Chemoprevention options from seasonal malaria chemoprevention non-eligible areas: Experiences from Nigeria

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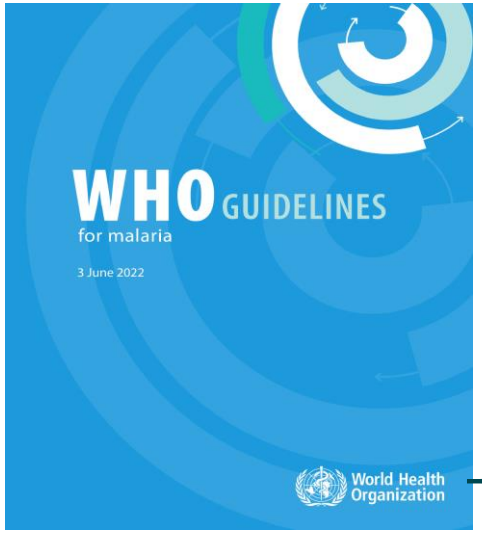
Recommendations for chemoprevention



The latest WHO guidelines for malaria highlight five chemoprevention strategies
[WHO, June 2022]

SMC Seasonal malaria chemoprevention is the intermittent administration of a curative dose of antimalarial medicine during the malaria season, regardless of whether the child is infected with malaria.

PDMC Post-discharge malaria chemoprevention (PDMC) involves providing a full therapeutic course of an antimalarial medicine at predetermined times after discharge from the hospital to severe anaemia patients living in moderate to high malaria transmission settings to reduce readmission and death.

PMC Perennial malaria chemoprevention (PMC) is the administration of a full treatment course of an antimalarial medicine at predefined intervals, regardless of whether the child is infected with malaria, to prevent illness in moderate to high perennial malaria transmission settings.

IPTp Intermittent preventive treatment during pregnancy (IPTp) involves giving antimalarial medicine at predefined intervals to pregnant women of all gravidities in malaria-endemic areas to reduce adverse pregnancy and birth outcomes.

MDA Mass drug administration (MDA) involves giving antimalarial medicine as chemoprevention in areas with very low to low levels of *Plasmodium falciparum* transmission to reduce transmission.

High burden to high impact response

- In 2019, Nigeria responded to the global call to get the high burden to high impact (HBHI) countries back on track to achieve the 2025 Global Technical Strategy milestones.
- Context-specific analyses were conducted to identify appropriate intervention-mixes for the different epidemiological settings in the country to aid prioritisation and achieve impact.
- A combination of indicators was used to develop a malaria stratification map.

