



CONTACT INVESTIGATIONS: A COMPLEX CASE STUDY

Kate Louther, Public Health Supervisor
klouther@publichealthmdc.com



Healthy people. Healthy places.



Basic Concepts



Prioritization of Contacts



Case Study



Conclusion & Summary



Basic Concepts

Contact Investigations: TB Testing

- TB skin Test
- TB Blood Tests (IGRAs)
- Symptom Evaluation (for those with previous positive TB tests)



Determining Infectiousness

Determining likelihood of infectious period:*

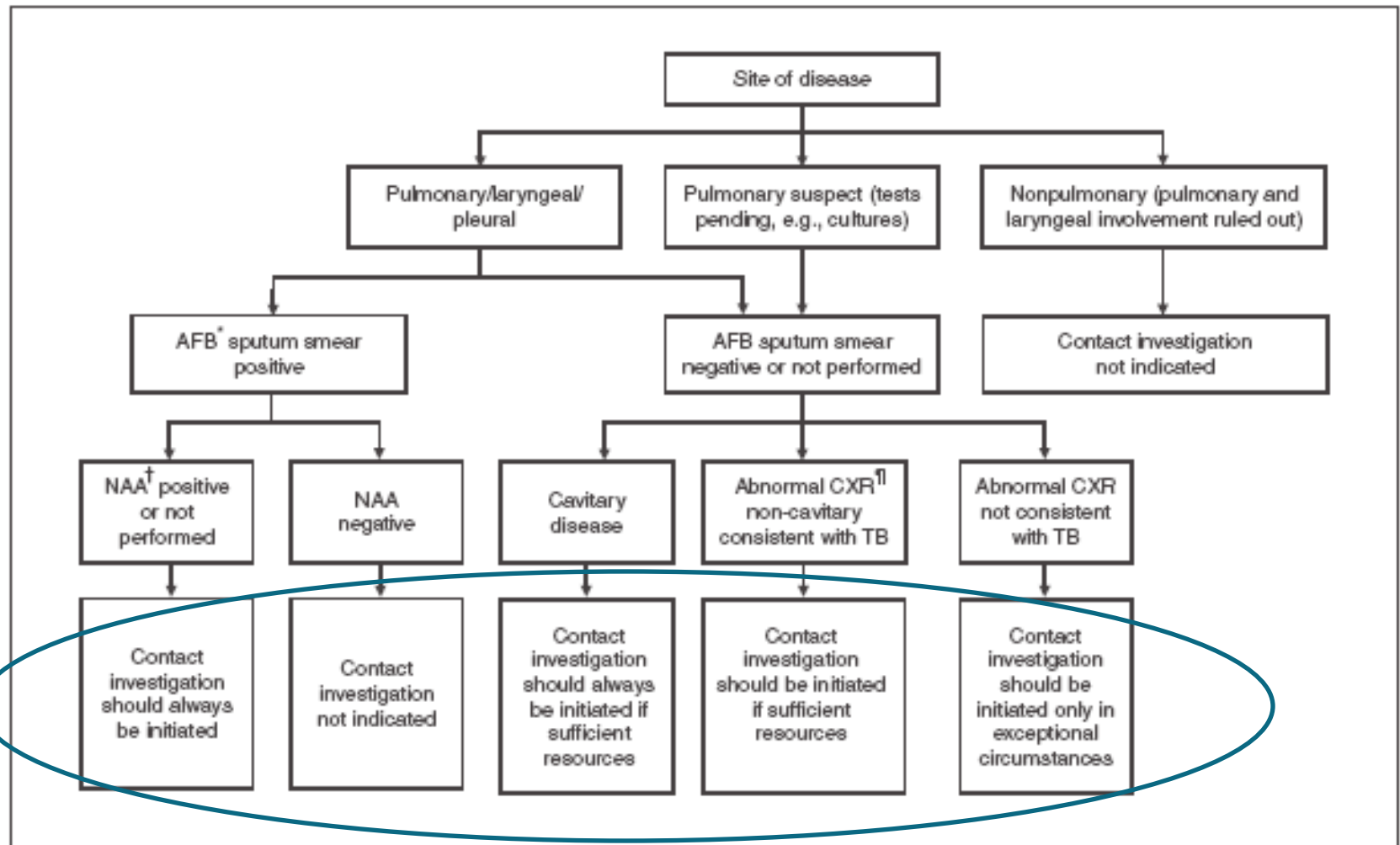
Index Case Characteristics:

