Tuberculosis Epidemiology:
2016 Update

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Tuberculosis. Global Key Facts

• Top Infectious disease killer world wide
• Treatable and curable disease
• Every part of world. 80 % in 22 countries
• In 2014: 9.6 million infected. 1.5 million died
• In 2014: 480,000 developed MDR-TB
• In 2014 : 1.2 million people living with HIV developed TB
• TB Death rate dropped 47% between 1990 and 2014
• Ending TB epidemic by 2030 is among the health targets of newly adopted Sustainable development goals

WHO
Tuberculosis

- Caused by Mycobacterium tuberculosis
- Spread from person to person through air
- About 1/3 of world population has latent TB
- Latent TB: Infected but are not ill with disease and cannot transmit disease. 10% lifetime risk of active disease.
- Higher risk: HIV, immunosuppressed, Malnutrition, Diabetes.
- > 20% TB cases world wide attributed to smoking
- 140,000 children died from disease in 2014

WHO

Drug Resistant TB

- 190,000 deaths from MDR-TB
- Average cure rate of only 50% for treated MDR-TB pts
- Extensively drug – resistant TB (XDR-TB) reported by 105 countries
- 9.7% of people with MDR-TB have XDR-TB
- Higher mortality and cost
- Cost:  Drug susceptible TB $17,000
  Drug resistant $482,000

CDC
TB in United States

- Uniform national reporting of TB cases in USA began 1953
- 1993-2012, annual incidence of reported TB cases has always been >0.2 cases per 100,000 lower than previous year
- Preliminary data for 2015 indicate an incidence of 3.0 cases per 100,000 persons approximately same incidence as during 2013 and 2014

After 2 decades of declining incidence, progress toward TB elimination in United States appear to have stalled.

Leveling of Tuberculosis Incidence- United States, 2013 -2015
Morbidity and Mortality Weekly Report ( MMWR )
March 25, 2016 /65 (11);273-278

Epidemiological modeling suggests even if previously observed annual declines in USA had been sustained, TB elimination, defined < 1 TB case per one million persons annually wound no occur by the end of this century. The determinants of this leveling in TB incidence are not clear.
TB in United States

- 2015: 9,563 cases reported
- National TB Incidence approx 3 cases /100,000 persons
- 4 States (California, Florida, New York, Texas): 4839 cases
  - 50.6% of all reported cases
- State specific incidence ranged from 0.5 (WV) to 9.1 (Alaska)
- Median State incidence = 2.0

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TB in United States

<table>
<thead>
<tr>
<th># Cases</th>
<th>Annual TB incidence</th>
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<tbody>
<tr>
<td>US born</td>
<td>3,201 (33.5%)</td>
</tr>
<tr>
<td>Foreign born</td>
<td>6,335 (66.2%)</td>
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</tbody>
</table>
TB: US- Born Persons

- Non Hispanic blacks: 1,144 cases (3.3/100,000)  All time low
- Non Hispanic whites: 991 cases (0.5 /100,000).  Lowest
- Hispanics: 661 cases (1.8/100,000)  2nd lowest
- Native Hawaiians/ pacific islanders (12.7/10000)  Highest
- American Indians/Alaska Natives  (6.8/100,000)  2nd High
- Persons <15 years: 344 cases.  10% of all US born cases

TB: Foreign-born Persons

- Mexico  ( n =1,250;  19.7 %)
- Philippines  ( n = 819;  12.9 %)
- India  ( n=578;  9.1 %)
- Vietnam  ( n=513  8.1%)
- China  ( n= 424  6.7 %)

- 2014-2015:  8.5% increase cases in Philippines-born persons
- 2014-2015 : 20.7% increases cases in Indian- born persons
**Summary /Discussion**

• Stabilization of TB incidence among US-born persons together with evidence provided by molecular genotyping of TB cases demonstrates that TB transmission within United States continue to occur

• Continued occurrence of TB cases among US-born children is further corroboration, because TB disease in young child is a sentinel event representing recent infection.

• Substance use, incarceration and homelessness associated with TB out breaks

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**Summary /Discussion**

• 2/3 of all US, TB cases occur among Foreign born persons.
  - Expand treatment of latent TB
  - Screen/treat US bound permanent residents and refugees

• Earlier diagnosis allows airborne precautions and treatment to decrease transmission as well as timely contact investigation
  - American Indians/Alaska natives
  - Native Hawaiians/pacific islanders
  - Homeless population

• Reducing TB transmission in institutional settings (health care and correctional facilities)