

Seasonal Malaria Chemoprevention coverage survey for children 3 months – 8 years in Aweil, South Sudan, 2022

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BACKGROUND

- Malaria is a major public health problem in South Sudan, accounting for a significant proportion of morbidity and mortality, although the intensity of malaria transmission varies substantially within the country. The highest transmission is observed in the northwest region, including Northern Bahr el Ghazal (NBeG) State.
- MSF OCP in collaboration with MoH provides paediatric and maternity inpatient services at Aweil State Hospital (ASH). ASH is the main hospital in NBeG state. In 2021, there were 22,103 total paediatric triage consultations with malaria RDT positivity rate of 43.3 % and 6,050 IPD admissions among which 3,716 (61.4%) were children less than 5 years. A total of 35,278 children less than 5 years of age were consulted as OPD cases among which 16,859 (48%) had primary diagnosis of malaria.

- Seasonality and high burden of malaria in NBeG allows implementation of Seasonal Malaria Chemoprevention (SMC). SMC consists of administering the antimalarial drugs sulfadoxine-pyrimethamine, and amodiaquine (SP/AQ) once a month for up to 4 - 6 months to children aged 3 to 59 months during the high malaria transmission season to reduce transmission and severity, hospital admissions and deaths.
- MSF OCP collaborated with MoH to implement the second SMC campaign in the region in 2022, following the first ever campaign in 2021. The 2022 SMC campaign was carried out across 27 villages in Aweil Town, in five rounds, targeting the same geographic location as in 2021. The SMC 2022 campaign was door-to-door as opposed to fixed SMC distribution in 2021. An SMC coverage survey was carried out following the last round of SMC.
- We present here the results of the SMC coverage survey carried out soon after the SMC campaign was completed.

OBJECTIVES

The aim of this SMC coverage survey was:

- To estimate the overall coverage among children aged 3 - 59 months,
- To assess SMC adherence, understand reason for non-participation and non-adherence

- To explore adverse events after the fifth SMC round, describe the acceptability of the intervention
- To explore caregiver's perceptions about SMC, assess malaria infection after the fifth round, and
- To determine mosquito net ownership and usage among children.

METHODS

- Cluster cross-sectional study design.
- Sample size: 847 children aged 3 months – 8 years old, 425 households in 85 clusters (5 households per cluster). The sampling strategy used simple random sampling, selecting 85 GPS coordinates to represent clusters of 5 houses each.
- Inclusion and exclusion criteria: age 3 months to 8 years living in the randomly selected household and Informed consent given by the parents/caretakers, identified as the "head of household".
- Surveyors received two days of training on survey procedures and ethical consideration. A pilot phase was carried out in one SMC village, Maper North (not included in the study area) to test the questionnaire and evaluate the performance of the teams.

- Each day during the survey all team members gathered for a morning debriefing and ensured they had all required items (Consent forms, fully charged Tablets, stationary).
- Six teams of 12 persons (two per team), including one supervisor, and one epidemiologist were transported by two jeeps each morning at 8:15 am to the field. At the end of each day, teams were gathered at the base at 4:45 pm for a debriefing to share any potential challenges or support needed.
- Data was collected in electronic form on tablets using the KoboCollect application. All analysis was performed in STATA version 16. All children aged 3 – 59 months who started the first round of SMC were included in the calculation of the coverage estimates and adherence.

