.56) | 13                    |
| Kutum               | 26-31 May  | 13.3 (10.5-16.8) | 2.9 (2.0-4.3)   | 5.4 (3.7-7.9)    | 2.3 (1.0-5.1)    | 0.35 (0.20-0.63) | 0.81 (0.31-2.11) | 2                     |
| Al Malha            | 23-27 May  | 33.7 (28.6-39.2) | 9.1 (6.6-12.4)  | 11.7 (9.1-14.9)  | 1.8 (0.8-4.1)    | 0.31 (0.15-0.61) | 0.58 (0.17-1.99) | 9                     |
| Kebkabiya           | 11-16 July | 21.7 (18.0-25.9) | 5.9 (4.1-8.3)   | 6.4 (4.5-9.1)    | 1.5 (0.7-3.3)    | 0.93 (0.57-1.52) | 0.32 (0.33-1.64) | 13                    |
| Tawilla             | 22-26 May  | 14.8 (11.3-19.3) | 2.6 (1.4-4.8)   | 6.7 (4.8-9.3)    | 0.9 (0.3-2.4)    | 0.37 (0.15-0.88) | 0.73 (0.22-2.43) | 6                     |
| Umkedada            | 4-8 June   | 35.5 (32-39.3)   | 10.8 (8.7-13.5) | 17.5 (14-21.7)   | 3.9 (2.8-5.4)    | 0.57 (0.37-0.89) | 0.77 (0.32-1.86) | 6                     |
| Zam Zam-New         | 20-28 June | 28.1 (24.5-32)   | 8.1 (6.5-10.1)  | 25.9 (21.8-30.4) | 6.4 (4.8-8.6)    | 0.15 (0.06-0.37) | 1.04 (0.35-3.08) | 17                    |
| Zam Zam-Old         | 20-28 June | 27.1 (23.6-30.8) | 5.9 (4.3-8.0)   | 13.9 (10.9-17.5) | 4.8 (3.4-6.7)    | 0.46 (0.21-0.97) | 1.04 (0.43-2.52) | 6                     |
| Zam Zam-Arrivals    | 20-28 June | 31.1 (27.0-35.6) | 8.8 (6.9-11.1)  | 24.1 (19.7-29.2) | 7.1 (5.4-9.2)    | 0.18 (0.09-0.35) | 0.35 (0.11-1.12) | 4                     |
| Saraf Omra          | 26-30 May  | 19.8 (16.2-23.8) | 4.3 (3.0-6.2)   | 8.5 (6.2-11.6)   | 1.2 (0.6-2.4)    | 1.1 (0.69-1.75)  | 2.43 (1.22-4.76) | 17                    |
| Abu Shouk/As Salaam | 11-16 May  | 18.1 (14.1-22.9) | 3.3 (2.2-4.9)   | 8.8 (6.7-11.3)   | 1.9 (1.0-3.7)    | 0.98 (0.64-1.5)  | 1.44 (0.74-2.79) | 11                    |
| El Serief           | 4-8 June   | 24 (20.7-27.7)   | 3.6 (2.3-5.7)   | 8.3 (6.2-11.0)   | 1.4 (0.7-2.7)    | 0.98 (0.65-1.49) | 1.44 (0.69-2.98) | 11                    |
| Kuma                | 22-29 May  | 26.7 (22.1-31.9) | 6.3 (4.4-9.0)   | 11.7 (8.5-15.9)  | 2 (0.9-4.4)      | 0.39 (0.31-0.49) | 0.8 (0.56-1.15)  | 10                    |



In North Darfur, nutrition surveys are carried out during 2 'survey windows' of May / June (hunger gap) and October / November (early harvest). This quarter, the results of the hunger gap surveys have been cleared and released. Of a total 15 surveys conducted, one set of results was not cleared for release due to a high SMART plausibility score and unreliable data. Prevalence of malnutrition recorded in all 3 Zamzam camps was high, by weight for height as well as by MUAC. Initial investigations into in the camps have shown main causes of under 5 deaths are diarrhoea and fever; mortality rates are below emergency levels and are currently being verified.

### Sentinel site surveillance

A further two rounds of data have been collected and analysed following the new sentinel site surveillance (SSS) methodology during this quarter (summary indicators shown in Table 3). The prevalence of GAM and SAM has remained high throughout the hunger gap, in line with the high results from the nutrition surveys. In North Darfur as in West and South Darfur, the hunger gap appears not to have affected either diet diversity or number of child meals, although both remain well below WHO's minimum recommendations of 4<sup>5</sup> (for both).

