

# Impact assessment of seasonal malaria chemoprevention using routine health surveillance data in Kogi state, Nigeria

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## Introduction

In Nigeria, malaria infection is a major cause of mortality and morbidity among children under five, accounting for 95,000 deaths annually.<sup>[1]</sup> Our seasonal malaria chemoprevention (SMC) campaigns provide under-fives with antimalarials to prevent malaria infection during the rainy season, when malaria transmission is at its peak.<sup>[2]</sup> In Kogi state, SMC implementation took place between June and October 2021. We used routine surveillance data from the routine health management information system to compare SMC impact in implementing and control areas.

## Methods

- We used propensity score matching to select three intervention and three control local government areas (LGAs) with similar meteorological characteristics, population size and malaria epidemiology.
- In selected primary health facilities, we extracted data from outpatient daily registers for 2021.
- We compared monthly incidence rates of confirmed malaria cases in the intervention and control LGAs.
- SMC impact was estimated by fitting a negative binomial regression model to measure outcomes.
- Results were expressed as incidence rate ratios (IRR) with 95 percent confidence intervals (95% CI).

## Results

- We extracted a total of 4,067 records from the outpatient daily registers: 2,206 and 1,861 from intervention and control health facilities, respectively, over 12 months.
- After adjusting for rainfall, month and age, the rate of confirmed malaria cases was almost two times lower among children 3–59 months in the SMC implementing LGAs, compared to non-implementing LGAs (IRR=0.508, 95% CI: 0.407–0.64, p<0.001).

## Conclusion

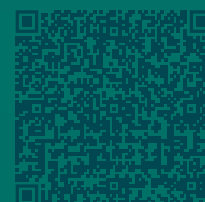
We found evidence of an association between SMC and confirmed malaria cases using health facility data. The SMC intervention reduced the malaria incidence rate by 49.2 percent in the intervention LGAs compared with control LGAs. Incidence of confirmed malaria among eligible children in the intervention LGAs was significantly lower during months when SMC was implemented. We did not observe a similar reduction in control LGAs.

## References

- Dasgupta RR, Mao W, Ogbuonji O. *Addressing child health inequity through case management of under-five malaria in Nigeria: An extended cost-effectiveness analysis*. Malaria Journal, 2022; 9(1): 81.
- World Health Organization. *World malaria report 2021*. Geneva: World Health Organization; 2021.

# Routine data can measure SMC impact if appropriate methods for selecting a comparison group are employed

malaria  
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disease control, better health



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## Supplementary visuals

Figure 1: Proportion of confirmed uncomplicated malaria among eligible children in both SMC-implementing and non-SMC implementing local government areas