TB Symptoms Absent	TB Symptoms Present	AFB Smear Negative	AFB Smear Positive	Recommended <i>minimum</i> beginning of Likely period of infectiousness++
✓		✓		Eight weeks prior to date of 1 st positive finding consistent with TB
	✓	✓		10 weeks prior to symptom onset, or ten weeks prior to date of 1 st positive finding consistent with TB
✓			✓	12 weeks prior to 1 st positive finding consistent with TB
	✓		✓	10 weeks prior to onset or 12 weeks prior to 1 st positive finding consistent with TB – whichever is longer ago

++Positive findings consistent with TB include, but are not limited to the following: specimen that shows a positive AFB, positive amplification test for *M. tb*, positive *M. tb* culture, chest x-ray showing abnormality consistent with TB or the initiation of antibiotic treatment for TB.

[*Source: *Contact Investigation Guidelines* jointly developed by the California Department of Health Services and the California Tuberculosis Controllers Association.]

FIGURE 1. Decision to initiate a tuberculosis (TB) contact investigation



* Acid-fast bacilli.

† Nucleic acid assay.

§ According to CDC guidelines.

‡ Chest radiograph.



Prioritization of Contacts

Prioritize

- Consider risk of Progression/Transmission
 - Under age 5
 - HIV infected & Immune suppression
- Determine infectious period (per CDC recs)
- Closest People to whom they had contact with
 - 8 or more hours of contact; volume air space
 - Ex: people they live with, people they work with





Case Study

Case Study

- 24 y.o. male dx 7/7/18 at local hospital prior to surgery for other health condition
- Born in the U.S.
- No known TB exposures
- Taking immunosuppressants for GI condition (Crohn's Disease) since 10 y.o.
- Been ill for >1 year



Case Study: 2017 Timeline

- 4/12/17-Negative TST (0mm induration)
- 6/1/17-Dry cough started
- 6/26/17-Fever, chills, night sweats; Dx viral infection; treated with Flonase
- 9/12/17-Productive cough, fever; CXR shows multi-focal LLL; Dx Pneumonia; treated with Levaquin
- 11/14/17-Productive cough, fever, chills; Chest CT shows Extensive Tree-in-Bud appearance; Admitted to Hospital in CO; Dx Pneumonia; treated with 3 different antibiotics