Malaria stratification: A combination of indicators

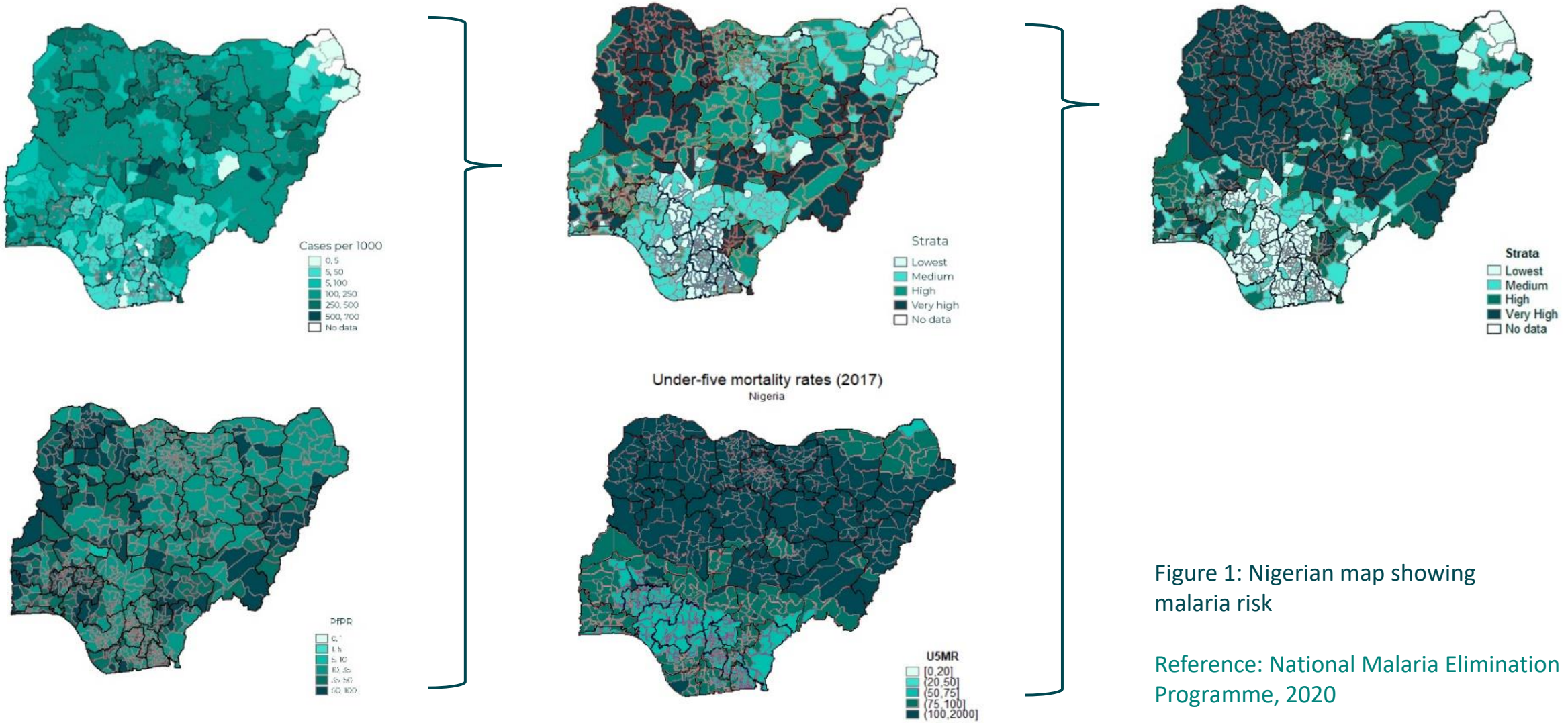


Figure 1: Nigerian map showing malaria risk

Reference: National Malaria Elimination Programme, 2020

Malaria chemoprevention in Nigeria

- A mix of malaria interventions were identified for different epidemiological strata in Nigeria, including chemoprevention targeting children and pregnant women.
- There are three chemopreventive therapies identified in the malaria stratification map, including:
    - IPTp
    - SMC
    - PMC

