

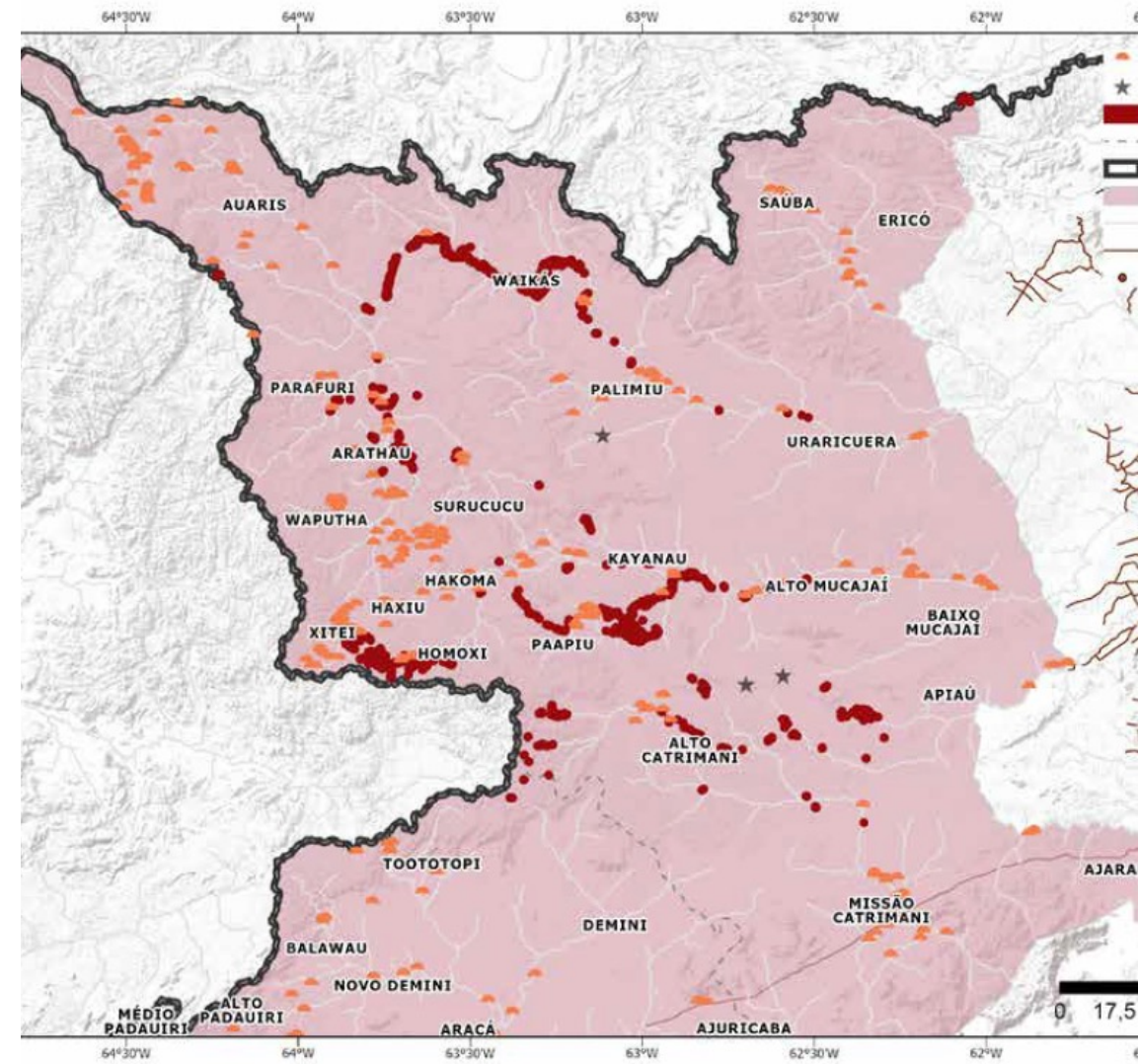


# Malaria in the Yanomami region: response and challenges

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# MALARIA CRISIS IN THE YANOMAMI RESERVE



