Fewer Bites for Your Buck: Changing the Frequency of ITN Mass Campaigns for Optimal Cost-Effectiveness

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Mass Campaign Intervals

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- **ITN effectiveness wanes** notably towards the end of a 3-year campaign cycle
- Mean **net retention** is typically **less than 2 years** in many sub-Saharan African countries

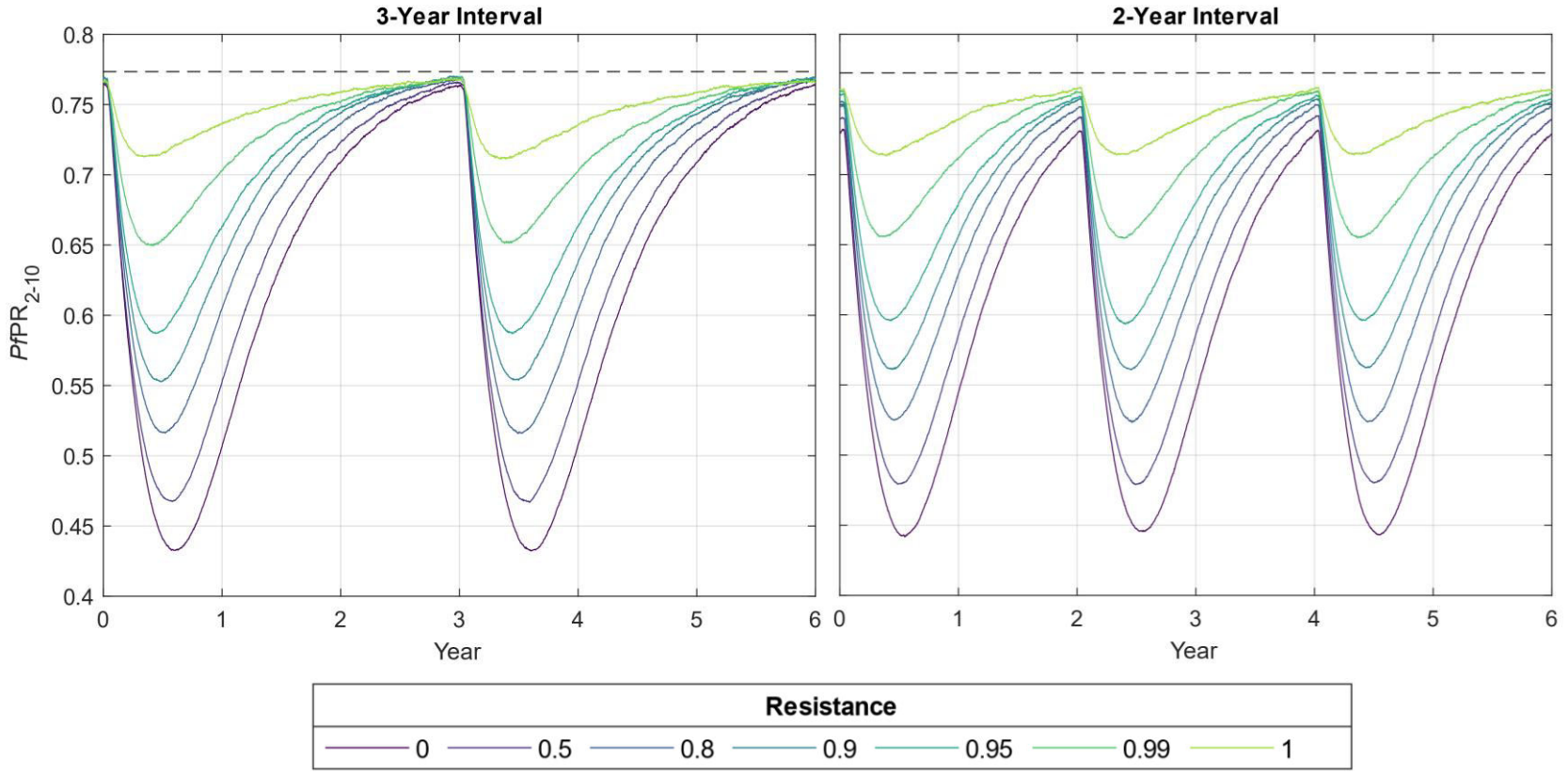

Figure A: $PfPR_{2-10}$ in a high transmission setting with mean net retention of 2yrs