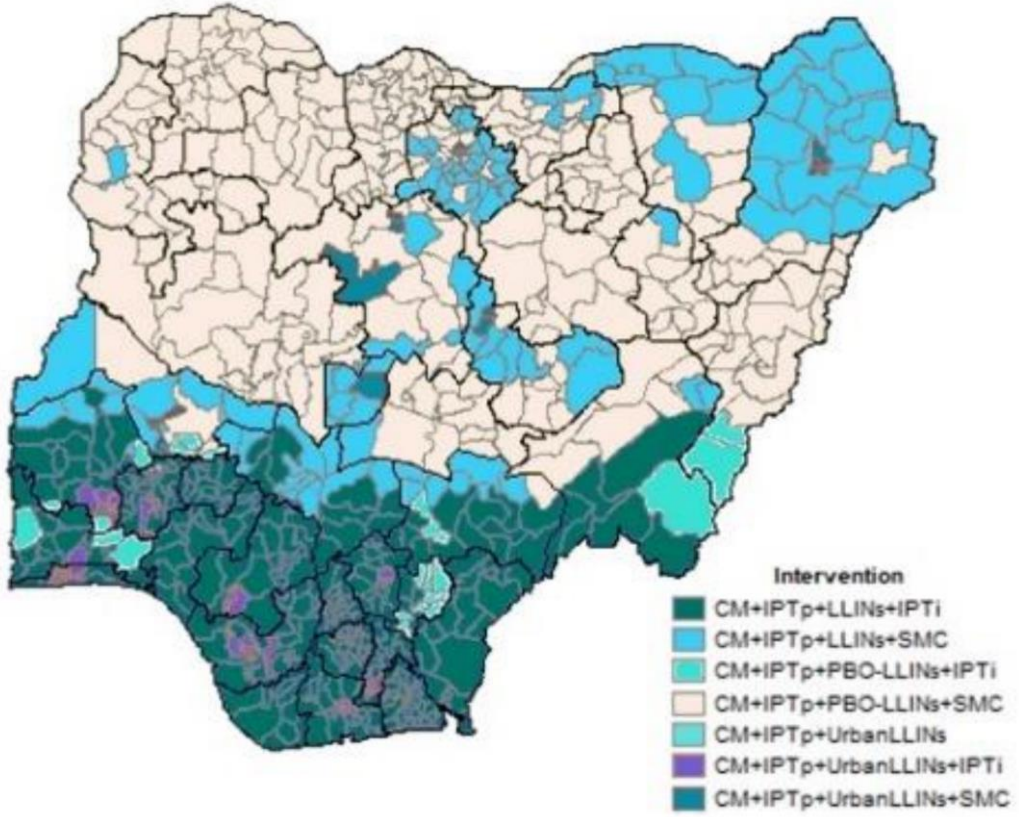


Figure 2: Nigerian map showing malaria interventions

Chemoprevention targeting children

SMC was scaled up and targeted all eligible children in 2022.

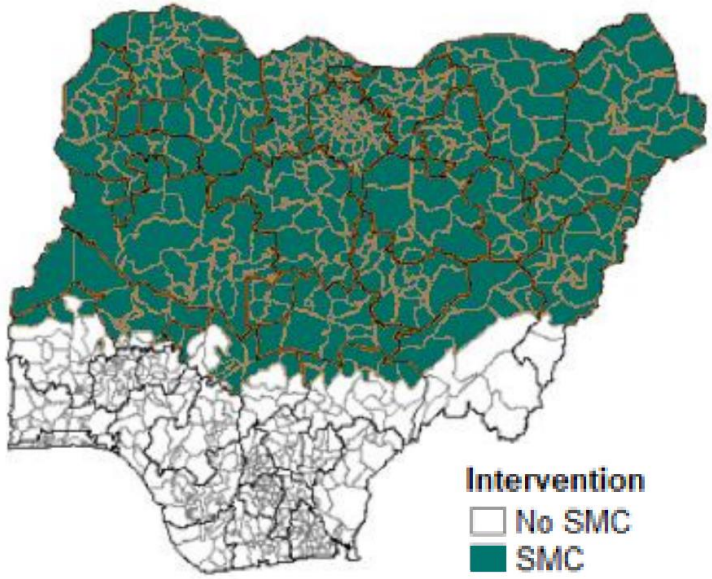


Figure 3: SMC eligible areas

SMC implementation mostly took place in northern Nigeria and the middle belt where transmission is seasonal.

PMC, formerly known as intermittent preventive treatment (IPTi), targeted children in South Nigeria.

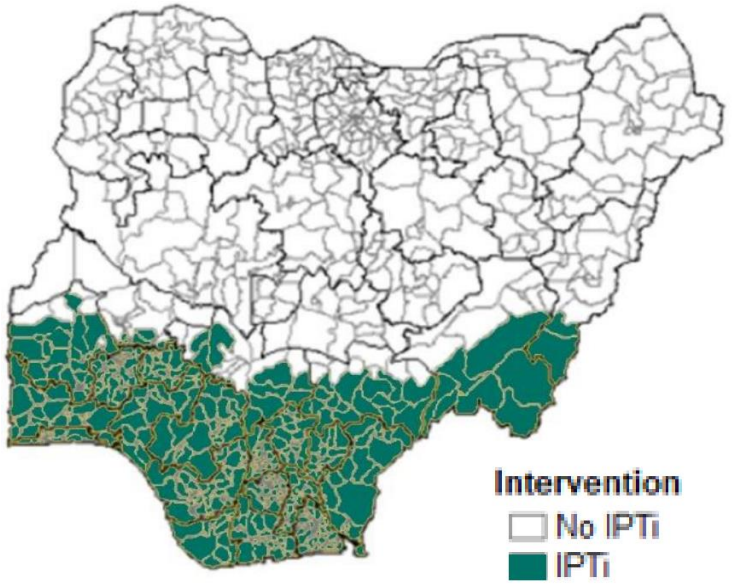


Figure 4: IPTi eligible areas

PMC is not yet recommended by national policies in Nigeria.