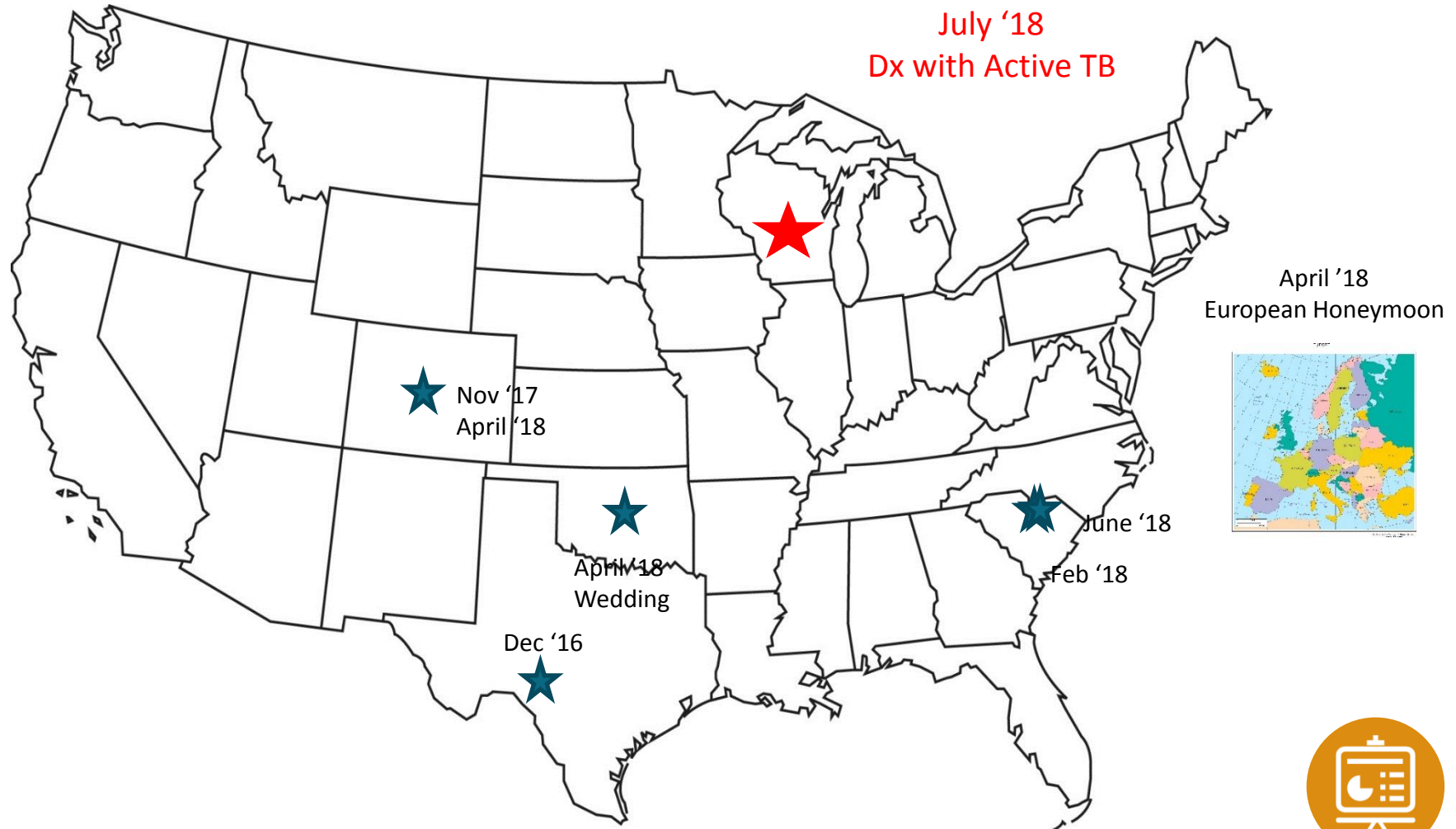


Case Study: 2018 Timeline

- 6/26/18: TST “Negative” (5mm induration)
- 6/26/18-Chest CT shows cavitary lesion (4.9x4.8 cm in LLL)
- 7/5/18-Hospitalized; Chest CT shows cavitary lesion (4.9x4.9cm in LLL)
- 7/7/18: Dx with Active TB; placed in isolation



Travel Timeline



Contacts

- Hospitals & Clinics
- Workplace
- Family
- Friends
- Wedding Guests
- European Honeymoon



