Surveillance & Response for Malaria Elimination in China

Prof. Gao Qi
Jiangsu Institute of Parasitic Diseases, China

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Before malaria elimination

More than 30 millions malaria in 1970’s

20,000 cases in 20 provinces, 762 counties in 2008
Phases on the path to elimination

- **SPR < 5% in fever cases**
- **< 1 case/1000 population/year**
- **no local infected cases**

**WHO**

- **control**
- **pre-elimination**
- **elimination**
- **prevention of reintroduction**

**China**

- **> 1 case/100000 for 3 year**
- **< 1 case/100000 for 3 year**
- **no local infected cases**

**Type I**

**Type II**

**Type III**
Differences between control & elimination stages

**Stage**
- **Control**
- **Elimination**

**Goal**
- **Control**: Reduce morbidity & mortality
- **Elimination**: No local infected case

**Target area & population**
- **Control**: High endemic areas & living population
- **Elimination**: Hot spots & case family /neighbors
Differences between control & elimination stages

Stage
- Control
- Elimination

Interventions
- Population based: MDA, ITN & IRS
- Case based Diag/treat
- Foci based Inves/IRS

Indicator
- Coverage
- Timeline
Suspected Malaria Case

Hospital

Report

Malaria?

Confirmation

Local or Imported?

Case Investigation

Transmission Possibility?

Focus Investigation

Type of Action?

Targeted Actions
## Different need between malaria control & elimination stages in China

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Elimination</th>
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<tbody>
<tr>
<td><strong>Diagnosis</strong></td>
<td>Some of case without lab diagnosis</td>
<td>All of case received lab diagnosis</td>
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<tr>
<td><strong>Reporting</strong></td>
<td>Some case do not reported</td>
<td>All of clinical &amp; lab confirmed cases reported</td>
</tr>
<tr>
<td><strong>Confirm</strong></td>
<td>No need</td>
<td>need</td>
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<tr>
<td><strong>Foci</strong></td>
<td>Some time MDA</td>
<td>Investigate &amp; response</td>
</tr>
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</table>
Data Flow

1. Case Detection & Notification
2. Case Investigation & Classification
3. Focus Investigation & Action

Hospital

Web-based system

Internet

County CDC

Data Flow Diagram:
- Hospital communicates with County CDC via SMS.
- County CDC receives notifications and reports to the Web-based system.
- The system is connected to the Internet, allowing for data sharing and communication.
<table>
<thead>
<tr>
<th>姓名</th>
<th>性别</th>
<th>年龄</th>
<th>疾病名称</th>
<th>现住地</th>
<th>报告单位</th>
<th>类型</th>
<th>录入时间</th>
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Working Procedure

1) Case Detection & Notification

Hospital

- Diagnosis
- Report
- Treatment

3) Case Investigation & Classification

County CDC

- Laboratory Confirmation
- Case Classification

7) Focus Investigation & Action

Focus Assessment
- Epidemiological
- Entomological

County CDC

- Targeted Action
  - RACD
  - Vector Control
  - Health Education
Working timeframe

1 Day (24 hrs)

① Case Detection & Notification

Hospital

• Diagnosis
• Report
• Treatment

3 Days

③ Case Investigation & Classification

County CDC

• Laboratory Confirmation
• Case Classification

7 Days

⑦ Focus Investigation & Action

County CDC

• Focus assessment
  ✓ Epidemiological
  ✓ Entomological

• Targeted Action
  ✓ RACD
  ✓ Vector Control
  ✓ Health Education
Case reporting within 1 day

All of suspect fever case

Clinical & Lab case

Microscopy

Treatment

Report by hospital with 1 day

Rural area public health service program

Web based national case report system

Malaria elimination program
Case investigation within 3 days

Carrier out by county CDC within 3 days

- Case lab confirm
  - Double Microscopy
  - PCR

- Case classify
  - Local case
  - Imported case
Foci investigate & action within 7 days

Carry out by county CDC within 3 days

- Active survey (ACD)
- Health education
- Vector control

IRS
Data analysis & useful outputs of “1-3-7”

- **County Level**
  Daily check reporting system by County CDC

- **Provincial level**
  Weekly case analysis report by PIPD

- **National level**
  - Monthly “1-3-7” implementation analysis report by MoH