OMAMI SOB ATAQUE

## YANOMAMI SOB ATAQUE

GARIMPO ILEGAL NA TERRA INDÍGENA YANOMAMI E PROPOSTAS PARA COMBATÊ-LO



**31.007**

indígenas

**37**

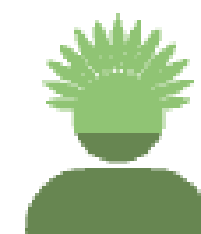
polos base

**376**

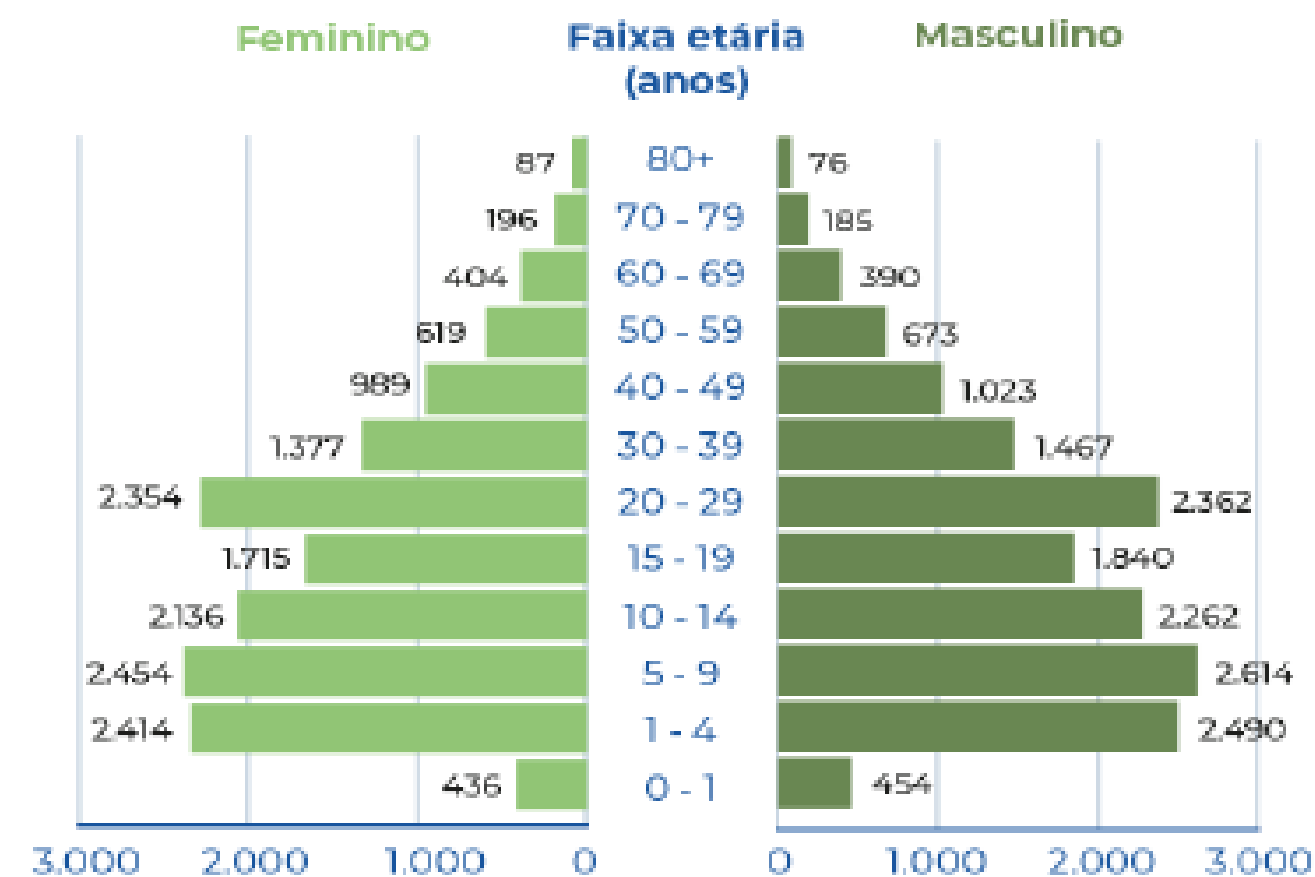
comunidades



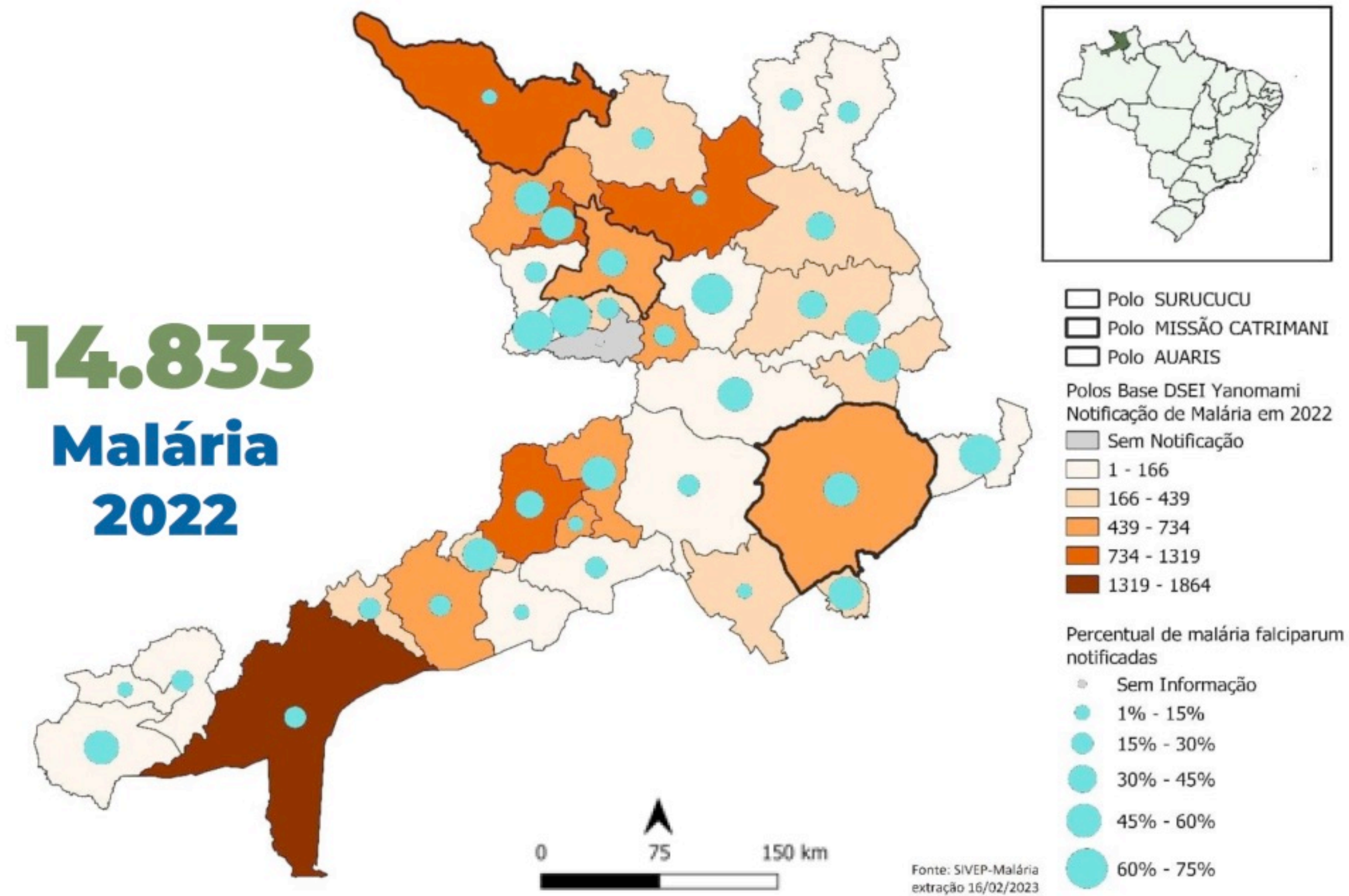
**85%**  
são  
Yanomami



**60,7%**  
abaixo de  
20 anos



## Distribuição das notificações de malária no DSEI Yanomami



Fonte: Sistema de Informações da Atenção à Saúde Indígena (SIASI)



# Verbal autopsy

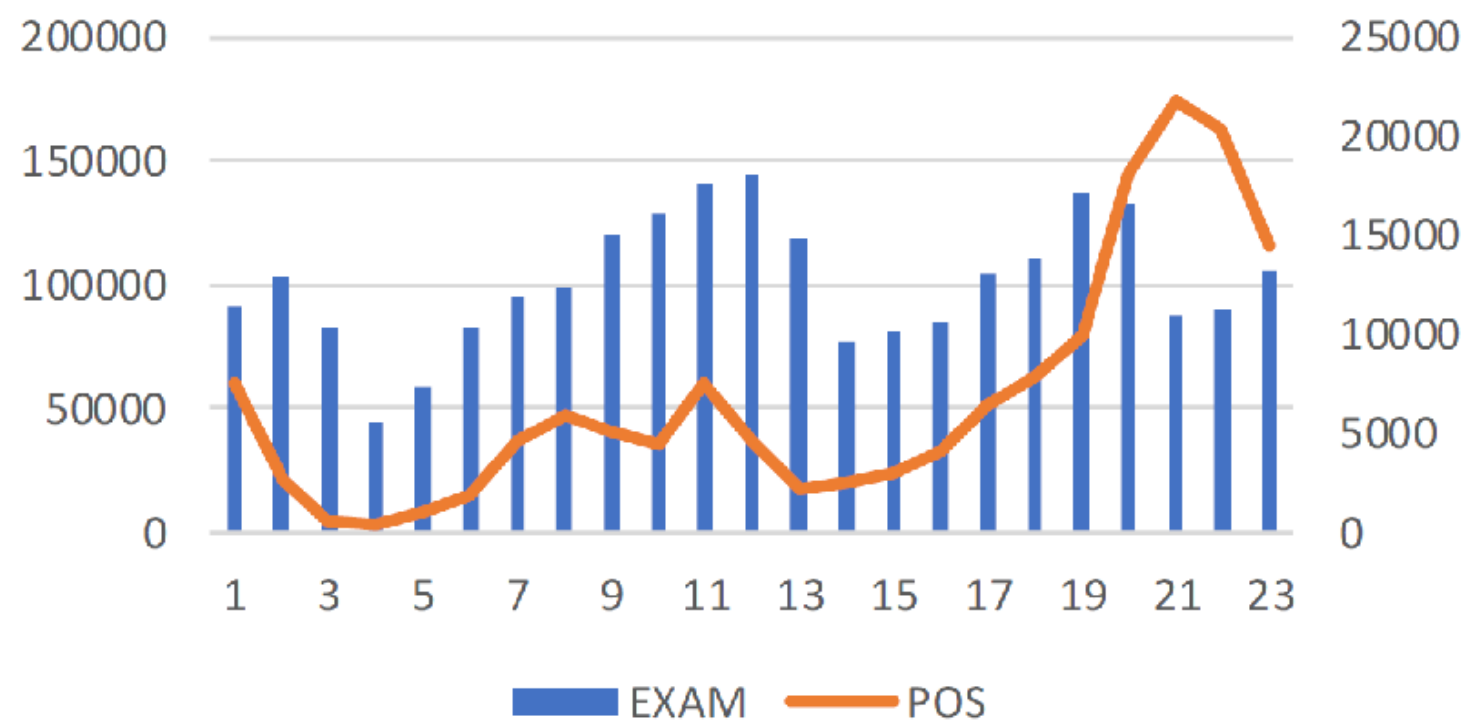


- Reports of deaths probably occurring due to malaria in the territory with lack of diagnosis and healthcare
- Supervised treatment is a need!
  - 3 days for *P. falciparum*
  - 7 days for *P. vivax*

