The Wisconsin Mycobacteriology Laboratory Network

WMLN

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WMLN History

• 1997: A committee of clinical and public health laboratorians, health care providers, infection control practitioners, and public health TB controllers studied the role of Wisconsin labs in the prevention and control of TB
  • State-wide survey to assess laboratory practices and capabilities
• 1998: TB White Paper
  • Summarized current TB lab activities in support of the WDPH TB program
  • Recommendations for improvement
• 1998: Formation of the WMLN
WMLN Participants

• 31 Clinical Laboratories
• Milwaukee City Health Department Lab
• Wisconsin State Lab of Hygiene (WSLH)
• Wisconsin Division of Public Health Tuberculosis Program
• Local Health Departments
• Health Care Providers
WMLN: Testing Capabilities and Practices
WMLN Mission

To provide high quality mycobacteriology testing, regardless of the laboratory, to support TB Control activities.
Functions of WMLN

- Perform ongoing assessment of TB lab practices and capacities
- Provide a forum for discussion of relevant issues
- Provide training opportunities
- Compile lab data and provide surveillance reports
- Develop and maintain TB isolate repository
- Serve as a conduit for communication and transfer of information
WMLN: Assessment of Testing Capabilities and Practices

• Periodic Survey of Wisconsin Laboratories:
• 32/33 WI Laboratories perform decontamination and smear examination
• 32/33 WI laboratories perform culture set-up
• 7 WI laboratories perform identification of mycobacteria using one or more of the following techniques:
  • DNA probe (5 labs)
  • Biochemicals (4 labs)
  • Sequencing (3 labs)
  • HPLC (1 lab)
WMLN: Assessment of Testing Capabilities and Practices

- 32/33 WI Labs refer at least some mycobacteria isolates to a reference laboratory for identification
- Reference Laboratories for ID:
  - WSLH
  - Mayo (Rochester MN)
  - ARUP (UT)
WMLN: Assessment of Testing Capabilities and Practices

- 3/33 WI Laboratories perform TB first line drug susceptibility testing
- 1 WI lab (WSLH) performs TB second line drug susceptibility testing
- 1 WI lab (WSLH) performs susceptibility testing of NTM
WMLN: Forum for Discussion, Training Opportunities

- Annual meetings since 1999
- Regional on-site visits by WSLH staff
- Telephone consultation with WSLH personnel
WMLN: “Hot Topics” for Discussion

- MDR TB
- ID and susceptibility testing of NTM
- Laboratory safety
- Maintaining proficiency in small volume laboratories
- Use of NAA testing
- Prevention of cross contamination
- Testing algorithms
- Turn around times
- Molecular methods
- Interferon gamma assays
WMLN: Laboratory-Based Surveillance

• Monthly, quarterly, and annual reports
  • Isolates and antimicrobial resistance data
  • Disseminated to clinicians, public health officials, infection control
• Monitor trends and sentinel events
  • MDR
  • TB clusters
  • NTM prevalence
### Number of Patients with New Isolates of Nontuberculous Mycobacteria Reported January – March, 2002

<table>
<thead>
<tr>
<th>Mycobacterium Species</th>
<th>Pulmonary or Extra-Pulmonary</th>
<th>County of Laboratory or Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Brown</td>
<td>Dane</td>
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<tr>
<td><em>M. avium complex</em></td>
<td>Pulm</td>
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<tr>
<td></td>
<td>Extra</td>
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<tr>
<td><em>M. gordonae</em></td>
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<td></td>
<td>Extra</td>
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<tr>
<td><em>M. abscessus</em></td>
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<tr>
<td><em>M. bovis BCG</em></td>
<td>Extra</td>
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<tr>
<td><em>M. chelonae</em></td>
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</tr>
<tr>
<td></td>
<td>Extra</td>
<td>1</td>
</tr>
<tr>
<td><em>M. flavescens</em></td>
<td>Pulm</td>
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</tr>
<tr>
<td><em>M. fortuitum group</em></td>
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</tr>
<tr>
<td></td>
<td>Extra</td>
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<tr>
<td><em>M. haemophilum</em></td>
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<tr>
<td><em>M. kansasii</em></td>
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<tr>
<td></td>
<td>Extra</td>
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<tr>
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<td><em>M. szulgai</em></td>
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<tr>
<td><em>M. terrae complex</em></td>
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<tr>
<td><em>M. xenopi</em></td>
<td>Pulm</td>
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</tbody>
</table>

**Total non-TB Mycobacteria**: 5 35 1 7 6 3 219 8 27 4 10 20 28 373

*One Milwaukee laboratory not reporting

*a M. avium complex Extra-pulmonary: 1 ankle, 1 blood, 2 CSF, 1 lymph node, 2 stool

*b M. gordonae Extra-pulmonary: 1 CSF, 1 urine

*cOther Species Extra-pulmonary: M. bovis BCG: 1 urine; M. chelonae: 1 axilla, 1 arm, 1 eye, 1 IV site, 2 skin; M. fortuitum group: 1 ear, 1 foot, 1 leg, 2 lymph node, 1 skin, 1 wound; M. haemophilum: 1 skin lesion; M. kansasii: 1 urine; M. marinum: 1 arm, 2 finger, 1 hand, 1 knee; M. mucogenicum: 1 blood, 1 CSF; M. terrae complex: 1 hand
WMLN: Isolate Repository

- Wisconsin Statutes require that *M. tuberculosis* complex isolates are submitted to the WSLH
- Universal first-line drug susceptibility testing for WI MTBC isolates
- Universal genotyping for WI MTBC isolates
WMLN: Conduit for Communication
Network promotes routine communication between all partners

Wisconsin Clinical Labs

Health Care Providers

Wisconsin State Lab

State Public Health TB Program

Local Public Health Departments
Care and Feeding of a Laboratory Network

• Significant time and energy commitment
• Must establish mutual trust, respect, and sense of common purpose
• Provide tangibles
• Constant communication is essential
• Personal, face-to-face interactions are vital
Care and Feeding of a Laboratory Network

• Evolving
  • Type of testing
  • Changes in market place
  • Personnel changes and shortages

• Public health lab must play a leadership role
WMLN: Accomplishments

• Established routine communication
• Developed rapport with network members
• Know the capabilities of the laboratories in Wisconsin
• Developed algorithm for NAA testing at WSLH with free courier service
• Universal retrieval of MTBC isolates from WI laboratories
• Quality laboratory services state-wide
Future Directions

• Implement “fast track” algorithm: rapid molecular testing for detection of rifampin and INH resistance
• Electronic submission of laboratory-based surveillance data using web portal
• Access to laboratory-based surveillance data on WSLH website
• Training: molecular mycobacteriology methods
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