Research Article

Gaps in the process of case detection, reporting and feedback of severe acute malnutrition program in three governorates in Yemen: a quantitative study

Abstract

Background: Monitoring of the nutritional therapeutic program for management of Severe Acute Malnutrition (SAM) in Yemen are limited to the outcome indicators. A lot of information about monitoring and evaluation of the process of implementation of the program are not known especially in areas of case finding/reporting and feedback.

Objectives: To understand case detection, reporting and feedback processes of SAM in OTP clinics among GP/health care providers and managers Yemen 2015.

Methods: This is a quantitative study through cross sectional design of purposeful sample of 213 participants including program manager, physicians and health workers working in the selected 22 health facilities in 20 districts from three governorates (Lahj, Aden and Hadramout). Data collected through structured questionnaire.

Findings: Finding from quantitative data analysis focus on data obtained through questionnaires that returned from the three governorates (n=213). About 58% are females. The mean age of participants are 34.3years (SD=7.6years) about half of participants have previous training regarding SAM management guideline (51%) and 66% of them answer correctly about management of SAM children. About 51% of participants have SAM management guideline but only 43% of participants practice SAM management according to the guideline; this reflect on the ability of the system to detect and manage SAM children: about 49% of participants did not detect any SAM child during two weeks preceding the data collection and 69% did not teat any case of SAM and 59% of participants did not refer any SAM case to the TFC. Regarding reporting; the gap identified is the huge data and difficulty in understanding the reporting forms while feedback is mainly verbal by telephone and be not documented.

Conclusion: Different gaps were identified in the SAM program implementation through the quantitative study mainly low coverage of SAM training, more detailed and complicated report's contents, non-adherence of physician with the guideline and lack of coordination between physicians and health workers of the program.

Keywords: malnutrition, SAM, OTP clinics, TFC, pneumonia, diarrheal, malaria, measles, diarrhoeal disease

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Abbreviations: SAM, acute severe malnutrition; MAM, moderate acute malnutrition; TFC, therapeutic feeding centre; OTP, outpatient therapeutic feeding program; YNP, yemen nutrition program; HUCOM, hadramout university college of medicine

Introduction

Every year 10.6million children die worldwide due to preventable conditions such as pneumonia, diarrheal, malnutrition, malaria and measles. Of these deaths, malnutrition accounts for about 2.2million deaths annually in children under the age of 5.[1] Acute Malnutrition is classified according to the degree of wasting and the presence of oedema. It is acute severe malnutrition (SAM) if the wasting is severe (W/H <-3 Z score WHO standards or a low MUAC) or there is oedema. These guidelines address the treatment of SAM. Malnutrition is defined as moderate acute malnutrition (MAM) if the wasting is less severe (W/H between -2 and -3 Z-score WHO standards); oedematous cases are always classified as severe.[2]

Level of child malnutrition in Yemen

The demographic and health survey (2013) reported that the overall 16 percent of children under age 5 are wasted, and 5 percent are severely wasted. The prevalence of wasting is highest among children age 6-8 months (28 percent).[3] The same findings were reported from the family health survey (2003) prevalence of stunting is 53.1%, wasting 12.4% and underweight is 45.6%.[4] Comparing the results of these surveys shows that the prevalence of stunting has greatly decreased in the past 10years, from 53 percent in 2003 to 41 percent in 2013. However, the percentage of children who are underweight (which decreased from 46 percent to 44 percent) and the prevalence of wasting (which increased from 13 percent to 14 percent) have not significantly changed since 1997.[3]

