



Read more
bit.ly/3LvU7V

Assessing the impact of extending seasonal malaria chemoprevention from four to five monthly cycles in Burkina Faso

Chukwudi A. Nnaji,¹ Benoit Sawadogo,² Sidzabda Kompaore,³ Monica A. de Cola,¹ Cheick Compaore,² Christian Rassi¹

¹ Malaria Consortium, United Kingdom

² Malaria Consortium, Burkina Faso

³ Permanent Secretariat for Malaria Elimination, Ministry of Health, Burkina Faso

Extending seasonal malaria chemoprevention from four to five cycles was associated with further reductions in malaria incidence and deaths in Burkina Faso.

Introduction

Seasonal malaria chemoprevention (SMC) typically involves administering antimalarial medicines to eligible children over four monthly cycles during periods of high malaria transmission.^[1] In 2021, as part of a stratification exercise to inform subnational tailoring of malaria interventions, a fifth monthly SMC cycle was introduced in districts with longer high transmission seasons in Burkina Faso.^[2,3] There is currently no real-world evidence on the impact of adding a fifth monthly cycle. This study assesses the impact of an additional cycle of SMC on malaria incidence and mortality using routine surveillance data.

Methods

- Routine malaria surveillance data were analysed from 19 districts that transitioned from four to five SMC cycles in Burkina Faso for the period 2015–2021.
- Newey-West interrupted time-series analysis and negative binomial regression models were used to explore and compare district-level monthly trends of malaria incidence and deaths between the periods of four and five SMC cycles.
- Models were adjusted for time-varying factors such as population growth, health-seeking behaviour and malaria testing rates. Impact was measured in terms of incidence rate ratios (IRRs) and their corresponding 95 percent confidence intervals (95% CI).

Results

- A general decline in the peak incidence of reported malaria cases was observed across districts, following the introduction of the fifth cycle in 2021.
- Compared with the four-cycle (pre-2021) period, the incidence of malaria confirmed by a rapid diagnostic test was lower in the five-cycle period (2021), with an IRR of 0.91 (95% CI: 0.85–0.97, p=0.004).
- A more significant reduction in malaria-related deaths was observed in the five-cycle period compared with the four-cycle period, with an IRR of 0.09 (95% CI: 0.07–0.11, p<0.001).

Conclusion

This study shows the potential impact of introducing a fifth monthly SMC cycle in areas with longer high-transmission seasons, showing observed reductions in peak malaria transmission, incidence and deaths. Further research involving more robust and additional data points over an extended period of time is needed to better understand the impact of extending SMC delivery from four to five monthly cycles, and to better understand which areas would benefit from introducing a fifth cycle.

