The focus in TB must be on research in diagnostics and treatment, not social aspects of the disease: Opposing the motion

Jon S. Friedland
Why oppose the motion?

• Host directed therapy in TB – my main interest for over 20 years

• Novel TB diagnostics research:
  
  Microscopic-Observation Drug-Susceptibility Assay for the Diagnosis of TB
  
  (2006)

• TB in migrants

How effective are approaches to migrant screening for infectious diseases in Europe? A systematic review

Rates of migration to Europe, and within Europe, have increased in recent years, with considerable implications for public health. Migrants in Europe face a disproportionate burden of tuberculosis, HIV, and hepatitis B and C, yet experience a large number of barriers to accessing primary health care on arrival. A better understanding of how to deliver effective and cost-effective screening, vaccination, and health services to this group is now crucial. We did a systematic review to document and assess the effectiveness and cost-effectiveness of approaches used for infectious diseases in Europe.
New developments in TB

- **New diagnostic tests for TB**
  - The era of molecular testing
  - Gene Xpert
  - IGRAs

- **New drugs for TB**
  - Bedaquiline
  - Delamanid
  - Pretomanid

- **Repurposing of drugs for TB**
  - Quinolones
  - Linezolid
TB cases – news from the WHO

- 2007: 9.2 million cases
- 2009: 9.4 million cases
- 2011: 8.7 million cases
- 2013: 9 million cases
- 2015: 10.4 million cases
- 2017: 10 million cases

Global TB Treatment success rates 86% in 2013 and 82% in 2016

Approx 4 million cases never reported and at least 50% probably do not come to medical attention of any sort
Problems in the cascade of care

<table>
<thead>
<tr>
<th>Barriers</th>
<th>Facilitators</th>
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<tbody>
<tr>
<td><strong>Migrant insensitivity</strong></td>
<td>- Well-trained and dedicated screening staff</td>
</tr>
<tr>
<td>- Fear of screening providers judgment</td>
<td>- Ensuring confidentiality</td>
</tr>
<tr>
<td>- Discrimination and fear of racism and health tourism stigma</td>
<td>- Communication</td>
</tr>
<tr>
<td>- Anxiety about breaches in confidentiality</td>
<td>- Culturally sensitive and appropriate services</td>
</tr>
<tr>
<td>- Lack of professionalism</td>
<td>- Free from discrimination</td>
</tr>
<tr>
<td>- Lack of staff training and support</td>
<td>- Trust and respect of staff’s judgment</td>
</tr>
<tr>
<td>- Lack of professionalism</td>
<td>- Language support</td>
</tr>
<tr>
<td><strong>Culture and individual mind-set</strong></td>
<td><strong>Migrant involvement</strong></td>
</tr>
<tr>
<td>- Low perception of risk</td>
<td>- Patient involvement in delivery</td>
</tr>
<tr>
<td>- Missing tradition of preventative health-seeking behaviour</td>
<td><strong>Outreach</strong></td>
</tr>
<tr>
<td>- Fear of disease-related stigma and social rejection</td>
<td>- Tailored awareness-raising in migrant communities prior to screening provision of (a) health access (b) disease</td>
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<tr>
<td>- Fear of disease-related consequences</td>
<td>- Testing in user-friendly outreach settings</td>
</tr>
<tr>
<td>- Misconceptions of diseases</td>
<td><strong>General health check approach and promotion</strong></td>
</tr>
<tr>
<td><strong>Other individual barriers</strong></td>
<td><strong>Anonymous testing approach</strong></td>
</tr>
<tr>
<td>- Limited financial resources</td>
<td><strong>Service provider management</strong></td>
</tr>
<tr>
<td>- Insufficient information and explanation of screening</td>
<td>- Quick turnover of results</td>
</tr>
<tr>
<td><strong>Structural and service barriers</strong></td>
<td>- Efficient referrals</td>
</tr>
<tr>
<td>- Poor management (referrals)</td>
<td>- High quality support</td>
</tr>
<tr>
<td>- Incoherency of screening (screening in different settings)</td>
<td>- Clear algorithms for screening service</td>
</tr>
<tr>
<td>- Multiple steps for screening test</td>
<td>- Quality assurance</td>
</tr>
<tr>
<td>- Lack of appropriate confidential space</td>
<td>- Good coordination</td>
</tr>
<tr>
<td>- Funding</td>
<td>- Lack of time</td>
</tr>
<tr>
<td>- Difficulty to communicate between laboratory for result queries</td>
<td>- Lack of time</td>
</tr>
</tbody>
</table>

Barriers result in delay in diagnosis & Rx, clinical deterioration / mortality, spread of TB, increased costs.