Impact of the complex emergency on the health system in Yemen

Since March 2015 till now, Yemen living bloody conflicts; the

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humanitarian impact of the conflict has been catastrophic. The capacity of an already weak health system to respond to growing need has been crippled by extensive damage to medical facilities, supply shortages and safety concerns for health workers. The World Health Organisation (WHO) now considers that the Yemeni health system has collapsed. Future expectation for the health situation in Yemen is worse; the burden of malnutrition will increase especially in the areas worst affected by conflict. Damage to infrastructure will likely mean wider spread of diarrhoeal disease, already a major cause of mortality in Yemen especially among children.[5] More over a recent report of the world food program about Yemen conclude that: half of the country's children are chronically malnourished and less than 1 in 10 children live to reach the age of 5. Such emergency levels of chronic malnutrition-or stunting - are second globally only to Afghanistan. Yemen has the third highest rates of underweight children in the world after India and Bangladesh; affecting more than half of all children under 5 are underweight.[6]

The severe acute malnutrition program in Yemen (SAM)

In 2008, Yemen had launched a national programme for the management of severe acute malnutrition with an aim of decreasing childhood mortality and illnesses, meeting the MDG by 2015.[2] The Yemen nutrition program YNP on management of severe acute malnutrition is composed of two arms; Outpatient Therapeutic feeding Program (OTP) and Inpatient Therapeutic feeding centre (TFC). The inpatient TFC program is a hospital level program and has been known to provide better health care for severely malnourished children while, the OTP is a community level program and successfully examined in many low resource settings with organization and follow up from primary health units, health centres and/or hospitals.[7–9] Studies about the performance of the SAM program were scarce, and the available studies focused of description of SAM children or outcome indicators. A descriptive cross-sectional hospital based study was conducted on 622 hospitalized children (336 males and 286 females) below 6years of age during 2012-2013 in aden. SAM was diagnosed in 622 children with prevalence rate of 5.2% from total 11,941 admissions during 24 months period.[10] The outcome indicators of 303 hospitalized children at age group 6-59 months in Mukalla hospital in Hadramout were studied in 2013; the study show recovered 31 (10.2%), died 10 (3.3%), transferred 19 (6.3%), defaulted 243 (80.2%) and median stay of children in program were 40days.[11] Death rate among children with SAM reported from Al-Sadaqa hospital in Aden was 5% in 2011.[12] A lot of information about monitoring and evaluation of the process of implementation of the program are not known especially in areas of case finding/reporting and feedback.

Methodology

This is a quantitative study through cross sectional design of purposeful sample of 213 participants including program manager, physicians and health workers working in the selected 22 health facilities in 20 districts from three governorates (Lahj, Aden and Hadramout). Data collected through a structured questionnaire by trained health workers during the period from October to December 2015. Data were cleaned, coded and fed in personal computer of the first author using the SPSS version 20 program. Data were analyzed for the three participant's categories: program managers (n=14), physician (pediatricians or GP, n=63) and health workers engaged in SAM program (n=136). Missing values are not included in analysis so

the denominator include only participants responses without those did not respond. So all the percentages calculated as valid percentages. Ethical approvals were obtained from Hadramout University College of Medicine (HUCOM) and WHO/EMRO. Institutional approval was obtained from health offices of Aden, Lahj and Hadramout governorates. Purpose of the study was clarified to participants in informed consent and those are agree to participate were included in the study.

Results

The data collected through three methods: questionnaire, review of program reports for quantitative data and interview for qualitative data. This part is present the finding obtained from data analysis of questionnaires that returned from three governorates (n=213). Data was collected by trained health workers through the period from November to February 2016. Data management and analysis of the completed questionnaires were done in March 2016. The proposed participants were 220 persons, the returned questionnaires are 215 copies (98%), and two questionnaires were canceled due to incomplete data, so the eligible questionnaires for analysis are 213 questionnaires. About 49% of the participants from hadramout governorate, 32% from Aden governorate and 18.8% from Lahj governorate. Most of participants were females (58%), 49% have post secondary diploma and 35% are nurses. The mean age of participants are 34.3years (SD=7.6years) and within the age range of 19-55years. About half of participants have previous training regarding SAM management guideline (51%), but physician have low chance for training (32/62, 40%) (Table 1). The gap identified here is low coverage of SAM training.

