

seasonal malaria chemoprevention in Katsina state, Nigeria

Excerpts from Results & Analyses



Funded by:

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Executive Brief

Malaria remains a major public health problem, with an estimated burden of 216 million clinical episodes and 655,000 deaths worldwide attributable to malaria in 2010. A significant proportion (91 percent) of reported deaths from malaria occur in sub-Saharan Africa, where children under five years of age bear most of the burden. In 2010, it was estimated that 86 percent of all malaria deaths occurred in this age group.

Global approaches to malaria control are beginning to shift from a 'one size fits all' approach to the targeting of malaria control strategies to specific populations and/or locations for maximum effectiveness.

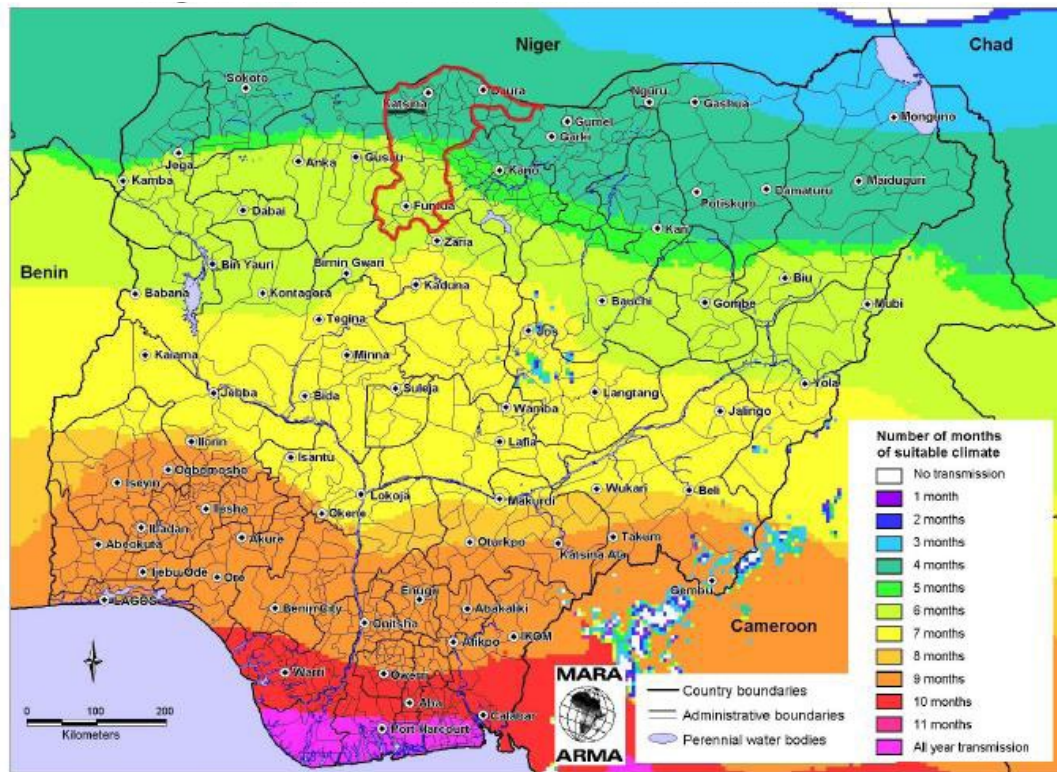
In keeping with this approach, the World Health Organization recommended a new intervention against *Plasmodium falciparum* malaria: seasonal malaria chemoprevention (SMC). This intervention has been shown to be effective, cost-effective, safe, and feasible for the prevention of malaria among children less than five years of age in areas with highly seasonal malaria transmission.

SMC, previously referred to as intermittent preventive treatment in children, is defined as the intermittent administration of full treatment courses of an antimalarial medicine during the malaria season to prevent malarial illness with the objective of maintaining therapeutic antimalarial drug concentrations in the blood throughout the period of greatest malarial risk.