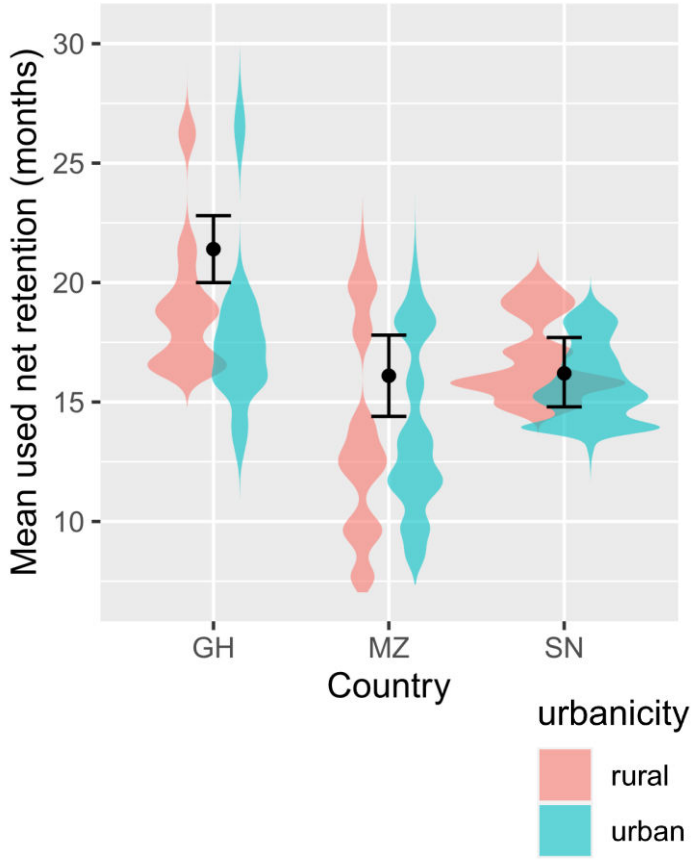

Figure B: National ITN retention

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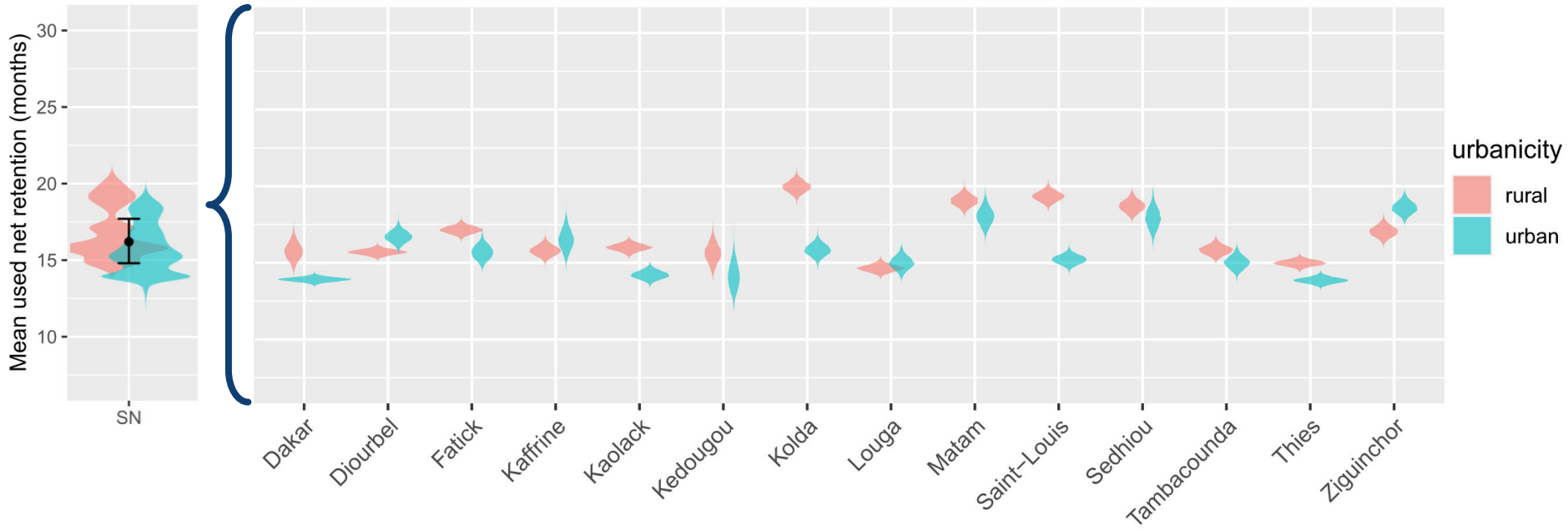
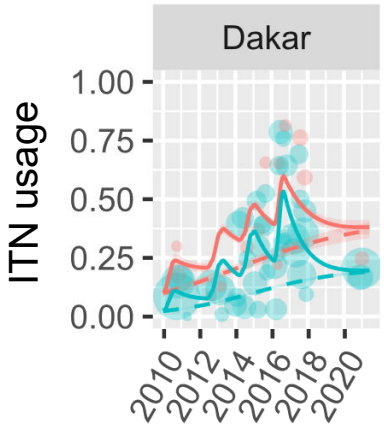
- Net-retention varies significantly sub-nationally



