Beyond the Numbers: Challenges in TB Elimination

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TB Outreach Worker Training

Success of TB Control
Something to talk about!

• Decline TB in the United States, Virginia and globally
  — Strategy of identifying persons with TB, treating their disease with DOT and identifying their contacts is working
• Current challenges: global burden of disease and infection is still huge (1 in 3 people infected with TB)
• Explosion of diabetes and continued impact of HIV pandemic

Reported TB Cases
United States, 1982–2010*

*Updated as of July 25, 2011
TB Case Rates, United States, 2010

Cases per 100,000.

Reported TB Cases by Race/Ethnicity*, United States, 2010

Hispanic or Latino (30%)
American Indian or Alaska Native (14%)
Black or African American (12%)
Asian (28%)
White (16%)
Native Hawaiian or Other Pacific Islander (1%)

*All races are non-Hispanic. Persons reporting two or more races accounted for less than 1% of all cases.

Number of TB Cases in U.S.-born vs. Foreign-born Persons, United States, 1993–2010*

*Updated as of July 21, 2011

10,000
15,000
20,000

No.
Reported TB Cases by Origin and Race/Ethnicity,* United States, 2010

- **U.S.-born**
  - White (35%)
  - Hispanic or Latino (19%)
  - American Indian or Alaskan Native (3%)
  - Asian (2%)
  - Black or African American (16%)
- **Foreign-born**
  - White (15%)
  - Hispanic or Latino (37%)
  - Native Hawaiian or Other Pacific Islander (2%)
  - Asian (45%)
  - Black or African American (40%)

*All races are non-Hispanic. Persons reporting two or more races accounted for less than 1% of all cases.

**American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander accounted for less than 1% of foreign-born cases and are not shown.

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Percentage of TB Cases Among Foreign-born Persons, United States*

- 2000
- 2010

- DC
- >50%
- 25%–49%
- <25%

*Updated as of July 21, 2011

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Estimated HIV Coinfection in Persons Reported with TB, United States, 1993 – 2010*

- % Coinfection

- Aged 25-44
- All Ages

*Updated as of July 19, 2011

Note: Minimum estimates based on reported HIV-positive status among all TB cases in the age group.
Mode of Treatment Administration in Persons Reported with TB United States, 1993 – 2008*

*Updated as of July 12, 2011. Data available through 2008 only.
**Percentage of total cases in persons alive at diagnosis, with an initial regimen of one or more drugs prescribed, excluding cases with unknown mode of treatment administration.

Directly observed therapy (DOT); Self-administered therapy (SA)

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TB in Virginia: 1990-2011

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Percent Virginia TB Cases by Race/Ethnicity and Place of Origin

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VA TB Cases by Region: 2007-2011

Percent of TB Cases on DOT vs. Self-administered: VA, 1995-2011

Foreign-born TB Cases Top Five Countries of Birth: US and Virginia

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Mexico</td>
<td>India</td>
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<tr>
<td>Philippines</td>
<td>Ethiopia</td>
</tr>
<tr>
<td>India</td>
<td>Viet Nam</td>
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<tr>
<td>Viet Nam</td>
<td>Philippines</td>
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<tr>
<td>China</td>
<td></td>
</tr>
</tbody>
</table>

(with 8 cases each China, Mexico, Nepal, Peru.)
TB Case Rate per 100,000 VA and US: 2007-2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Virginia TB Cases</th>
<th>Virginia TB Rate</th>
<th>US TB Cases</th>
<th>US,521TB Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>309</td>
<td>4.0</td>
<td>13,280</td>
<td>4.4</td>
</tr>
<tr>
<td>2008</td>
<td>292</td>
<td>3.8</td>
<td>12,906</td>
<td>4.2</td>
</tr>
<tr>
<td>2009</td>
<td>273</td>
<td>3.5</td>
<td>11,545</td>
<td>3.8</td>
</tr>
<tr>
<td>2010</td>
<td>268</td>
<td>3.4</td>
<td>11,181</td>
<td>3.6</td>
</tr>
<tr>
<td>2011</td>
<td>221</td>
<td>2.7</td>
<td>10,521</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Estimates of the Global Burden of HIV

- Estimated 34 million people living with HIV/AIDS in 2010
- Half are women
- 10% (3.4 million) are children
- 2.7 million people became newly infected in 2010

Source: [http://www.avert.org/worldstats.htm](http://www.avert.org/worldstats.htm)

Estimated HIV Prevalence, 2007
Estimates of the Global Burden of TB

- In 2010 there were 8.8 million (range, 8.5–9.2 million) incident cases of TB
- In 2010 there were over 1.35 million deaths, including 0.35 million deaths that were HIV associated
- The absolute number of TB cases has been falling since 2006

Estimated TB incidence rates, 2010

TB and HIV: What’s the Link

- HIV is the strongest known risk factor for the progression of latent TB infection into active disease
- The risk of developing TB is estimated to be 20 to 37 times greater for people living with HIV than those without HIV
- All HIV patients should be screened for LTBI and active disease and all TB patients should be tested for HIV
Estimated HIV Prevalence in New TB, 2010

Estimates Global Burden of Diabetes

- 350 million people with diabetes
- Prevalence of diabetes is similar in high and low income countries
- The prevalence of diabetes is rising and expected to increase 50% by 2030

TB and Diabetes: What’s the Link

- About 10% of TB cases are linked to diabetes
- Diabetes weakens the immune system and creates vulnerability to infectious disease
- 2 to 3 times higher risk of TB for people with diabetes
Percentage of Tuberculosis Attributable to Diabetes

Countries with high incidence TB and high prevalence of diabetes

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