**Table 3: North Darfur SSS summary indicators**

| NORTH DARFUR  | March | May   | June  | July  |
|---|-------|-------|-------|-------|
| Global acute malnutrition (% MUAC <125mm and/or odema)  | 17.4  | 26.1  | 33.1  | 28.1  |
| Severe acute malnutrition (% MUAC <115mm and/or odema)  | 3.9   | 3.4   | 2.6   | 4.1   |
| Mean MUAC   | 134.5 | 132.3 | 130.3 | 131.2 |
| % Morbidity (illness reported in previous 2 weeks)      | 38.3  | 39.3  | 44.8  | 33.2  |
| Average number of food groups eaten (previous 24 hours) | 2.7   | 2.5   | 2.7   | 2.3   |
| Average number of meals taken (previous 24 hours)       | 3.4   | 2.5   | 2.2   | 2.7   |

## South Darfur

### Selective feeding programme admissions

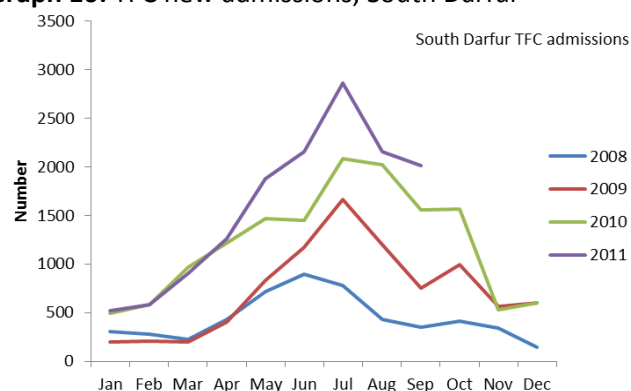
At the end of September 2011, there were a total of 92 selective feeding centres operational and reporting in South Darfur, 41 supplementary and 51 therapeutic (either out or in-patient). Two new out-patient centres have been opened this quarter in South Darfur (Kalma camp and Sharia Locality).

<sup>5</sup> Minimum dietary diversity = eating from 4 groups or more. Minimum meal frequency = 4 in 24 hours including milk (animal or breast) as 1 meal. INDICATORS FOR ASSESSING INFANT AND YOUNG CHILD FEEDING PRACTICES. Conclusions of a consensus meeting held 6-8 November 2007 in Washington D.C., USA. [http://www.fantaproject.org/publications/iycf\\_definitions2008.shtml](http://www.fantaproject.org/publications/iycf_definitions2008.shtml)

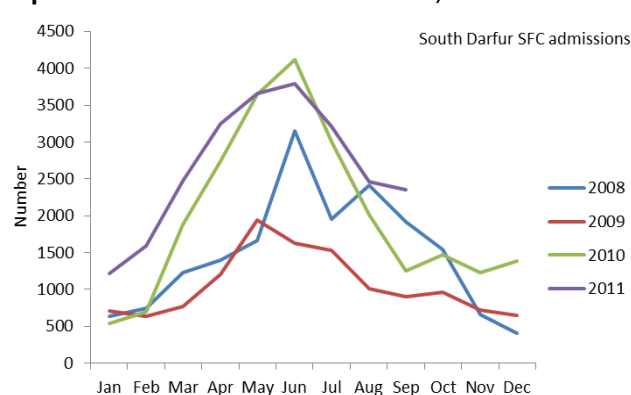
New admissions to therapeutic services peaked in July, since when they have declined following the seasonal trends, but remain higher than in 2010. So far this year an extra 2½ thousand children have been treated for SAM as compared to last year. Admissions into supplementary services peaked in June and have reduced over this quarter, following very similar patterns to last year.

Community-based MUAC screening covered a total of 24,591 children and referred 4,636 to either therapeutic or supplementary services.

