



# Malakit & Curema: malaria control interventions tailored to mobile gold miners in the Guiana Shield

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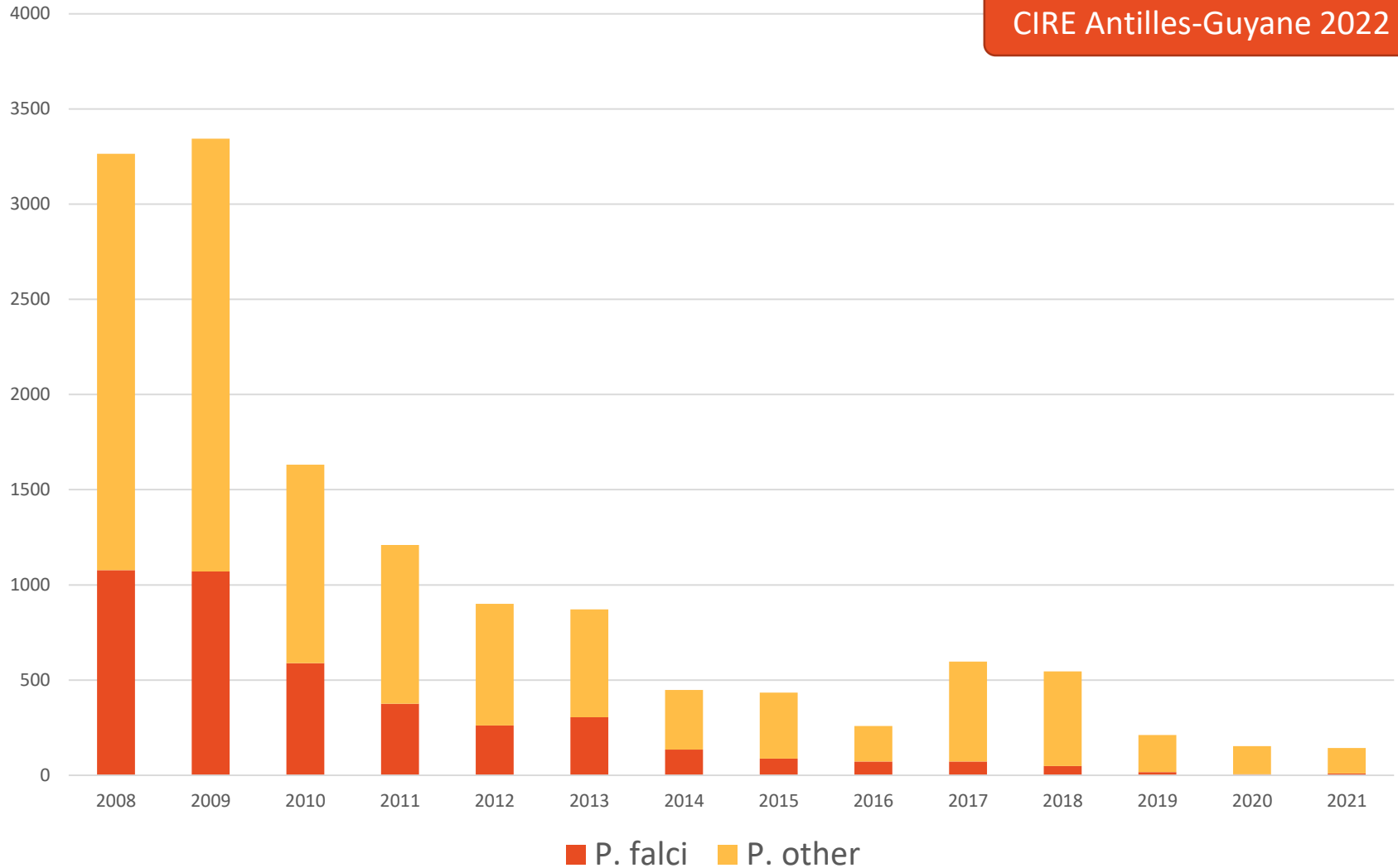
Douine M, Sanna A, Galindo M, Jimeno I, Plessis L,  
Vreden S, Hiwat H, Marchesini P, Suarez-Mutis M