Knowledge about SAM management

In the four questions regarding SAM management, the range of proportion of participants given of correct answer is from 55% to 67% (the mean is 66.3%). The highest mean proportion of the correct answers were reported by program managers (74.8%) followed by physicians (66.3%) while lowest mean proportion of correct answers were reported by health workers (57.8%) (Table 2). The gap identified here is the poor knowledge of participants regarding SAM management.

Participant's practice regarding SAM case detection and management

About 54% of participants reported that the targeted discharge Wg and Wg/Hg in comparing with admission Wg and Wg/Hg is available in his/her clinic and 51% have a copy of SAM management guideline. Only 43% of participants practice SAM management according to the guideline while 25% of them feel always difficulty in using the guideline. Regarding case detection, 51% reported they detect SAM children under 5years of age during the last two weeks preceding the day of data collection, while only 31% of the reported that they treat SAM cases during the last two weeks. Refer of SAM children to TFC was reported by 41% of participants and only 24% of them reported that they treat SAM children in phase 2 in the outpatients during the last two weeks preceding the study. Only 24% of participants reported that they are not satisfied at all with the SAM management guideline (Table 3). The gap identified here is unavailability and difficulty of using the guideline in detecting and treating SAM children especially among Physician.

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Table 1 Socio-demographic characteristics of 213 participants

Characteristics	Participant's category			No. (%)
	Program manager	**Physician**	**Health Workers**	
Governorate				
Lahj	3	10	27	40(18.8%)
Hadramout	10	41	54	105(49.2%)
Aden	1	12	55	68(32%)
Total	14	63	136	213(100%)
Sex				
Male	5	27	54	86(42%)
Female	7	24	29	119(58%)
Total	1	1	1	205(100%)
Age (in years)				
Mean	42	35	33.4	34.3
SD	6.3	7	7.5	7.6
Minimum	35	21	19	19
Maximum	54	50	55	55
Range	19	29	36	36
Qualification				
Post-secondary diploma	7	0	96	103(49%)
Bachelor	3	36	16	55(26%)
Master	3	18	0	21(10%)
PhD	1	9	0	10(5%)
Others	0	0	1	21(10%)
Total	14	63	133	210 (100%)
Professional title				
Specialist	4	25	0	29(13.5%)
GP	1	39	0	40(19%)
Medical assistant	1	0	32	33(15.5%)
Nurse	6	0	68	74(35%)
Midwife	1	0	22	23(11%)
Public health worker	1	0	4	5(2%)
Others	0	0	8	8(4%)
Total	14	64	134	212 (100%)
Training about SAM management guideline				
Yes				
No	12	32	62	106 (51%)
Total	2	30	71	103 (49%)
	14	62	133	209 (100%)

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Table 2 Knowledge about SAM management

Question	Answers	Participant's category			Total No. (%)	Comments
		Program manager No (%)	Physician No (%)	Health workers No (%)		
In phase one of SAM management	Rapid weight gain at this stage is dangerous	11 (78.6%)	42(71%)	71 (61%)	124 (65.6%)	Correct answer
	Rapid weight gain at this stage is preferable	1	9	20	30 (15.9%)	
	Rapid weight gain at this stage is necessary for cure	2	8	25	35 (18.5%)	
	Total	14	59	116	189 (100%)	
F75 used in	Phase 1	11 (84.6%)	41 (72%)	67 (61.5%)	119 (66.5%)	Correct answer
	Transition phase	2	8	13	45(25%)	
	Phase 2	0	5	5	15(8%)	
	Total	13	57	109	179 (100%)	
In transition phase, child should treated in	At home	0	2	11	13 (7%)	Correct answer
	Out-patient	2	20	46	68 (38%)	
	In-patient	12(86%)	33 (60%)	54 (48.6%)	99 (55%)	
	Total	14	55	111	180 (100%)	
Whenever patient have good appetite and no acute major medical complication they enter	Phase 1	2	2	12	16 (9%)	Correct answer
	Transitional phase	4	21	30	55 (31%)	
	Phase 2	6(50%)	38 (62%)	64 (60%)	108 (60%)	
	Total	12	61	106	179 (100%)	
Mean proportion of the correct answers		74.80%	66.30%	57.80%	66.30%	

Table 3 Practice of participants toward SAM management

Question/Options	Participant's Category			Total No. (%)
	Program manager	Physician	Health workers	
Does the targeted discharge Wg and Wg/Hg in comparing with admission Wg and Wg/Hg is available in your clinic				
Yes				
No				
Total	10	27	69	106(54%)
	3	36	51	90 (46%)
	13	63	120	196(100%)
Did you have a copy of guideline of SAM management				
Yes				

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Table Continued..

