Insights from a decade long , hospital-based malaria study in Goa

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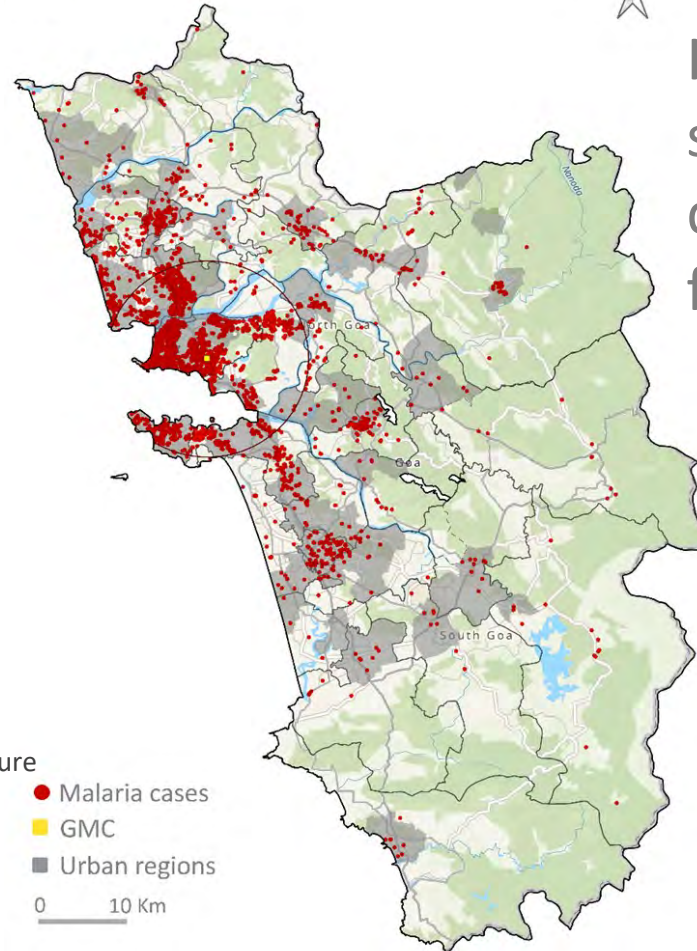## Malaria cases treated by GMC (2012-2021)

↓ Total number of cases – 82%

↓ *P. falciparum* cases – 86%

↓ *P. vivax* cases – 81%

↓ SPR
Malaria deaths

↑ Proportion of severe malaria

═ Health seeking behavior
Diagnostic activity

Influence of socio-demographic factors

- Highest number of malaria cases in male 15–50-year age group
- Above 50-year age group had higher gametocyte load
- 90% of the malaria patients resided in designated urban regions
- Over 50% self-described their occupation as construction workers
- At least 24% of the study subjects travelled to Goa from other parts of India in the previous month

Seasonal presentation of malaria cases

- Transmission perennial
- Seasonal transmission between June and November
- Seasonal transmission overlaps with
  a) higher-than-yearly average rainfall
  b) minimum diurnal variation in temperature
  c) high relative humidity

- Malaria cases
- GMC
- Urban regions

0   10 Km

Clustering of malaria cases

- Clustering and hotspot analyses identified a malaria hotspot at the northwest quadrant of Goa
- No specific clustering based on
  a) parasite species
  b) transmission season
  c) severity of disease
  d) urban vs rural residence
- shrinking GMC catchment region in the past two years (2020-21) compared to the high transmission years (2013- 2017)

Transmission Model

- A clear trend of reduction in malaria transmission rate and cumulative malaria cases evident in the yearly pattern of transmission model
- Species-specific version of the model showed similar downward trends for both *P. falciparum* and *P. vivax* transmission and cumulative cases
- Transmission model forecasts the transmission rate at the beginning of 2025 will be almost insignificant, with 10 cases per 1 million residents

↓ Decreased

↑ Increased

═ Unchanged