Dane County Hospitals & Clinics

1. Provider #1 :

- 121 employees exposed
- 7 different locations
- 113 tested-all negative

2. Provider #2:

- 6 employees-all negative

3. Provider #3:

- 3 employees screened-2 negative, 1 previous positive

4. Provider #4 (dental):

- 4 employees screened-all negative



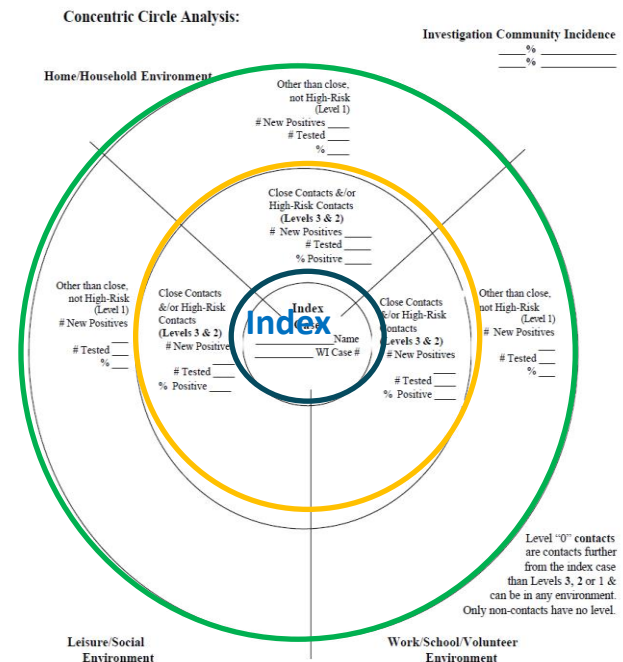
Workplace

- Started conversation 7/17/18 with HR Dept
 - Definition of a contact
 - People factors
 - Environmental factors
- Identifying & prioritizing contacts
 - Develop line list
 - Notify current/former staff
- Assessment and testing
 - Employer responsible for identifying, communicating to, and coordinating employee testing/screening



Workplace: Prioritizing Contacts

- **Very High Exposure**
 - Continuous Indoor Contact
- **High Exposure**
 - Regular and Long-Term Contact
- **Moderate Exposure**
 - Regular, but short contact, or infrequent but long



Workplace: Summary

- July 24, 2018:
 - 500+ potential work contacts identified
 - listed in spreadsheet for data tracking
- August 20-21, 2018:
 - First round testing with IGRA @ on-site clinics
 - Local clinic options
- November 12-13, 2018:
 - Second round testing with IGRA @ on-site clinics



Family, Friends & Wedding Guests

- Local Residents
 - PHMDC to f/u & case manage
- Out of State Residents
 - Interjurisdictional Notifications (IJNs)
 - Other LHDs to f/u with testing and case management



Interjurisdictional Notifications



European Honeymoon

- Obtained dates of travel and flight info
- Forwarded info to CDC in Chicago
- No need to notify foreign health departments of person with active TB