# EFFECT OF ILLEGAL MINING ACTIVITIES IN INDIGENOUS POPULATION

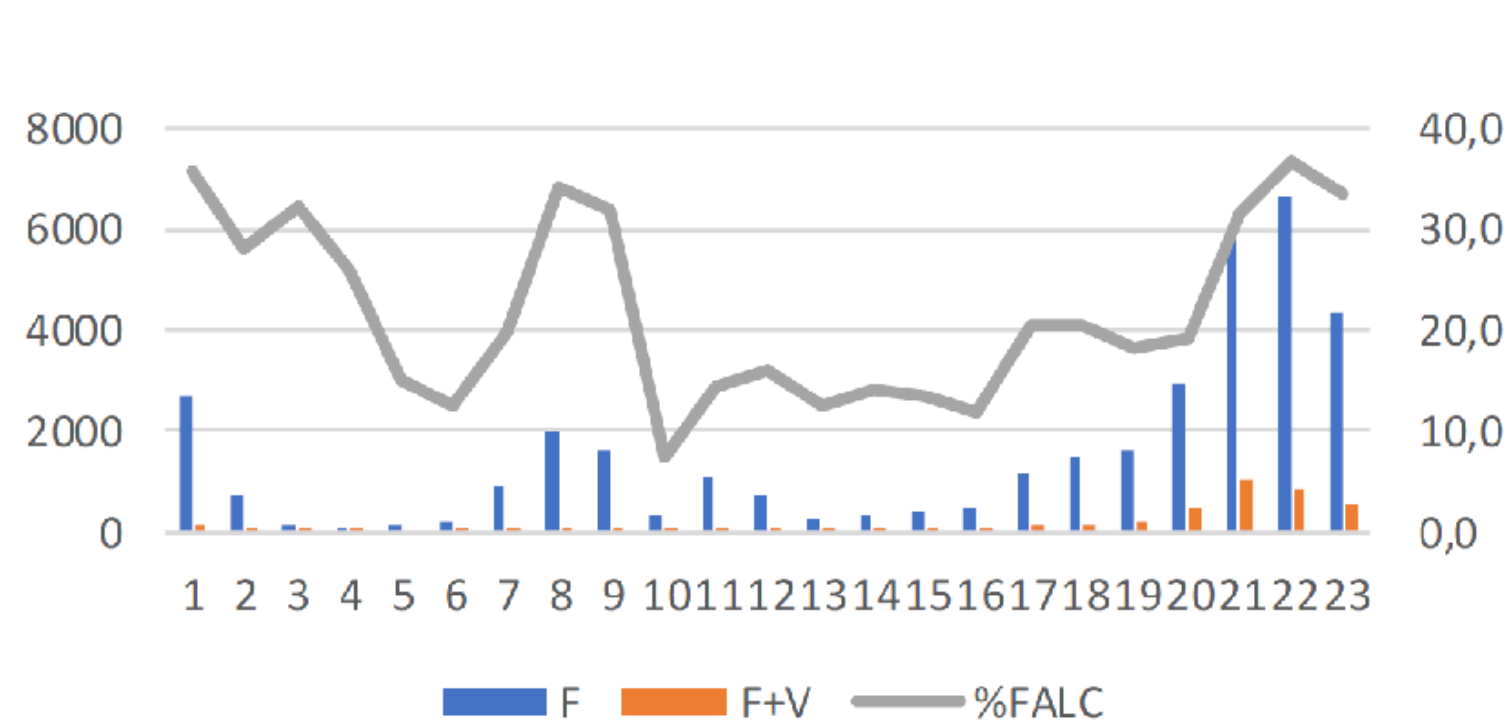
Number of tests and cases reported  
2000-2022

**Grafico 1**  
Exames e Casos de Malaria  
DISEI Yanomami Y'ekuana  
2000 a 2022



*P. falciparum* cases and  
proportion

**Grafico 2**  
Malaria *P. falciparun*, Mista e % falc  
DISEI Yanomami Y'ekuana  
2000 a 2022

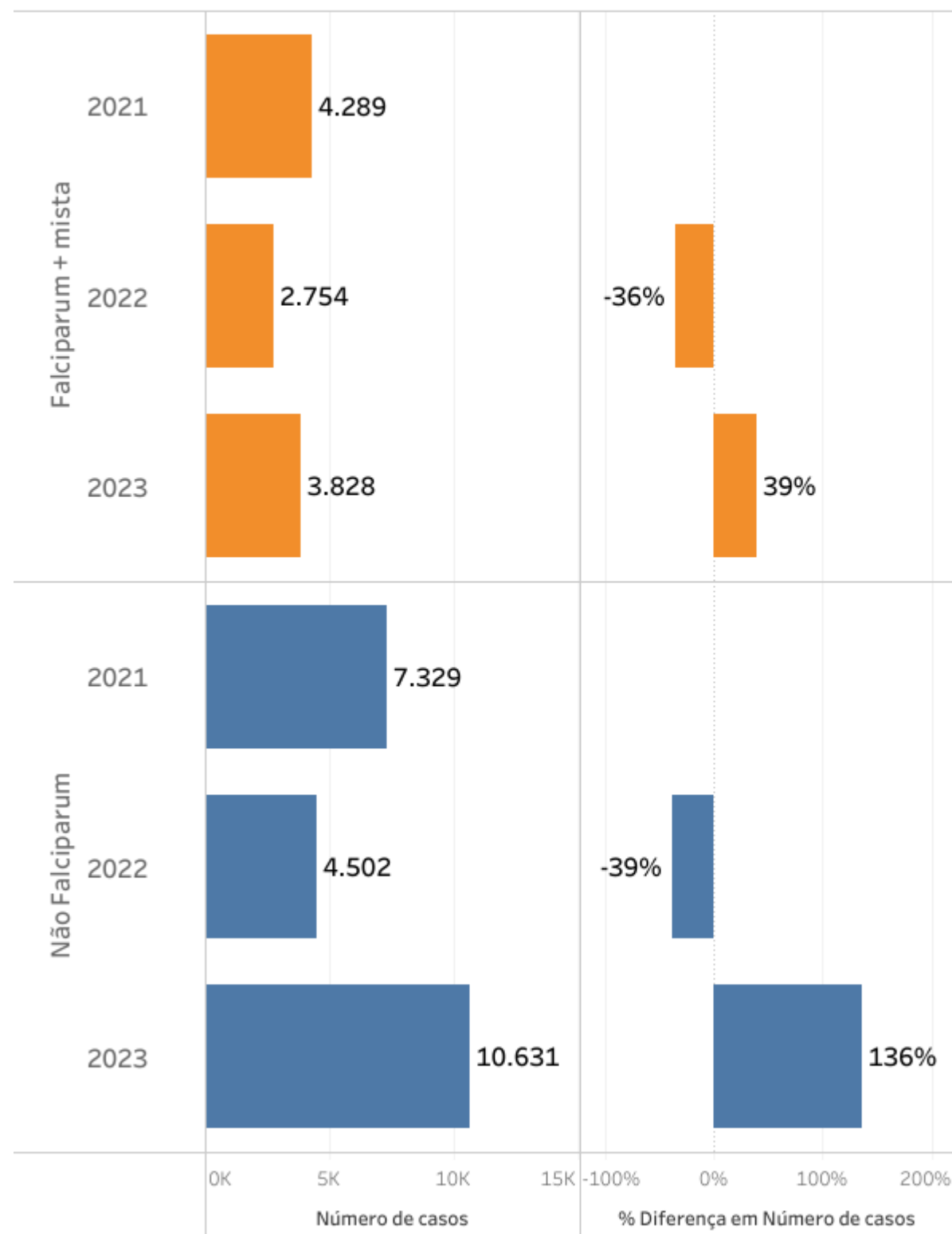


In Brazil less than 10% of cases are due to *Pf*.