Perennial malaria chemoprevention

Updated WHO guidance for PMC

PMC is the administration of a full treatment course of antimalarial medicines at predefined intervals, regardless of whether the child is infected with malaria, in order to prevent illness in moderate to high perennial malaria transmission settings.

The term PMC was adopted in WHO's updated malaria guidelines in June 2022 to reflect the recommended transmission setting and extension from infancy to the second year of life.

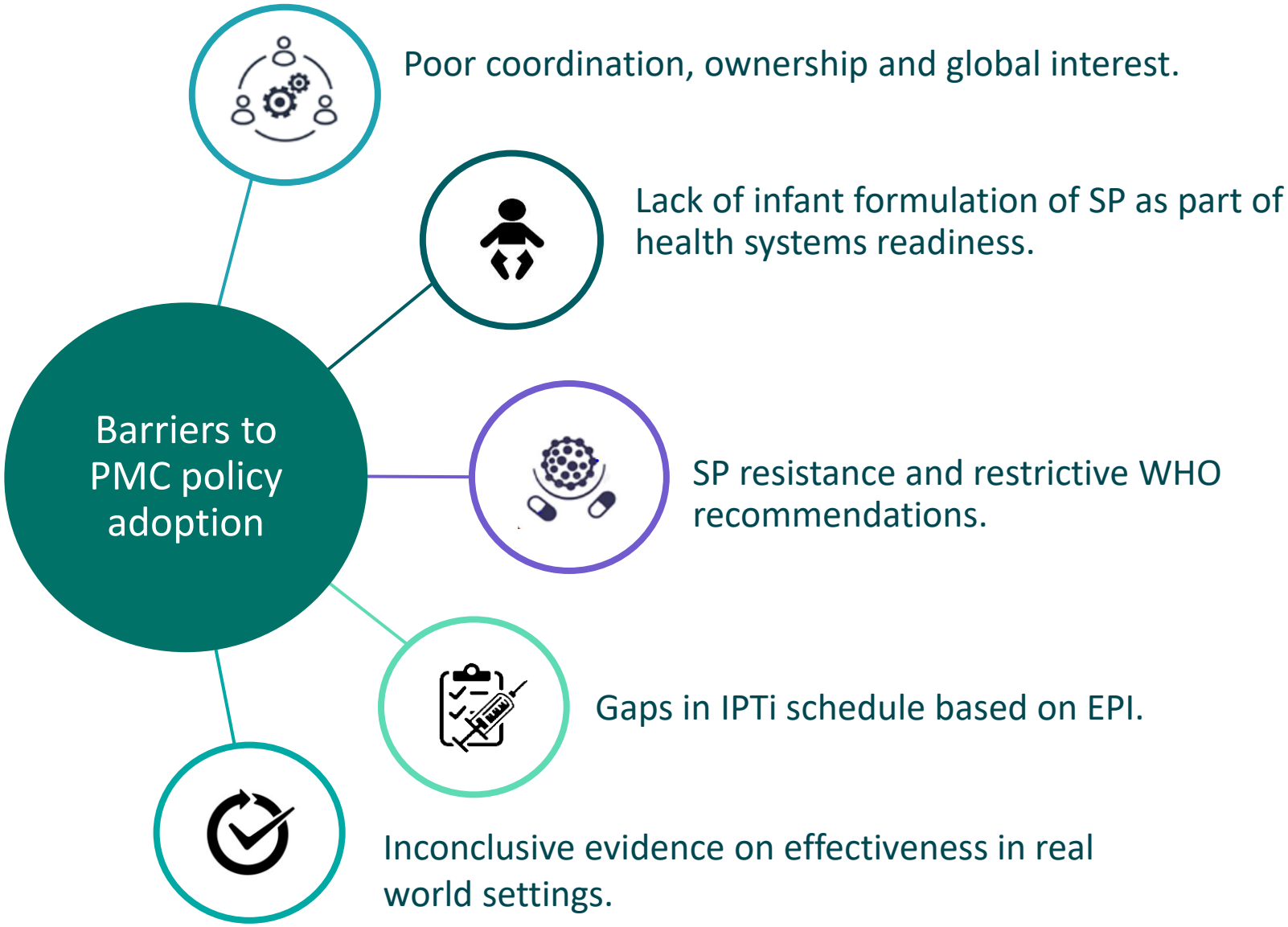
Flexibility in the number of touchpoints that can be given to optimise its effect (previously 10 weeks, 14 weeks and 9 months aligning with PENTA 2, PENTA 3 and measles vaccination).

