

Improving Malaria Case Management Quality by Reducing Irrational Use of Antimalarials —A Systems-Thinking Approach in Four Southern States (Akwa Ibom, Cross River, Ebonyi and Oyo)

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INTRODUCTION

Nigeria has the highest global burden of malaria of any country, accounting for 27% and 31% of global malaria cases and deaths, respectively,¹ in 2022. **Accurate diagnosis and treatment are essential for effective malaria control.** The malaria test positivity rate (TPR) is an indicator measuring the effectiveness of interventions in reducing the malaria burden. TPRs in Akwa Ibom, Cross River, Ebonyi, and Oyo states remain high due partly to the inadequate capacity of health care workers to correctly conduct malaria diagnostic procedures (rapid diagnostic tests [RDTs] and microscopy) and/or the inaccurate reporting of test outcomes. Challenges such as the continued practice of presumptive treatment (treating suspected malaria cases without parasitological confirmation), reporting of falsely high TPRs, and frequent stock-outs of malaria commodities continue to affect the quality of case management. Quality case management hinges on the correct diagnosis and treatment of all malaria cases.

The US President's Malaria Initiative for States (PMI-S) Project supported the Akwa Ibom, Cross River, Ebonyi, and Oyo governments to train 5,174 health workers on malaria case management and conducted regular (monthly and quarterly) facility-based supervision of frontline health workers to improve the quality of service delivery. PMI-S also introduced an innovative strategy for archiving used malaria RDT cartridges for cross-checking against reported positive cases to verify accuracy and provided malaria commodities to 1,924 of the 2,978 public health facilities (65%) in the four states to improve commodity availability.

METHOD

- In this study, we examined four years of National Health Management Information System data (Oct. 2019–Sept. 2023) from 2,978 public health facilities across four states (Akwa Ibom: 538, Cross River: 1,065, Ebonyi: 534, Oyo: 841).
- We analyzed trends in clinical diagnosis, RDT stock-out rates, and malaria RDT positivity rates.

DISCUSSIONS AND CONCLUSIONS

- Presumptive diagnosis and TPRs decreased following the scale-up of service delivery support and reduced stock-outs of RDTs in the four states.
- Other interventions, such as insecticide-treated net mass distribution campaigns, held in the four states at different periods during the four-year study period also contributed to the reduction of TPRs.
- Supply chain and logistics management was strengthened by Global Health Supply Chain Procurement and Supply Management, which contributed to reduced RDT stock-out rates.
- The reductions in presumptive diagnosis and TPRs indicate significant improvement in quality malaria case management practices, which contributed to a reduction in presumptive treatment of malaria, fewer drugs wasted, and improvements in malaria commodity availability for patients who need them.

