PROVINCIAL LABORATORY MEDICINE SERVICES
Provincial Health Services Authority
BCCDC Public Health Lab

BC Centre for Disease Control
Provincial Health Services Authority

MEMORANDUM

Date: January 13, 2026

Re: Change to Whole Genome Prediction for Fully Susceptible *M. tuberculosis* Isolates

The Mycobacteriology Programme at the Public Health Laboratory at BCCDC has used whole genome sequencing (WGS) to predict for susceptibilities of *M. tuberculosis* for the past 3 years. During this time, we have sequenced more than 2000 specimens and compared them to the phenotypic gold standard. Based on this analysis, we have demonstrated confidence in WGS to predict susceptibility in organisms without an identified antimicrobial resistant (AMR) mutation. Therefore, starting January, all isolates without identified AMR mutations to any first-line drugs (predicted susceptible) will be reported to first-line anti-tuberculosis medications solely based on the WGS prediction – without routine phenotypic testing.

This change will allow us to streamline mycobacterial diagnostics, concentrating efforts on isolates with more complicated genetic results as well as prioritizing initial smears and identification.

KEY MESSAGES

Accuracy:

- Based on an analysis of 2234 specimens the negative predictive value for the first-line medications was 99.5% INH, 99.6% for PYZ, 100% for EMB, 100% for rifampin
- Discrepancies were reviewed and most reflect mutations that are not well documented in databases for resistance mutations – these organisms would still be tested phenotypically after the planned change

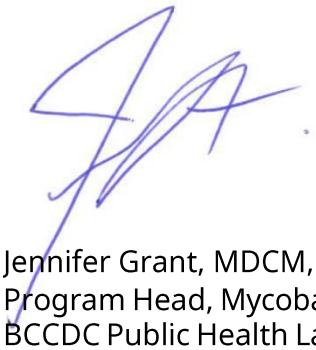
Ongoing monitoring:

- The TB lab will continue to perform phenotypic testing on a random subset of isolates, and if requested, to ensure continued verification of the process
- We will continue to evaluate the success of the programme and will move to expanding WGS reporting when the data support genomic prediction for additional drugs

If you have any questions or concerns, please do not hesitate to contact us.

Sincerely,

Linda Hoang, MD, FRCPC
Medical Director
BCCDC Public Health Laboratory



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