New Standards for an Old Disease:

Practical Implications of the TB Standards

TB Prevention and Control Saskatchewan
September 16, 2015

Healthiest people ~ Healthiest communities ~ Exceptional service

Learning Objectives

At the end of this session you will be able to discuss and describe:

1. **Diagnostic tools** available in Saskatchewan including new technologies such as IGRA and Xpert assay.
2. **Airborne precautions** and **home isolation** – new guidelines.
3. **Contact investigations** and **treatment** regimes changes.

Diagnosis of LTBI

- History
- Tuberculin skin test (TST)
- Interferon gamma release assay (IGRA)
  - Measures immune response to TB proteins in whole blood
  - Available October 2015 at select sites
  - Quantiferon TB Gold In-tube (QFT-GIT)

IGRA versus TST

- IGRA preferred:
  - BCG
  - Groups with poor rate of return for TST reads
- TST preferred:
  - Repeat testing
  - Serial testing
- TST and IGRA are acceptable but imperfect

Diagnosis of Active TB

- CXR, CT
- Smear microscopy, mycobacterial culture & DST
  - sputum for AFB x 3
  - 8 hours apart within a 24 hour period
  - at least one early morning specimen
- History, signs and symptoms
- Nucleic Acid Amplification Tests
  - GeneXpert MTB/RIF®

GeneXpert MTB/RIF®

- Fully automated rapid TB test
  - simultaneously detects MTB & rifampin resistance
- Minimal biosafety requirements
- Does not replace culture
- 3 sputum still required
  - only 1 processed with GeneXpert
- Results within 2-3 hours

TB Infection Prevention & Control

- The key:
  - Rapid diagnosis
  - Isolation
  - Start of effective treatment
- Challenges:
  - Delayed diagnosis
  - Non-adherence with airborne precautions
  - Non-adherence to treatment or inadequate treatment

Initiation of Airborne Precautions

- Required for all persons with suspected or confirmed respiratory (infectious) TB disease regardless of smear status.
  - Some exceptions with pediatric and extrapulmonary TB.

Discontinuing Precautions in Facilities

TB suspected – discontinue upon TB physician, MRP or designate order if:

- Xpert MTB/RIF negative, OR
- 3 consecutive AFB-negative smears (if Xpert assay not available)

Continue precautions if Xpert positive or at discretion of TB physician or MRP when TB still strongly suspected, no other dx, and Xpert &/or smears negative.

Discontinuing Precautions in Facilities

Smear-positive TB confirmed – discontinue upon TB physician order if:

1. 2 weeks (or 14 doses) of drug therapy, AND
2. Clinical improvement as assessed by the TB physician, MRP or designate, AND
3. 3 AFB negative smears following 2 weeks (14 doses) of drug therapy, OR if unable to produce sputum:
   i. 3 weeks (21 doses) of drug therapy, AND
   ii. Clinical improvement

Discontinuing Precautions in Facilities

Smear-negative, culture-positive TB confirmed – discontinue upon TB physician order if:

1. 5 consecutive doses of drug therapy taken and tolerated, AND
2. Clinical improvement as assessed by the TB physician, MRP or designate.

- Sputum collection not required.

Discontinuing Home Isolation

TB suspected

- Same criteria as discontinuation in facility

Discontinuing Home Isolation

Smear-positive TB confirmed – discontinue upon TB physician order if:

1. 2 weeks of drug therapy (10 doses if M-F therapy or 14 if OD), AND
2. Clinical improvement.

Discontinuing Home Isolation

Smear-negative, culture-positive TB confirmed – discontinue upon TB physician order if:

- Drug therapy started and at least 1 dose taken AND tolerated.

Extrapulmonary TB

- In general, precautions and isolation not required - two exceptions:
  1. Concurrent pulmonary TB (10-50% of cases)
  2. AGMPs

Pediatrics

- In general, precautions and isolation not required for children < 10 years old.
  - *Exception: children with adult-type TB*
- Consider accompanying adults as potential source of infection

Treatment – Active TB

- Intensive: 2 months
  - INH/RMP/PZA/EMB (EMB d/c if fully sensitive)
  - OD or 5 times/week
  - FLQ if drug resistance, intolerance to FLD or previously treated for active TB (d/c if fully sensitive)
- Continuation: 4 or 7 months
  - INH/RMP thrice weekly

Treatment - LTBI

- Shorter alternative regimens available
  - 4 months INH/RMP twice weekly
  - 4 months daily RMP
  - 6 and 9 months regimens also available
  - 3 months once weekly INH/Rifapentine (Special Access Programme)
- Increase numbers being offered treatment
- SAT use in medically engaged

Contact Investigations

- Required for smear (+) and (-) respiratory TB
- Smear-positive:
  - Infectious period ≈ 3 months
  - Evaluate high and medium priority contacts
- Smear-negative:
  - Infectious period ≈ 4 weeks
  - Evaluate high priority contacts

Prioritization of Contacts

High Priority	1. Household contacts 2. Close non-household or casual contacts AND immune vulnerable 3. Contacts exposed during AGMP without PPE
Medium Priority	Close non-household contacts NOT immune vulnerable
Low Priority	Casual contacts NOT immune vulnerable

Summary of Practical Implications

- IGRA:
  - Less over-diagnosis of LTBI r/t BCG, NTM
  - Increased screening (and possible TLTBI) among groups with historical poor rates of return for TST
- Xpert assay:
  - Rapid decisions on treatment and isolation
  - Improved utilization of AIIR, patient flow

Summary of Practical Implications

- Airborne precautions:
  - Targeted application based on case infectiousness and setting risk
  - Enhanced adherence
  - Improved utilization of AIIR
- Treatment:
  - Individualized regimens
  - ↓ duration, ↑ adherence, ↓ DOT burden
  - Enhanced prevention through ↑ TLTBI

Summary of Practical Implications

- Contact investigations:
  - Focus on those at greatest risk
  - Targeted screening and follow-up
  - Enhanced prevention with window prophylaxis and increasing TLTBI

Questions?