Cost-effectiveness of switching to 2-year campaigns will also depend on:

- Historical trends in usage (and access)



- In addition to:
  - Pyrethroid resistance
  - Transmission intensity
  - Seasonality
  - Other interventions (e.g. SMC)
  - Population growth
  - Human behaviour

Cases averted

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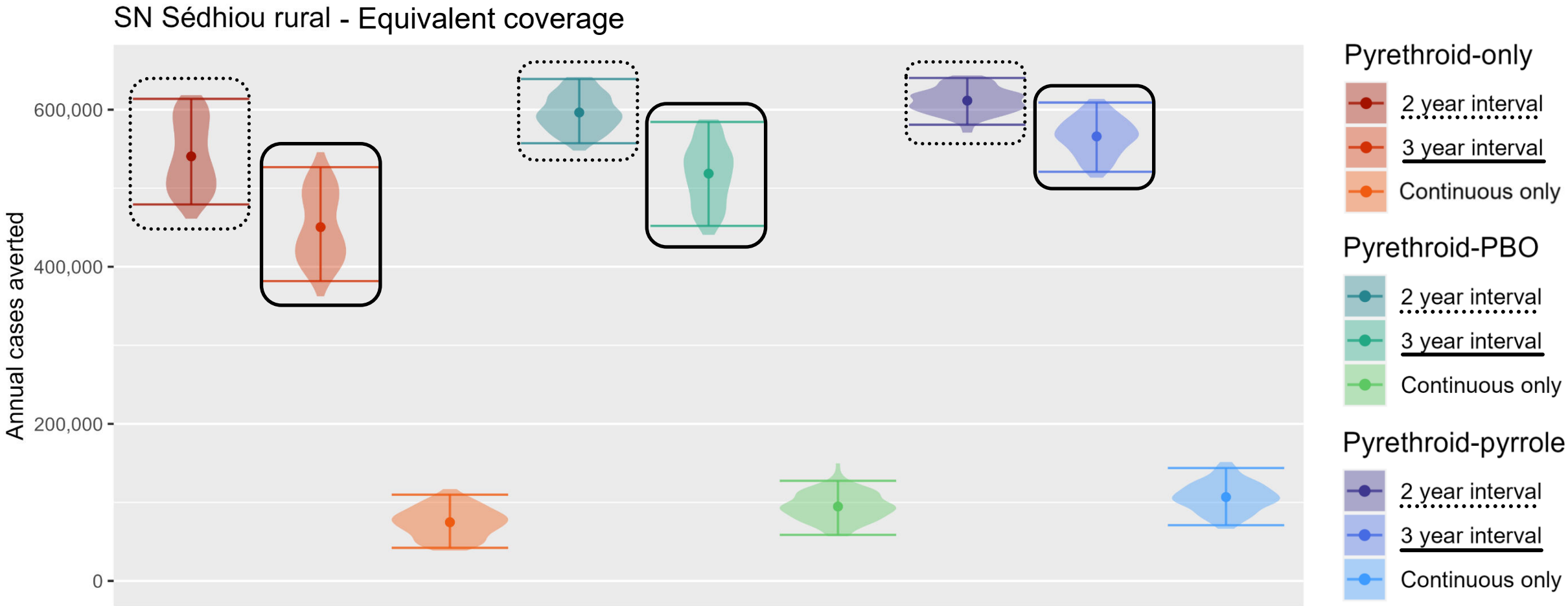

