

Description of Laboratory-Based Mycobacteriology Surveillance in Wisconsin

The **Wisconsin Mycobacteriology Laboratory Network (WMLN)** is a statewide network of all Wisconsin laboratories that perform any level of mycobacteriology and tuberculosis (TB) testing. WMLN participants include the Wisconsin State Laboratory of Hygiene (WSLH), 1 local public health laboratory, and more than 30 clinical laboratories. The primary objective of the WMLN is to assure consistent, high quality testing in all Wisconsin laboratories that perform mycobacteriology testing.

The WMLN was established after a 1998 task force of Wisconsin health care and laboratory professionals from both the public and private sectors assessed the status of TB laboratory testing in Wisconsin and developed recommendations for improvements. A major recommendation of the task force was the development of a state-wide TB laboratory network with the primary objective of assuring consistent, high quality testing in all Wisconsin laboratories that perform TB testing. The WSLH took the leadership role in establishing the WMLN in 1999 and designated a coordinator to facilitate and direct the network.

The WMLN provides:

- a means for the ongoing assessment of TB laboratory practices and capacity in Wisconsin
- a means for the evaluation and implementation of testing algorithms on a state-wide basis
- a conduit to relay information concerning technical issues and laboratory result reporting issues to Wisconsin laboratories from national authorities and Wisconsin's TB control program
- a mechanism for providing laboratory-based surveillance.

WMLN Laboratory Testing: Most WMLN laboratories process specimens and perform acid-fast bacteria (AFB) smear and culture testing. Most laboratories then send positive cultures to a reference laboratory (e.g., the WSLH) for identification and susceptibility testing. The WSLH and several other laboratories in the network are able to identify AFB positive cultures as *M. tuberculosis complex (M. tbc)*, *M. avium complex*, *M. kansasii*, or *M. goodii* by DNA probes. Positive cultures that are not identified by probe are sent to the WSLH for identification. Laboratories also send *M. tuberculosis complex*-positive cultures to the WSLH for drug susceptibility testing, genotyping, and depositing into the state's TB isolate repository.

WMLN Annual Meeting: Over 90% of WMLN laboratories send representatives to attend annual full-day state-wide meetings of the

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Wisconsin Mycobacteriology Laboratory network. The WMLN coordinator and other WSLH laboratory personnel also conduct periodic regional meetings with laboratorians to discuss testing procedure issues in small group settings. The annual meetings, site visits, and teleconferences allow laboratorians to discuss and address relevant issues, including:

- laboratory safety practices
- adherence to recommended testing methods
- use of appropriate media
- isolation rates
- identification
- turn-around times
- reporting processes
- maintaining proficiency in small volume laboratories, and
- appropriate use of new technology (e.g., NAA-TB testing, QuantiFERON-TB testing, gene sequencing for identification, TB genotyping for identification of transmission links).

WMLN Laboratory-Based Surveillance: WMLN laboratories provide monthly reports of mycobacterial isolate identifications to the WSLH. The patient information that is provided for *M. tuberculosis* isolates is used to verify the TB case reporting to public health officials. Data from these reports are combined with WSLH data to produce monthly, quarterly, and annual reports that are shared with participating laboratories, the Wisconsin TB Control Program staff at the Wisconsin Division of Public Health (DPH) and with local public health department staff. Reports include data on the incidence of mycobacterial isolation, *M. tuberculosis* isolation, and TB drug resistance.

Statewide Isolate Repository: The WMLN provides a mechanism to maintain a statewide *M. tuberculosis* complex isolate repository. Isolates from all Wisconsin TB cases since January 2000 have been collected and genotyped, and are maintained in the repository at the WSLH. The WSLH repository also contains a majority of the isolates from 1994 through 1999; selected isolates from these years have also been genotyped. Results from universal TB-genotyping have enabled the Wisconsin DPH TB Control Program to identify on-going transmission links and previously unidentified clusters.