TB Infection Control: The Public Health Perspective

Kate Louther, RN MS CIC
Public Health Madison & Dane County
Outline

• Background Info & why this is important
• TB Control & Isolation
• Things to consider re: Infection Control
• How to work better with Clinics/Hospitals
• Resources
Background

- Received scholarship to take CIC exam in 2016
- Learned a lot on how to increase and implement infection control best practices at PHMDC
  - Looking at policies/procedures
  - Evaluating clinic environments
- In LHDs, we have a duty and obligation to stop the spread of diseases, not just ones that are reportable via State Statute 252
TB Risk Classification

- Risk Classification = Medium
  - Low < 3 cases/year
  - Medium > 3 cases/year
- Dane County: 8 active cases in 2016
  - 1.6 per 100,000
  - Wisconsin/Dane County are low incidence per CDC definitions
PHMDC TB Control Plan

- Annual symptom screen for staff who have previously + TST/IGRA
- 2 Step TST on hire for staff working in direct care programs (WIC, PNCC, NFP, TB, HIV/STI, Well Woman Program, Imms, etc)
- Annual screening (TST/IGRA) for staff in TB/HIV programs
- Annual fit testing for ACD and TB staff (including some contract interpreters/City Attorney)
TB Screening & Risk Classification

- Risk Classification=Low $\rightarrow$ annual testing is not required unless working with TB patients

- Risk Classification=Medium $\rightarrow$ annual testing for staff who work with TB patients
  - PHMDC fits into this category
TB Isolation

• Remain cautious until TB is ruled out completely
• Consider Policies for:
  ▫ Isolation
  ▫ Involuntary Isolation: state statute 252; work with your attorney
  ▫ When to Release from Isolation
• TB clearance for other elective procedures
  ▫ Example: dental appointments (for routine cleaning), yearly dermatology appointment, etc
Annual Fit Testing

• Qualitative vs. Quantitative
• PAPR (powered air purifying respirator)
• OSHA requires agencies have Respiratory Protection Program with clear procedures
• Consider who needs to be tested:
  ▫ Communicable disease staff, TB staff, HIV staff (if they see TB patients), city attorney/managers if they were to present health orders, contract interpreters, etc.
Other things to consider:

- Hand Hygiene policy
  - Location of hand hygiene products/types of products used
- Waiting rooms: toys, chairs, carpeting, books/magazines, etc
- Bloodborne Pathogen Policy/Training
- Masking patients (using surgical mask, not N95)
- Ventilation (if seeing infectious patients in clinic)
How to collaborate better with ICPs in hospitals/clinics?

- Reach out to them and establish a relationship with them
- Establish good communication plan when working with active, rule-out or latent cases
  - Develop a plan if providers do not report active and rule-out cases per State Statute
- Consider reviewing CIC materials or taking the CIC exam
  - Can speak the same lingo and get a different perspective of infection control
Questions?

Kate Louther, RN MS CIC
klouther@publichealthmdc.com
608-243-0317
TB Summit 2017

Ellen Smith, RN, CIC
Nurse Epidemiologist
SSM Health, St. Mary’s Madison
Infection Control - *Background*

*Why this is important.....*

- What is Infection Control?
  - **Surveillance**
    - Monitoring patients, staff and visitors for infections
  - **Prevention**
    - Measures to protect patients, visitors and staff from infections
  - **Control**
    - Practices to prevent transmission from infected source

- Who’s responsible for Infection Control?
Goal of any IC Program

• Prevent Infections
  ▫ Interrupt the chain of transmission
    • 3 elements
      • **Organisms**- bacteria, virus, others
      • **Route**- how organisms gets from one place to an other
      • **Host**- could be patient, visitor, employee, or YOU!
  
• Routes of transmission:
  ▫ There are several ways organisms can spread...commonly....
    • **Contact transmission**- is the most common cause of HAIs
    • **Respiratory Transmission**
Hospital Setting

- 2 basic principles
  - Confine and contain
  - Use Common Sense

Precautions Used to Prevent Infections While Caring for Patients

- **Standard Precautions**
  - consider all blood, body fluids, mucous membranes, and nonintact skin as potentially infectious
  - use appropriate barrier precautions routinely

- **Isolation Precautions** (Transmission–based precautions)
  - based on how organisms are spread (transmission)
  - contact, contact plus, airborne, droplet

Based on recommendations from the Centers for Disease Control & Prevention (CDC)
Public Health Setting or Community Setting

*Things to consider....*

- What does “**Break the Chain of Infection**” look like?
  - How often do you clean your phone and computer?
  - How are toys cleaned in the waiting room?
  - How old are the books/magazines in the waiting rooms?
    - Are they washable?
  - How is carpet cleaned if someone should vomit?
  - Where do you set your supplies during a home visit?
  - Do you have a clean space in your car for supplies?
    - Same car you transport garden materials or pets?
A cell phone has 18 times more bacteria than a public restroom.
Public Health Setting or Community Setting

Things to consider......