- **More cases averted** from switching from **3- to 2-year intervals** for equivalent campaign coverage
- **More cases averted** by switching from pyrethroid-only to **pyrethroid-pyrrole** over switching to pyrethroid-PBO ITNs for equivalent distribution strategies

Cases averted

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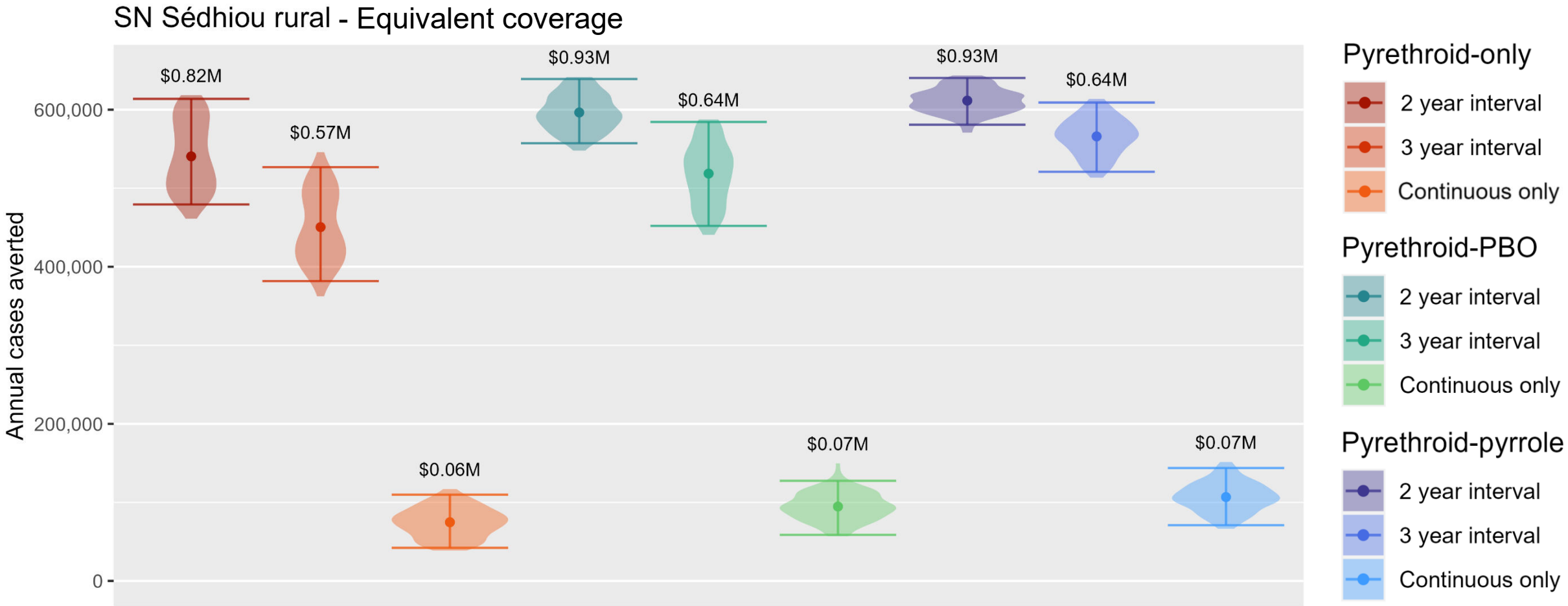