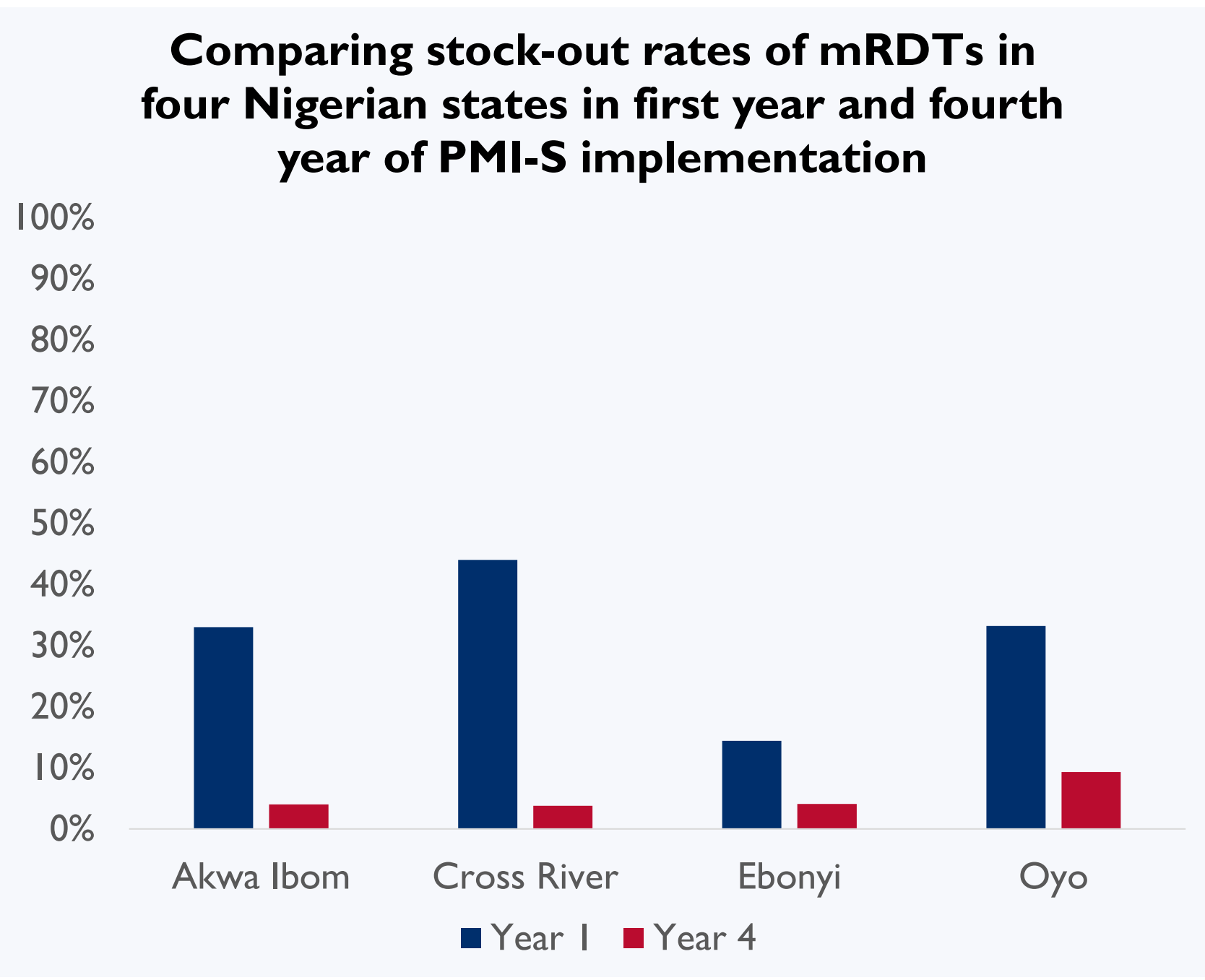