The Expanded Programme on Immunisation (EPI) platform remains important for delivering PMC.

First-line antimalarial medicines should not be used for PMC. Sulfadoxine-pyrimethamine (SP) is preferable; it is efficacious, safe, well tolerated, available and inexpensive.

WHO, June 2022

Bottlenecks to policy adoption and scale up of PMC



References:
Audibert C et al, 2021.
Amimo F et al, 2020.
Armstrong Schellenberg JR et al, 2010.

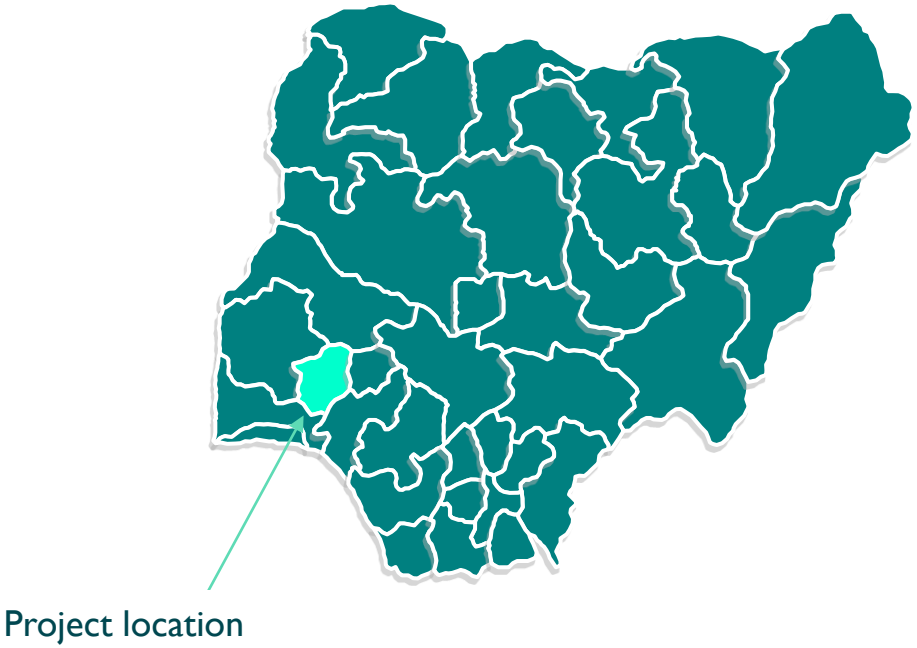
Current PMC implementation

- There is renewed interest in the implementation of PMC by countries including Benin, Cameroon, Côte d'Ivoire, Democratic Republic of the Congo, Ghana, Mozambique, Nigeria, Sierra Leone, Tanzania, Togo, Uganda and Zambia.
- Given the revisions to the intervention and limited implementation experience, generating evidence from its implementation across countries will facilitate scale-up.

PMC effect study in Nigeria

Background

- This study is being conducted in Osun state, Nigeria, to generate evidence to inform policy decisions.
- Osun state is located in the southwest of Nigeria with a population of 3,423,535 people.



Four-year project funded by BMGF

Donor

Bill & Melinda Gates Foundation (BMGF)

Partners

- Federal Ministry of Health, Nigeria
- London School of Hygiene & Tropical Medicine
- National Malaria Elimination Programme (NMEP)
- National Primary Health Care Development Agency (NPHCDA)
- Nigerian Institute of Medical Research (NIMR)
- Northwestern University.

