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Abstract

Background: In 2001, the FDA approved the first interferon-gamma release assay (IGRA) for the diagnosis of latent and active tuberculosis. There are several nucleic acid amplification tests (NAATs) approved for use in the rapid identification of M. tuberculosis in respiratory samples. The purpose of this study was to determine: (1) availability of IGRA, (2) most common indications for ordering IGRA, (3) availability of NAATs for diagnosis of tuberculosis in various clinical scenarios; and (4) timing of TB susceptibility results.

Methods: The IDSA Emerging Infections Network (EIN) is a sentinel network of infectious disease consultants (IDCs). In January 2008, we distributed a survey via e-mail and facsimile to IDCs. Results: There were 583 respondents (52% of 1122 members). Over half of respondents considered themselves the local tuberculosis expert. More than 85% of respondents from the West North Central and Pacific regions reported availability of QFT, while 44% of respondents from the West South Central, South Atlantic and East South Central regions reported availability. Most (31%) respondents used commercial or reference laboratories for IGRA; only 12 states had members who reported that IGRA was performed at a public health lab. NAATs for rapid identification of M. tuberculosis in respiratory samples was available for 48% of respondents in their local area; only a quarter (22%) reported that local labs would perform these tests directly on smear-negative respiratory samples. Most (266 of 511 providing an answer) indicated that susceptibility testing is performed in a public health lab. NAATs for rapid diagnosis of tuberculosis in various clinical scenarios; and (4) timing of TB susceptibility results.

Figure. Respondents reporting availability of IGRA testing, by region.

Table. Use of QFT by geographic region and type laboratory

Table: Use of QFT by geographic region and type laboratory

<table>
<thead>
<tr>
<th>Region</th>
<th>Ordered QFT (%)</th>
<th>Local</th>
<th>Pub-Health</th>
<th>Commercial Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>New England</td>
<td>15 (22%)</td>
<td>3</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Mid Atlantic</td>
<td>24 (31%)</td>
<td>4</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>East North Central</td>
<td>39 (46%)</td>
<td>16</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>West North Central</td>
<td>18 (44%)</td>
<td>10</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>South Atlantic</td>
<td>21 (19%)</td>
<td>11</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>East South Central</td>
<td>9 (11%)</td>
<td>3</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>West South Central</td>
<td>11 (26%)</td>
<td>2</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Mountain</td>
<td>17 (99%)</td>
<td>8</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Pacific</td>
<td>56 (53%)</td>
<td>17</td>
<td>28</td>
<td>11</td>
</tr>
<tr>
<td>Puerto Rico</td>
<td>1 (26%)</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Canada</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results

- Overall response rate: 583 of 1122 members (52.0%)
- Practice:
  - Adult: 456 of 1126 members (50%)
  - Pediatrics: 133 of 223 members (60%)
- Both 34 of 73 members (47%)
- TB susceptibility testing is performed: 511 of 583 respondents (87.5%)
- In house/local academic: 22% (229)
- Public health lab: 52% (383)
- Commercial/reference lab: 26% (152)
- Susceptibility results are available:
  - <30 days [recommended]: 48% (52)
  - >30 days: 52% (48)
- Local labs perform Nucleic Acid Assays:
  - For tuberculosis: 66% (44)
  - Directly on smear-positive respiratory samples: 60% (56)
  - Directly on smear-negative respiratory samples: 22% (14)
  - Directly on non-respiratory samples: 26% (19)

- IGRA in your area: 514 of 583 respondents (88%)
- In area: 63% (324)
- No: 37% (26)
- Where is IGRA performed?
  - In-house/local academic: 28% (24)
  - Public health lab: 22% (26)
  - Commercial/reference lab: 59% (55)
- Discordant results between TST & QFT:
  - No: 58% (68)
  - Yes: 42% (32)
- For discordant results, decisions based on:
  - TST: 3% (3)
  - QFT: 23% (14)
  - Depends on clinical situation: 73% (83)
-Seen problems with indeterminate results:
  - No: 77% (81)
  - Yes: 23% (29)

Methods

The IDSA EIN is a provider-based, emerging infections sentinel network that was established through a Cooperative Agreement Program Award from the Centers for Disease Control and Prevention (CDC) in 1995. It comprises volunteers who practice adult and pediatric infectious diseases medicine and belong to either the IDSA or the Pediatric Infectious Diseases Society. In January 2008, the EIN distributed a 1-page introduction and a 1-page questionnaire via e-mail or facsimile to its 1122 members, asking them about diagnostic testing for Mycobacterium tuberculosis. Nonrespondents received a second and third survey 2 and 4 weeks, respectively, after the initial distribution. Denominators for some questions vary because EIN members did not respond to all questions.

Summary

- Most of the responders considered themselves the local tuberculosis expert
- Susceptibility testing is most commonly available through public health laboratories
- Susceptibility testing results are often delayed (more than the recommended 30 days)
- Significant geographic variability was observed for the availability of interferon-gamma release assays (IGRA) for latent tuberculosis
- Responders order IGRA in a variety of clinical settings - the most common situations are previous BCG vaccination, suspicion of active tuberculosis or health care employee
- Indeterminate results were reported as a problem by nearly one quarter of responders
- Nucleic acid amplification testing for tuberculosis is not widely available

References


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