**Graph 10: TFC new admissions, South Darfur**

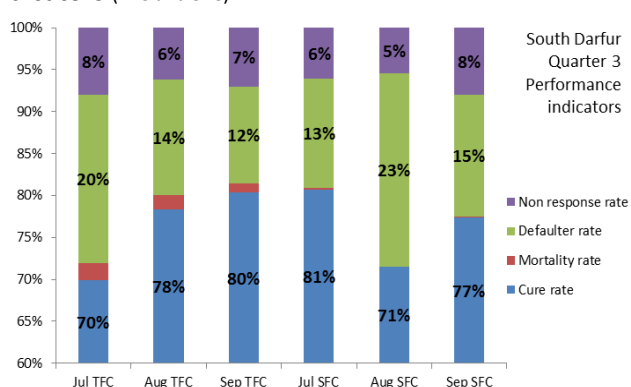


**Graph 11: SFC admissions 2005-2011, South Darfur**



### Selective feeding programme performance

**Graph 12: South Darfur quarter three performance indicators (TFC and SFC)**



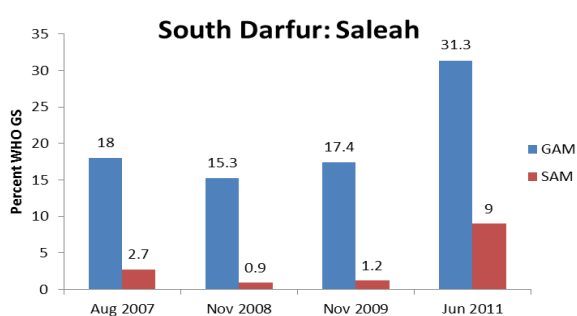


Therapeutic performance indicators (Graph 12) continue to meet SPHERE minimum standards, and the mortality rate has decreased this quarter in comparison to last. This is likely due to closer follow up of the in-patient centres in Nyala. Cure rates from supplementary services have broadly improved over the quarter, and overall defaulting has reduced over this quarter.

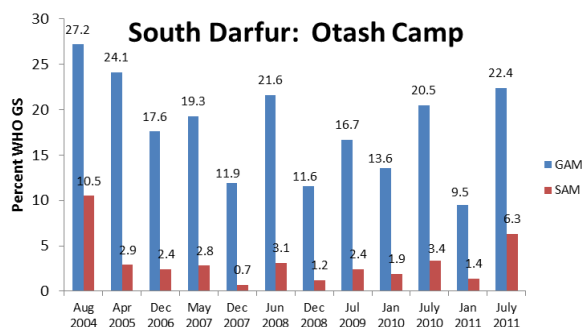
### Localised nutrition surveys

A total 15 surveys have been conducted in South Darfur so far this year, and 13 have been cleared for release this quarter (2 cleared earlier in the year). Results from some areas are showing higher than usual prevalence of malnutrition, in particular Saleah, Beliel, Asalam and Otash camps. Prevalence of malnutrition by MUAC, which is known to be a better predictor of risk of mortality than WHZ, and a better case detection method for severe acute malnutrition in terms of accuracy, precision, sensitivity and specificity<sup>6</sup>, is also raised especially in Saleah. It was not possible to carry out a survey in Saleah in 2010 due to insecurity, and on-going insecurity may be a cause of the increase in malnutrition recorded this year. The continued rise of malnutrition (Graphs 13 and 14) in the hunger gap, even in long-established camps such as Otash, is a clear sign that humanitarian interventions, including nutrition, WASH, and health need to be re-evaluated.

**Graph 13: Saleah nutrition survey trends**



**Graph 14: Otash camp nutrition survey trends**



<sup>6</sup> A review of methods to detect cases of severely malnourished children in the community for their admission into community-based therapeutic care programs, Myatt et al, 2006.