[Seedat, et al The Lancet Infect Dis; 2018]
Stigma in TB

Stigma and depressive symptoms among tuberculosis patients’ with different medication adherence

<table>
<thead>
<tr>
<th>Variables</th>
<th>Medication adherence</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Low (N = 447)</td>
</tr>
<tr>
<td>Stigma</td>
<td>11.07 ± 3.80a</td>
</tr>
<tr>
<td>Depressive symptom</td>
<td>19.87 ± 8.02a</td>
</tr>
</tbody>
</table>

Different uppercase letters demonstrate significant difference by the Tukey’s Studentized range test (P < 0.05).


(Ann Global Health 2018; 84:727-35)
TB, depression and outcomes

• Study of 242,952 individuals

• Prevalence of depressive episode was much higher in TB patients

• TB health status worse across 6 health domains including self-care

• Public health efforts should focus on managing depression to improve outcomes in TB; small studies confirm this.

(BMC Med 2017; 15:209)
Decreasing incidence of TB in rich countries

- TB bacillus identified
- TB skin testing
- WW I
- WW II
- TB antibiotics
TB notification rates among children less than 4 years over time

Global income

THE WORLD BY INCOME (FY 2018)

Note: The World Bank classifies economies as low-income, lower-middle income, upper-middle income or high-income based on gross national income (GNI) per capita. For more information see https://datahelpdesk.worldbank.org/knowledgebase/articles/906595-world-bank-country-and-lending-groups.
TB Incidence
(WHO global TB report 2018)

Estimated TB incidence rates, 2017
Poor people cannot afford TB treatment

Biggest expense is loss of income but food, transport, tests and others all contribute

A randomized controlled study of socioeconomic support to enhance tuberculosis prevention and treatment, Peru. Bull WHO 2017; 95:270-80
The impact of social protection and poverty elimination on global tuberculosis incidence: a statistical modelling analysis of Sustainable Development Goal 1

Daniel J Carter, Philippe Glaziou, Knut Linnanstre, Andrew Sicks, Katherine Floyd, Diana Weil, Maria Ravignione, Rob M G J ter Heurk, Delia Bocchio

Summary
Background The End TB Strategy and the Sustainable Development Goals (SDGs) are intimately linked by their common targets and approaches. SDG 1 aims to end extreme poverty and expand social protection coverage by 2030. Achievement of SDG 1 is likely to affect the tuberculosis epidemic through a range of pathways. We estimate the reduction in global tuberculosis incidence that could be obtained by reaching SDG 1.

Methods We developed a conceptual framework linking key indicators of SDG 1 progress to tuberculosis incidence via well described risk factor pathways and populated it with data from the SDG data repository and the WHO tuberculosis database for 192 countries. Correlations and mediation analysis informed the strength of the association between the SDG 1 subtargets and tuberculosis incidence, resulting in a simplified framework for modelling. The simplified framework linked key indicators for SDG 1 directly to tuberculosis incidence. We applied an exponential decay model based on linear associations between SDG 1 indicators and tuberculosis incidence to estimate tuberculosis incidence in 2035.

Findings Ending extreme poverty resulted in a reduction in global incidence of tuberculosis of 33.4% (95% credible interval 15.5–44.5) by 2035 and expanding social protection coverage resulted in a reduction in incidence of 76.1% (45.2–89.9) by 2035; both pathways together resulted in a reduction in incidence of 84.3% (54.7–94.9).

Interpretation Full achievement of SDG 1 could have a substantial effect on the global burden of tuberculosis. Cross-sectoral approaches that promote poverty reduction and social protection expansion will be crucial complements to health interventions, accelerating progress towards the End TB targets.

Findings Ending extreme poverty resulted in a reduction in global incidence of tuberculosis of 33.4% (95% credible interval 15.5–44.5) by 2035 and expanding social protection coverage resulted in a reduction in incidence of 76.1% (45.2–89.9) by 2035; both pathways together resulted in a reduction in incidence of 84.3% (54.7–94.9).
The research and practical focus must be on the social aspects of TB to improve outcomes.

Research on important new treatments and diagnostic test can then be implemented.

OPPOSE THE MOTION