SMC in Nigeria

Nigeria is made up of six geopolitical zones and 37 states including the Federal Capital Territory. Nigeria has a tropical climate with wet and dry seasons. The dry season occurs from October to March and the wet season between April and September.

The geographic location of Nigeria makes the climate suitable for malaria transmission throughout the country. It is estimated that up to 97 percent of the country's more than 150 million people risk getting the disease. The remaining 3 percent of the population who live in the mountains in southern Jos (the Plateau State), at an altitude ranging from 1,200 to 1,400 metres, are at relatively low risk for malaria:



This map is a product of the MARA/ARMA collaboration (<http://www.mara.org.za>). 7 months 2001, Medical Research Council, PO Box 17120, Congella, 4013, Durban, South Africa
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 Malaria seasonality model: Tanser, F et al. 2001. Paper in preparation. Topographical data: African Data Sampler, WRI, http://www.igc.org/wri/foct/maps/ads/ads_idx.htm.

The duration of the malaria transmission season in Nigeria

The areas of northern Nigeria where malaria transmission lasts less than four months present an opportunity for those at risk to benefit from the implementation of SMC. Whereas the feasibility and effectiveness of SMC has been demonstrated elsewhere, the approaches to implementation, which require high coverage levels, have to be contextualised to fit the local setting.

Thus there was a need to explore possible approaches in the Nigerian context that will provide effective delivery systems for the eventual scaling up of the intervention to cover areas in northern Nigeria with highly seasonal malaria transmission.

Katsina state was selected because it is within the appropriate malaria transmission zone suitable for conducting an assessment of SMC, it has existing community-based delivery systems on which to develop a SMC delivery system. The state is located in the north-west zone of Nigeria, and constitutes 34 local government areas (LGAs) with a total estimated population of 6,916,641 in 2012 (1,383,328 under five years).

Malaria is endemic in Katsina state with all year round transmission at levels below national averages, with a seasonal peak between the months of August and November coinciding with the peak of the raining season. Of the 14 Four LGAs, four LGAs were selected as the site for the assessment of SMC delivery. These all exhibited a seasonal pattern of malaria burden as illustrated in Figure 2 below ⁽⁵⁾.

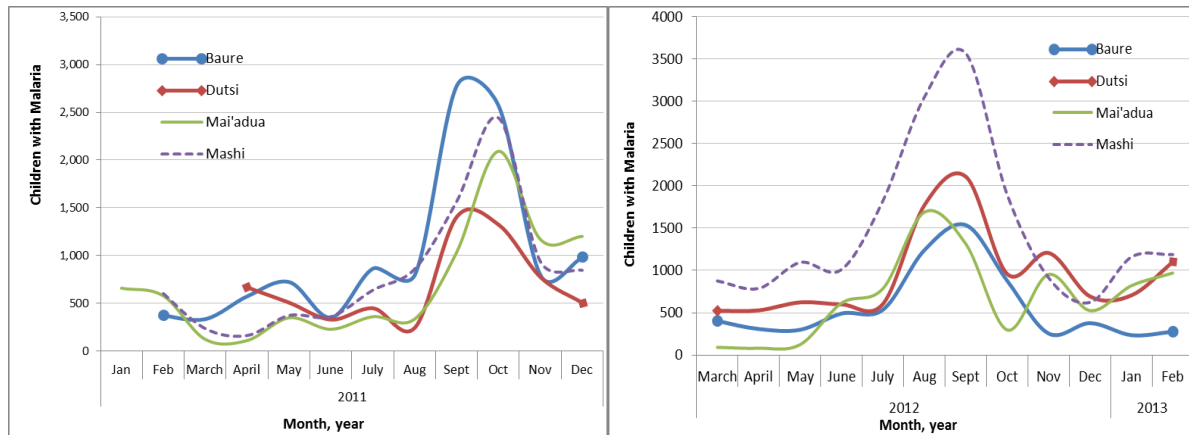


Figure 2: Malaria burden in four LGAs in Katsina state, 2011 and 2012

The SMC project

SMC delivery was conducted during two rainy seasons over two years. The intervention was delivered in two phases. In the first phase, the intervention was rolled out in two of the four selected LGAs in the 2013 transmission season, i.e. Baure and Mashi LGAs, and in all four in the 2014 transmission season. The intention is to allow some learning in the first round to feed into the second round, and also ensure that sufficient human resources are available by the time of full scale implementation in the four LGAs.