**Table 4: South Darfur survey results**

| Area                         | Date          | WHO GS              |                    | MUAC <125mm %GAM | MUAC <115mm %SAM | CMR (95% CI)        | USMR (95% CI)       | SMART quality score % |
|------------------------------|---------------|---------------------|--------------------|------------------|------------------|---------------------|---------------------|-----------------------|
|                              |               | GAM (95% CI)        | SAM (95% CI)       |                  |                  |                     |                     |                       |
| Nyala -Gerieda corridor      | 26 Jan-5 Feb  | 14.2<br>(11.6-17.3) | 3.9<br>(2.5-6.0)   | 3                | 1                | 0.70<br>(0.50-0.97) | 0.49<br>(0.23-1.07) | 6                     |
| Kass                         | 15-19 Feb     | 10.8<br>(7.6-15.0)  | 1.3<br>(0.6-3.2)   | 3.6              | 0.1              | 0.52<br>(0.22-0.82) | 0.42<br>(0.9-0.76)  | 18                    |
| Deraige camp, Nyala Locality | 27 Feb -3 Mar | 14.3<br>(10.7-18.9) | 3.0<br>(1.4-6.4)   | 3                | 0.3              | 0.30<br>(0.14-0.45) | 0.31<br>(0.04-0.67) | 12                    |
| Adila                        | 22-26 March   | 24.5<br>(20.1-28.8) | 5.1<br>(3.2-7.1)   | 10.6             | 0.8              | 0.46<br>(0.26-0.66) | 0.39<br>(0.06-0.85) | 19                    |
| Nyala-Tulus                  | 5-13 June     | 17.9<br>(14.4-20.4) | 5.4<br>(3.7-7.8)   | 11.3             | 2                | 0.34<br>(0.2-0.59)  | 0.57<br>(0.23-1.39) | 8                     |
| Saleah                       | 22-25 June    | 31.3<br>(27.6-35.2) | 9.0<br>(7.0-11.49) | 13.5             | 3.8              | 0.74                | 0.96                | 6                     |
| Duma / Jaruf                 | June          | 19.7<br>(16.6-23.3) | 4.6<br>(3.2-6.4)   |                  |                  | 0.43                | 0.89                |                       |
| Alserief                     | July          | 24.2<br>(21.2-27.4) | 4.1<br>(3.1-5.5)   | 9                | 1.2              |                     |                     | 16                    |
| Beliel                       | 22-26 June    | 19.8<br>(16.9-23.1) | 5.9<br>(4.4-7.8)   | 8                | 0.9              | 0.29<br>(0.17-0.50) | 0.49<br>(0.21-1.10) | 12                    |
| Asalam                       | July          | 20.8<br>(18.4-23.5) | 4.2<br>(3.1-5.6)   | 9.4              | 2.3              | 0.44<br>(0.25-0.78) | 1.13<br>(0.52-2.46) | 10                    |
| Otash                        | 18-22 July    | 22.4<br>(19.3-26)   | 6.3<br>(4.5-8.8)   | 7.7              | 1.5              | 0.47<br>(0.29-0.75) | 0.72<br>(0.33-1.58) | 10                    |
| Mershing                     | 23-28 July    | 16.6<br>(14.4-19.2) | 3.4<br>(2.4-5.8)   |                  |                  | 0.54<br>(0.38-0.8)  | 1.08<br>(0.62-1.87) | 12                    |
| Kalma                        | 22-26 July    | 25.5<br>(22.6-28.7) | 5.4<br>(4.3-6.8)   | 8.1<br>(6.6-9.5) | 1.6<br>(0.8-3.3) | Unreliable data     |                     |                       |

NB: some data are missing due to unavailability of data sets.

### Sentinel site surveillance

A total of 1838 and 951 children were included for the sentinel site surveillance in June and July respectively. In June 16 sentinel sites were reached, however in July only 11 were reached due to heavy rains. Prevalence of malnutrition has risen throughout the hunger gap. Differences in GAM between June and July were not significant (p=0.249), however SAM recorded in July was significantly higher than in June (p=0.019). Diet diversity and number of meals eaten in the 24 hours before data collection are both below WHO recommendations; however appear to be unchanged by the hunger season. Summary indicators are shown in Table 5.

**Table 5: South Darfur SSS summary indicators**

| South Darfur  | March | June  | July  |
|---|-------|-------|-------|
| Global acute malnutrition (% MUAC <125mm and/or odema)  | 12.7  | 17.7  | 23    |
| Severe acute malnutrition (% MUAC <115mm and/or odema)  | 1.3   | 2.6   | 5.3   |
| Mean MUAC   | 136.1 | 134.8 | 132.5 |
| % Morbidity (illness reported in previous 2 weeks)      | 64.8  | 64.6  | 43.7  |
| Average number of food groups eaten (previous 24 hours) | 2.1   | 2.3   | 2.8   |
| Average number of meals taken (previous 24 hours)       | 3.6   | 3.5   | 3.2   |

