VIET NAM
Viet Nam

- Area: 331.211 km²
- 90 million inhabitants
- Life expectancy: 71.1, 68.3, 74.1 (total, male, female)
- Provinces: 63
- Districts: 673
- Communes: 10.925
- 54 Ethnic minority groups
Viet Nam

| High TB burden | High HIV burden | High MDR-TB burden |

<table>
<thead>
<tr>
<th>Population 2012</th>
<th>91 million</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Estimates of TB burden</strong> * 2012</td>
<td><strong>Number (thousands)</strong></td>
</tr>
<tr>
<td>Mortality (excludes HIV+TB)</td>
<td>18 (12–25)</td>
</tr>
<tr>
<td>Mortality (HIV+TB only)</td>
<td>2.1 (1.8–2.7)</td>
</tr>
<tr>
<td>Prevalence (includes HIV+TB)</td>
<td>200 (78–370)</td>
</tr>
<tr>
<td>Incidence (includes HIV+TB)</td>
<td>130 (99–170)</td>
</tr>
<tr>
<td>Incidence (HIV+TB only)</td>
<td>9.3 (6.9–12)</td>
</tr>
<tr>
<td>Case detection, all forms (%)</td>
<td>76 (59–100)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TB case notifications 2012</th>
<th>(% Retreatment cases)</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>New cases</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Smear-positive</td>
<td>51 033 (54)</td>
<td>Relapse</td>
</tr>
<tr>
<td>Smear-negative</td>
<td>21 706 (23)</td>
<td>Treatment after failure</td>
</tr>
<tr>
<td>Smear-unknown / not done</td>
<td></td>
<td>Treatment after default</td>
</tr>
<tr>
<td>Extrapulmonary</td>
<td>18 904 (20)</td>
<td>Other</td>
</tr>
<tr>
<td>Other</td>
<td>3 210 (3)</td>
<td></td>
</tr>
<tr>
<td>Total new</td>
<td>94 853</td>
<td>Total retreatment</td>
</tr>
</tbody>
</table>

Other (history unknown)

| Total new and relapse | 102 112 | Total cases notified | 103 906 |

Global Report 2013
Notified TB cases
History of VN TB surveillance system

- DOTS from 1990 → surveillance system built at that time
- R&R Form adapted from WHO
- Paper based system with aggregated data from district → provincial → national level
- Semi–computerized system applied from 2000:
  - All districts report to province (6 forms reports with aggregated data from 2 register books)
  - All province provided a software that can export reports and the reports send to NTP by email + paper reports
- From 2009, new revised R&R forms will be applied to capture all info in new challenges (TB/HIV, PPM, MDR TB, ...)
- We need to revised or upgraded or newly established software to use the new forms recording and reporting TB epidemic and control in Vietnam
Aims of VITIMES

• To be the completed solution for TB surveillance system of the NTP

• Not only epidemiological surveillance
  • TB notification (including MDR TB)
  • Treatment outcome
  • Lung diseases (PAL strategy)
  • Other diseases – link with MoH data (HIV, ...)

• But also Management
  • Drug supply and distribution
  • Consumable materials and equipments
  • Laboratory work and external quality assurance
  • Finance
Characteristics of VITIMES

1. Web application / based on technology of .net framework 2.0
2. Decentralization into 3 levels of facilities:
   • District – provincial – national
   • All related facilities as district level
3. Central database, mixing aggregated and disaggregated data (case based)
4. Internet based application: input – reports convenience
5. Hardware
   - Desktop PC
   - Central server (web, database, back-up, etc)
   - Firewall etc.
Components

- Module for patients management.
- Module for management laboratory activities and quality control.
- Module for TB drugs management.
- Module for chemicals, material management.
- Module for equipment management.
- Module catalogues.
- Convenience module (Forum, survey, FAQs, Online help).

System administration

Others (Forum, Survey, FAQs, Online Help, Chat room)
Basic Data

**District level:** Case data
- TB Patient registration BOOK
- Laboratory BOOK
- Drug management

**Provincial level:**
- Report from Districts
- EQA / LQAS data and report
- Drug management
- Chemical and material management
- Analysis and Reports

**National level:**
- Report from Provinces
- Analysis and Reports

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**For each TB patient:**
- Demographic characteristics
- Treatment History
- Diagnosis
- Lab results
- Treatment regimen, follow up, and outcomes
Implementation & Management

Steps

Two phases:

1. Provincial level
2. Districts level

2. Implementation & Management

2.1. Collection:

Report input from provincial level.
Case input from districts level.

2.2. Security

- ID/Password
- VPN (Virtual Private Network)
- Firewall
- Front-up and back-up

2.3. Analysis & Dissemination

- On line:
  Spell base analysis
  Export designated reports
  Generating tables on purpose
Phase I:
Report input from provincial level

In 2010, all 63 provinces in Vietnam reports input from provincial level through Vitimes.
Phase 1 achievements
Phase II:
Case input from districts level
PPM—

Achievement

- Guidelines and PPM strategy
- Expansion to 15 provinces by 2009 (exceeding the target of 12)
- Increased contribution – varies by province
- Progress in Public-Public – a large catch

![Graph showing contribution of PPM to TB case notification (all forms), by province, 2010, Viet Nam.](image)
Backgrounds

- When routine surveillance is ineffective TB incidence can be assessed directly through costly, time-consuming and complicated, and therefore impracticable, longitudinal cohort studies or multiple prevalence surveys. An alternative is indirect estimation of completeness of TB registers, e.g. through record-linkage and capture-recapture techniques, as recently described in Egypt, Yemen and Iraq, ...

- We used similar methodology to estimate the ratio of notified (to NTP) and detected (after record-linkage) to incident TB cases, and hence the level of TB underreporting for all forms of TB disease, in four provinces in Vietnam in 2015, to further explore a potential timely and appropriate tool for periodic evaluation of WHO TB control impact targets in resource-limited settings.
Estimating tuberculosis burden in resource-limited countries: a capture-recapture pilot study in Vietnam

- **Study design 2**: record-linkage of three registers (NTP, Public providers and private providers), followed by capture-recapture analysis, to estimate under-notification and TB incidence.
- Pilot study in four provinces after stratified cluster-random sampling, on the basis of implementation of Public-Private Mix (PPM) initiatives (expected inclusion of ~1800 patients)
- Four provinces selected that have electronic NTP register (40/63 sampling frame)
- Record-linkage on the basis of name, address and national ID number
Estimating tuberculosis burden in resource-limited countries: a capture-recapture pilot study in Vietnam

- **Time frame:**
  - draft protocol ready < 1 month
  - implementation (early) 2015, with NTP linkage 6 months before and 3 months after study period of three months
- **Points of attention:**
  - persons < 15 years old have no ID card
  - timing against planned prevalence survey
Key implementation decisions

• Investigators:
  – Prof. Nguyen Viet Nhung
  – Dr. Philippe Glaziou
  – Dr. Nobertus A.H. Van Hest
  – Dr Nguyen Binh Hoa
  – Dr. Hoang Thi Thanh Thuy
Timelines

• Draft protocol available for peer-review: 30th November, 2014
• Earliest study implementation possible: Quarter II, 2015
Technical assistance needs

• Study design: Study design II (prospective)
• Study analysis
## Draft budget

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<tr>
<th>Activities</th>
<th>Quantity</th>
<th>Frequency</th>
<th>Unit cost</th>
<th>Total cost</th>
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<td><strong>Human resources field work</strong></td>
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<td>1,000</td>
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<td><strong>Contingency cost (5% of total)</strong></td>
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<td><strong>312,355</strong></td>
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THANK YOU FOR YOUR ATTENTION !