*PAVE Regional meeting 2022*

# Background

## French Guiana

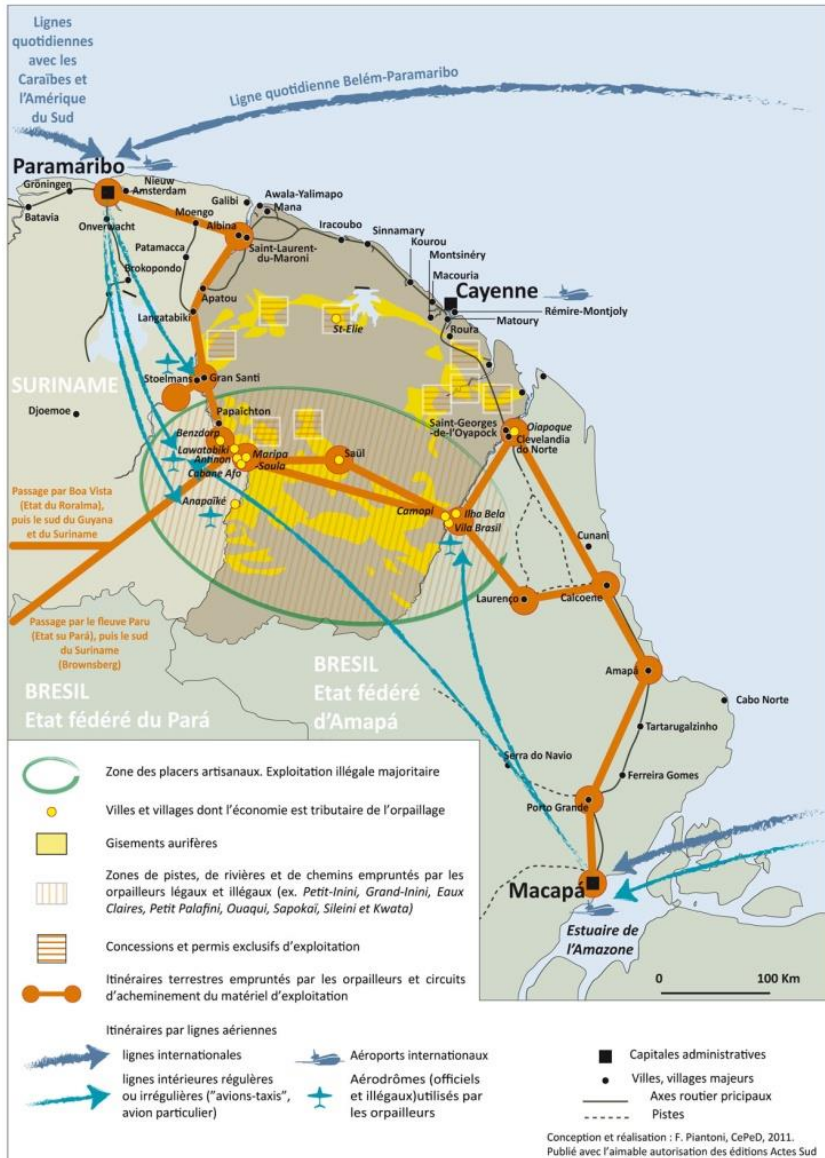
CIRE Antilles-Guyane 2022



➤ Objective: Malaria Elimination by 2025

# A soil rich in gold

Les mobilités associées à l'exploitation aurifère



## A huge malaria reservoir

PCR-Plasmodium prevalence =22%

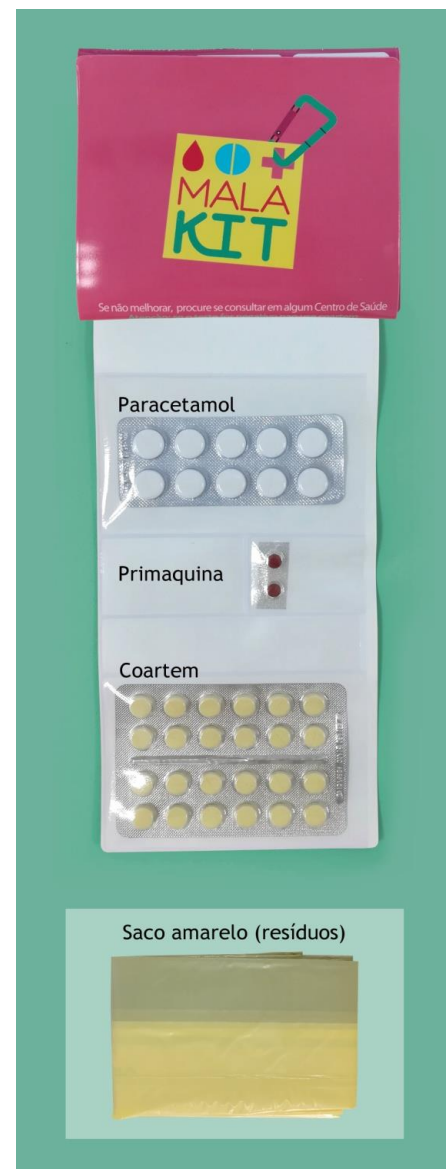
Self-medication: 52%

With ACT=90%

# The kit

- 3 RDTs Carestart® PanLDH
- 1 treatment with artemether-lumefantrine
- + 1 single dose of primaquine (15 mg)
- paracetamol