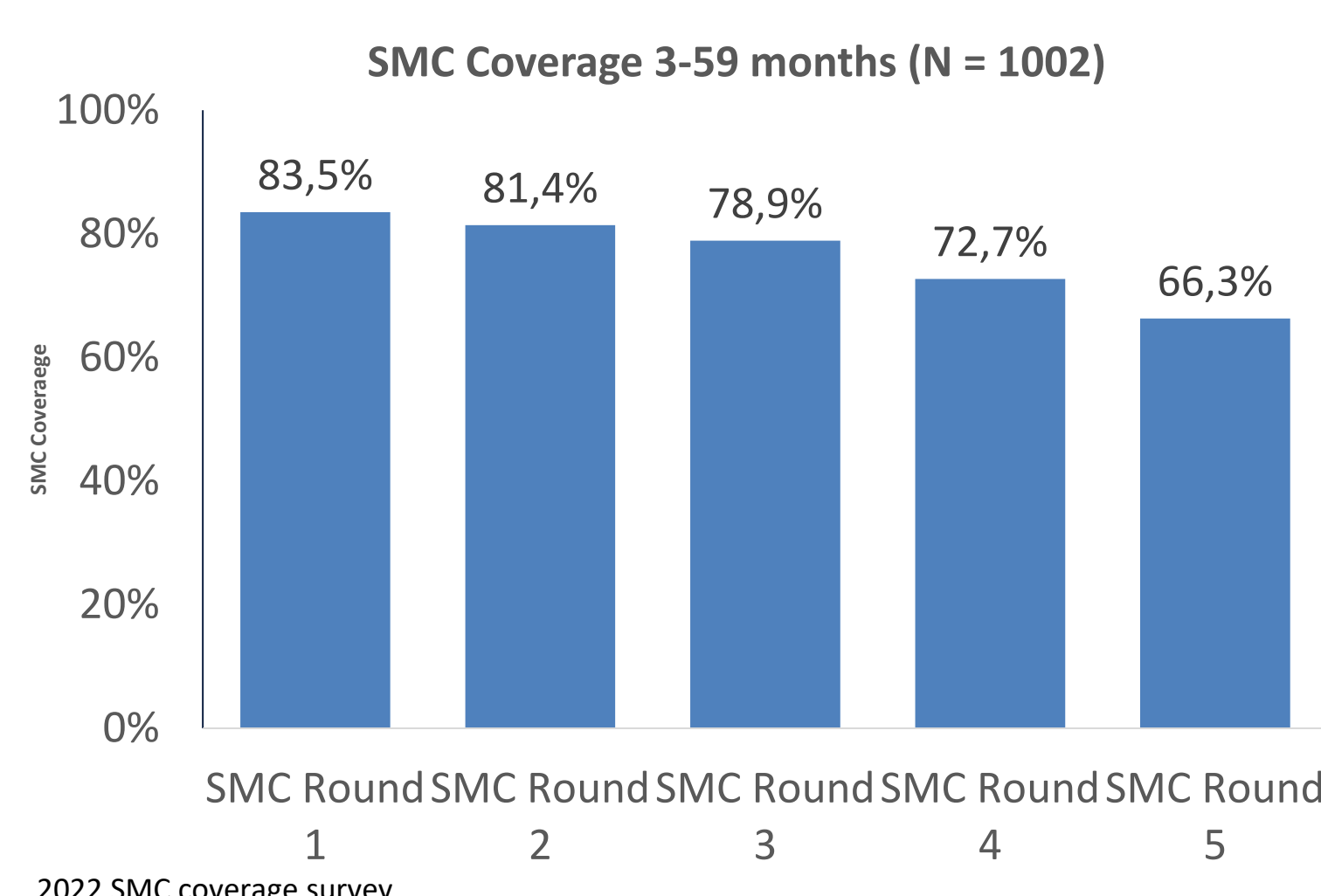
RESULTS

- Most of the 1,492 participants were in the SMC target age group 3–59 months, 58.7% (874/1,490).
- The sex distribution was similar across all ages. More details are presented in the table below.

- 89.3% (895/1002) of surveyed children in the SMC target age group participated in at least one round of SMC.
- 62.4% (625/1002) of children 3-59 months participated in all 5 rounds of SMC irrespective of adherence.
- 3.2% (13/405) of the children in the 60–96 months age group participated in at least one round of SMC.
- 61.2% (613/1002) participated in all the 5 rounds of SMC with full adherence.
- The average coverage in all 5 SMC rounds in the SMC target age group was 76.6%.

General characteristics of participants				
Characteristics	All participants	3-59 months	60-108 months	Missing
No. of participants				
n (%)	1,492	874 (58.7)	616 (41.3)	2
Sex				
n (%)				
Female	731 (49.0)	444 (50.8)	287 (46.6)	
Male	761 (51.0)	430 (49.2)	329 (53.4)	

SMC coverage				
Round	3 - 59 months (N = 1002)		60 - 96 months (N = 405)	
	%	95%CI	%	95%CI
Round 1	83.5	78.4 - 87.6	3.2	1.8 - 5.6
Round 2	81.4	76.1 - 85.8	2.2	1.0 - 4.4
Round 3	78.9	73.8 - 83.3	2.2	1.0 - 4.4
Round 4	72.7	67.0 - 77.6	2.2	1.1 - 4.4
Round 5	66.3	60.0 - 72.0	2.2	1.1 - 4.4



Confirmation of SMC status among children 3-59 months						
Round	Card		Verbal		Missing	
	N	n %	n %	n %	n %	n %
Round 1	837	539 64.4	292 34.9	6 0.7		
Round 2	818	526 64.3	287 35.1	5 0.6		
Round 3	797	511 64.1	282 35.4	4 0.5		
Round 4	740	481 65.0	257 34.7	2 0.3		
Round 5	683	455 66.6	224 32.8	4 0.6		