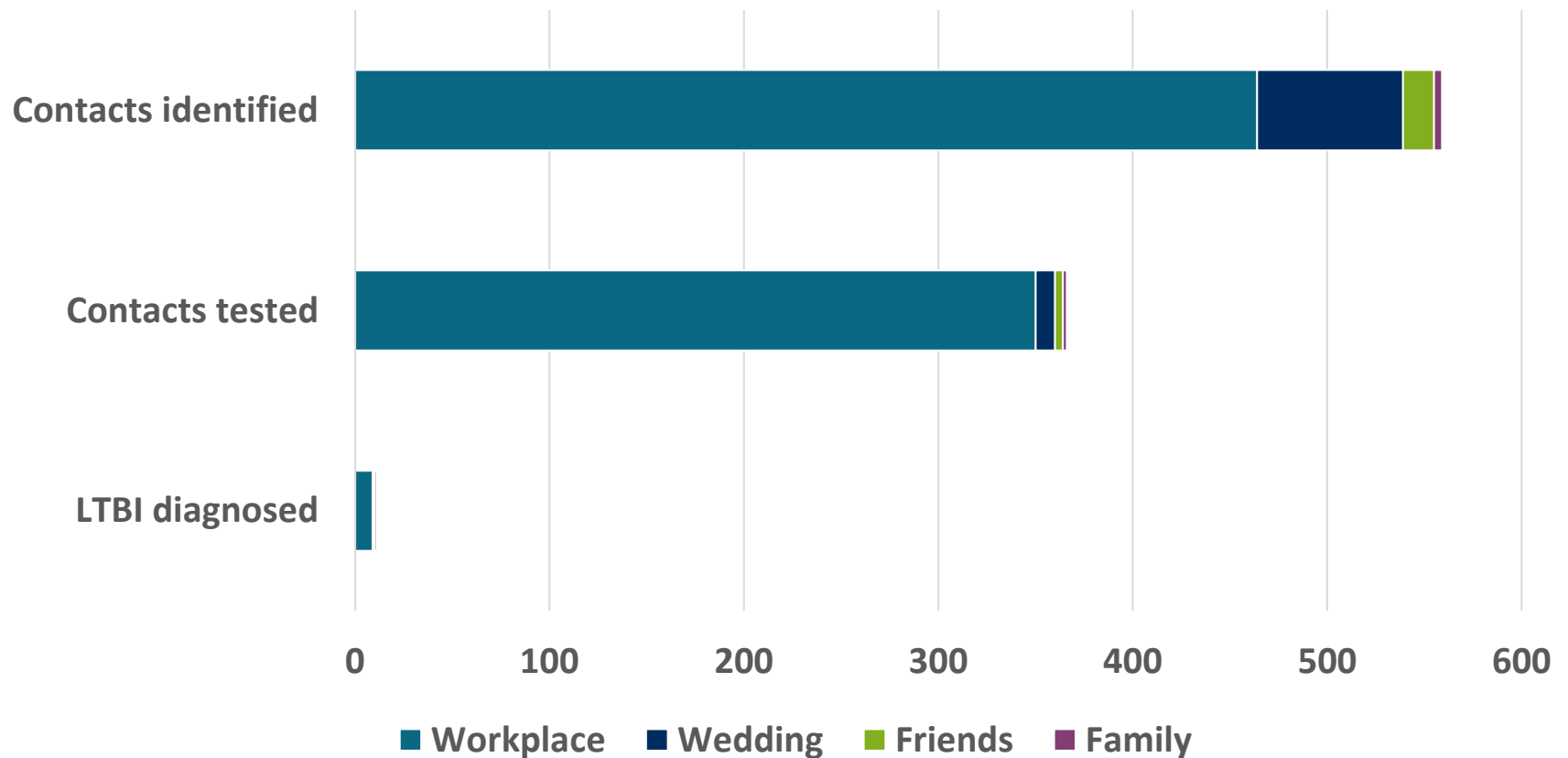




Conclusions & Summary

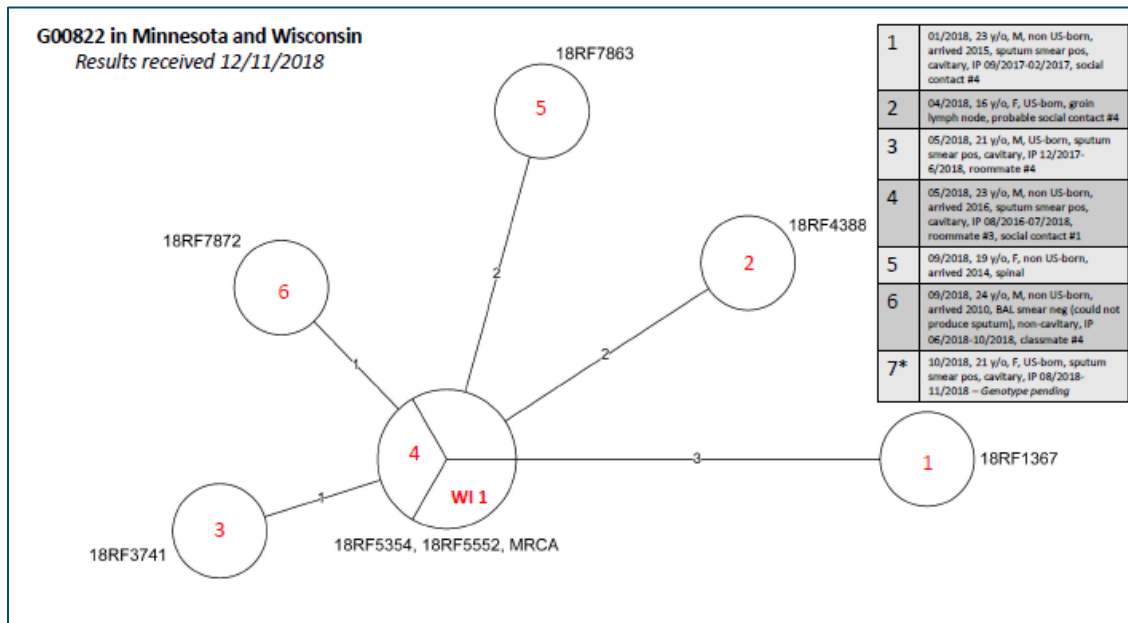
Screening Summary

Most contacts were identified at the worksite



Link to Cases in MN?

