Foci identification and response in Thailand

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Bali, Indonesia
October 2016
Top 5 provinces with highest confirmed malaria cases
FY 2016 (Oct 2015 - Sep 2016)

1. Tak (5,609)
2. Yala (4,752)
3. Ubon (1,342)
4. Srisaket (882)
5. Naratiwat (689)

FY 2016
17,779 Malaria cases

30% reduction

- 66% Thai and 33% Myanmar
- 72% $P. vivax$ and 19% $P. falciparum$
- 68% Male
- 70% over 15 year old
- 43% imported cases
Main Interventions of Malaria Elimination Strategy: (2017-2026)

- Real time notification/investigation/response (1-3-7 strategy)
  - Improving Dx and Rx at HPHs (575) MPs/BMPs (352) & MCs (287)
- Intensifying PACD & RACD
  - Increasing ITN coverage (1 net: 2 persons)
  - Ensuring DOTs and FU
  - Integrating TES into routine surveillance

- Enforcing national and international policies & implementation
- Enhancing investment and resource sharing

- Accelerate malaria elimination in Thailand
- Develop appropriate innovative measures and models
- Establish national and international collaboration
- Promote community capacity building

2021: > 95% of districts verified for malaria interruption.
2024: Thailand to be free from Malaria

- BCC
- Community participation

Monitoring and Evaluation
Case definition

- All positive malaria cases diagnosed with **laboratory confirmed** including **symptomatic and asymptomatic** cases are included in the surveillance system (Malaria is **notifiable**).
  
  **Passive Case Finding:**
  
  - All suspected malaria cases who visit health posts including:
    - Fever cases
    - Patients whom have history of traveling to endemic areas.
  
  **Active Case Finding:**
  
  - **PACD** - Risk populations (about 8% of population 50-150
  - **RACD** - 50-100 people or 10 household around index cases
Case investigation

- All confirmed cases are to be investigated
- Data recorded
  - History of traveling
  - Date of symptom onset
  - Location where the patient is living and had visited (source of infection)
  - History of any previous malaria episode
  - Current treatment
- Case classified as to likely mechanism of infection acquisition
  - indigenous, imported, etc.
## Case classification (Source of Infection)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Infection in village</td>
</tr>
<tr>
<td>B</td>
<td>Source of Infection</td>
</tr>
<tr>
<td>Bx</td>
<td>Outside village</td>
</tr>
<tr>
<td>By</td>
<td>Outside canton</td>
</tr>
<tr>
<td>Bz</td>
<td>Outside district</td>
</tr>
<tr>
<td>Bo</td>
<td>Outside province</td>
</tr>
<tr>
<td>Bf</td>
<td>Outside country</td>
</tr>
</tbody>
</table>

**Note:** Differentiation between Introduced, relapsing, and indigenous cases are problematic.
Foci Classification

Criteria Use: cases + vector + environmental factors

**Micro Stratification** (unit=village or hamlet)
- **A1** = With indigenous cases at least 6 months per year
- **A2** = With indigenous cases less than 6 months per year (+residual non-active)
- **B1** = No transmission and presence of vector/ suitable environment
- **B2** = No transmission and no presence of vector/ unsuitable environment

**Macro Stratification** (Unit=district)
- **Reduction of Transmission**
  - High Transmission (API > 1/1000 (C1))
  - Low Transmission (API < 1/1000 (C2))
- **Prevention of reintroduction**
  - No transmission 1-3 year (E1)
  - No transmission > 3 year (E2)
Malaria stratification, 2016

**Reduction of Transmission (184)**
- C1: API > 1/1,000 with indigenous case
- C2: API < 1/1,000 with indigenous case

**Prevention of reintroduction (744)**
- E1: no indigenous case 1-3 year
- E2: no indigenous cases > 3 years

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**2015**
- 3,621 clusters, 248 Dist. & 45 Pro.
- 1,301,776 pop at risk
- 221,302 forest goers

**2016**
- 3,037 clusters, 184 Dist. & 43 Pro.
- 1,034,921 pop at risk
- 175,937 forest goers

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- **Endemic villages**
- **District stratification**

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Identification, classification, Investigation, and Response to transmission foci: 1-3-7 strategies

Malaria positive cases form PCD/ACD

Case investigation (CI)

Indigenous/Imported case

- A1 A2 area

Imported case

- B1 area

- B2 area

Indigenous case

- B1 B2 area

Case Investigation Survey (CIS)/RACD
- 50-100 slides/10 HH around index case
- Vector Control is routinely implemented in A1A2

Foci Investigation (FI)
- MBS
- Entomological survey
- Vector control

1 day

3 days

7 days
Notification, Investigation, and Response to Transmission Foci in Thailand: 1-3-7 strategies

<table>
<thead>
<tr>
<th>Year</th>
<th>Notified 1 day</th>
<th>Investigated 3 Days</th>
<th>Responed 7 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y-2014</td>
<td>23.08%</td>
<td>65.86%</td>
<td>8.51%</td>
</tr>
<tr>
<td>Y-2015</td>
<td>25.55%</td>
<td>69.02%</td>
<td>12.64%</td>
</tr>
<tr>
<td>Y-2016</td>
<td>25.88%</td>
<td>70.78%</td>
<td>10.91%</td>
</tr>
</tbody>
</table>

Response: RACD+Foci investigation 10-16%
Pop. Coverage 10-23%
Positive rate 0.3-0.5%
## Challenges and future plans

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Future plans</th>
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<tr>
<td>• Delay case notification from community</td>
<td>▪ Mobile technology application</td>
</tr>
<tr>
<td>• Incomplete cases report from public/private sectors</td>
<td>▪ Notifiable disease (2015 infectious disease Regulation)</td>
</tr>
<tr>
<td></td>
<td>▪ Automatically linkage of malaria data</td>
</tr>
<tr>
<td>• Mobile migrant populations and cross border issues</td>
<td>▪ Community involvement: <strong>SOPs and training</strong></td>
</tr>
<tr>
<td>• Investigation and response</td>
<td>▪ Harmonizing malaria action plan with neighboring countries</td>
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<td>▪ Partnership with CSOs</td>
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<tr>
<td>Limited financing</td>
<td>▪ Advocacy to increase domestic fund</td>
</tr>
<tr>
<td></td>
<td>▪ Prioritized and focused investing</td>
</tr>
<tr>
<td></td>
<td>▪ Engagement with local organizations</td>
</tr>
<tr>
<td>Decentralization</td>
<td>▪ Internal reorganization to streamline activities managed by the national</td>
</tr>
<tr>
<td>• Retirement</td>
<td>program</td>
</tr>
<tr>
<td>• Unskilled staff</td>
<td>▪ SOPs and Training general public health staff (SRRT)</td>
</tr>
<tr>
<td></td>
<td>▪ Simplify forms/methods</td>
</tr>
</tbody>
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Thank You!!