Tuberculosis Elimination 2050: Global and Local Challenges

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November 9, 2011

Outline of what it will take

- 2010 global TB trends, goals
- How DOTS happens at country level - an exercise
- New strategies to address impediments
- Local challenges

Latest Global TB Estimates and Notification – 2010

Following consultation in 78 countries, revision of estimates were reduced

- All forms of TB
  - Greatest number of cases in Asia; greatest rates per capita in Africa
  - Estimated number of cases: 8.8 million
  - Cases reported: 6.2 million
  - New smear positive: 4.1 million? (128 per 100,000)
  - 2.6 million (80 per 100,000)

- Multidrug-resistant TB (MDR-TB)
  - New smear positive: 290,000 (50,000 XDR)
  - 53,000, (only 46,000 Rx)

- HIV-associated TB
  - 1.1m (13%) 486,000

- Deaths
  - 1.4 million (.35 mHIV, .15 mMDR, .03 mXDR, .32 m women)

Estimated TB incidence rates, 2010

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

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National TB Control Programs in Resource Poor Settings (The DOTS Strategy) Modeled by Styblo, Tanzania 1970s

Essential elements
- Find sputum smear + cases--- lab network
- Case definition and standard treatment--- manual
- Uninterrupted supply of high quality drugs directly observed therapy (DOT)
- Recording and reporting, outcome evaluation
- Government commitment

World Bank assessed as the most cost-effective health strategy (1990)

Progress of TB Programme, Tanzania, 1979-1990

Kilimanjaro Region, Tanzania
Non-adherence with Treatment

Resistance to Tuberculosis Drugs
Tanzania, Never Treated 1968-1988
IUATLD Collaborative Programs
Evaluation of Cost-effectiveness

Most cost effective health intervention strategy

IUATLD model

Cost-effectiveness iso-bars

IUATLD model

DOTS Expansion 1990-2001:

Total number of countries

Number of countries

World Health Organization

Global Action on TB

• 1990 World Bank evaluation of National TB Programs as cost effective
• Rising rates, falling funding
• 1993 WHO declared TB a global emergency
• 1994 DOTS marketing strategy
• 1998 London Ad hoc proposed a partnership

The STOP TB Partnership 2000

Global Partners Forum

Working Groups

Advocacy, Communications and Social Mobilization working group

Financing Task Force
World Health Assembly Targets Set in 1990

<table>
<thead>
<tr>
<th>WHA Target</th>
<th>1995</th>
<th>2005</th>
<th>2010</th>
</tr>
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<tbody>
<tr>
<td>Find 70%</td>
<td>40%</td>
<td>60%</td>
<td>65%</td>
</tr>
<tr>
<td>Cure 85%</td>
<td>57%</td>
<td>84%</td>
<td>87%</td>
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MDG Goals

By 2015, compared with 1990 (MDG goal 6: “reduce the burden of HIV Malarai and other tropical diseases”)

- **Reverse the rise**: peak in 2002 at 141/100,000 (decline 1.3%/y)
- **Cut prevalence in half** (1990-300: 2010, 178 target 150)
- **Cut mortality (case fatality) in half**, 1990-30, 2010, 15/100,000. Target 12 will likely be met in all regions

By 2050 eliminate TB as a public health problem

Incidence rates stable or falling slowly

- Mortality falling and target of 12 will be reached. Now at 15
- Prevalence 178, target for 2015, 140 will not be reached
Exercise in Recording, Reporting & Evaluation:
District of Nikobo, pop 100,000

- From the list, and assuming 200 patients were seen in the clinic during the first month of 2009
  - What % were respiratory symptomatics?
  - What percent of those were tested for TB and what % were smear positive?
- From treatment cards, how many patients were started on TB treatment
  - What % had HIV testing, and % positive?
  - One year later how many were cured, completed, died, defaulted?
  - Assuming this is an average month: what is the rate of TB?