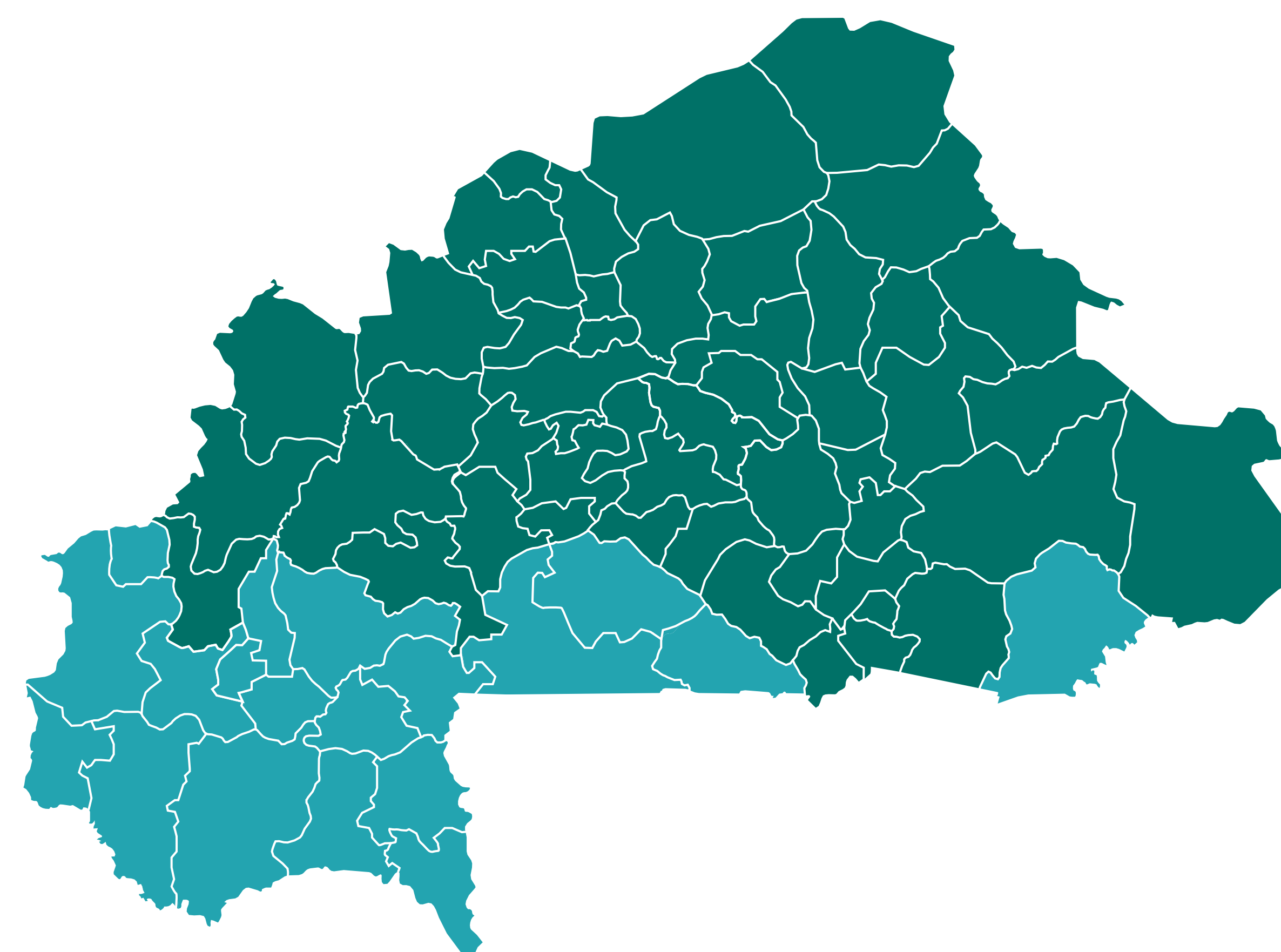
Results

Table 1: The impact of adding a fifth SMC cycle on mean monthly malaria incidence

Outcome	Period	Mean monthly incidence/death* (±SD)	Crude IRR (95% CI)	p value	Adjusted IRR (95% CI)	p value
Incidence	Pre-2021 (four cycles)	15394.19 (8856.98)	Reference	0.344	0.91 (0.85–0.97)	0.004
	2021 (five cycles)	14665.43 (9937.42)	0.95 (0.86–1.05)			
Death	Pre-2021 (four cycles)	27.4 (36.95)	Reference	<0.001	0.09 (0.07–0.11)	<0.001
	2021 (five cycles)	2.71 (6.66)	0.10 (0.08–0.13)			