- Increased campaign frequency and switching to pyrethroid-PBO or -pyrrole nets will incur **greater costs**…
  …if the **same level of coverage** is achieved per campaign
- **Increased benefit** from **more effective** nets than increased campaign frequencies **per additional $USD** spent

Cases averted

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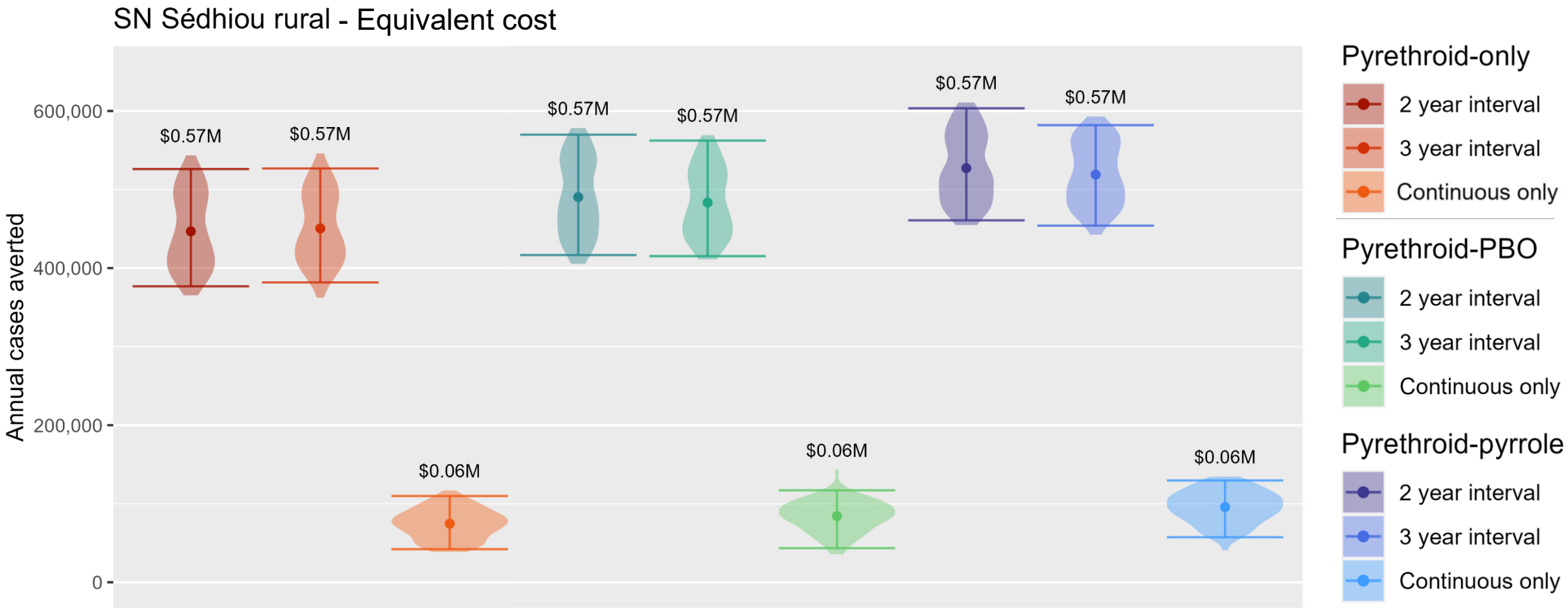
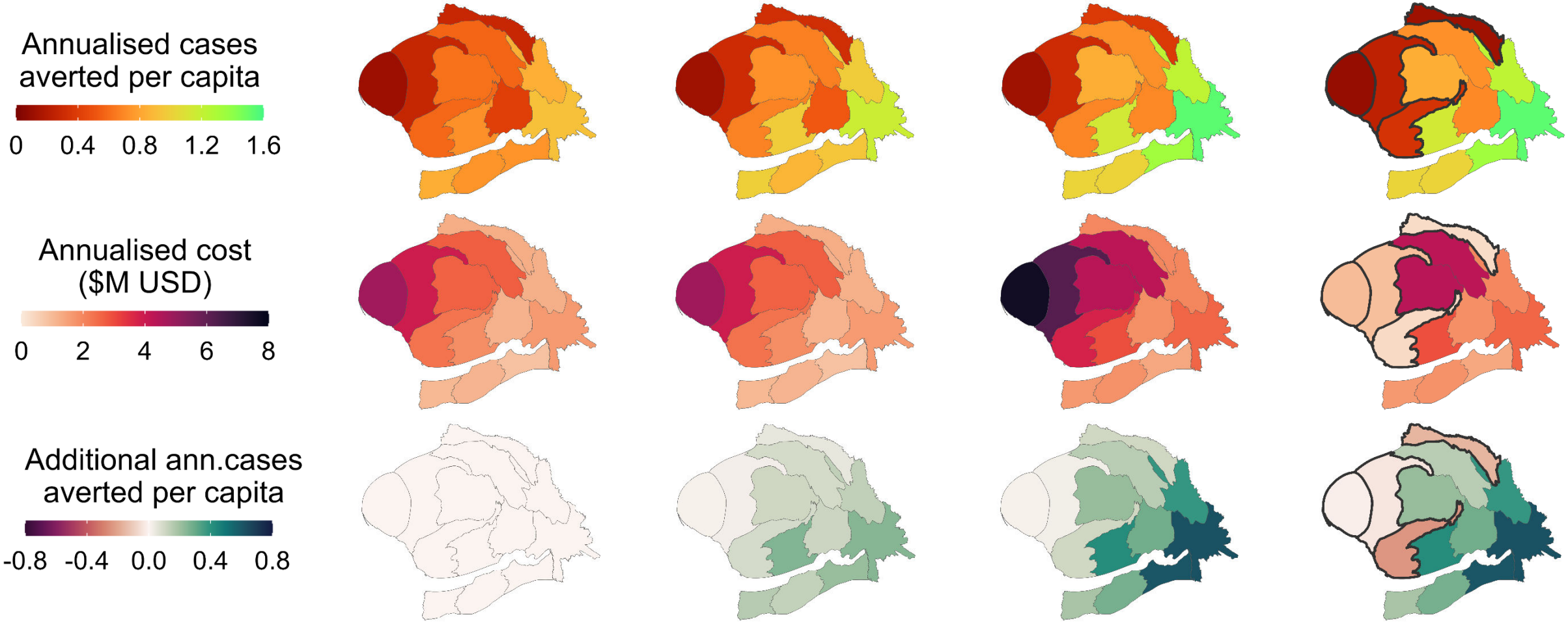


