Evaluation of the CDC Chicago Quarantine Station's Immigrant Tuberculosis Referral Process


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In 2009, 60% of TB cases reported in US occurred in foreign-born persons*. All immigrants complete a pre-immigration medical evaluation. Those with TB conditions encouraged to seek domestic TB follow-up evaluations. From 1999 through 2005, up to 12% of immigrants may not have completed follow-up TB evaluation.

Objectives

- Evaluate referral process of immigrants in Illinois with TB conditions
- Assess impact of referral type on domestic medical evaluation rate

Background

- Inclusion Criteria: - Illinois-bound immigrants with TB conditions arriving during October 1, 2008 - September 30, 2010
- Identified through CDC’s Electronic Disease Notification system
- Review medical records in Illinois
- Categorized into 4 referral groups – 3 referral types
- 1 no referral group

Methods

- Review medical records in Illinois
- Exclusion Criteria: Immigrants whose POE was Detroit, Honolulu, or Minneapolis were excluded
- Hazard Ratio adjusted for year of arrival, referral type, and jurisdiction

Flow Chart of Eligibility, Inclusion and Distribution of Referral Type

Survival Curves for Each Referral Type

Table 1: Median Days to Evaluation Initiation by Referral Type (n=1,218)

<table>
<thead>
<tr>
<th>Referral Type</th>
<th>Median Days</th>
<th>Range Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Referral</td>
<td>69</td>
<td>2-809</td>
</tr>
<tr>
<td>R1: 30%</td>
<td>16</td>
<td>2-80</td>
</tr>
<tr>
<td>R2: 22%</td>
<td>17</td>
<td>2-79</td>
</tr>
<tr>
<td>R3: 26%</td>
<td>13</td>
<td>2-186</td>
</tr>
</tbody>
</table>

Results

- Significant difference in evaluation initiation rate by referral type
- Significant difference in evaluation initiation rate by referral type

Table 2: Evaluation Initiation Rate per Day - Received Any Referral

<table>
<thead>
<tr>
<th>Referral Type</th>
<th>HR</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Referral</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
</tr>
<tr>
<td>R1</td>
<td>4.00</td>
<td>3.0, 5.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>R2</td>
<td>2.6</td>
<td>1.9, 3.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>R3</td>
<td>2.8</td>
<td>1.9, 3.4</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

- Significant difference in evaluation initiation rate by referral type
- Significant difference in evaluation initiation rate by referral type

Possible Next Steps

- Expand referral process to other quarantine stations
- Appointments - coordinate with local TB clinics
- Direct phone numbers – coordinate with health departments to maintain list
- Consider centralized CDC referral “hotline” for immigrant referrals
- Consider incorporating referral into CBP immigrant processing

Conclusions

- Did not have outcome information on all immigrants
- Not able to distinguish between referrals made in person versus by mail
- Difficult to control for other influences
- Pre-immigration instructions, variability in referral given at Chicago QST, etc.

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References


* Immigration processed at Chicago Port of Entry CBP.

** Immigrants whose POE was Detroit, Honolulu, or Minneapolis were excluded.

** Adj P-value.

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Division of Global Migration and Quarantine