+ insecticide-treated mosquito net



# Malakit distribution

Logistic bases at borders

Community based approach

- Facilitators with good knowledge of the study population



# Results

## Kit distribution and use

**2-year intervention  
From 2018 to 2020**

**4 766 kits  
distributed**



**3 733  
participants**



**631  
Follow-up visits**



**303  
reported kit use  
because of malaria symptoms**

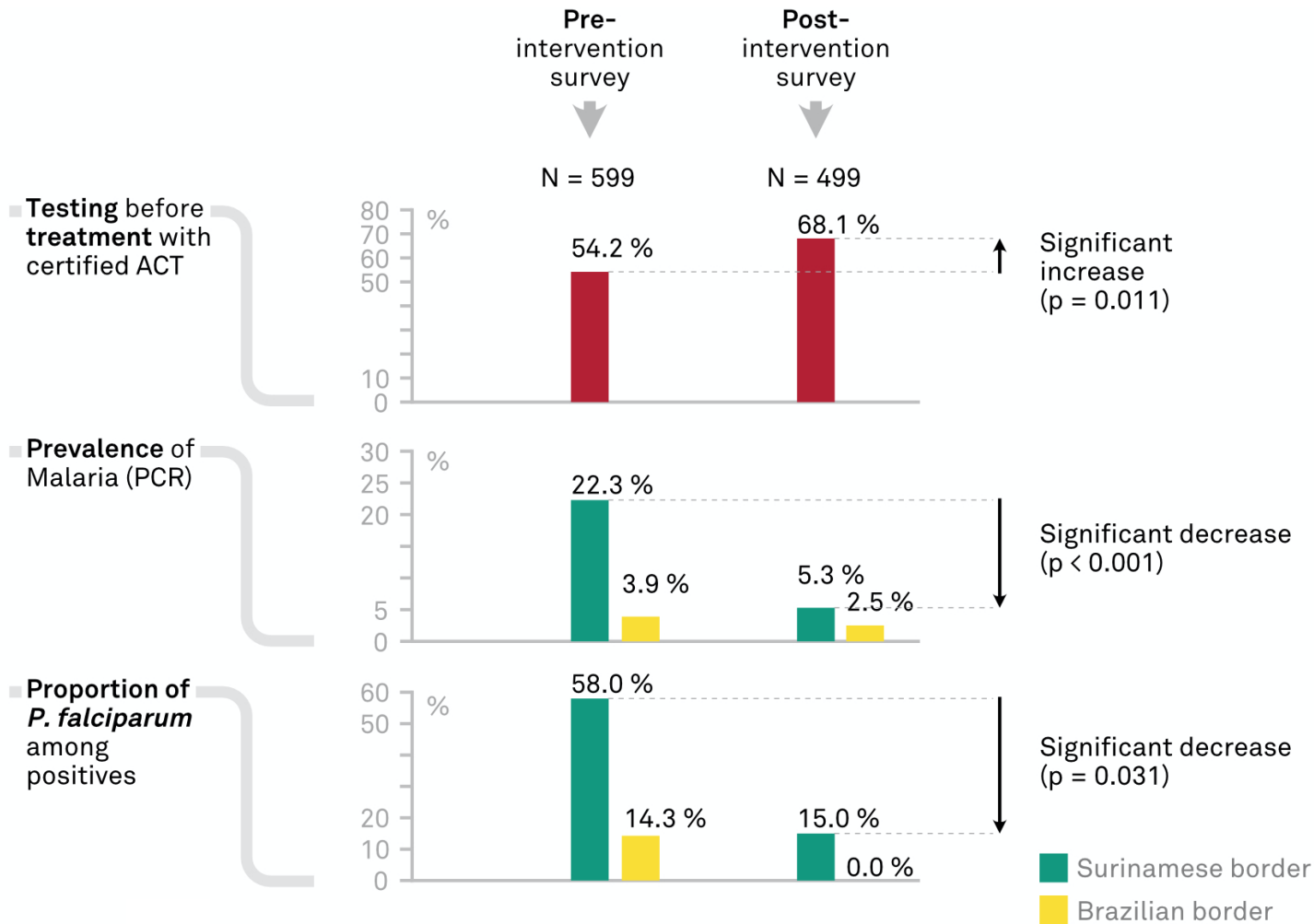


**30% of the population**

**70% correctly used**

**Douine et al, Lancet Reg Health-  
America 2022**

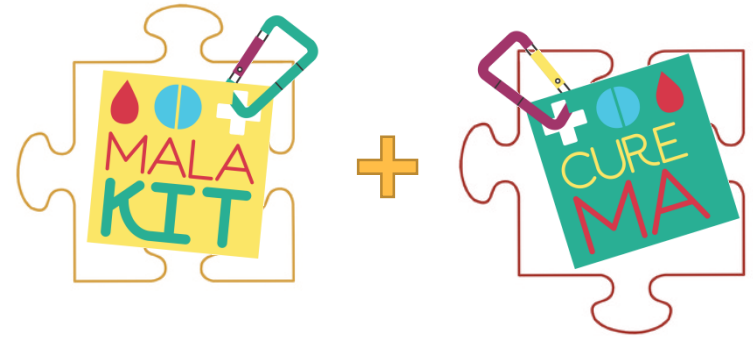
# Results



Increase in appropriate behavior  
OR=1.8 [1.1-3.0]

Decrease in prevalence and % of *P. falciparum*

# Next step: Curema



- Target hypnozoite carriers
  - G6PD POC testing
  - PART: Tafenoquine/Primaquine
  - Follow-up for 14 days: adherence and safety



## • Main objectives

- To reduce overall the prevalence of symptomatic and asymptomatic infections with *Plasmodium* spp.
- To evaluate the intervention's reach among the target population.





# Implementation



- Start in 2023, duration 21 months
- 7 sites of intervention
- 2 facilitators per site