Question/Options	Participant's Category			Total No. (%)
	Program manager	Physician	Health workers	
No	11	25	60	96 (51%)
Total	2	33	56	91 (49%)
	13	58	116	187(100%)
Did you practice for SAM management according to this guideline				
Always				
Sometimes	9	23	53	85(43%)
Never	2	12	21	35 (18%)
Total	2	24	52	78 (39%)
	13	59	126	198 (100%)
Did you feel difficulty in using this guideline				
Always	1	12	33	46 (25%)
Sometimes	5	18	34	57 (31%)
Never	7	25	49	81 (44%)
Total	13	55	116	184(100%)
Did you discover a child less than 5 years with SAM during the last two weeks				
Yes				
No	10	34	59	103(51%)
Total	4	29	66	99(49%)
	14	63	125	202 (100%)
Did you treat any SAM vase in out-patient in the last two weeks				
Yes				
No	8	16	34	58 (31%)
Total	6	45	77	128(69%)
	14	61	111	186(100%)
Did you refer any case to TFC in the last two weeks				
Yes	9	33	33	75(41%)
No	3	29	77	109 (59%)
Total	12	62	110	184 (100%)
Did you treat any SAM case in the last two weeks as phase 2 in outpatient				
Yes				
No	7	9	28	44(24%)
Total	6	51	81	138(72.7%)
	13	60	109	182(100%)
Did you satisfied with SAM guideline				
Satisfied	8	24	41	73 (43%)
to some extent	2	21	34	57 (33%)
Not at all	3	12	28	43 (24%)
Total	11	56	103	173 (100%)

*Significant at 0.05 level

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The ability of SAM program to detect and manage SAM children

About 54% of participants did not detect any SAM child during two weeks preceding the data collection and 69% did not treat any case of SAM and 65% of participants did not refer any SAM case to the TFC. Physician who is the qualified person for case detection and management and expected to play a cornerstone in case detection and management, they reported 0case regarding case detection (27/54, 50%), case treated (45/57, 79%) and referral (27/48, 56%) (Table 4). The gap identified here is poor physician adherence with SAM management guideline.

Reporting practice

Less than half of participants fill the different reporting forms: filling the OTP chart (45%), the transfer form (38%), the referral form (33%), the registration book (47%) and the monthly report (40%). Although 51% of participants reported that the reporting forms were regularly and always available but only 30% of them reported that data in the forms were clear and understandable (Table 5). The gap identified here is the huge data and difficulty in understanding the reporting forms.

Reasons behind no reporting

The most frequent reason of no reporting mentioned by those did not report (n=42) is that the reporting forms were not available in the clinic (26% for OTP chart, 51% for referral form), the second reason is that the participant being not the responsible person of reporting (92% for monthly reporting) (Table 6). The gap identified here is lack of coordination between physicians and health workers lead to missing SAM cases due to no reporting.

Feedback

Feedback indicators were also low. Health workers or clinic officers reported that they received feedback from program managers about the different performance of reporting: 55% about completeness, 51% about timeliness, 53% about comments and 53% about data analysis. Only 17% of participants mentioned they received newsletter from the program managers (Table 7). Regarding feedback from program managers to the lower level: similar findings were reported by program mangers (Table 8). The most communication tools used by program managers for communicating feedback to the lower level were telephone (57%) followed by the social media (14%) (Table 9). The gap identified here is the feedback is mainly verbal by telephone and be not documented.