Project objectives and endpoints

Purpose	The primary purpose of the study is to provide evidence on the impact of PMC on malaria burden and related clinical outcomes and its operational feasibility.
Objectives	• To evaluate the impact of PMC in children 2–18 months on key child health outcomes including malaria cases, hospitalisation and anaemia outcomes. • To describe indicators of operational feasibility of PMC by identifying and measuring key determinants of successful uptake and implementation of PMC in Nigeria.
Primary Endpoints	**Impact endpoints:** • Incidence rate of parasitologically-confirmed clinical malaria cases in children 2–18 months presenting to selected sentinel facilities over the first 18 months of implementation. • Protective effectiveness of SP treatments as measured by the percentage reduction in the incidence of malaria associated with receipt of SP in the last 28 days. **Feasibility endpoints:** • For each scheduled dose of SP, the percentage of children who received the dose in question, on time, or within four weeks following the scheduled date.

Study design

Study design:

- Type 2 hybrid implementation-effectiveness study.

Study arm:

- Two-arm cluster-randomised controlled trial (control and intervention)
    - Intervention arm (mixed approach).

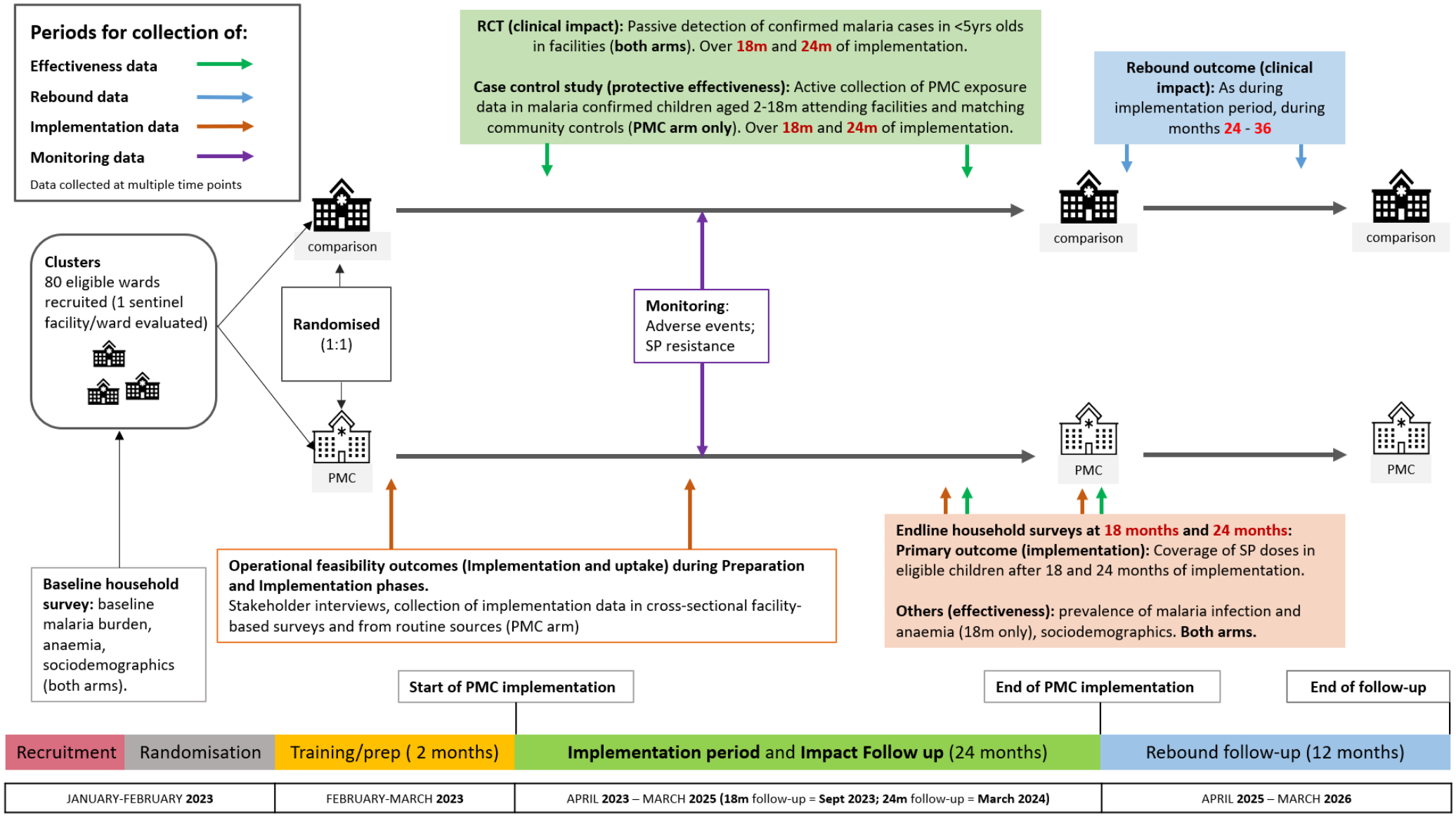
Evaluation design:

- Cluster-randomised control trial
- Nested case-control study.