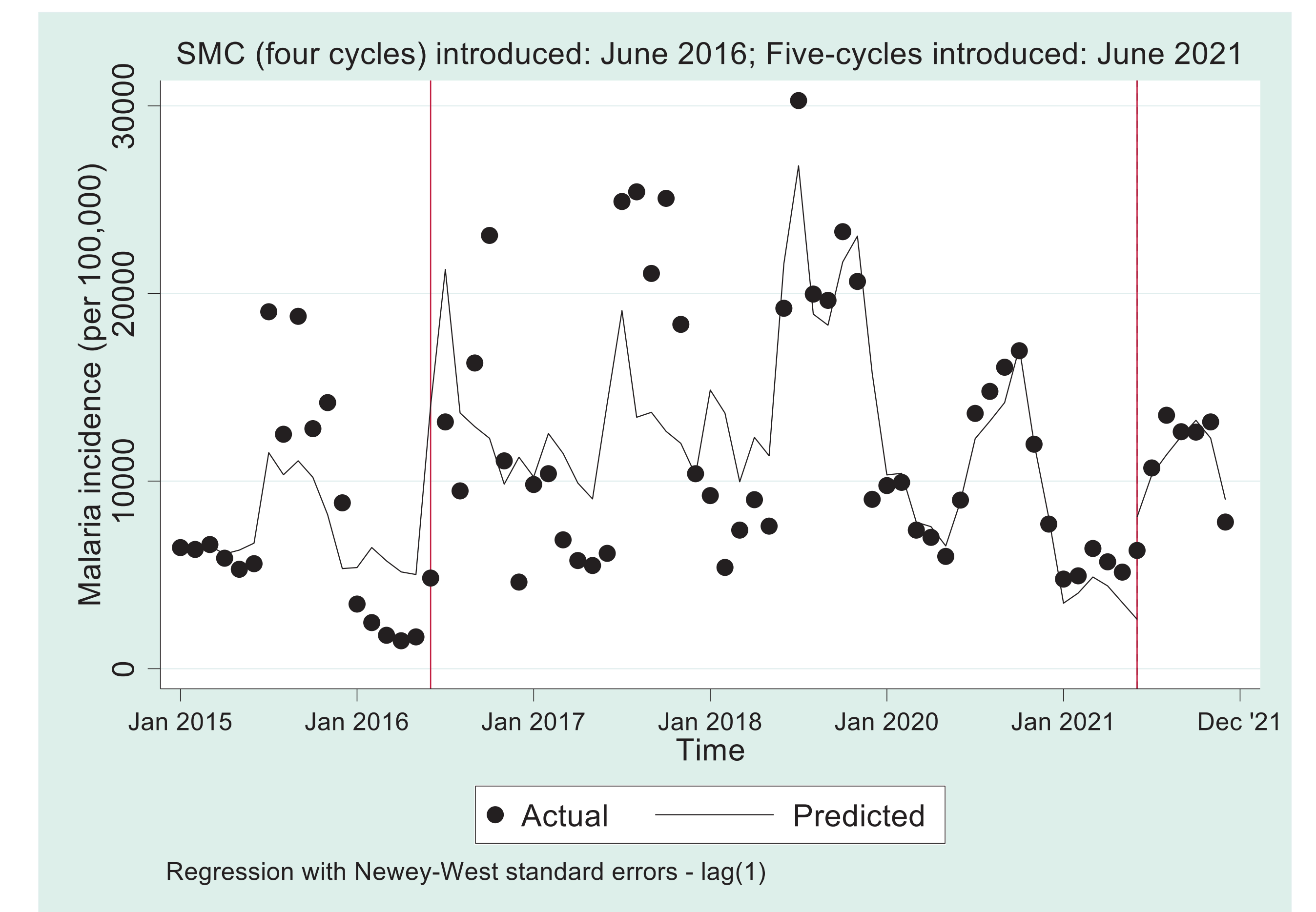
SD = Standard deviation; IRR = incidence rate ratio; *in children five and under per 100,000 people

Figure 1: Number of SMC cycles per district



- Four SMC cycles
- Five SMC cycles

Figure 2: District-level interrupted time series trend of monthly malaria incidence (Banfora district, 2015–2021)



Acknowledgements

The SMC programme is funded through philanthropic donations received as a result of being awarded Top Charity status by GiveWell, a non-profit organisation dedicated to finding outstanding giving opportunities. Authors also thank the Ministry of Health and Public Hygiene and the Permanent Secretariat for Malaria Elimination of Burkina Faso for supporting the acquisition of data used for this analysis.

References

1. World Health Organization. Guidelines for malaria. World Health Organization, 2023.
2. World Health Organization. Seasonal malaria chemoprevention with sulfadoxine-pyrimethamine plus amodiaquine in children: A field guide, second edition. World Health Organization, 2023.
3. Traore A et al. Extending seasonal malaria chemoprevention to five cycles: A pilot study of feasibility and acceptability in Mangodara district, Burkina Faso. BMC Public Health, 2022.