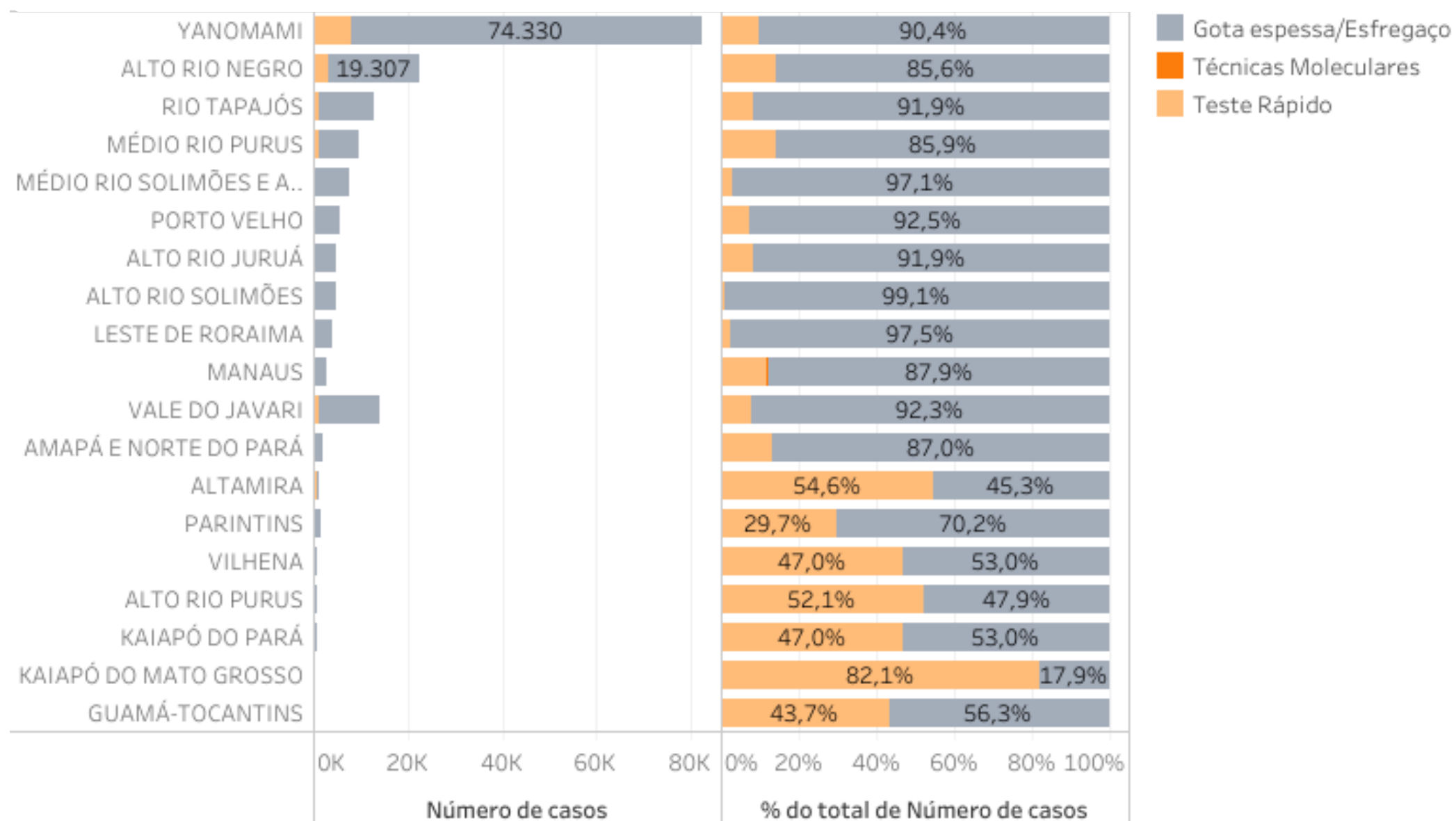
# Increase in 2023 – effect of improving access to testing

Diferença percentual e número de casos autóctones de malária em DSEI por espécie parasitária, 2021 a 2023\*, jan. a jun.



Excluídos LVC e resultados negativos. Não falciparum inclui infecções por *P.vivax*, *P.malariae*, *P.ovale* e resultados de TDR não falciparum. \*Dados de 2023 são preliminares, podendo sofrer alterações. Fonte: Sivep-Malária/SVSA/MS.

## Most diagnosis are by microscopy...



\*Dados de 2023 são preliminares, podendo sofrer alterações. Fonte: Sivep-Malária/SVSA/MS.