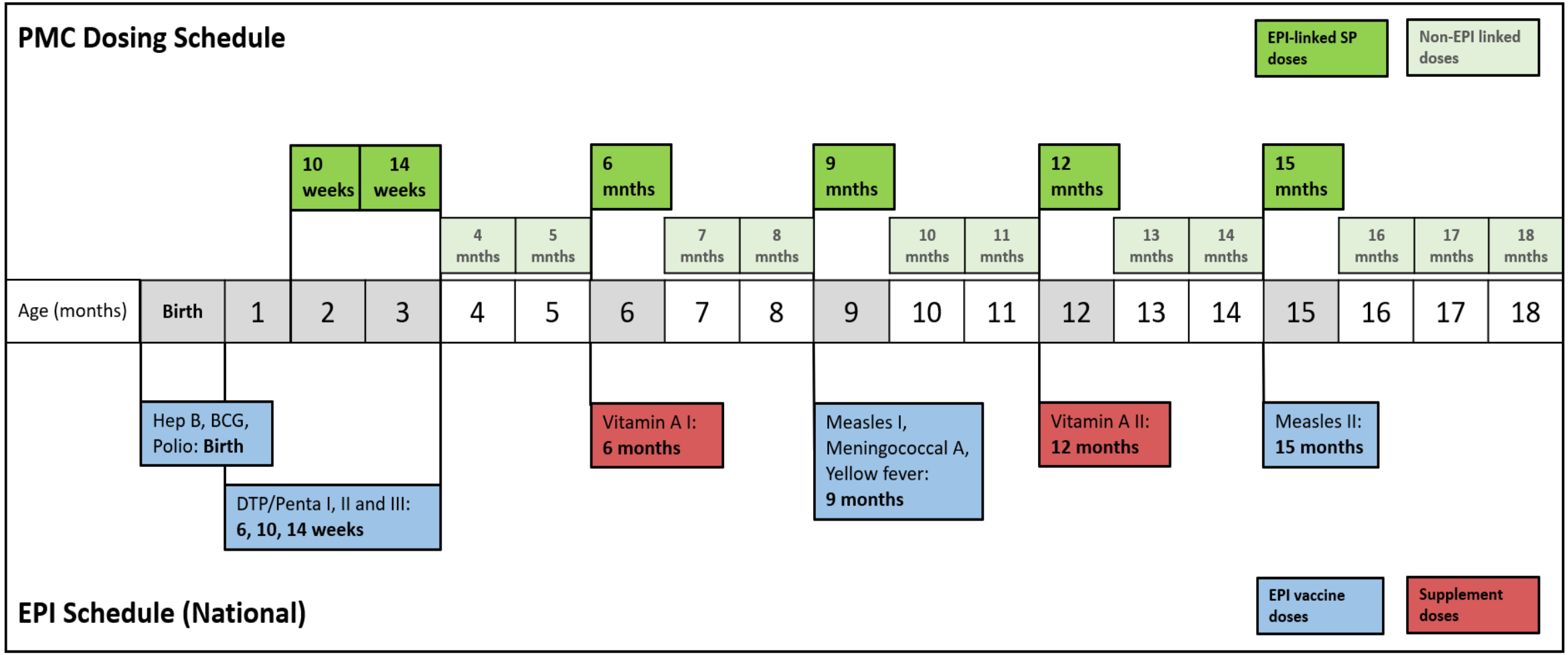
Data recording:

- Revision and adaptation of existing HMIS tool (child health register)
- Strengthening of data recording in all participating health facilities with special attention to the sentinel sites.

Study design



National schedule for EPI touchpoints and proposed schedule for PMC dosing in children from birth to 18 months



Description of interventions

Intervention

- Health facility staff will be trained to offer PMC according to protocol.
- SBC activities will be conducted throughout the implementation period to increase demand and uptake of vaccination and PMC services.
- EPI programme tools will be adapted to capture the number of PMC doses given.
- PMC will be integrated into the existing commodity supply chain system.