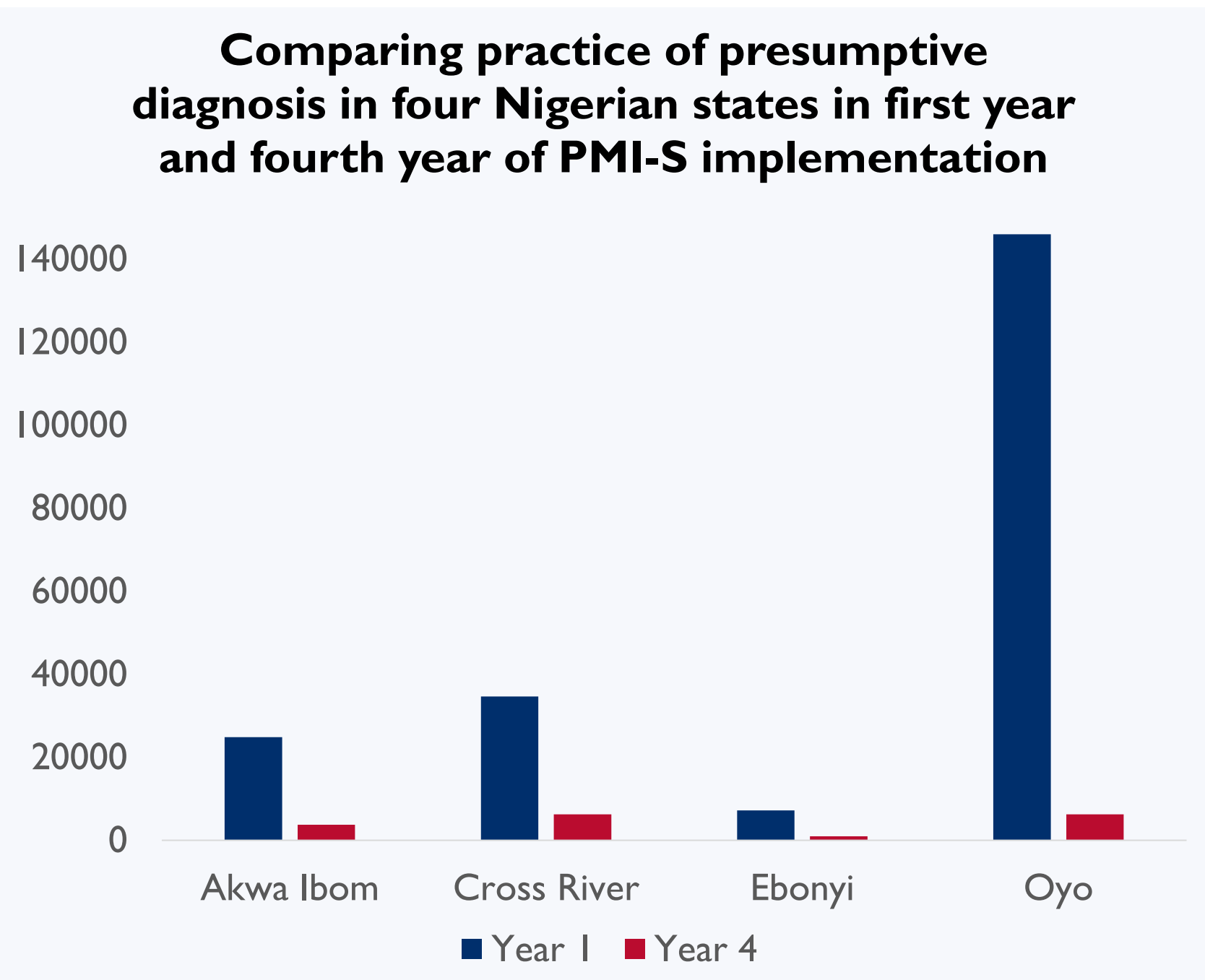
ACKNOWLEDGEMENT