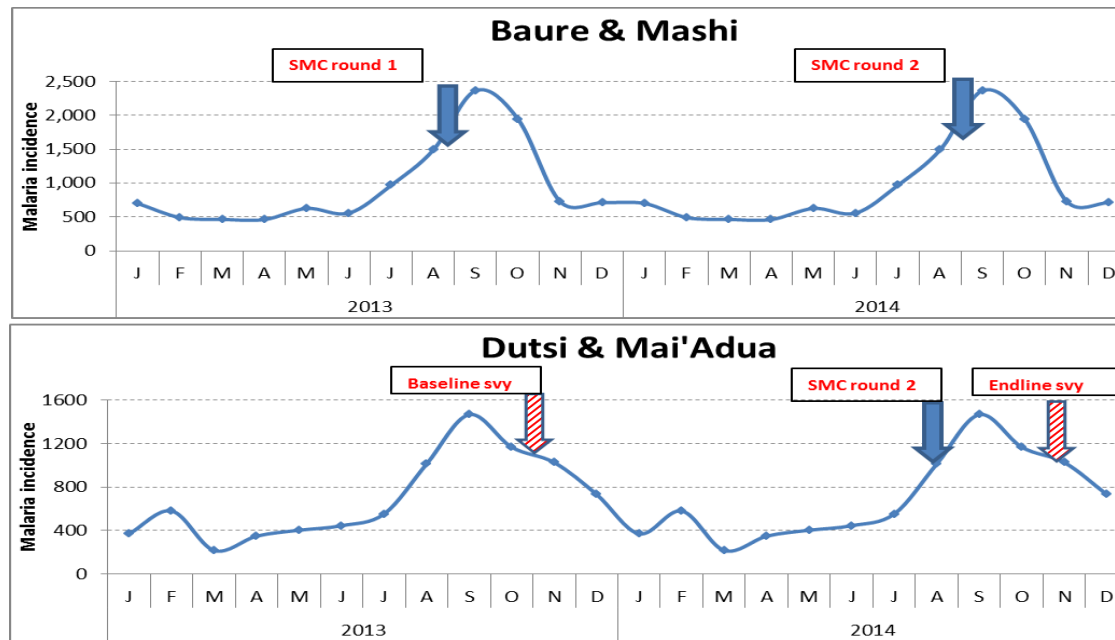
The intervention was delivered by a combination of community based methods and fixed posts. In the community, community caregivers receive appropriated training before the intervention begun and were supervised by the appropriate staff within the health system. The drug was given to children in three single doses over three months during the course of the transmission season. The goal of the project is to improve child health outcomes in Katsina state, northern Nigeria, through increased access to SMC, exploring the feasibility, acceptability, and costs of community-based SMC delivery systems; and informing the development of guidelines and ongoing implementation, and potentially scale up, plans for SMC within the health system.

Results

1. Baseline and endline surveys

Two cross sectional surveys were planned to be conducted to assess coverage and acceptability of SMC. The surveys were conducted at two time intervals, at baseline i.e. before SMC delivery and at the end of the second transmission season. The specific objectives of the surveys were to:

