Epidemiology of Alcohol and Cigarette Use Among People with Tuberculosis in the United States

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Webinar
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National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Division of TB Elimination

Overview
- Describe the prevalence of alcohol abuse and tobacco use among people with TB in the US
- Interrelatedness between alcohol abuse, tobacco use, and implications for TB control

Prevalence of Cigarette and Alcohol use Among People with TB
Excessive Alcohol Use Among People with TB ≥ 15 Years by Sex & Nativity, 1997-2006

Prevalence of Cigarette Smoking Among People with TB in the US

- No national estimates of smoking prevalence among people with TB in the US

Prevalence of Current Cigarette Smoking Among Adults in the US

- 20.6% among adults
- 23.5% among men; 17.9% among women
- 31.1% of persons below the federal poverty level
- 28.5% among persons with ≤ high school diploma relative to 5.6% among those with a graduate degree

Alcohol, Cigarettes, and TB
Epidemiology - Pevzner

Prevalence of Current Cigarette Use Among Groups at High-risk of TB in the US

- 51% of persons receiving HIV care
- 73% of persons experiencing homelessness
- 5 countries contributing 56% of foreign-born cases

<table>
<thead>
<tr>
<th></th>
<th>Male (%)</th>
<th>Female (%)</th>
<th>Total (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>24.8</td>
<td>7.8</td>
<td>15.9</td>
</tr>
<tr>
<td>Philippines</td>
<td>47.7</td>
<td>9.0</td>
<td>28.3</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>47.4</td>
<td>1.4</td>
<td>23.8</td>
</tr>
<tr>
<td>India</td>
<td>24.3</td>
<td>2.9</td>
<td>14.0</td>
</tr>
<tr>
<td>China</td>
<td>52.9</td>
<td>2.4</td>
<td>28.1</td>
</tr>
<tr>
<td>United States</td>
<td>23.5</td>
<td>17.9</td>
<td>20.6</td>
</tr>
</tbody>
</table>


Association Between Alcohol and Tobacco Use

Among people that drink – do they smoke?

<table>
<thead>
<tr>
<th></th>
<th>Heavy drinking (%)</th>
<th>Current use (%)</th>
<th>No drinking (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current smoking</td>
<td>56.3</td>
<td>18.5</td>
<td>15.9</td>
</tr>
</tbody>
</table>

Among people that smoke – do they drink?

<table>
<thead>
<tr>
<th></th>
<th>Current smokers (%)</th>
<th>Nonsmokers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy drinking</td>
<td>16.4</td>
<td>3.9</td>
</tr>
<tr>
<td>Binge drinking</td>
<td>44.8</td>
<td>17.2</td>
</tr>
<tr>
<td>Current use</td>
<td>67.1</td>
<td>47.2</td>
</tr>
</tbody>
</table>

Source: National Household Survey on Drug Use and Health, 2009

Risk Factors Associated with TB Disease

- Experienced homelessness
- HIV infection
- High risk occupation
- Lived in a congregate setting
- Recent immigration to the US
- Substance abuse (illicit drugs and/or alcohol abuse)
We know that substance abuse is a problem for TB control programs but where does it rank relative to other common risk factors?

**Prevalence of Risk Factors Reported by People with TB in the US, 1997-2006**

- Substance abuse
- Recent immigrant
- HIV infection
- Congregate setting
- Homelessness
- High risk occupation


**Prevalence of Risk Factors Reported by US-born People with TB, 1997-2006**

- Substance abuse
- Homelessness
- HIV
- Congregate setting
- High risk occupation

Interrelatedness Between Alcohol Abuse, Tobacco Use, and Implications for TB Control

Smoking, Drinking, and TB

- People that smoke are at greater risk of
  - Infection and progression to TB disease
  - Increased risk of dying from TB
  - Dose-response relationship

- People exposed to secondhand smoke have greater risk of infection and progression to disease

- People consuming > 40g of alcohol per day/have an alcohol use disorder have 3 x risk of TB disease


Among People with TB in the US, Substance Abuse is Associated With . . .

- Sputum smear positivity, OR=1.6 (99% CI, 1.6-1.7)
  - HIV infected: OR=1.2 (99% CI, 1.1-1.4)
  - HIV not infected: OR=1.8 (99% CI, 1.7-1.9)

- TB treatment failure, OR=1.9 (99% CI, 1.8-2.1)
  - Males: OR=1.5 (99% CI, 1.3-1.7)
  - Females: OR=2.4 (99% CI, 1.9-3.0)

- Involvement in a county-level genotype cluster (for US-born) OR=2.3 (99% CI, 1.2-2.6)
  - Indicative of recent transmission

Investigate to identify additional cases and contacts

Screen contacts for TB disease and LTBI

Provide treatment and preventive therapy

Diagnose disease

Associated with smear positivity (infectiousness) & delayed care seeking (prolonged infectiousness); misattribution of “smokers cough”

Often unwilling/unable to report contacts

More difficult to locate & less likely to get screened; misattribution of “smokers cough”

Less likely to initiate, adhere to, & complete treatment or therapy

Treatment cure for disease & completion of preventive therapy

Epidemiology of TB in the US

“As the epidemic tide of TB recedes from the shores of America, small tidepools of disease remain behind: pools populated by immigrants, the elderly, and the immunocompromised.” Dr. Michael Isemen

An often overlooked tidepool deserving of more attention is a complicated mixture of alcohol abuse, tobacco and illicit drug use, unmet mental health needs, and homelessness.

I would like to thank the following colleagues for their contributions to this talk:

Dr. John E. Oeltmann
Dr. Patrick Moonan

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