Table 4 The ability of the system to detect and manage SAM children

Question/Options	No Of SAM Children Detected	Participant's Category			Total No. (%)
		Program Manager	Physician	Health Workers	
SAM cases detected during the last two weeks	0 cases	4	27	64	95 (54%)
	1-10 cases	7	22	39	68 (39%)
	11-22 cases	2	5	6	13 (7%)
	Total	13	54	109	176 (100%)
SAM cases treated during the last two weeks	0 cases	5	45	73	123 (69%)
	1-10 cases	7	8	28	43 (24%)
	11-66 cases	1	4	7	12 (7%)
	Total	13	57	108	178 (100%)
SAM cases referred to TFC	0 cases	3	27	74	104 (65%)
	1-10 cases	8	19	26	53 (33%)
	11-15 cases	0	2	1	3 (2%)
	Total	11	48	101	160 (100%)
SAM cases treated in the last two weeks as phase 2 un outpatient	0 cases	6	50	80	136 (82%)
	1-10 cases	4	6	14	24 (15%)
	11-30 cases	0	2	4	6 (3%)
	Total	10	58	98	166 (100%)

Table 5 Reporting practice of participants

Question/Options	Participant's Category			Total No. (%)	P-Value
	Program Manager	Physician	Health Workers		
Did you fill OTP chart					
Yes	12	17	61	90 (45%)	0.001*

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Table Continued..

Question/Options	Participant's Category			Total No. (%)	P-Value
	Program Manager	Physician	Health Workers		
No	2	44	62	108 (55%)	
Total	14	61	123	198 (100%)	
Did you fill the transfer form					
Yes	8	19	48	75 (38%)	0.4
No	6	41	75	122 (62%)	
Total	14	60	123	197 (100%)	
Did you fill referral form to TFC					
Yes	10	20	35	65 (63%)	0.04*
No	4	41	87	132 (67%)	
Total	14	61	122	197 (100%)	
Did you fill registration book in outpatient					
Yes	11	15	65	91 (47%)	0.001*
No	3	45	57	105 (53%)	
Total	14	60	122	196 (100%)	
Did you fill the monthly report					
Yes	11	9	57	77 (40%)	0.001*
No	3	49	63	115 (60%)	
Total	14	58	120	192 (100%)	
Does the reporting forms are regularly available					
Always	11	15	62	88 (51%)	0.001*
Sometimes	2	7	14	23 (13%)	
Never	1	31	30	62 (36%)	
Total	14	53	106	173 (100%)	
Did data in the reporting forms are clearly stated and understandable					
Very clear					0.04*
With some difficulty	9	8	28	45 (30%)	
Very difficult	3	15	39	57 (38%)	
Total	2	15	32	49 (32%)	
	14	38	99	151 (100%)	

*Significant at 0.05 level

Table 6 Reasons behind no reporting

Item	Reasons of no reporting	No	%
No filling of the OTP chart	the form is not available in the clinic	11	26%
	no OTP in the canter	6	14%
	it is not my responsibility	12	29%
	the form available only in the TFC clinic in hospital but not in paediatric or GP clinic	5	12%
	i refer the cases to TFC in hospital so i did not fill the OTP form	2	5%

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Table Continued..

Item	Reasons of no reporting	No	%
	I am not trained about the guideline	6	14%
	Total	42	100%
No filling of the transfer from	the referral form is not available in the clinic	10	34%
	i am working in referral hospital where admission unit is available so we didn't refer to any hospital	8	28%
	No TFC in our facility	2	7%
	it is not my responsibility	9	31%
	Total	29	100%
No filling the referral form	the form is not available in the clinic	11	51%
	There is no admission unit in the facility	4	19%
	the SAM children seen by nutrition specialist in the TFC in Mukalla hospital " this may be verbal refer	2	10%
	my hospital is the referral hospital in the government so i am working in this hospital	4	20%
	Total	21	100%
No filling of the registration form	no registry in the clinic	7	25%
	no cases	1	4%
	it s not my responsibility	19	67%
	I am not working now in nutrition clinic because there is no treatment diet (Plumping nuts)	1	4%
	Total	28	100%
No monthly report	i am not the responsible person for monthly report preparation	36	92%
	no follow up	2	5%
	No OTP in the centre	1	3%
	Total	39	100%