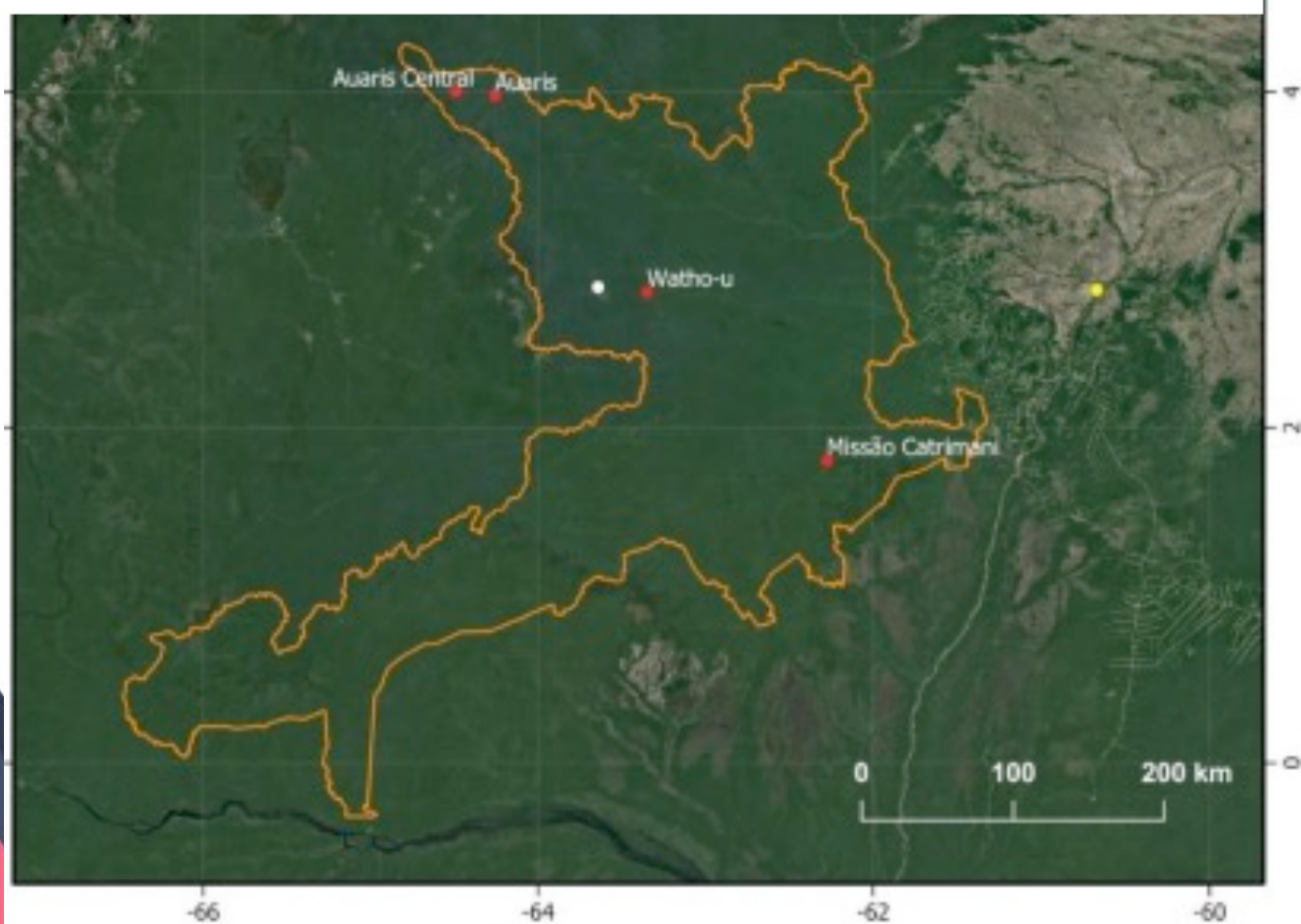
# TRATAMENTO EM MASSA EM ÁREA YANOMAMI

Distribuição do total de exames de testes diagnósticos para espécie parasitária de malária segundo localidade na Terra Indígena Yanomami, 2023.

Localidade	Espécie parasitária de Malária			Positividade (%)	Total de Exames Realizados
	Falciparum	Vivax	Mista		
<b>Auaris</b>					
Auaris central	-	95	-	24,4	389
Kuratanha	3	14	1	6,5	275
Hokolassimu	12	38	4	25,1	215
Olomai	3	9		3,8	312
Onkiola	12	7	9	12,7	220
<b>Surucucu</b>					
Kataroa	-	-	-	-	241
Waputha	1	3	5	7,4	122
Wathou	87	23	7	57,1	205
<b>Missão Catrimani</b>					
Missão Catrimani	71	39	9	32,8	363
<b>CASAI Yanomami</b>					
CASAI Yanomami	3	11	2	7,3	219
<b>Total</b>	<b>192</b>	<b>239</b>	<b>37</b>	<b>18,3</b>	<b>2.561</b>

80%

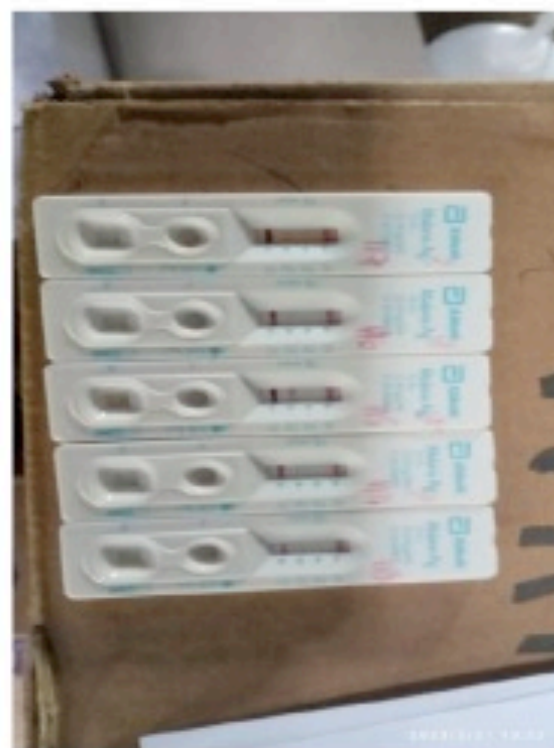
Pf



Realizando TDR



Macerando medicamento para dosagem por via oral em crianças



TDRs positivos para *P. falciparum* (mãe e quatro filhos)



Medicação separada para tratamento supervisionado

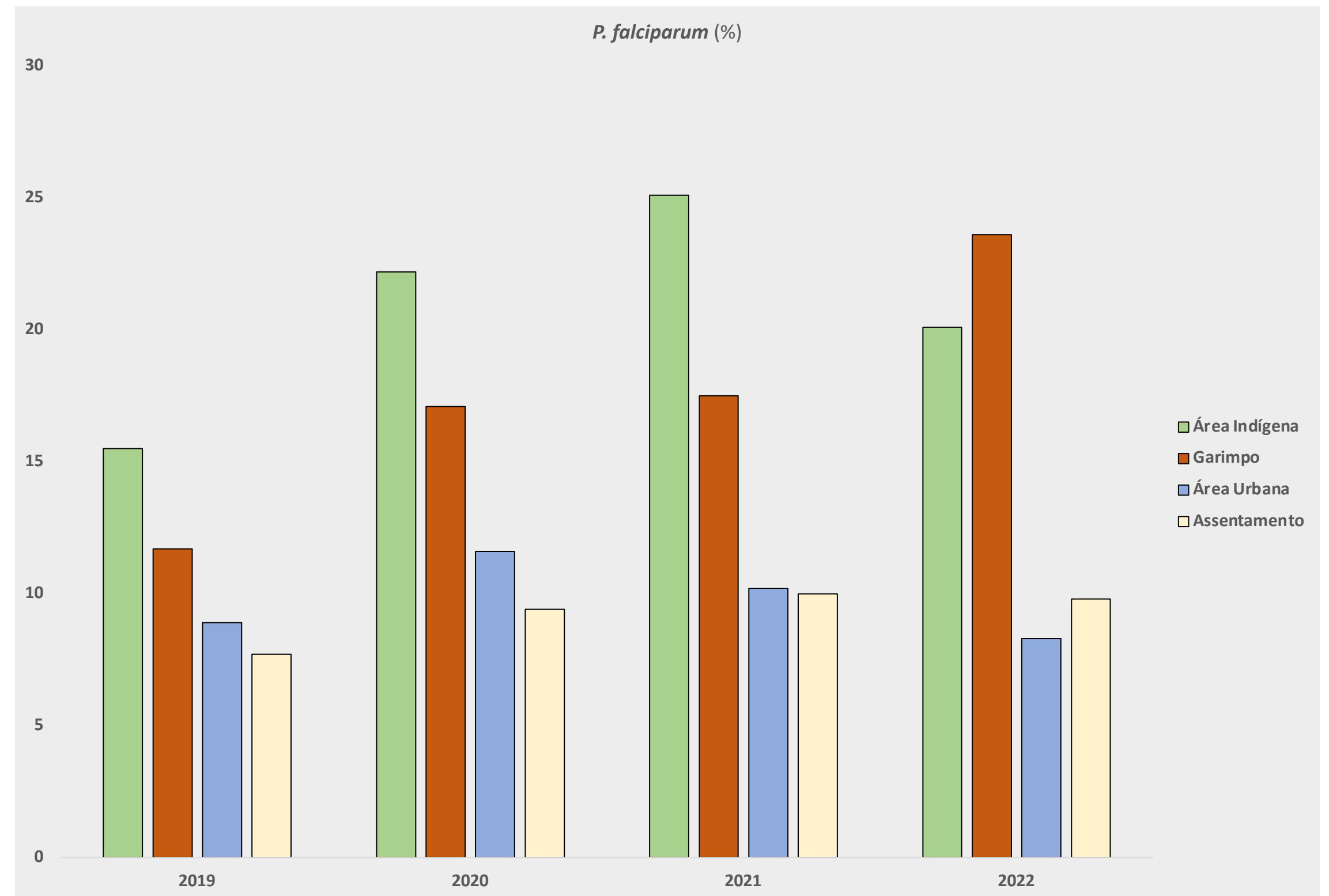


# OVERVIEW OF MALARIA IN YANOMAMI

- Absence of diagnostic and treatment actions in various communities
- Prolonged infection periods
- Gametocytes in > 50% of those infected with *P. falciparum*
- Prevalence of infection
- Variation in TDR positivity from 0 to 60%
- Variation in the proportion of *P. falciparum* from 3 to 80%
- Unregistered deaths
- Inability to establish continuous diagnostic and treatment actions
- Challenging logistics