The authors of this abstract wish to acknowledge the immense support of the following organizations for their contribution during the implementation of the PMI-S project:

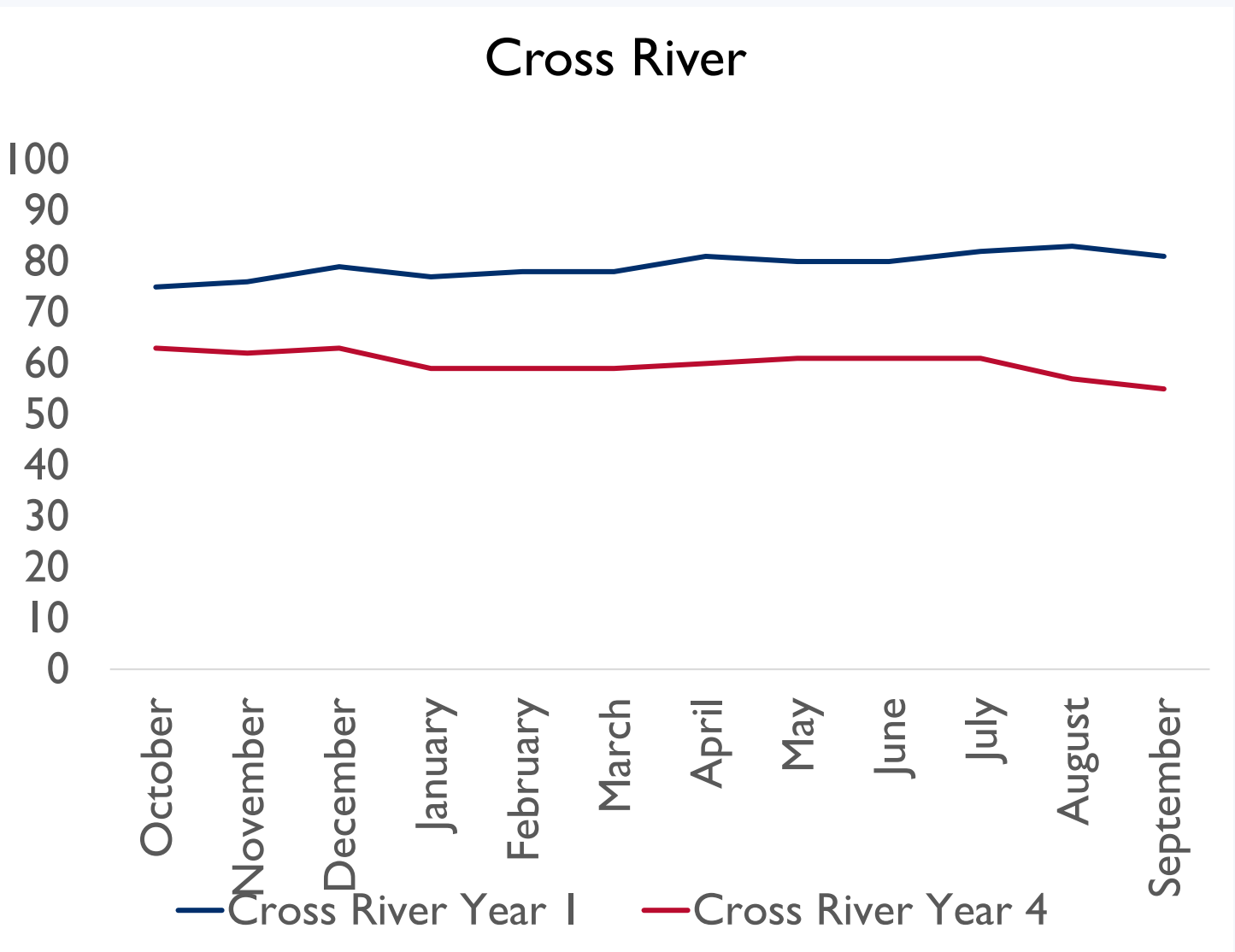
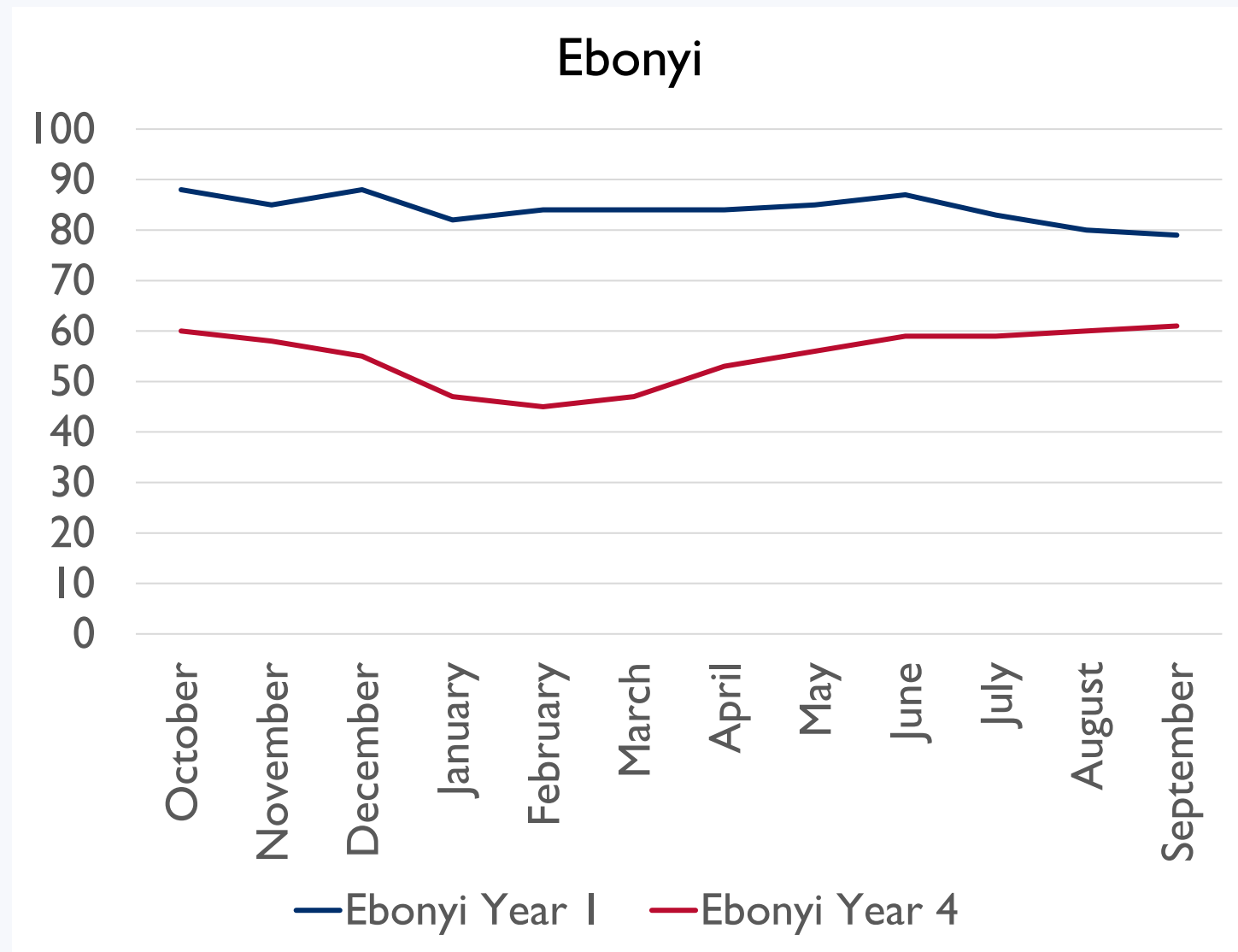