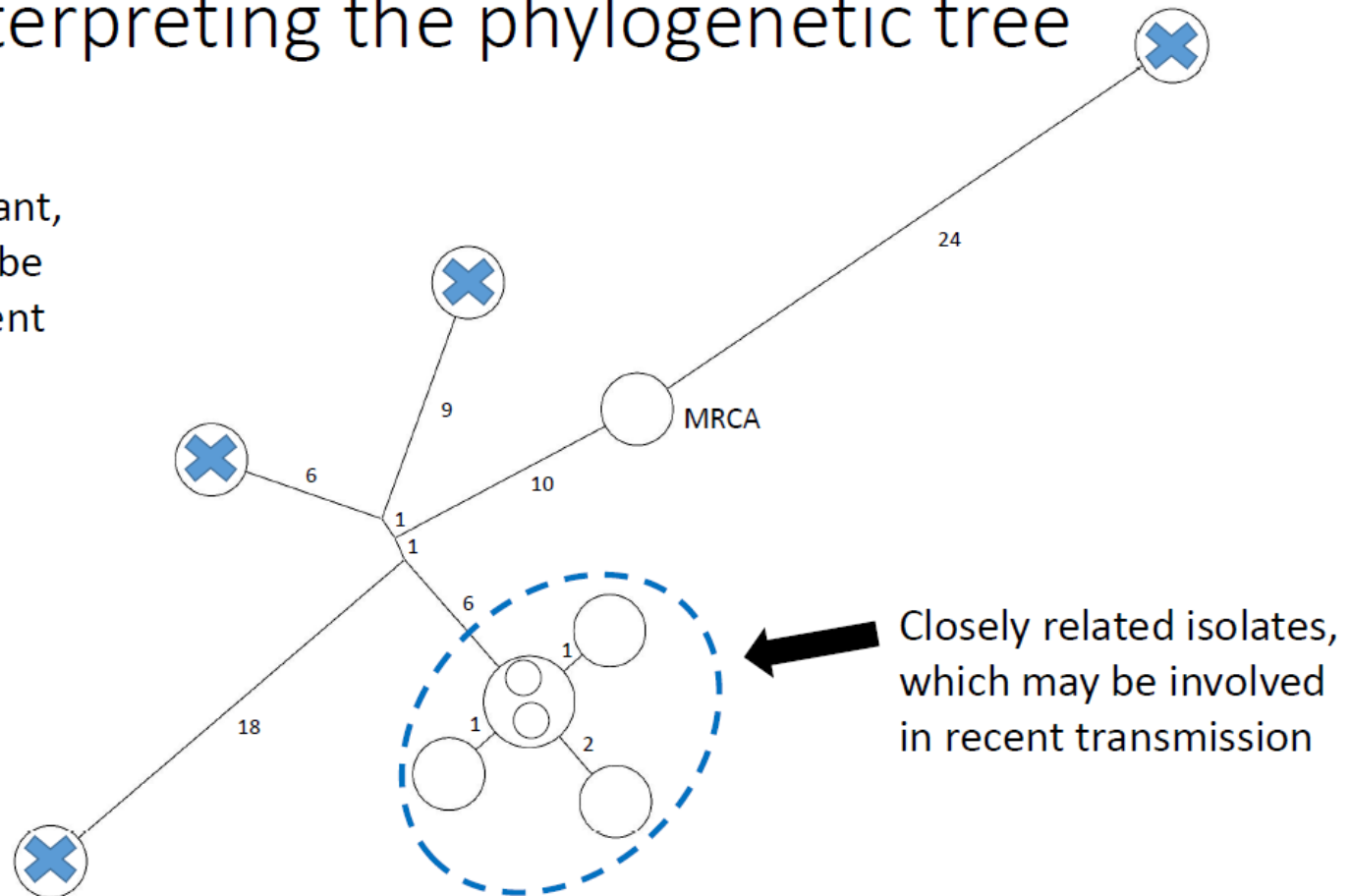
- Contact with MN Department of Health (December 2018)
 - Laboratory results linking Dane County client to several other patients (primarily university students)
 - MN Index client with infectious period Aug 2016-Aug 2018
 - 3 other clients with active TB (1 pulmonary, 2 extrapulmonary)
 - Unknown number of LTBI
- Re-interviewed client-no connections to MN



Link to Cases in MN?