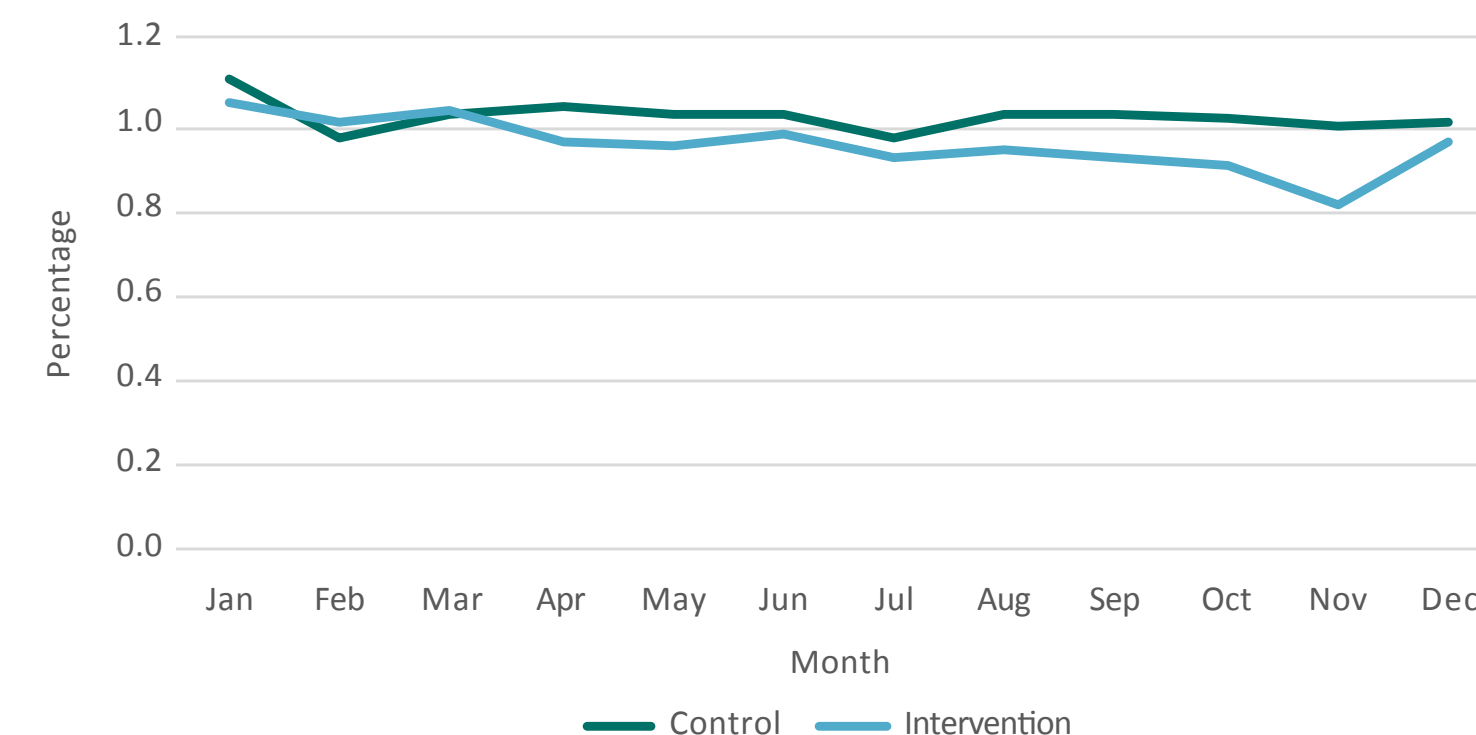
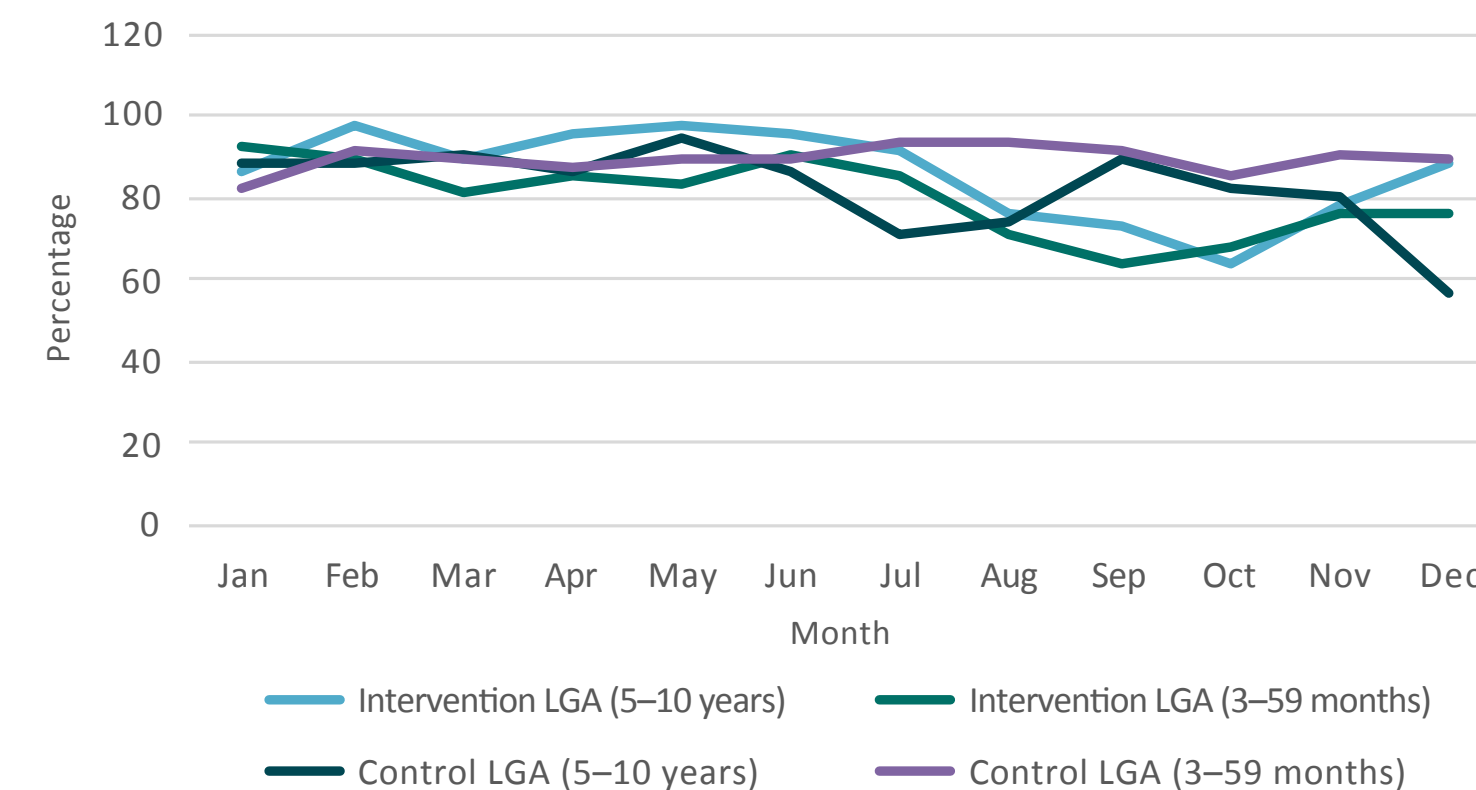


Figure 2: Proportion of confirmed uncomplicated malaria cases in children 3–59 months and 5–10 years in local government areas where SMC was implemented



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