Reason for non-participating to SMC among children 3-59 months		
Characteristics	n	%
Reasons for non-participation (N = 1002)		
Exclusion by team n(%)	49	4.9
Was not in village n(%)	155	15.5
Did not know about SMC	16	1.6
Occupied with other activities	29	2.9
Was aged less 3 months or greater 59 months	22	2.2
Refusal	8	0.8
Re-located due to flooding	15	1.5
Other	61	6.1

Adherence to SMC treatment intake					
SMC adherence by rounds and age group	Round	All participants		3 - 59 months	60 - 96 months
		N	%		
Round 1	N	850	837	13	
	%	98.8	99.0	84.6	
	95% CI	97.5 - 99.5	97.8 - 99.6	47.8 - 97.1	
Round 2	N	825	816	9	
	%	98.9	99.0	88.9	
	95% CI	97.2 - 99.6	97.4 - 99.6	34.6 - 99.2	
Round 3	N	800	791	9	
	%	99.0	99.1	88.9	
	95% CI	97.2 - 99.7	97.4 - 99.7	34.6 - 99.2	
Round 4	N	737	728	9	
	%	98.9	99.0	88.9	
	95% CI	96.9 - 99.6	97.2 - 99.7	34.6 - 99.2	
Round 5	N	673	664	9	
	%	98.1	98.2	88.9	
	95% CI	95.6 - 99.2	96.0 - 99.2	34.6 - 99.2	

Reason for non-adherence to SMC treatment intake among children 3-59 months		
Characteristics	n	%
Reasons for non-adherence (N = 1002)		
Care giver forgot to give the drug	2	0.3
Was not at home	62	6.2
Occupied by other activities	4	0.4
Drug got missing	0	0.0
Drug damaged by flood	0	0.0
Child fell sick	0	0.0
Refusal by the child	0	0.0
Don't know	3	0.3
Other reasons child missed any of the doses	22	2.2

Adverse event among participants taking SMC treatment	
<ul style="list-style-type: none"> About 90% of the participants reported no adverse events, while 9.9% (43/434) of SMC target age children reported at least one of the adverse events, fever being the most common. No serious side effect was recorded. 8.7% (48/553) of children who received the 5th SMC round reported to have had malaria 	
Perception of SMC	
<ul style="list-style-type: none"> Primary source of SMC information: loudspeakers 56.8 % (234/412), then community mobilizers, 43.0 % (177/412), MSF staff 33.3 % (137/412), and Radio broadcast 31.8 % (131/412). Among the positive aspects reported about SMC, the most frequently mentioned was that SMC improves child's health, 98.2% (389/396). While good location and timing respectively recorded 24.0 % (95/396) and 20.2 % (80/396). 	

Mosquito net usage		
Mosquito bed net ownership (N = 437)		
No. of Bed nets	No. of households n(%)	
No bed nets	27 (6.2)	
1 bed net	6 (1.4)	
2 bed nets	54 (12.4)	
3 bed nets	87 (19.9)	
4 bed nets	98 (22.4)	
5 or more bed nets	165 (37.8)	
Missing values	2	

Participants reporting to have slept under mosquito bed net					
Slept under bed net the night before	All participants (N = 1,480)	3-59 months (N = 991)	5 - 9 years (N = 716)	10 - 14 years (N = 550)	15 - 17 years (N = 365)
Yes, n (%)	1,398 (94.5)	830 (83.8)	593 (82.8)	461 (83.8)	310 (84.9)
No, n (%)	82 (5.5)	161 (16.2)	123 (17.2)	89 (16.2)	55 (15.1)

CONCLUSIONS

- The survey findings showed an average overall good SMC coverage with excellent adherence across all the rounds and age groups.
- There was a steady decline in SMC coverage from the first to the final round. The decline in coverage may be due to the flooding that caused huge population displacement in the region and administrative reasons such as resignation of staff, absenteeism due to illness, and program fatigue on both the staff and participants.
- Very little proportion of children reported to have had malaria after receiving the fifth round of SMC. This is in line with the fact that SMC offers over 75% of protection against malaria.
- Children who attain SMC target age during the campaign must commence SMC meanwhile those who exceed the target age must complete the course of the campaign.
- Continue to use the major sources of creating SMC awareness, tailoring the message to the benefits, importance of participating in all the five rounds and adhering to the prescription.
- The door-to-door strategy gave a higher coverage compared to 2021, should be encouraged.