Guide for interpreting the phylogenetic tree

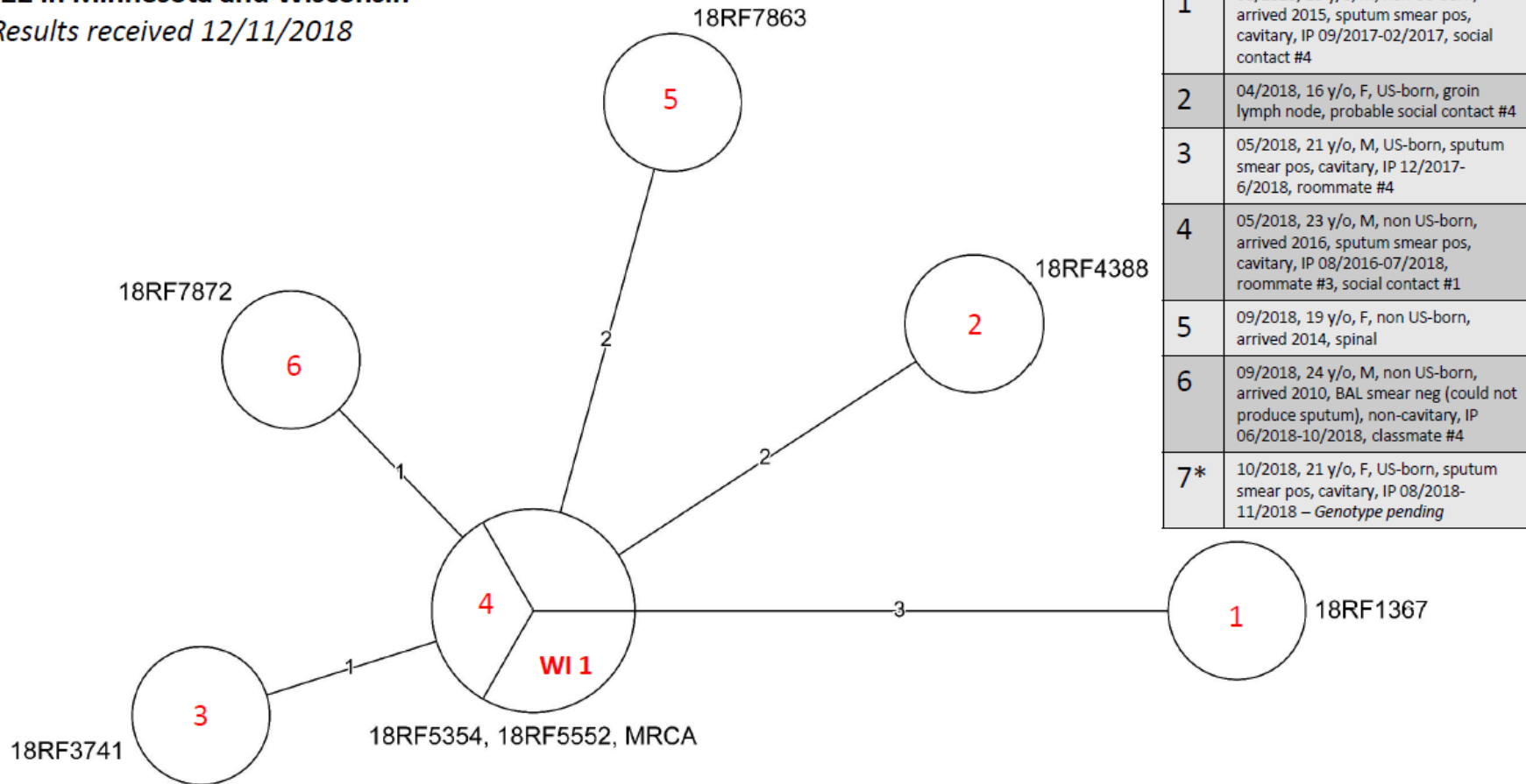
✘ = genetically distant, and unlikely to be involved in recent transmission



Link to Cases in MN?