- If the coverage achieved is reduced for **equivalent average annual costings** then:
  - The projected **cases averted** under a **2-year** distribution strategy remains **unchanged** in this setting
  - **More cases can be averted** for the same cost from switching to **fewer, but better nets**



ITN strategy	Pyrethroid-only 3-year campaigns	Pyrethroid-pyrrole 2-year campaigns (equivalent cost)	Pyrethroid-pyrrole 2-year campaigns (equivalent coverage)	Pyrethroid-pyrrole 2-year campaigns (equivalent coverage) with deprioritisation
National avg. annual cases averted (millions)	**12.1** (95% CrI: 10.7, 13.2)	**14.5** (95% CrI: 13.3, 15.6)	**17.0** (95% CrI: 16.0, 18.0)	**15.7** (95% CrI: 14.6, 16.8)
Avg. ann. cost (M USD)	**26.6**	**26.6**	**42.4**	**25.4**

Summary

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- Switching to **more effective ITN** types is likely to be **more beneficial** than increasing campaign frequencies
- **More cases can be averted** for the same cost from switching to **fewer, but better nets**
- Prioritising **2-year pyrethroid-pyrrole campaigns** in areas of higher transmission intensity, and **deprioritising** lower-transmission settings may be optimal under fixed budgets in **some settings**

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