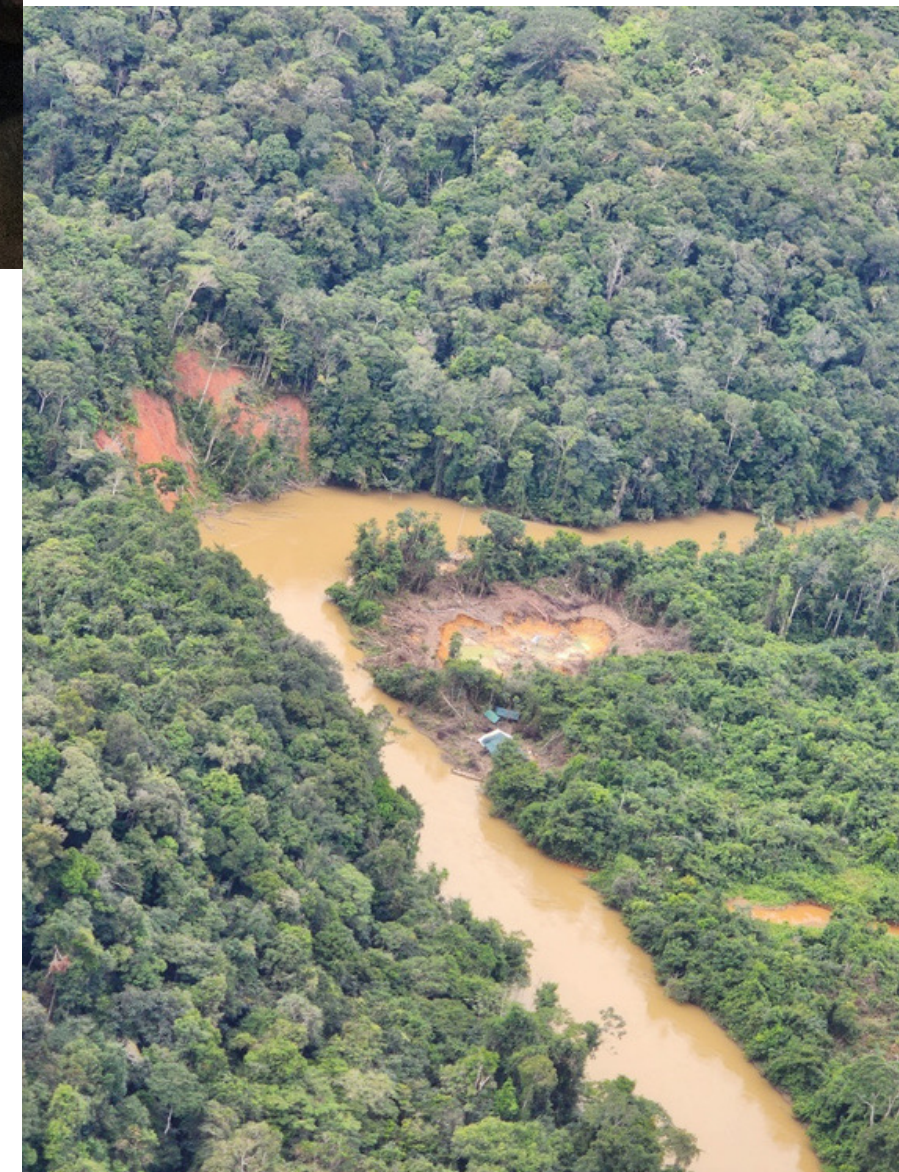
**Proportion of  
falciparum  
malária burden  
according to  
special area**





## Miners and Orignary populations are subjected to similar detrimental situations

- Socieconomic determinants
- Gender imbalance and vulnerability
- Sociocultural aspects
- Political and organizational factors
- Multi-factorial consequences
- Higher rates of nutritional deficiencies
- Low vaccine coverage
- High proportion of co-infections
  - Hepatitis
  - Helminths
  - Viral and parasitic diseases
  - Trachoma
- Violence





# MALARIA CAN AND SHOULD BE ELIMINATED FROM THE YANOMAMI TERRITORY

- Policing and controlling access and mining is ongoing.
- Improving access to healthcare and enabling indigenous health workers
- Leadership from the DSEI and the communities want malaria eliminated.
- There must be a commitment for eliminating and restoring the Yanomami people health dignity.
- We have tools to do so and we can do it!

# MDA can be used for reducing burden and achieving elimination

## 4.2.6 Mass drug administration (MDA)

### 4.2.6.1 MDA for burden reduction

Conditional recommendation for , Low certainty evidence

#### MDA for burden reduction (2022)

Antimalarial medicine can be given as chemoprevention through mass drug administration (MDA) in areas of moderate to high transmission of *P. falciparum* to provide short-term reductions in disease burden.

#### Remark:

- MDA may quickly reduce clinical malaria incidence in settings with moderate to high *P. falciparum* transmission, but the effect wanes within 1–3 months. Therefore, if MDA is implemented, it should be one of several components of a robust malaria control programme (including good coverage of effective case management and appropriate prevention tools and strategies).
- Malaria programmes should judge the suitability of using MDA in their context based on the desired impact, level of endemicity, and resources required. MDA for burden reduction should be targeted at moderate to high transmission settings, regardless of seasonality (see "Practical info").
- Moderate to high malaria transmission settings are defined as areas with *P. falciparum* parasite prevalence greater than 10%, or incidence greater than 250 *P. falciparum* cases per 1000 population per year [29]. These thresholds should not be regarded as absolutes for determining applicability of MDA implementation. It is biologically plausible that MDA in intermediate transmission settings may reduce both disease burden and transmission intensity.



# Tafenoquina is available and should be prioritized for indigenous populations!



# Prophylaxis for vulnerable groups

## Antimalarial chemoprophylaxis for forest goers in southeast Asia: an open-label, individually randomised controlled trial

Rupam Tripura, Lorenz von Seidlein, Siv Sovannaroeth, Thomas J Peto, James J Callery, Meas Sakha, Mom Ean, Chhouen Heng, Franca Conrads-Jansen, Wanassanan Madmanee, Pimnara Peerawaranun, Naomi Waitira, Panarasri Khonputsa, Monnaphat Jongdeepaisal, Kulchada Pongsoipetch, Paphapisa Chotthanawathit, Ung Soviet, Christopher Pell, Jureeporn Duanguppama, Huy Rekol, Joel Tarning, Mallika Imwong, Mavuto Mukaka, Nicholas J White, Arjen M Dondorp, Richard J Maude

### Summary

**Background** Malaria in the eastern Greater Mekong subregion has declined to historic lows. Countries in the Greater Mekong subregion are accelerating malaria elimination in the context of increasing antimalarial drug resistance.