Table 7 Feedback from the upper level to the lower level

Question	Answer	No	%
Did you receive feedback from the upper level to you about completeness of reports (n=74)	Yes	41	55%
	No	33	44%
Did you receive feedback from the upper level to you about timeliness of reports (n=73)	Yes	37	51%
	No	36	49%
Did you receive feedback from the upper level to you about comments on report content (n=73)	Yes	39	53%
	No	34	47%
Did you receive feedback from the upper level to you about analysing the findings (n=71)	Yes	34	47%
	No	37	53%
Did you receive from the upper level regular newsletter (n=71)	Yes	12	17%

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Table 8 Feedback from program managers to the lower level

Question	Answer	No	%
Did you sent feedback to the lower level about completeness of reports (n=17)	Yes	8	47%
	No	9	53%
Did you sent feedback to the lower level about timeliness of reports (n=16)	Yes	9	56%
	No	7	44%
Did you sent to the lower level about comments on report content (n=16)	Yes	8	50%
	No	8	50%
Did you sent feedback to the lower level about analysing the findings (n=16)	Yes	6	38%
	No	9	62%
Did you sent to the lower level regular newsletter (n=16)	Yes	2	13%
	No	14	87%

Table 9 Tools used for feedback communication by 14 program managers

Tools used	No	%*
Telephone	8	57%
Social media	2	14%
Nothing	6	42%
Others	2	14%

* proportion%

Discussion

This study is a part of a big study about SAM program performance in Yemen focusing on monitoring and evaluation. It is the quantitative part, collecting information through questionnaires about process of case detection, reporting and feedback among program managers, physicians and health workers working in SAM program and its service delivery points. A total of 213 subjects enrolled in the study from different categories. Building the capacity of health workers is important to best performance of any health program or intervention, not only the formal training but also the continuous education and in-service training. In-service training changes attitudes to malnutrition and treatment practices.[13,14] In this study; only about half of participants have previous training regarding SAM management guideline (51%) and this was reflected on the knowledge and practice f participants where 66% of them answer correctly about management of SAM children and 51% of participants have SAM management guideline but only 43% of participants practice SAM management according to the guideline; emphasizing on training about guideline to improve practice toward SAM management was reported elsewhere.[15,16] Wuehler et al.,[16] reported in their study in Mauritania the need for support activities to adapt training materials and programme protocols to fit local needs.[17] This poor knowledge and practice reflected on the ability of the system to detect and manage SAM children: only 49% of participants did not detect any SAM child during two weeks preceding the data collection and 69% did not treat any case of SAM while 59% of participants did not refer any SAM case to the TFC. Lack of training and therefore lack of knowledge on the dangers of poor monitoring of patients as well as shortage of nurses, may have contributed to the inadequate adherence with the guideline; Warfa et al.,[17] recommended that training of health care workers on the implementation of WHO guideline can improve quality of care for SAM children.[18] Within the SAM program; the nutritional surveillance depends on the routine reporting from the health facilities; and it is important if the data

collected in a regular time, accurate and be completed and on time in order to be able to extract indicators for monitoring and evaluation. The implementation of programs can be monitored as long as data are collected on process indicators such as access to, and use of, services. The disadvantages of data collected from health facilities are that the data are rarely complete and data are often of poor quality due to factors including poor motivation, lack of supervision, inadequate feed-back, and overburdening of staff by multiple reporting requests.[19] This picture is the same in the reality of reporting process in SAM program in Yemen; in this study were only 45% of respondents filled the monthly reports and 92% of those not report at all given the reason of no reporting that it is not their responsibilities. Other factors contributing in poor reporting is that the huge data and difficulty in understanding the reporting forms. Feedback is important element of any surveillance system; ongoing feedback enabled the nutritional program to improve targeting and supply of supplements.[19] In This study Feedback is mainly verbal by telephone and be not documented and in best situation 54% of participants received feedback from their top managers by telephone or through social media indicate the need for innovative methods for reporting and feedback.