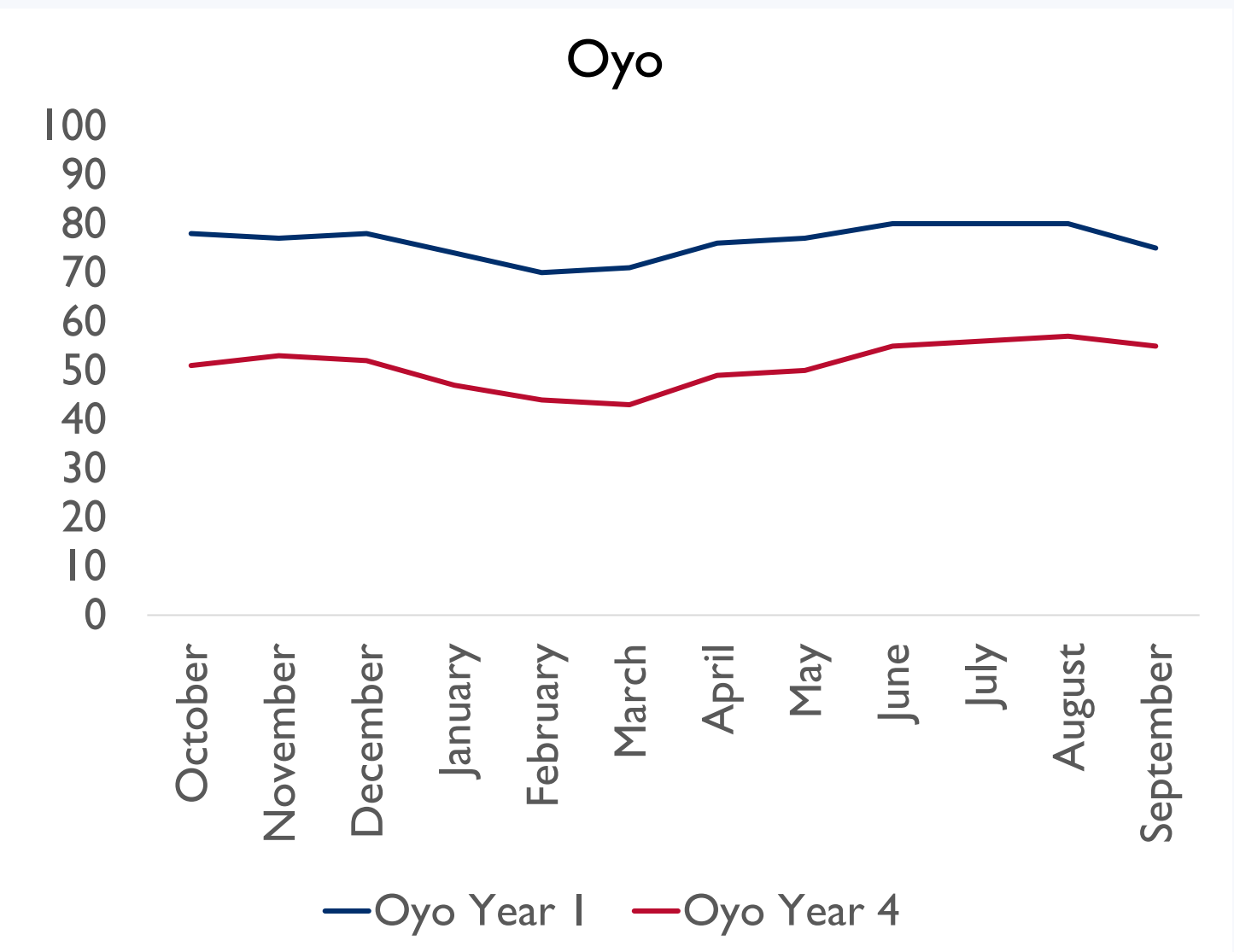
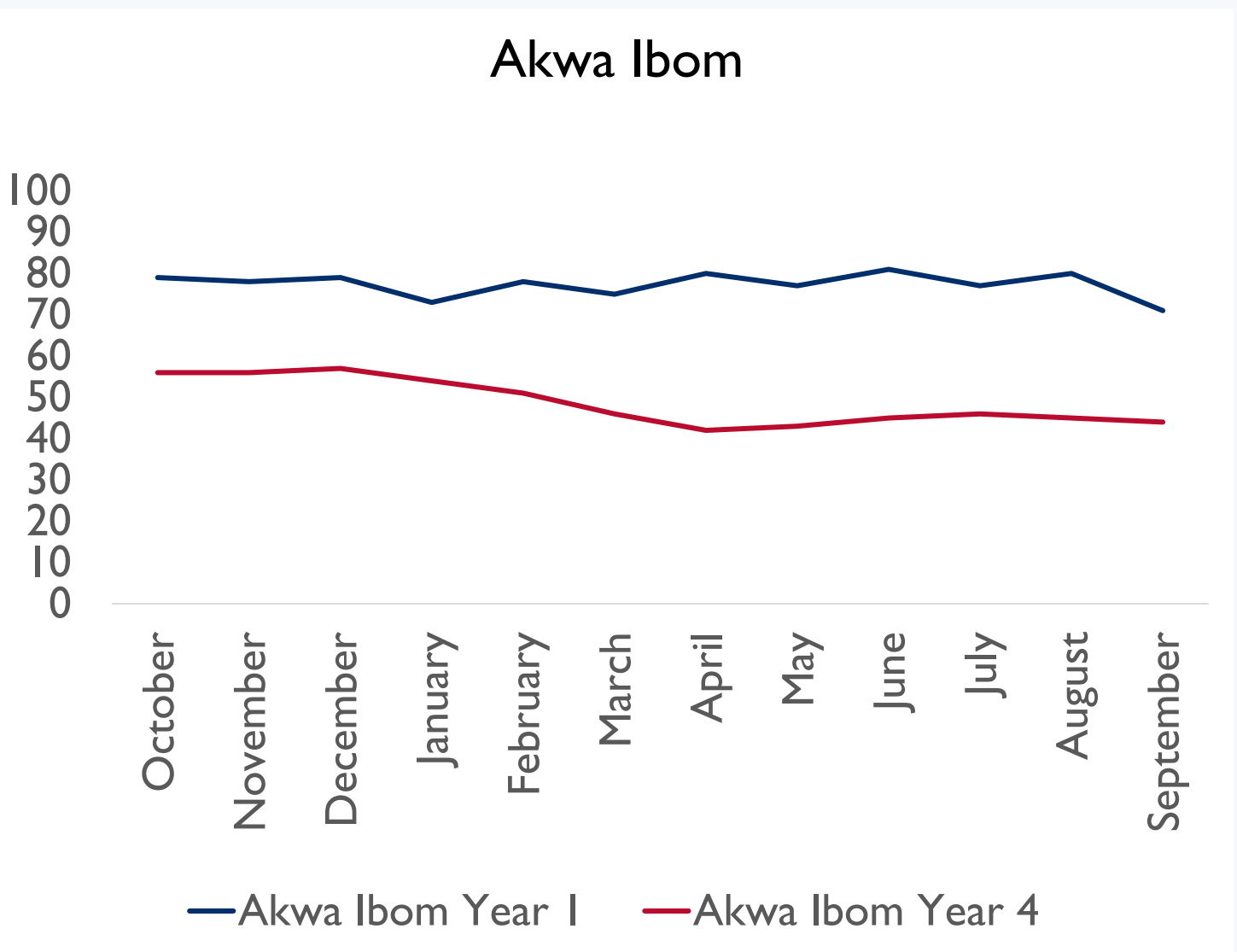
1. USAID/PMI 2. GHSC-PSM