Lancet Infect Dis 2023; 23: 81–90

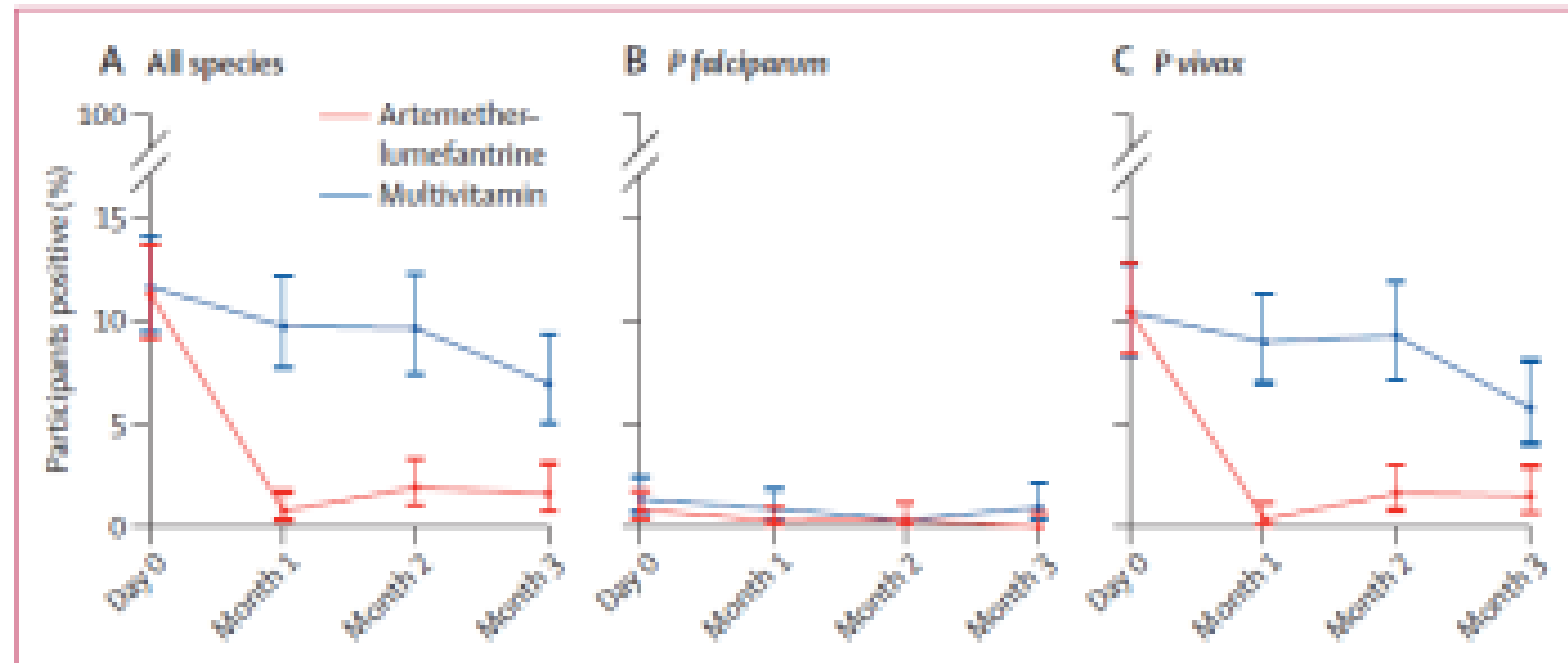
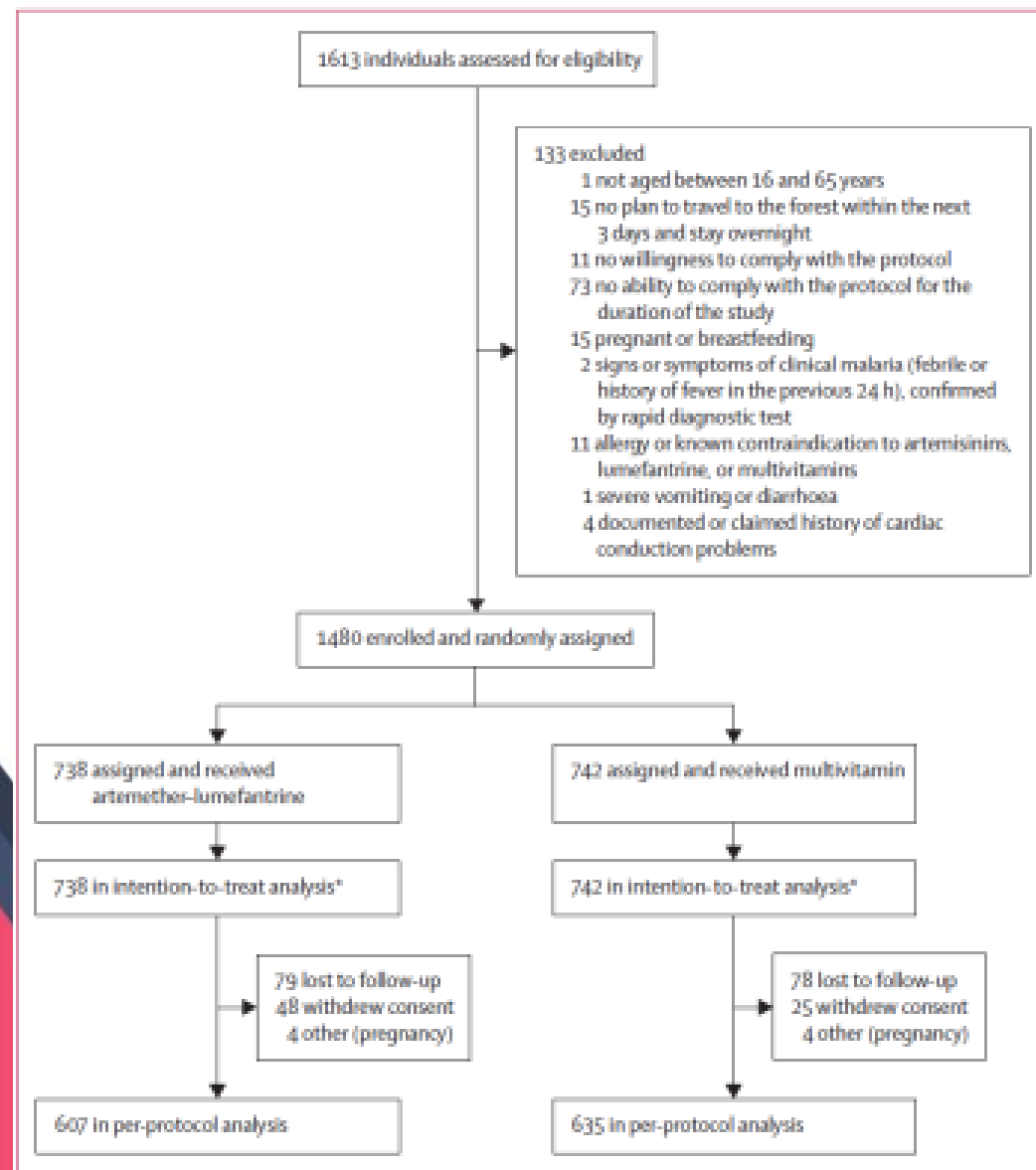
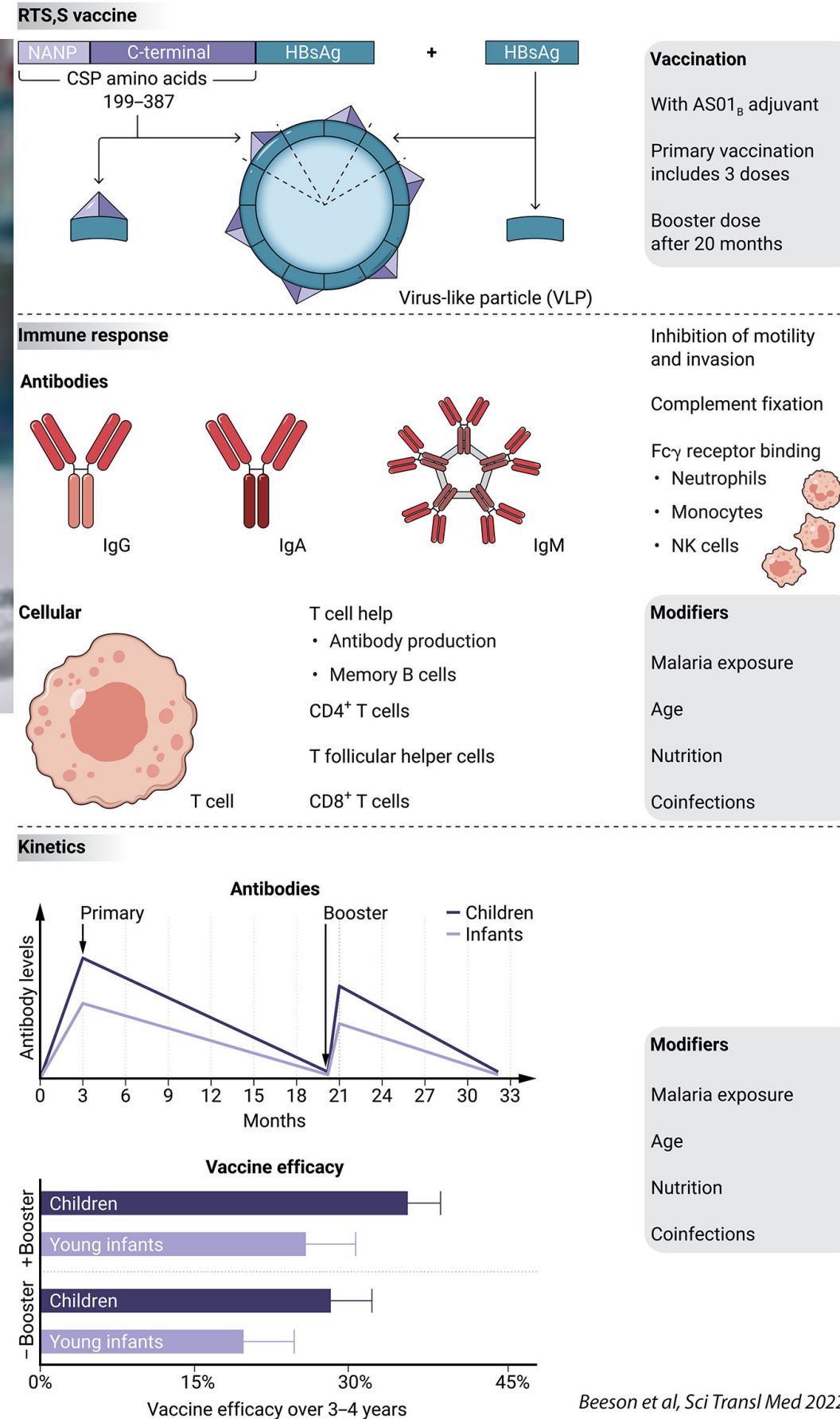