G00822 in Minnesota and Wisconsin

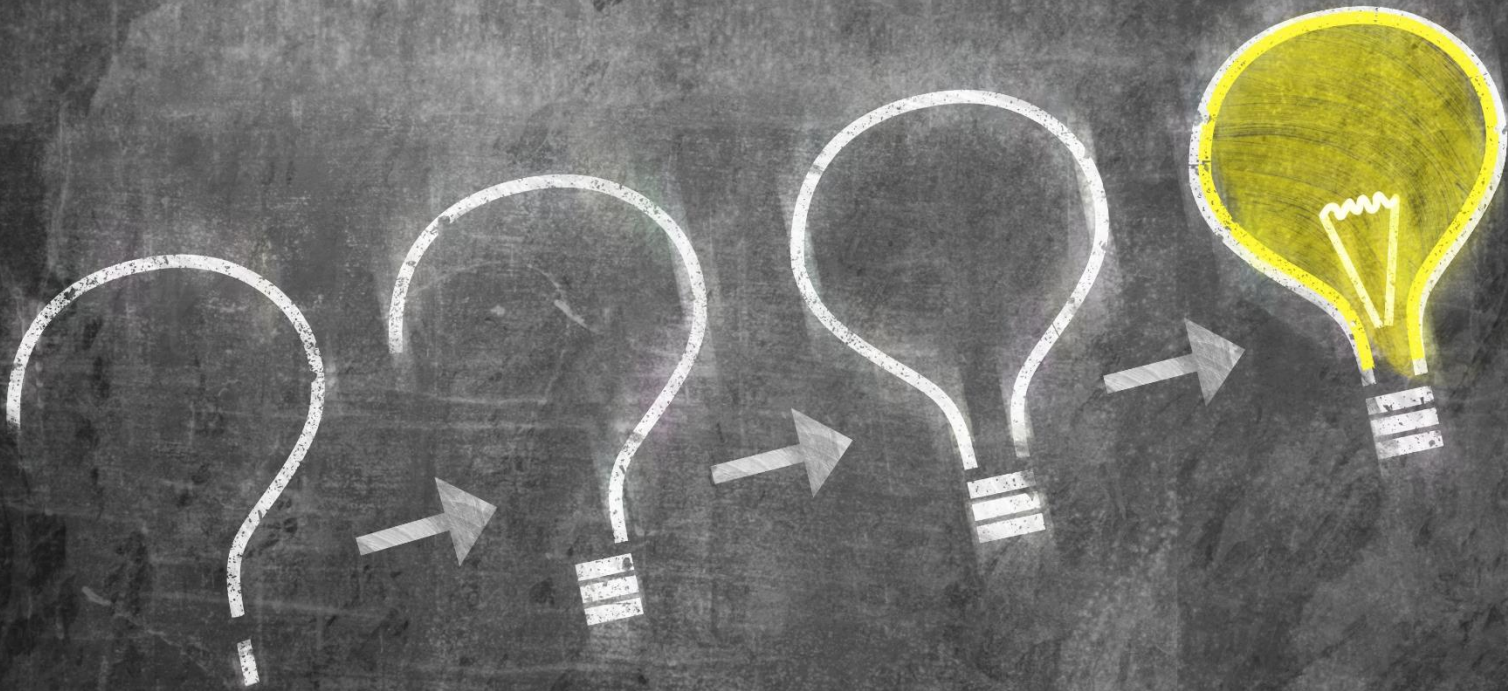
Results received 12/11/2018



Reference & Resources

- [Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis](#)





Questions