Overview

- Review of TB cluster definitions
- Overview on reports and maps
- Description of reports and maps available in TB GIMS
Review: TB Genotype Cluster

- **Genotype cluster**
  - Two or more patients with matching genotypes
  - Usually restricted by place and time

- **TB GIMS cluster definition**
  - Two or more TB cases with matching genotypes
  - Within a single county, during a 3-year time period

- **TB genotype cluster may indicate**
  - Same or different chains of transmission
  - Recent or remote transmission from the past
  - Direct or indirect relationships

TB Genotype Cluster

- **Cluster definition**
  - GENType: Spoligotype + (MIRU + MIRU2)
    - E.g., GENType: G10249
  - PCRType: Spoligotype + MIRU
    - E.g., PCRType: PCR01047

Reports and Maps: Overview

- **Analytic and visual tools available in TB GIMS**

- **Genotype clusters**
  - Defined by GENType or PCRType

- **Based on records that have genotype results linked with their corresponding surveillance records**

- **Reports and maps include data from current year and the 10 previous calendar years**
Available Reports and Maps
- State List of GENTypes
- National Distribution
- Maps (National, State, County)
- Surveillance Summary
- Epidemic Curve
- County List of GENTypes
- Change in cluster alerts

Training Example
- For training purposes, we will use fictitious data
  - State: Regbess, Welcomeland, Erickville
  - Counties: Zeeter, Canaba and Denti
  - Date Type: Count date
  - Time period: 2/12/2011 – 2/12/2014
  - GENType: G15185

Generate Reports
State List of GENTypes

- Generates a list of all the GENTypes present in a given state over a specified time period (3 years by default)
- Lists the number of cases with a given GENType in your state and in the rest of the United States
- State list includes all GENTypes including unique cases (not clustered)
- Recommendation: Generate this as the first TB GIMS report as a reference list for all genotypes in your jurisdiction
This report lists the distribution of a particular genotype among all states in the United States.

Lists number of cases with the specific genotype as seen in each state.

This information may be useful when examining an uncommon GENType and exploring whether there may be a connection to cases in other jurisdictions.
National Distribution Report

Maps
- Maps display the distribution of a genotype visually
  - National map at the state level
  - State map at the county level
  - County map at the zip code level
- Choropleth map shows graded differences by colors
  - Darker the colors, larger the numbers of cases with the selected genotype
- Panning and zooming are available to facilitate better viewing capabilities

Generate Maps
County Map

G15185, Zeeter, February 12, 2011 - February 12, 2014

Surveillance Summary Report

- Tabular format for comparison of select demographic, risk and epidemiologic characteristics between
  - Number of TB cases in a specified jurisdiction and rest of the state
    - OR
  - Number of TB cases in a specified jurisdiction and the U.S.

Recommendation: Generate this report to summarize and compare a cluster within and outside a jurisdiction of interest

Surveillance Summary Report

- [Image of tabular format]
- [Image of map]
Epidemic Curve

- Histogram of TB cases of a particular genotype
  - In a specified jurisdiction (county or state)

Epidemic Curve

- Curve Interval options available are quarter (default), month or Year
County List of GENTypes

- List of all GENTypes reported by county
- Includes Log-likelihood Ratio (LLR)
  - Measure of geographic concentration of the genotype
  - In given county compared to rest of U.S. in preceding 3-year period
- LLR values translated into alert levels
  - “High” (for 3-year county LLR >10)
  - “Medium” (LLR >5 and <9.99)
  - “None” (0-4.99)
- Higher the alert level, the more likely it represents recent TB transmission
  - Use to prioritize clusters for investigation
  - Outbreak detection and response
County List of GENTypes

- List of all clusters in the jurisdiction with recent change in alert level
  - Change in alert levels from None to Medium or High, or from Medium to High within the last three months
  - Increase in number of cases

Change in Cluster Alert Level

- Generated at state level for all clusters
- Available on Homepage
- Can be saved or printed in PDF or Excel formats
Change in Cluster Alert levels

Change in Cluster Alert Level Report (GENTypes)

<table>
<thead>
<tr>
<th>Date</th>
<th>GENType</th>
<th>County</th>
<th>Change in Alert Level</th>
<th>Change in No. of Cases</th>
<th>Date Alert was Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>6/24/15</td>
<td>GENType</td>
<td>Medium</td>
<td>Medium</td>
<td>4 - 10</td>
<td>05/21/2014</td>
</tr>
<tr>
<td>6/24/15</td>
<td>GENType</td>
<td>High</td>
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</tbody>
</table>

The Alert Level categories are a representation of the 3-Lane system: Low (0 - 3), Medium (4 - 10), High (11 +). Lane 2 is for all GENTypes.

The definition of Cluster is an increase of more than 10% in the geographic concentration of a GENType genotype relative to the national average for that GENType. We report the change that the GENType genotype cluster represents uncommon geographic clustering. These clusters can be GENType, sub-lineage, or combination of sub-lineage. TB GIMS Help Desk: 1-888-300-4261

Training Materials

Thank you!

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TB GIMS Help Desk: 1-888-300-4261