Figure 2: Percentage of participants with malaria infection over time

Malaria infection was defined as PCR parasite positivity on days 0 (baseline), 28–35 (month 1), 56–63 (month 2), or 84–91 (month 3), or a case of confirmed clinical malaria during month 1, month 2, or month 3.



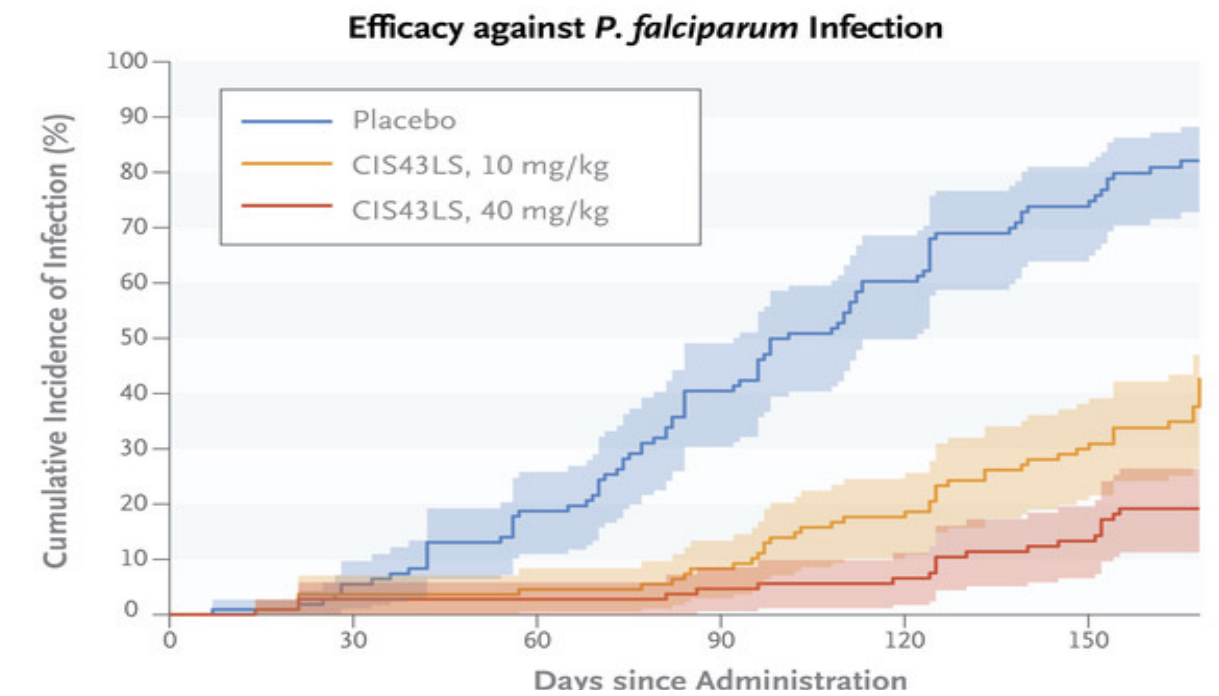
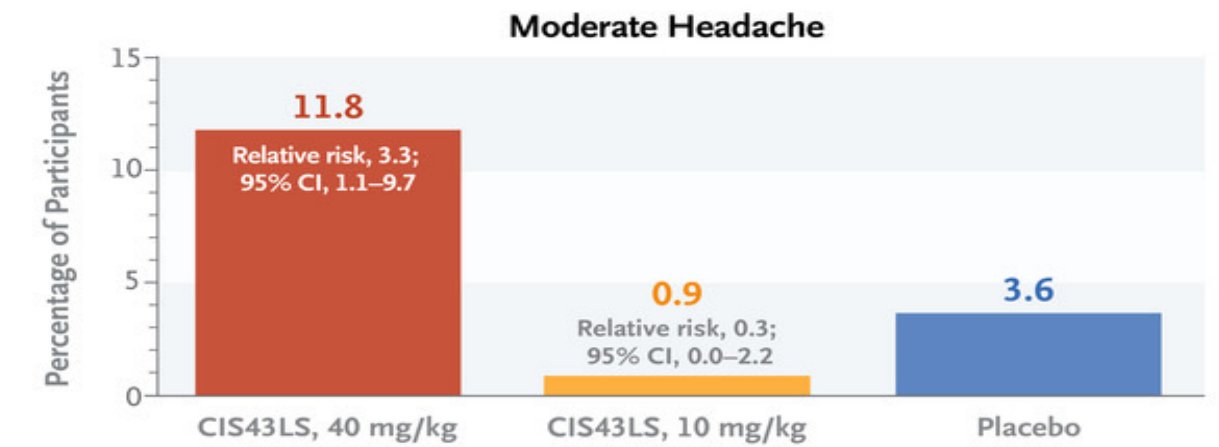
# New technologies



RESEARCH SUMMARY

## Safety and Efficacy of a Monoclonal Antibody against Malaria in Mali

Kayentao K et al. DOI: 10.1056/NEJMoa2206966





Financiamento  
(Funding):

BILL & MELINDA  
GATES *foundation*

MINISTÉRIO DA  
SAÚDE

