Gaps in the TB care cascade and their importance for transmission

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A fictional setting

Consider a country with:
• Annual TB incidence of 142 per 100,000 population
• Annual DR-TB incidence of 7.9 per 100,000 population
• ~60% case notification
• Only an estimated 22% of DR cases being diagnosed

In other words...
• Reflective of global TB burden
• What are the control priorities in this setting?
1 in 2 people with TB fall between the cracks
1 in 2 people with TB fall between the cracks

‘Missing millions’:
- No symptoms to prompt careseeking
- Symptomatic but no access to care
- Missed diagnosis in the public sector
- Captured by the private sector
1 in 2 people with TB fall between the cracks

Asymptomatic TB with bacteria in sputum

- Self heal
  - Good, but has the disease already spread?
  - Not to be included in targets for case detection

- Remain asymptomatic
  - Invisible but potentially could spread the disease?

- Progress to symptoms
  - Diagnose when they have symptoms, but by then the disease would have spread?

- Die
  - Hidden mortality due to TB?

11 million
People getting active TB disease each year

7 million
People who can be diagnosed by screening

20% as infectious as symptomatic TB
1 in 2 people with TB fall between the cracks

- Detect asymptomatic cases
- High-quality expansion
- Improve NTP diagnosis
- Improve NTP treatment initiation
- Improve NTP treatment success

11 million
People getting active TB disease each year

7 million
People who can be diagnosed by symptom screening

6.5 million
Diagnosed

6 million
Treated

5 million
Treated successfully
Plugging each of the gaps
Plugging each of the gaps
Plugging each of the gaps

Annual incidence per 100,000

Baseline
+ Asymptomatic detection
+ High-quality expansion
+ NTP diagnosis
Plugging each of the gaps
Plugging each of the gaps
9 in 10 people with DR-TB fall between the cracks

- Detect asymptomatic cases
- Expand DST at point of diagnosis
- High-quality expansion
- NTP treatment initiation
- Improve programmatic treatment outcomes

600,000
People getting DR-TB each year

130,000
Diagnosed

120,000
Treated

60,000
Treated successfully
Plugging each of the DR-TB gaps
Plugging each of the DR-TB gaps
Plugging each of the DR-TB gaps
Plugging each of the DR-TB gaps

Annual incidence per 100,000

Baseline
+ Asymptomatic detection
+ High-quality expansion
+ DST
+ NTP Tx initiation
+ NTP Tx completion
Plugging each of the DR-TB gaps
Almost all people infected with TB fall between the cracks

However, not all infections will develop disease

What if we could better identify those who would benefit from preventive therapy?

~ 2% of the population
LTBI control scenarios

- Baseline
- Blanket TB intervention
- 20% successfully treated
- 50% successfully treated
LTBI control scenarios

**Annual TB incidence per 100,000**

- **Baseline**
- **Blanket TB intervention**
- **20% successfully treated**
- **50% successfully treated**

**Reduction in cumulative incidence (pct)**

- **Current implementation**

![Graph showing LTBI control scenarios](image)
LTBI control scenarios

Annual TB incidence per 100,000

Baseline
Blanket TB intervention
20% successfully treated
50% successfully treated

Reduction in cumulative incidence (pct)

Current eligibility

Annual successfully treated (pct)
LTBI control scenarios

Annual TB incidence per 100,000
Baseline
Blanket TB intervention
20% successfully treated
50% successfully treated

Annual successfully treated (pct)
Reduction in cumulative incidence (pct)

Current eligibility
Biomarker test?
Other risk factors?
Some cautions

• This simple picture is representative only of our imaginary country, and *not* definitive of global priorities
  • Merely an indicative starting point

• In practice, ‘real’ countries will need country-specific interventions
  • E.g. India: private sector engagement and adherence

• But important questions....
  • Are we looking under the lamp-post?
Chest symptomatics seeking care
Chest symptomatics seeking care

Asymptomatic TB

Private sector capture of TB patients
‘Turning off the tap’ at the point of latent infection?

Patient delays before first presentation for care?

Some TB cases never contacting the healthcare system?

Private sector capture of TB patients

TB transmission vs clinical course?

Chest symptomatics seeking care

Asymptomatic TB
We need to understand where transmission is coming from
Thank you