### West Darfur

#### Selective feeding programme admissions

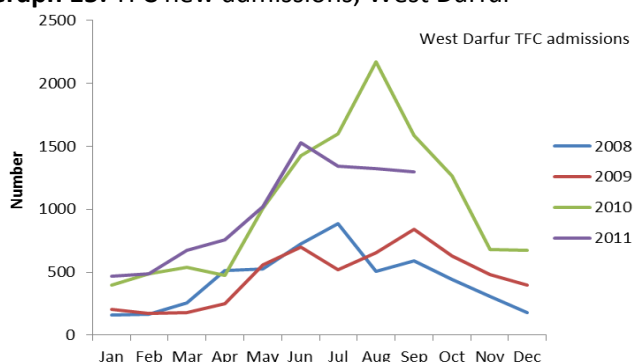
A total of 130 selective feeding centres were operational and submitted reports at the end of September, 52 supplementary centres and 78 therapeutic. Total therapeutic admissions (new cases) did not reach the same levels as last year and have started to reduce over this quarter (Graph 15). This could reflect under-reporting as some centres



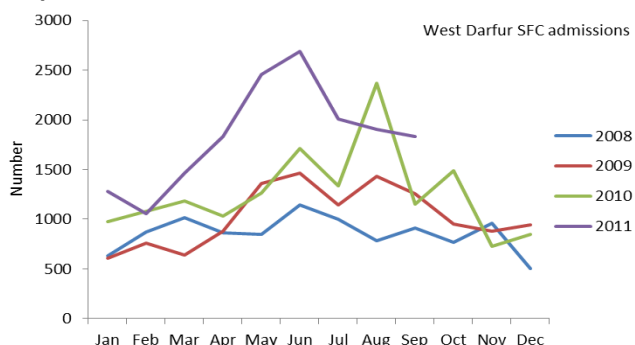
although operational have not submitted reports in August and September. Supplementary admissions have been consistently higher this year as compared to last year (except for August), and an additional 4½ thousand children have been treated so far this year as compared to last through SFPs (Graph 16).

This quarter, a total of 38,530 children have been reached through community-based MUAC screening, with a total of 3,907 being referred for either therapeutic or supplementary services.

**Graph 15:** TFC new admissions, West Darfur



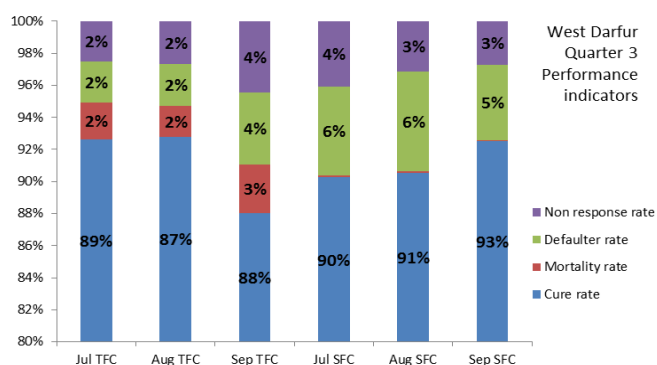
**Graph 16:** SFC admissions, West Darfur



**Selective feeding programme performance**

Performance indicators for both therapeutic and supplementary services are best this quarter in West Darfur, and are consistently meeting Sphere minimum standards (Graph 17).

**Graph 17:** West Darfur quarter two performance indicators (TFC and SFC)



**Localised nutrition surveys**

Results from 2 nutrition surveys have been cleared for release this quarter, and a further three surveys have been conducted, results awaiting clearance.

**Table 6:** West Darfur nutrition survey results cleared this quarter

| Area           | Date      | WHO GS           |               | MUAC <125mm    | MUAC <115mm   | CMR (95% CI)    | USMR (95% CI)   | SMART quality score % |
|----------------|-----------|------------------|---------------|----------------|---------------|-----------------|-----------------|-----------------------|
|                |           | GAM (95% CI)     | SAM (95% CI)  | %GAM           | %SAM          |                 |                 |                       |
| Kurdol village | 11-16 Jun | 19.8 (16.5-23.6) | 4.6 (3.2-6.7) | 8.9 (7.2-10.9) | 0.4 (0.2-1.1) | 0.29 (0.17-0.5) | 0.49 (0.21-1.1) | 14                    |
| Mornei         | 19-23 Jul | 18.3 (15.9-21.1) | 2.7 (1.8-4.0) | 6.9 (5.2-9.0)  | 1.2 (0.6-2.2) | 0.4 (0.21-0.59) | 0.95 (0.4-1.5)  | 8                     |

**Sentinel site surveillance**

Sentinel site surveillance conducted in June and July reached 3,773 and 3,802 children respectively from all 20 sentinel sites across West Darfur. Prevalence of malnutrition among children 6-23 months reduced slightly between the 2 rounds, consistent with declining admission rates, however differences were not significant (GAM p=0.693; SAM p=0.339). Surprisingly, diet diversity and average number of meals taken have remained stable throughout the hunger gap in West Darfur. Summary indicators are shown in Table 7.

