Inventory studies

Philippe Glaziou

Accra, May 2013
Why?

• TB incidence best measured from state-of-the-art TB surveillance systems linked to well performing health systems
  – High coverage of health/social protection and diagnostic services -> limited *under-diagnosis*
  – High coverage of reporting (incl. from the private sector) -> limited *under-reporting*
Under-reporting in India

From Where Are Tuberculosis Patients Accessing Treatment in India? Results from a Cross-Sectional Community Based Survey of 30 Districts

Srinath Satyanarayana¹,²*, Sreenivas Achutan Nair¹, Sarabjit Singh Chadha¹, Roopa Shivashankar³, Geetanjali Sharma¹, Subhash Yadav¹, Subrat Mohanty¹, Vishnuvardhan Kamineni¹, Nevin Charles Wilson¹, Anthony David Harries²,⁴, Puneet Kumar Dewan⁵

46% of cases on treatment not known to NTP
When will case notifications start to decline in Indonesia?

New + relapses, all forms

- Smear positive
Inventory study objectives

• Quantify the level of TB under-reporting
• Estimate TB incidence if capture-recapture modelling is applicable
How do inventory studies work?

• Cases detected by health providers recorded
  – **NTP providers** (e.g. TB dispensaries)
  – General hospitals
  – Private doctors
  – Health insurance
  – ...

• Match cases in non-NTP list with cases in NTP list
Record linkage

- **Deterministic** ideal – need unique national ID number or equivalent (e.g. Iraq, Yemen)
- **Probabilistic** more work-intensive and may lead to misclassifications (e.g. UK)
3 main study designs

**Prospective**

1. Quantify under-reporting, no incidence estimation (*untested*)
2. Quantify under-reporting and estimate incidence (e.g. Iraq, Yemen)

**Retrospective**

3. Quantify under-reporting and estimate incidence using existing computerized records (e.g. UK, Netherlands, Korea)
Sampling challenges

• Sampling frame not documented
• Varying number of providers and cases per sampled area
• Missed linkages
  – Areas must be self contained (necessary to estimate incidence), OR
  – NTP data must extend beyond sampled areas
  – NTP data must extend before and after the study period
Three separate lists necessary for capture-recapture (e.g. Iraq)

1980 detected, under-reporting = 16%
473 additional cases estimated (394–565)
Where?

• Inventory studies to measure under-reporting
  – Countries with private sector / hospitals / facilities suspected to not report TB cases

• Inventory studies to estimate TB incidence
  – Countries with at least two sources of reporting on TB separate from routine NTP reporting