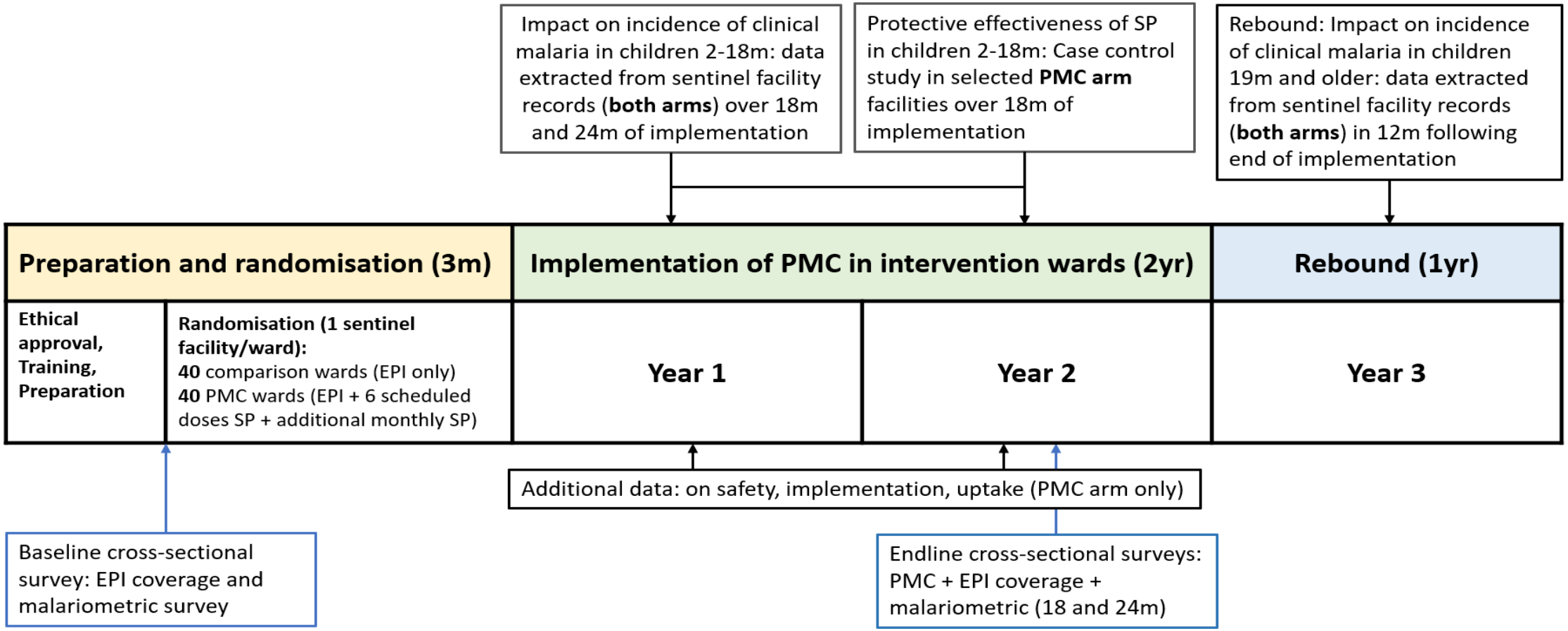
Pharmacovigilance

- Passive adverse event (AE) reporting will be implemented in all study facilities.
- Active AE monitoring will be implemented in a cohort of children in two health facilities in each study arm.
- Established the Data and Safety Monitoring Board (DSMB)

Sentinel surveillance

- One health facility per ward selected.
- HMIS reporting strengthened in each site.
- An HMIS tool will be used to record PMC data (child health register).

Project summary



Update on current implementation

- Implementation protocol approved
- Formative research completed
- Set up of NIRPUT
- Baseline assessment completed
- Training of health workers completed
- Procurement and supply of dispersible SP and other commodities
- Implementation commenced
- Monitoring and supervision ongoing.

Acknowledgements

malaria
consortium
disease control, better health

Thank you

www.malariaconsortium.org