**Table 7:** West Darfur SSS summary indicators

| West Darfur   | March | May   | June  | July  |
|---|-------|-------|-------|-------|
| Global acute malnutrition (% MUAC <125mm and/or odema)  | 14.8  | 17.2  | 19    | 17.6  |
| Severe acute malnutrition (% MUAC <115mm and/or odema)  | 3.3   | 3.9   | 4.2   | 2.8   |
| Mean MUAC   | 136.2 | 134.9 | 135.3 | 135.5 |
| % Morbidity (illness reported in previous 2 weeks)      | 39.5  | 37.2  | 34    | 33.1  |
| Average number of food groups eaten (previous 24 hours) | 3.9   | 3.5   | 4.2   | 3.5   |
| Average number of meals taken (previous 24 hours)       | 4.1   | 3.7   | 4.2   | 4.2   |



## Sudan's first CMAM coverage assessment with Mark Myatt

In September 2011, UNICEF and Ministry of Health recruited an international consultant, Mark Myatt, to come to Sudan to conduct a training of trainers on the SQUEAC<sup>7</sup> methodology of programme coverage assessment. This was as an 'on-the-job' training so that participants would learn by doing a coverage assessment in Rural Kassala Locality of Kassala State in Eastern Sudan.

A team of 15 participants were trained, including representatives from Federal and State Ministry of Health, UNICEF, FANTA II and various NGOs. Training was carried out from 8<sup>th</sup> to 29<sup>th</sup> September 2011, with support from Kassala State Nutrition Directorate.

At the same time, a method for investigating the causes of malnutrition was trialled. This was the first time such a method had been used, and the aim was to develop a simple rapid method for giving reliable quantitative as well as qualitative information as to the location-specific causes of malnutrition.

### Methodology

The SQUEAC methodology was followed for the coverage assessment, which uses routine programme data (such as admissions over time, MUAC on admission, proportion of discharges of defaulters, non-response and cures, length of stay and location of admissions) and qualitative data collected from beneficiary carers, programme delivery staff and various community members (including traditional healers, TBA's, Imams and school-teachers). A small survey was then carried out to quantify the number of severely malnourished children (current and recovering cases) reached by the programme. For the causal analysis, local beliefs were investigated through qualitative means, and then further investigated through a matched case-control study.

### Key Results

| Coverage survey indicators   | Result                           |
|--|----------------------------------|
| Programme period coverage<br>Period coverage = current and recovering cases of SAM enrolled on the programme     | 30.3%<br>(95% CI: 21.8% - 40.7%) |
| Programme geographical coverage<br>Proportion of health centres in Rural Kassala Locality offering CMAM services | 20%                              |
| Median MUAC on admission   | 111-112 mm                       |
| Median length of stay  | 8 weeks                          |

### Causal analysis results

Results showed that:

- Children who had had diarrhoea in the 2 weeks before the survey were 4½ times more likely to have severe acute malnutrition than those who had not had

diarrhoea (OR=4.6, 95% CI=1.5-13.9, p=0.0033).

- Children who had had fever in the 2 weeks prior to the survey were almost 9 times more likely to have SAM than those who had not had fever (OR=8.8, 95% CI=2.4-31.9, p=0.0001).
- Increasing age was shown to be negatively associated with SAM (meaning that early introduction of fluids other than breast milk was found to increase the risk of SAM) (OR=0.7, 95% CI=0.5-1.0, p=0.0367).
- 63% of carers whose child had had a recent episode of diarrhea had restricted the intake of both fluids and food

### Conclusion

In Rural Kassala, malnutrition was found to be related to illness, specifically diarrhoea and fever, rather than poor diet diversity. Infant and young child feeding practices were also found to play a role, specifically the time of introduction of fluids, probably related to diarrhoea.

Coverage of the CMAM programme in Rural Kassala Locality is currently below the Sphere minimum Standards of 50% (for rural programmes). Positive points of the programme include a good acceptance within the community (as judged by referrals by past beneficiaries and ancillary staff), early detection and enrolment of cases of SAM (as shown by admission MUAC), performance indicators meeting Sphere standards (cure rate >75%, mortality rate <5% and defaulter rate <15%).

