

## Malaria Surveillance in Kolkata does not detect clusters and cannot identify areas for targeted intervention

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## Need for a strong surveillance system for malaria in Kolkata

- Kolkata : a high risk area for malaria
  - Slide positivity 19.9% (2006)
  - Annual parasite incidence 11.6 per 1000 (2006)
- Migration may import cases at any time
- Numerous parallel health care delivery systems
  - Potential blind spots
- Targeted action requires quality information

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## Objectives of looking into the system

- Describe the surveillance system
- Evaluate the surveillance system against attributes
  - Estimate sensitivity and representativeness
- Formulate recommendations

## How we did it

- Review of records and interview at headquarter (HQ)
- Random sampling of 10% of malaria clinics
- Random sampling of 10% of ward public health units
  - Interview of the personnel
  - Review of formats and records
- Survey of fever cases:
  - In cluster sample of households

## How the passive surveillance runs

- 70 malaria clinics spread over 141 wards
  - Examine blood slide of any case of fever
  - Send individual and aggregate data to HQ
  - Analysis by data management cell
- Ward public health unit (WPHU) collects data from clinic and analyze
  - No sharing with the HQ

## How the active surveillance runs

- Honorary health workers visit families
  - Cover low and lower middle income group
  - 3000 population/ worker
  - Collect blood slides during house visit
  - Do contact survey for falciparum cases
  - Deposit slides in malaria clinics

## How good the system is (1/3)

- Acceptability problem with health workers
  - Actually served 32% of population
- Sensitivity
  - Malaria clinics served 57.7% of persons tested for malaria
  - 50% (5/10) of WPHUs collected data from other health care facilities
  - Annual blood examination rate : 5.8% in 2006

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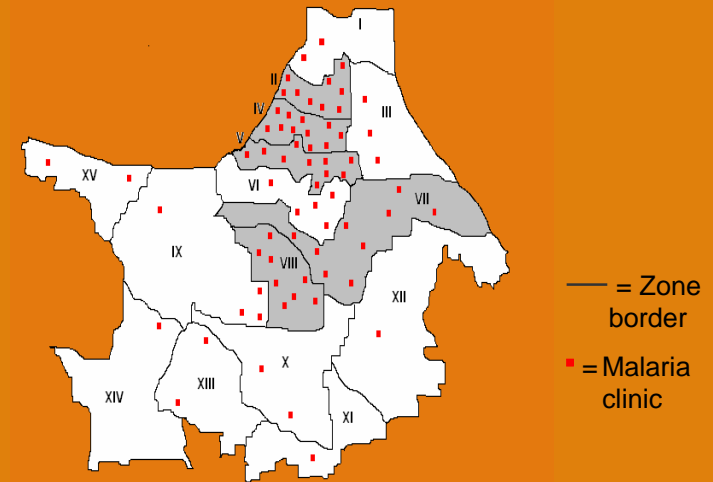
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## How good the system is (2/3)

### ➤ Representativeness

- Clinic attendees
  - Females: 1/3rd of male
  - Under-five children: 4.6%
- Malaria clinics
  - 46 (67%) clinics located in five (33%) zones
  - Eccentric location in 3 of 15 zones

## Distribution of Malaria Clinics, Kolkata, 2007



## How good the system is (3/3)

### ➤ Usefulness

- In 6 of 10 WPHUs: no analysis for vivax cases
- At headquarter level : analysis by malaria clinic; not by place (e.g. ward) or person
- No cross-notification from one zone to the zone of residence of the case

## Conclusions: gap in information

Low blood exam. rate.  
Cases going to other  
facilities

Non-uniform spread of  
malaria clinics

Lack in data capture  
from other facilities

Under-representation  
of certain areas or  
age/ sex group

Information gap

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graph TD; A[Low blood exam. rate. Cases going to other facilities] --> B[Lack in data capture from other facilities]; C[Non-uniform spread of malaria clinics] --> D[Under-representation of certain areas or age/ sex group]; B --> E[Information gap]; D --> E;
```

## Conclusion : Gap in analysis

No analysis of vivax cases



WPHU would miss a cluster



Where to focus for control activities ??

Analysis by malaria clinic



Not fitting to geographical units



Disease distribution by ward/ street not known



## Gap in our work

- Chance of recall bias
    - Those tested for malaria might recall fever episodes better than those not tested
- Overestimation of proportion blood-tested

## What to do to improve

- Ensure data capture from other health facilities
- Perform advocacy on malaria clinics
- Re-distribute malaria clinics optimally
- Analyze data by place and person
  - Sort cases by residence, age and sex
  - Include analysis of vivax cases
  - Preferably use on-line information system

Thanks for listening