## • Eligibility criteria

- History of clinical malaria in the past 12 months

AND/OR

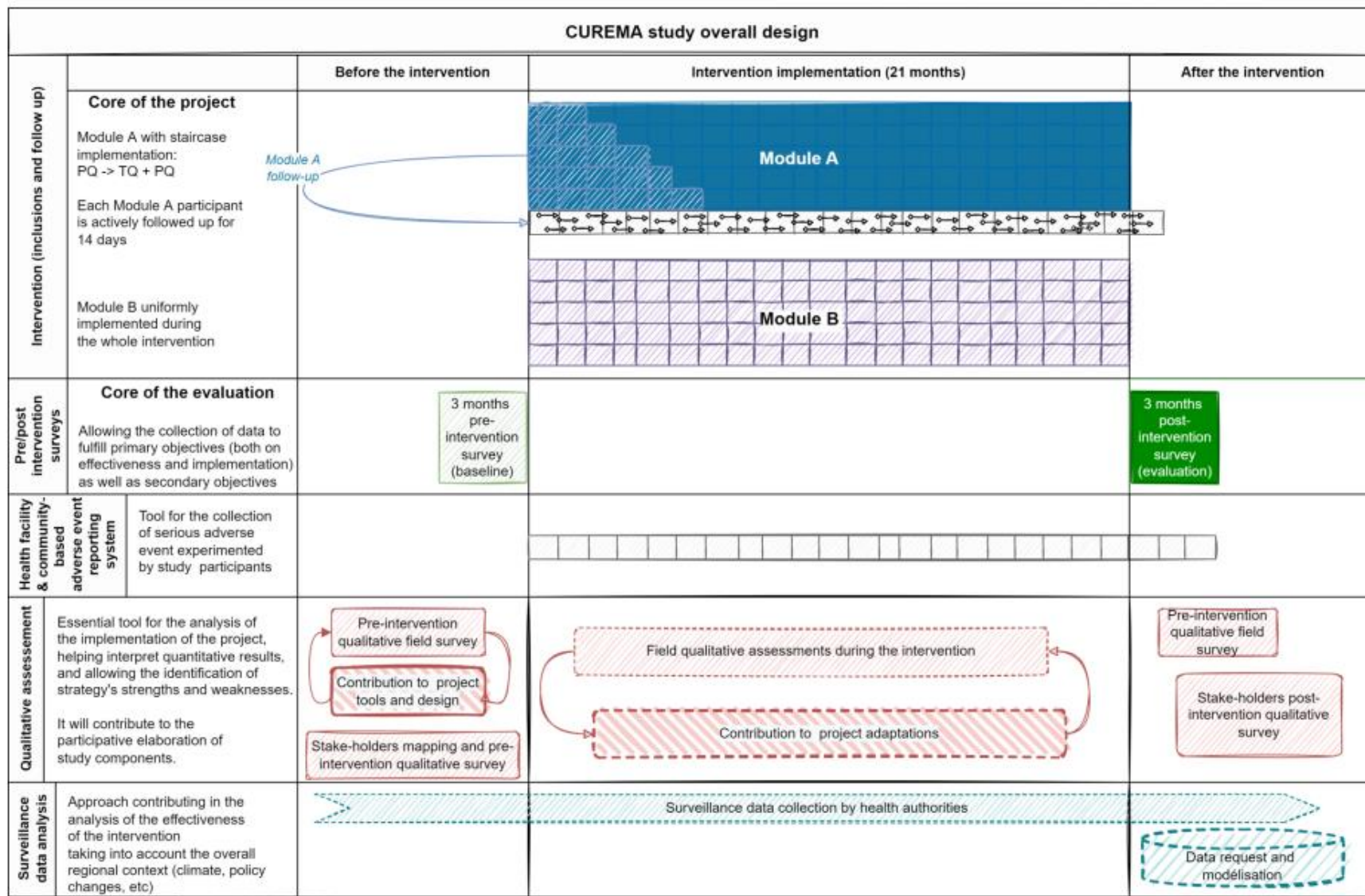
- Staying for at least 1 month in an area with extensive *P. vivax* transmission in the past 12 months

## • Main exclusion criteria

- Current pregnancy or breastfeeding
- G6PD activity < 70%
- Refusing to participate the 14 days follow-up