- What does “**Break the Chain of Infection**” look like?
- How to you perform hand hygiene?
  - Are there sinks available?
    - Think about this with any remodel
    - Do you have alcohol hand gel with you?
  - How do you teach clients about cough etiquette
  - Do you and your staff stay home when you are ill?
  - How do you know whether a client might have bed bugs, or lice during a visit; at home or in clinic?
  - When you go into a home/community setting where do you set your clean supplies?
    - How do you know the surface is clean?
For Suspect or Known TB Patients

**Airborne Precautions**

- Organisms transmitted via airborne droplet nuclei
  - TB
  - Measles
  - Chicken pox
- Requires negative pressure (airflow) ventilation
  - RN to notify Plant
  - Plant will verify negative pressure daily while isolation implemented
- Respiratory protection determined by illness
  - N95/PAPR for TB, MERS-CoV
  - Surgical/isolation mask for CP, disseminated zoster
Suspect/Known TB case in Hospital Setting

- Mask on admission
- Negative Pressure Room
- Clinical assessment may include
  - TST
  - GuantiFERON Gold
  - CXR
  - Sputum samples
- *positive TB skin test or blood test only tells if person has been infected with TB. Does not tell whether the person has latent TB or TB disease*
Annual TB Risk Assessment

*Process utilized for Hospital and Ambulatory Setting (CDC)*

• Incidence of TB
  ▫ In community and in facility
  ▫ Process for triaging
• Risk Classification
  ▫ Inpatient settings
  ▫ Outpatient settings
    • # of beds/patients
    • # of + patients
• Screening of HCWs for MTB
• TB IC Program
  ▫ Written plan?
• Lab Processing of TB specimens
• Environmental Controls
• Respiratory Protection Program
OSHA’s TB Risk Assessment

FIGURE 1. Protocol for conducting a tuberculosis (TB) risk assessment in a health-care facility

1. Review community TB profile and review number of TB patients examined as inpatients or outpatients at the facility.

   - If No TB patients in facility or community, the risk is Minimal.

   - If TB patients in facility or community, analyze (by area* and occupational group) purified protein derivative (PPD) test data, number of TB patients, and other risk factors.

   - If HCW PPD conversion rate in area or group significantly higher than rates for areas or groups in which occupational exposure to Mycobacterium tuberculosis is unlikely, or than previous rate in same area or group? or Cluster of HCW PPD conversions? or Evidence of person-to-person transmission?

     - If No, continue with further assessment.
     - If Yes, recommend control measures.

   - If No TB patients in facility or community, the risk is Minimal.

   - If TB patients in facility or community, analyze (by area* and occupational group) purified protein derivative (PPD) test data, number of TB patients, and other risk factors.

   - If HCW PPD conversion rate in area or group significantly higher than rates for areas or groups in which occupational exposure to Mycobacterium tuberculosis is unlikely, or than previous rate in same area or group? or Cluster of HCW PPD conversions? or Evidence of person-to-person transmission?

     - If No, continue with further assessment.
     - If Yes, recommend control measures.
OSHA’s Risk Assessment

FIGURE 1. Protocol for conducting a TB risk assessment in a health-care facility — Continued

No

No TB patients admitted as inpatients to facility during preceding year and Plan to refer patients with confirmed or suspected TB to a collaborating facility if inpatient care is required.

Very low risk

Fewer than 5% TB patients admitted to area during preceding year

Low risk

Six or more TB patients admitted to area during preceding year

Intermediate risk

Yes

Evaluate cause(s) of transmission.

Cause(s) of transmission identified and corrected?

Yes

Repeat PPDs and risk assessment at 3 mos.

PPD conversions or other evidence of transmission?

No

Reassess interventions. Repeat PPDs and risk assessment at 3 mos.

Yes

Resume appropriate lower-risk protocol.

High risk

Obtain consultation.
On Hire - Hospital

- All employees will have a 2 step TST on Hire
- If think they have history of positive - will do PPD and QuantiFERON
  - If both negative that is their two step
- If History of TST + will do a QuantiFERON
- If QuantiFERON + will do CXR
Exposure Follow-up

- Establish baseline TB skin test at time of exposure
- Repeat testing 8-10 wks
- If positive do QuantiFERON
  - If QuantiFERON + --do a CXR
  - CXR + off work until treated; treated as conversion via OSHA; referred to PHD
  - If TST or QuantiFERON+ annual TB questionnaire is completed

2016: St. Mary’s Hospital
- 2 patients with MTB
- No staff conversions
- 2 exposure follow-up investigations; 24 staff tested;
  - Low Risk however still test RT, ED, Interpreter Services and Lab annually
- Clinics
  - 2016 given numbers in 2014, 15 and 16—Low Risk
  - No conversions
  - System that flags Airborne Precautions within the EMR; so staff are aware of precautions
How to collaborate better with ICPs in hospitals/clinics?

- Reach out to them and establish a relationship with them

Collaboration:
We look at Public Health as the true experts.

- Assist with history investigation
  - Previous records from LTC, other facilities, or counties/states
  - Therapy after discharge

- Clarification Does PH only want referral when +CXR or want follow-up with all + QuantiFERON?
Resources

- OSHA & CDC websites
- Local Infection Control Practitioners
- MMWR December 30, 2005
  - Includes TB risk assessment worksheet

- Kate Louther, RN MS CIC
  klouther@publichealthmdc.com
  608-243-0317
- Ellen Smith, RN, CIC
  SSM Health, St. Mary’s Hospital
  Ellen.Smith@SSMHealth.com
  608-258-6745
So how many of you are going to go clean your cell phones?