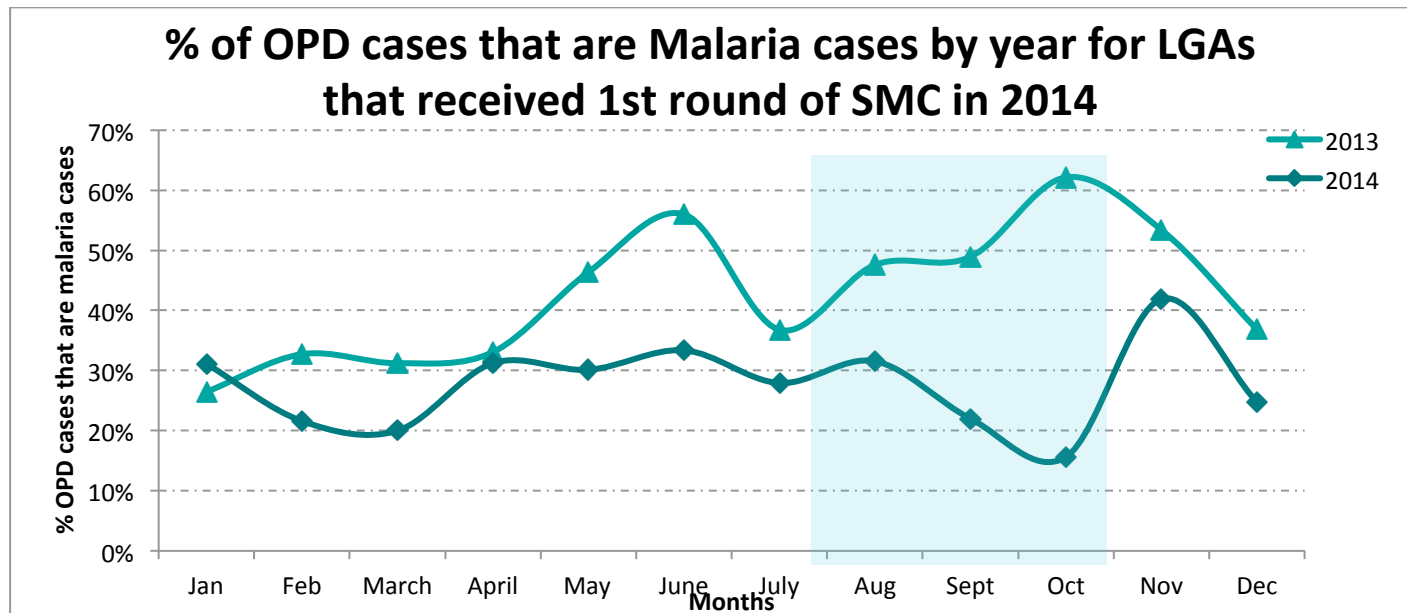
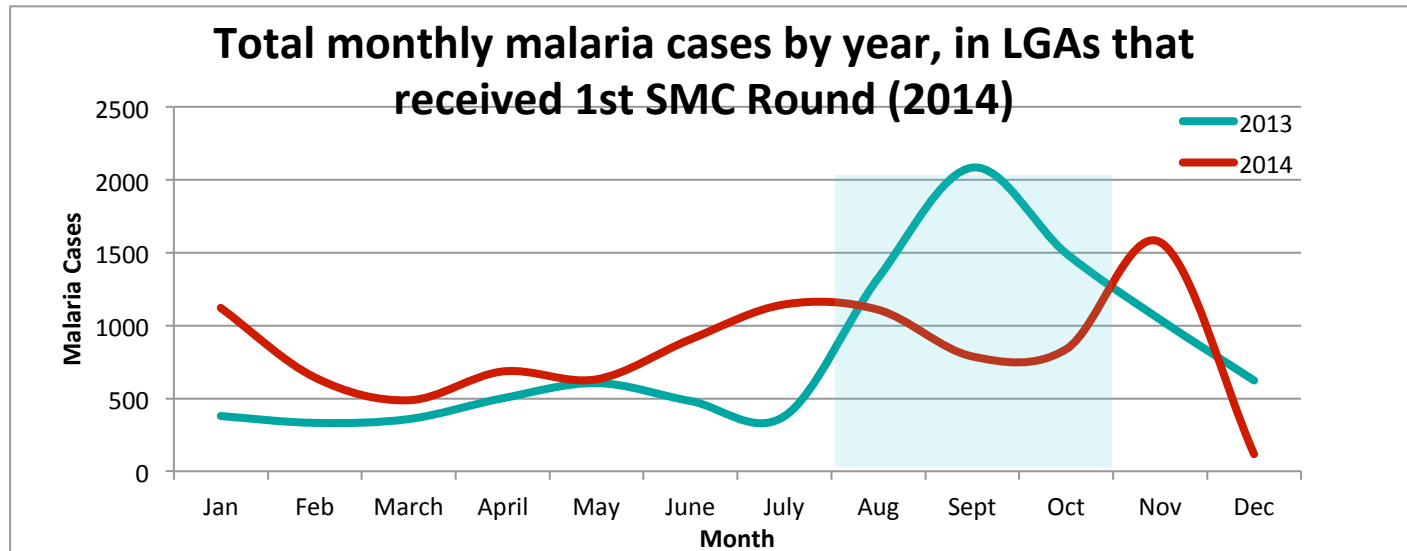
1. To measure SMC coverage across the LGAs where SMC was implemented
2. To assess the knowledge, and acceptability of SMC in the implementation area
3. To measure the child morbidity due to malaria and health seeking behavior of their caregivers
4. To assess anaemia, malaria parasite, and malnutrition prevalence among children under five