Conclusion

In this study, gaps are identified regarding case detection/management, reporting and feedback among program managers, physicians and health workers of the SAM program in three governorates in Yemen. These gaps are:

a. Low coverage of SAM training.

b. Poor knowledge of participants regarding SAM management.

c. Unavailability and difficulty of using the guideline in detecting and treating SAM children especially among Physicians.

d. Poor physician adherence with SAM management guideline.

e. Huge data and difficulty in understanding the reporting forms.

f. Lack of coordination between physicians and health workers lead to missing SAM cases due to no reporting.

g. Feedback is mainly verbal by telephone and be not documented.

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Conflict of interest

The author declares no conflict of interest.

References

1. Ashworth A, Khanum S, Jackson A, et al. *Guidelines for the inpatient treatment of severely malnourished*. World Health Organization; 2003.

2. MOPHP. *Guidelines for the Management of the Severely Malnourished in Yemen*. UNICEF; 2008. p. 1–156.

3. Ministry of public health and population (Yemen). *Demographic and health survey (DHS)*. 2013.

4. Ministry of planning (Yemen). *Family health survey*. The final report, 2003.

5. *Public Health Scenarios in Yemen*. USA: Workshop Summary: Health through Peace Conference, Safe world; 2015.

6. Boelaert M, Davis A, Le Lin B. *Nutrition guidelines*. 1st ed. Paris: Médecins Sans Frontières; 1995. p. 1–112.

7. Ville de Goyet C, Seaman J, Geijer U. *The management of nutritional emergencies in large populations*. Geneva: World Health Organization; 1978. 98 p.

8. *Food and nutrition handbook*. World Food Programme (WFP); 2000.

9. Badi MA, Ba Saddik. Severe Acute Malnutrition among Hospitalized Children, Aden, Yemen. *Open Journal of Epidemiology*. 2016;6:121–127.

10. Muftah S. Outpatient management of severe acute malnutrition among children under five years old, in Yemen: a retrospective cohort study. *International Journal of Contemporary Pediatrics*. 2016;3(2):445–451.

11. World Food Program. *Yemen overview*. 2016.

12. Puoane T, Sanders D, Ashworth A, et al. Training nurses to save lives of malnourished children. *Curationis*. 2006;29(1):73–78.

13. Puoane T, Cuming K, Sanders D, et al. Why do some hospitals achieve better care of severely malnourished children than others? Five–year follow–up of rural hospitals in Eastern Cape, South Africa. *Health Policy Plan*. 2008;23(6):428–437.

14. Freeman P, Beracochea E, Edwards K, et al. The clinical diagnosis and treatment of important childhood diseases in rural Papua New Guinea. *P N G Med J*. 1995;38(2):95–105.

15. Ashwell HE1, Freeman P. The clinical competency of community health workers in the eastern highlands province of Papua New Guinea. *P N G Med J*. 1995;38(3):198–207.

16. Wuehler SE, El Hafed Ould Dehah CM. Situational analysis of infant and young child nutrition policies and programmatic activities in the Islamic Republic of Mauritania. *Matern Child Nutr*. 2011;7 Suppl 1:113–132.

17. Warfa O, Njai D, Ahmed L, et al. Evaluating the level of adherence to Ministry of Health guidelines in the management of Severe Acute Malnutrition at Garissa Provincial General hospital, Garissa, Kenya. *Pan Afr Med J*. 2014;17:214

18. Tuffrey V, Hall A. Methods of nutrition surveillance in low–income countries. *Emerging Themes in Epidemiology*. 2016;13:4.

19. Gartner A, Maire B, Kameli Y, et al. Process evaluation of the Senegal–Community Nutrition Project: an adequacy assessment of a large scale urban project. *Trop Med Int Health*. 2006;11(6):955–966.