# Evaluation

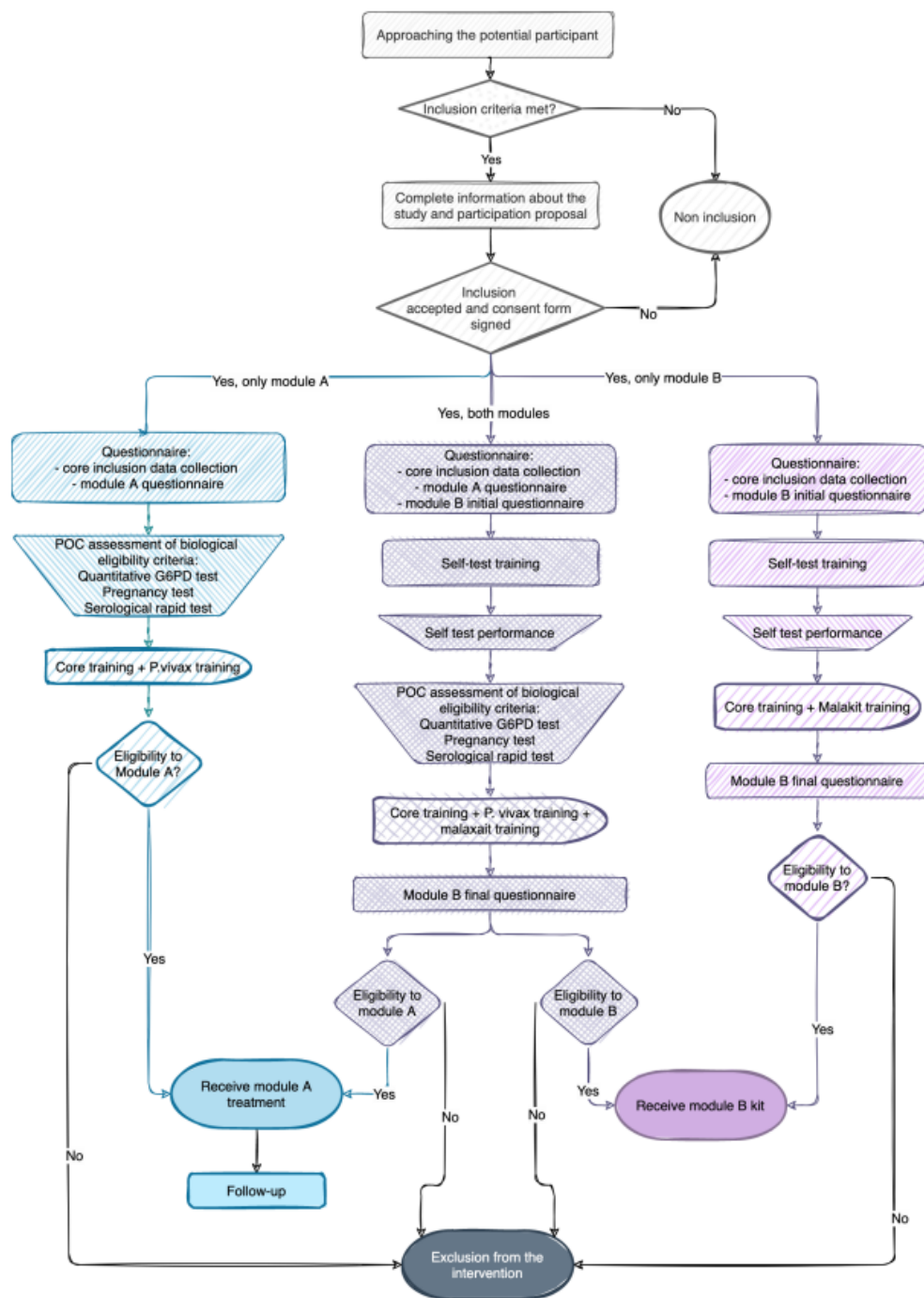
CUREMA study overall design



Thank you for  
your attention!

[www.malakit-project.org](http://www.malakit-project.org)





## Secondary objectives - Effectiveness

- To assess the evolution of malaria epidemiology before and after the intervention:
- To reduce the species-specific prevalence of *P. vivax* and *P. falciparum* among people involved in gold mining activities in the South of the Guiana Shield;
- To reduce the proportion of garimpeiros with a high probability of recent *P. vivax* infection (and probably hypnozoite carriers);
- To reduce the incidence of malaria cases associated with gold mining activity in the southern Guyanese Shield, as detected by the epidemiological surveillance systems of the countries involved;
- To increase the proportion of garimpeiros who adequately take anti-malarial treatment when they fall ill in illegal garimpos in French Guiana;
- To estimate the individual-level effectiveness of module A intervention in preventing *P. vivax* parasitaemia;

# Secondary objectives - Implementation

- To assess the acceptability (adoption and appropriateness), and actual reach of each intervention module
- To assess the adherence to the primaquine posology among asymptomatic individuals;
- To assess the safety of medicines for Modules A and B on a community scale;
- To evaluate the effectiveness of the health education activity carried out during the intervention;
- To assess the acceptability and feasibility of digital tools (smartphone app);
- To evaluate the quality and effectiveness of the training received by facilitators;
- To assess the fidelity of the inclusion and follow-up process;
- To evaluate the sensitivity and specificity of the rapid serological test and to estimate the discriminatory capacity of this test to detect recent *P. vivax* infections in the epidemiological context of the study;
- To estimate the programmatic cost of the intervention;
- To assess the health situation of garimpeiros and additional health needs beyond malaria elimination;
- Assess facilitating factors as well as barriers to delivering such an intervention in a pre-elimination setting and community involvement to be taken into account for further implementation.