Points that need improving include provision of antibiotics and other routine medication as per the CMAM protocol, increased and more diverse case-finders within the community, including use of key community figures such as traditional healers, Imams and TBAs, interventions aimed at reducing sharing of the RUTF ration within the household such as provision of a protection ration, and increasing the geographical coverage of CMAM throughout the Locality so that CMAM services are offered at every clinic. The definition of 'volunteer' and what is expected of volunteers also needs to be standardised throughout Sudan.

These points are likely to be very similar across all CMAM programmes in Sudan; therefore recommendations for improvement from this work can be used to improve other CMAM programmes in Sudan until further SQUEAC assessments are carried out.

Experience of CMAM programmes in other countries has proven that it is possible to deliver at high coverage, however this has not been done successfully as an integrated programme delivered through the MoH. High coverage CMAM requires coordination and partnership from all actors including Federal and State Ministries of Health, UN agencies and NGOs.

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<sup>7</sup> Semi-quantitative evaluation of access and coverage



## Non-Darfur Update

The cluster coordinated several emergency nutrition responses in Blue Nile, South Kordofan and for returnees to South Sudan who are waiting in Khartoum and Kosti. Emergency response included procurement and distribution of emergency food ration (BP5) for children under 5 years and pregnant and lactating women travelling by train and by barge to South Sudan. During the CHF second round allocation, South Kordofan projects qualified for the special allocation envelope which is still pending awaiting access to the area.

A further 5 CMAM centers have opened over the quarter, 4 in South Kordofan and one in Blue Nile. Access to conflict affected areas remains an issue, and expansion of services has been possible by Ministry of Health and National NGOs. A total of 4,060<sup>8</sup> children with severe acute malnutrition have been admitted to therapeutic centers (in- and out-patient) in non-Darfur states during this quarter, numbers admitted for supplementary feeding not available at time of writing.

**Table 6:** Number of selective feeding centers by State, non-Darfur

| State                    | SMOH      |           |           | NGO      |           |          | TOTAL      | TOTAL     |
|--------------------------|-----------|-----------|-----------|----------|-----------|----------|------------|-----------|
|                          | IP        | OP        | SFC       | IP       | OP        | SFC      | IP/OP      | SFC       |
| Blue Nile                | 2         | 14        | 4         | 1        | 3         | 0        | 20         | 4         |
| South Kordofan           | 13        | 16        | 0         | 0        | 0         | 0        | 29         | 0         |
| North Kordofan           | 0         | 5         | 0         | 0        | 0         | 0        | 5          | 0         |
| Red Sea                  | 8         | 10        | 91        | 0        | 0         | 0        | 18         | 91        |
| Kassala                  | 6         | 24        | 4         | 0        | 11        | 0        | 41         | 4         |
| Gedaref                  | 5         | 24        | 0         | 0        | 0         | 0        | 29         | 0         |
| White Nile               | 0         | 0         | 0         | 0        | 1         | 0        | 1          | 0         |
| <b>TOTAL non-Darfurs</b> | <b>34</b> | <b>93</b> | <b>99</b> | <b>1</b> | <b>15</b> | <b>0</b> | <b>143</b> | <b>99</b> |

<sup>8</sup> Data from some states is missing; this is therefore likely to be underestimated.



**Acronyms**

|       |  |
|-------|--|
| BSFP  | Blanket supplementary feeding programme    |
| CMAM  | Community management of acute malnutrition |
| FSMS  | Food security monitoring system            |
| GAM   | Global acute malnutrition                  |
| IP    | In-patient                                 |
| OP    | Out-patient                                |
| OTP   | Outpatient therapeutic programme           |
| SAM   | Severe acute malnutrition                  |
| SC    | Stabilization centre                       |
| SFC/P | Supplementary feeding centre / programme   |
| SSS   | Sentinel Site Surveillance                 |
| TFC/P | Therapeutic feeding centre / programme     |
| WHZ   | Weight for height z-score                  |

**CONTACT**

The “Darfur Nutrition Update” is now available online. Check the following link for this issue and previous issues

[http://www.unicef.org/sudan/resources\\_4334.html](http://www.unicef.org/sudan/resources_4334.html)

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