Impediments

- HIV co-infection
- Failing health infrastructure (lab challenges, human resources)
- Drug resistance
- Community commitment
- POVERTY and the social determinants of health
- Donor fatigue

…………….the plan for 2011-2015, 6 elements

1. DOTS Expansion -
to find more cases under DOTS (61% in '06)

- Greater access to care (Task Forces):
  - Public-private partnerships (incr detection 40%)
  - Better treatment for children, Dx, Rx and prevention
  - Better lab capacity (DST, Gene Xpert)
  - Health system strengthening (introducing electronic reporting)
  - Uninterrupted drug supply-GDF
  - TB and poverty

2a) HIV TB Interventions

- Collaboration at all levels: diagnosis, clinical care, epidemiologic information
- Triple I-Intensified: TB testing in HIV+, INH prophylaxis, and Infection control
- TB patients VCT for HIV, and treat
- HIV prevention, treatment and care
- Community support, reduce stigma
### HIV TB Targets

<table>
<thead>
<tr>
<th>HIV TB</th>
<th>2010</th>
<th>Target</th>
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<tbody>
<tr>
<td>% TB patients tested for HIV</td>
<td>34</td>
<td>100</td>
</tr>
<tr>
<td>% HIV + TB patients treated with CPT</td>
<td>77</td>
<td>100</td>
</tr>
<tr>
<td>% HIV + TB patients treated for HIV</td>
<td>46</td>
<td>100</td>
</tr>
<tr>
<td>% living with HIV screened for TB</td>
<td>56</td>
<td>100</td>
</tr>
<tr>
<td>People living with HIV attending HIV Services enrolled in IPT; prevention</td>
<td>12%</td>
<td>100%</td>
</tr>
</tbody>
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### 2b) Improve Management of MDR TB (Resistance to H&R)

- **Lab study:** less that 5% of TB cases are tested for MDR
- **Estimated prevalence:** 640,000 MDR, only 53,000 reported and about 45,000 under good DOTS + approved program

**Goal:** to treat 800,000 in DOTS + programs

### Global MDR Initiative

- Goal for high MDR country: one culture lab/ 5 M and one DST lab/ 10 M
- Gene Xpert cost $17,000/unit, $17/case
- Second line drug access, cost, distribution, training and supervision challenges

### 3. Contribute to Health System Strengthening

**Challenges**
- Human resources
- Physical facilities
- Lab facilities
- Management
- Training
- Logistics to assure no stock-outs of diagnostics and therapeutics
- Political will and funding
4. Engage All Care Providers

Beyond the public system
- Private now 20 - 40% of notifications
- (Pharmacies)
- Traditional
- Faith based
- Military
- Prisons

5. Empower People and Communities with TB

- Long neglected is the link of poverty and TB, both as a cause and an effect
- Rates began to decline before drugs as the industrial revolution improved living conditions

6. Build Research

- Advocate for new drugs, diagnostics and vaccine
- Build capacity for operations research

TB Rates/100,000, in Canada Compared with Sample Countries (2010)

Note: South Africa at 981/100,000 removed
What factors influence TB rates?

For a long time, the sole measures were the elements of program, the presence of a plan—a manual, an adequate supply of drugs, a quality assured laboratory, a recording and reporting system, and training of health workers. These elements were known as DOTS.
The Mycobacterium is Necessary but Not Sufficient for Tuberculosis
Poverty is the driver

DOTS is essential, but not sufficient for ELIMINATION

It’s the housing, stupid

TB funding of 4.4 billion leaves a gap of 1 billion and depends 86% on domestic spending

Trends in Development Assistance
Ted Schrecker, U Ottawa
World TB Day 2012

Summary

• TB is a totally curable, preventable disease with good control programs
• Globally incidence peaked in 2002 and is slowly falling in all regions, even Sub-saharan Africa
• Challenge to sustain control in a flagging economy, address MDR capacity, reach marginalized populations, e.g., Canadian Aboriginal
• Impediments: access to care and social determinants of poverty, education, need to be addressed
• Challenge to sustain control in marginalized populations, e.g., Canadian Aboriginal increase
• Response a personal commitment to STOP TB