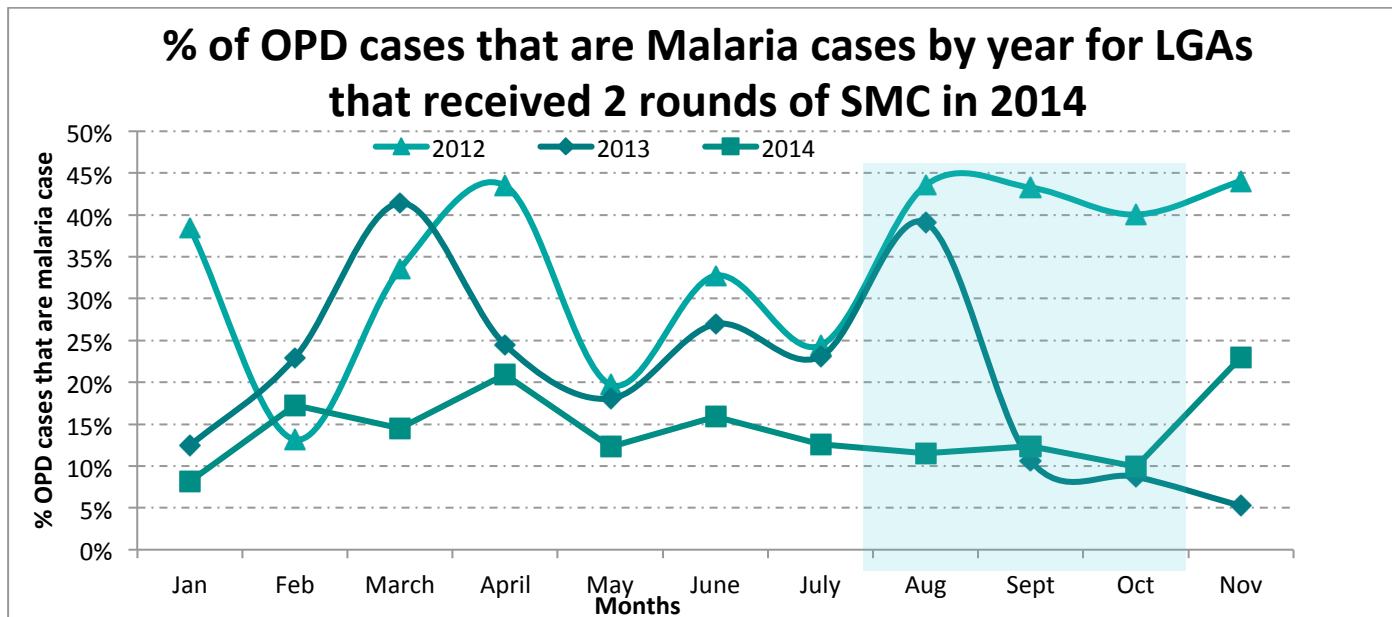
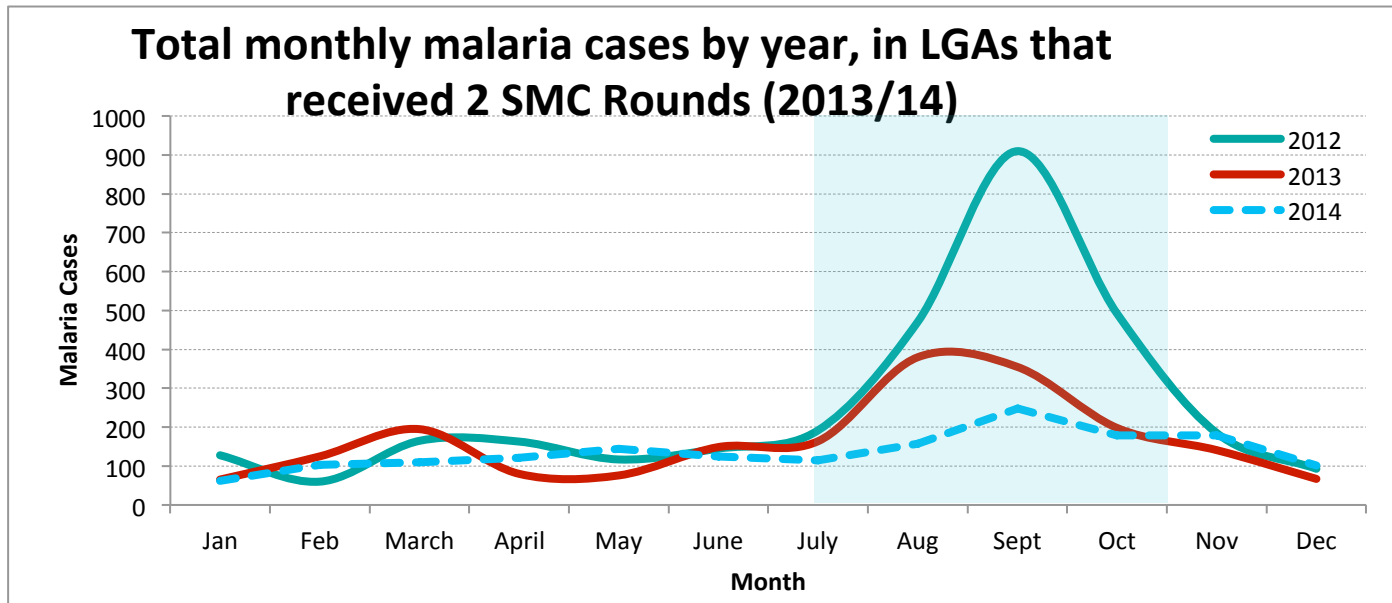
* Timing of the surveys

2. Demonstrated effect of SMC (Sentinel PHC Data)

(A) 1st round 2014 (Dutsi & Mai'adua, 1 round)



(B) 1st round 2013 (Baure & Mashi, 2 Rounds)



3. Cost Analysis

Cost of SMC disaggregated by project phase and cost type

Phase	Cost type		Total (\$)
	Financial (\$)	Economic (\$)	
Design	120,287.96	-	120,287.96
Start-Up	308,096.39	-	308,096.39
Service Delivery	906,768.53	183,299.94	1,090,068.47
Totals	1,335,152.88	183,299.94	1,518,452.82

Percentage contribution of cost categories to the total economic cost

Cost Category	% cost in 2013	% cost in 2014
		Total number of children covered = 487,354
Communication	0.46%	1.0%
Supervision	0.5%	2.4%
Distribution costs	0.2%	0.5%
Meetings	0.5%	0.7%
International Travel	1.1%	0.6%
Overheads	2.0%	3.4%
Procurement	31.3%	41.2%
Opportunity Cost	3.5%	7.0%
Domestic Travel	8.8%	5.8%
TA	10.8%	7.5%
Training	14.1%	11.4%
HR	26.6%	18.7%
Total	100%	100%