Rapid Reporting Technologies:
Malaria Case Surveillance App: Lao PDR
Developed in partnership with CMPE and PSI/Laos

Lao PDR MOH
Centre Malarialogy, Parasitology, and Entomology
Public-Private Mix

- PPM launched in 2008 with 95 pharmacies & clinics in 4 provinces
- Now, PPM has expanded to 339 sites in 8 provinces
- PPMs are trained on National Guidelines, provide testing & first-line treatment, and report data monthly to government systems
- Under new BMGF grant, PSI is supporting expansion and supervision of PPM network in southern provinces
Identify gaps and challenges to achieving ideal system
Design an intervention
Increase access to quality, timely data
Evaluate, improve and strengthen data use
Surveillance System Assessment

- Passive surveillance
- Active surveillance for outbreak confirmation
- Reporting frequency: monthly
- Paper based forms and manual aggregation at lower levels
- Data aggregated to district level before entering into electronic MIS (DHIS2)

CMPE led DHIS2 Technical Working Group with malaria partners to assess system and draft surveillance roadmap.
Surveillance System Data Flow

Provincial Anti Malaria n=18

District Anti Malaria Nucleus n=148

Health Centers n = 879

VMW n=649  PPM n=339  VHV n=694

Data collection

Village submit A3 to HC

Oct 1-31

HC submit A4 To DAMN

Nov. 5

Village submit A3 to HC

Nov. 25-30

PAM submit A4 to MIS

Nov. 25

DAMN submit A4 to PAM

Nov. 15

PAM submit A4 to MIS

DHIS2

District A4 (aggregate)

A4 Form (aggregate)

A3 Form (HC) (event data)

A3 Form (event data)

VMW n=649  PPM n=339  VHV n=694

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Gaps & challenges

• Long lag time between data collection and availability for decision making (~2 months)
• Multiple levels of manual aggregation → Risk to data quality
• Not enough funding to sustain monthly supportive supervision (PPM outlets) → Low reporting rates
• Aggregate district level data → Cannot identify endemic health centers or villages
Intervention: Malaria Case Surveillance app

- Android app (Open Source)
- Data pushes directly to DHIS2 → Eliminates 3 levels of aggregation
- Data entry works offline
- User friendly interface in local language
Surveillance Intervention

Provincial Anti Malaria
n=18

District Anti Malaria Nucleus
n=148

Health Centers
n = 879

PPM
n=339
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DHIS2

PAM

DAMN

District A4 (aggregate)

A3 Form (HC) (event data)

A4 Form (aggregate)
Common Data Framework: Public + Private

- Identified most important data points from the A3 form for decision-making at higher levels

<table>
<thead>
<tr>
<th>Suspected case</th>
<th>Tested/Not tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reason not tested</td>
<td>Severe/Pregnant/RDT stockout/Refused</td>
</tr>
<tr>
<td>Gender</td>
<td>Male/Female</td>
</tr>
<tr>
<td>Age</td>
<td>Positive integer, 0-99</td>
</tr>
<tr>
<td>RDT Result</td>
<td>Pf/Pv/Mix/Negative [Invalid for stock count]</td>
</tr>
<tr>
<td>Treatment</td>
<td>ACT 6x1/6x2/6x3/6x4, Refer [ACT stockout], combined blisters to provide correct dosage [ACT stockout]</td>
</tr>
<tr>
<td>Patient Phone Number</td>
<td>Validations for Lao telephone numbers to ensure completeness</td>
</tr>
</tbody>
</table>
Formative Research on Target User

Qualitative study conducted by PSI found that PPM providers have positive attitudes toward mobile data collection:

• Involving technology in their work is a modern way of managing data and is “very convenient”
• Mobile data entry will save them time
• They like that mobile data can be tracked, searched and retrieved; it can also help them follow up with clients who have not paid for services
Improves quality of malaria care

- Built in logic for provider quality of care checks based on revised National Treatment Guidelines
Improves data quality

- Automated data validations
- Data entry locks after reviewing & submitting a survey → improves data integrity
- Cannot skip essential questions → less missing data
Gives providers access to their data

- Built-in monitoring screen gives provider access to their testing, caseload and stock consumption data
- Enhances supportive supervision visits and data validation in the field
Improves precision of surveillance data

- Automatically captures GPS coordinates for the event
  → We can map precisely where cases are detected
Improves timeliness of data

- Data pushes directly to DHIS2 server
- Real-time data can be reflected in DHIS2 dashboards
What next?

- Field pilot (PPM providers)
- Evaluate
- Scale up
- Continue improving to meet malaria surveillance needs
- Ongoing data use strengthening for control and elimination of malaria in the future
Thank you

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Lao PDR

Centre Malariology, Parasitology, and Entomology