RESULTS

- In the period from October 2019 to September 2020 (year 1), 24,853 (Akwa Ibom), 34,619 (Cross River), 7,214 (Ebonyi), and 146,008 (Oyo) fever cases were clinically diagnosed with malaria—diagnosed without testing—representing 8.4%, 11.7%, 1.2%, and 26.3% of all malaria cases across the four states, respectively. From October 2022 to September 2023 (year 4), those percentages respectively dropped to 1.5%, 2.2%, 0.3%, and 1.4% of total malaria cases in the four states.
- In year 1, Akwa Ibom, Cross River, Ebonyi, and Oyo documented malaria RDT stock-outs at 33%, 44%, 14.4%, and 33.2%, respectively, which by year 4 dropped to 4%, 3.8%, 4.1%, and 9.3%.
- Malaria RDT TPRs declined from year 1 to year 4 in Akwa Ibom (76% to 49%), Cross River (79% to 60%), Ebonyi (81% to 55%), and Oyo (76% to 51%).
- Presumptive treatment—treatment not based on a diagnostic test result—was significantly ($p<0.0001$) reduced by 85% (Akwa Ibom), 82% (Cross River), 87% (Ebonyi), and 96% (Oyo) from year 1 to year 4 (t -test=5.77).



Comparing test positivity rates in the first and fourth years of PMI-S implementation across the four states



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