Systematic Approach to TB Contact Investigations

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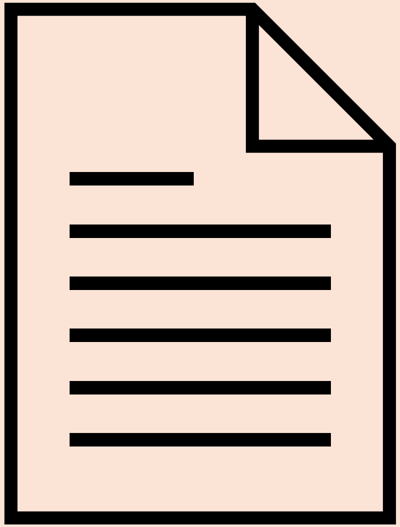
Disclosures

No relevant financial disclosures



How Do You Conduct a Contact Investigation?

Programs should use a systematic approach to conduct contact investigations (CIs)

Using a systematic approach helps to ensure the CI is carried out effectively and efficiently

The Systematic Approach to Contact Investigations Includes 10 Steps:

Step 1: Review existing information about the index patient

Step 2: Determine an initial estimate for the infectious period and estimate the degree of infectiousness

Step 3: Interview the index patient

Step 4: Review information and develop a plan for the investigation

Step 5: Revisit the infectious period, if needed

The Systematic Approach to Contact Investigations Includes 10 Steps (Cont'd):

Step 6: Prioritize contacts

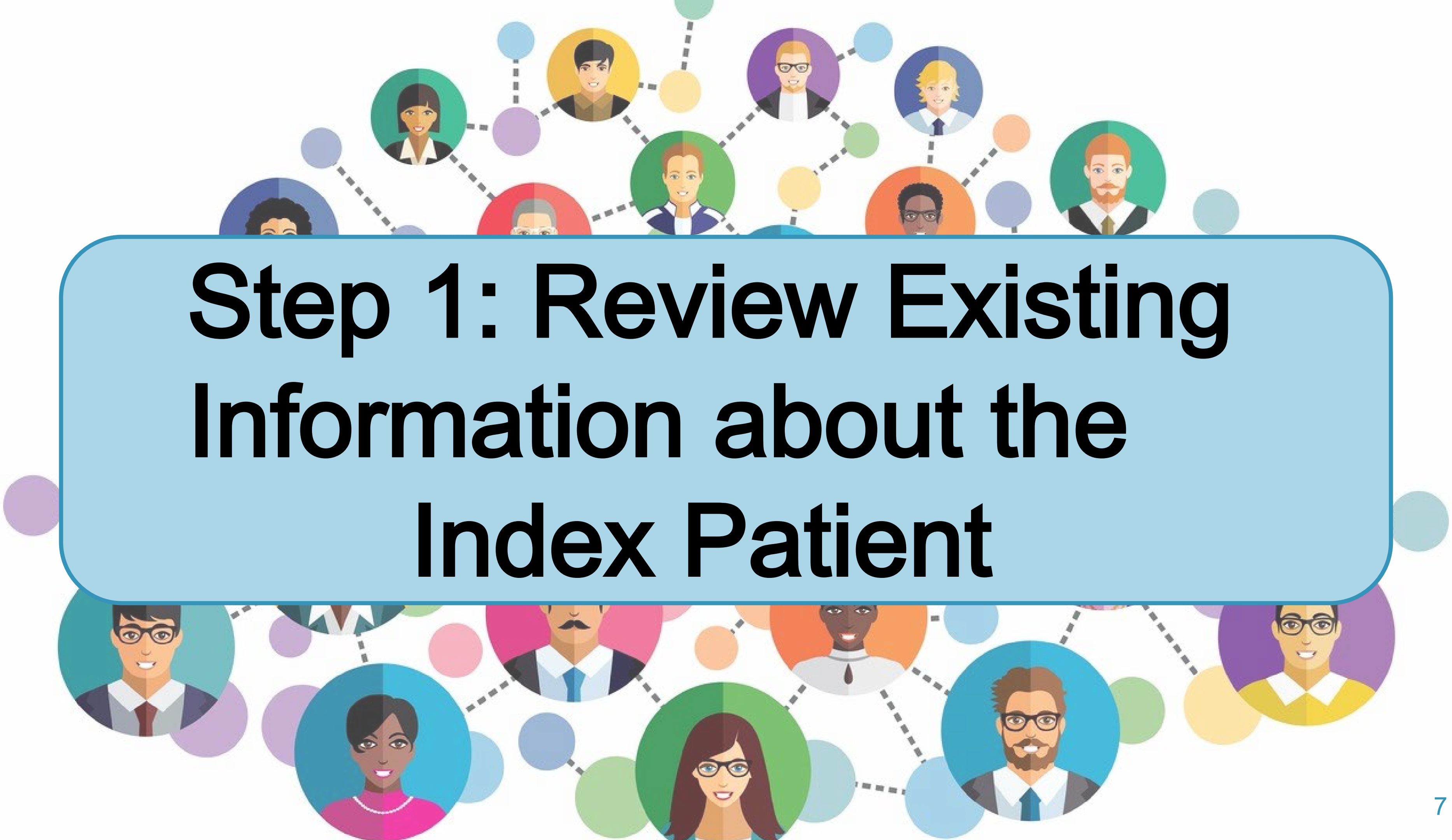
Step 7: Conduct field visits

Step 8: Conduct contact assessments

Step 9: Determine whether to expand or conclude an investigation

Step 10: Evaluate the CI activities

These steps may not always be done in sequential order



Step 1: Review Existing Information about the Index Patient

Review Existing Information

The process of reviewing existing information is called the <u>**pre -interview phase**</u>

Reviewing information before the initial interview can ensure the right questions are being asked

Sources of Information for Patient

Medical records

Patient’s clinician

Public health records

- Cross-check patient name with local registries and databases to determine if previous diagnosis of the disease e.g. TB, Syphilis, gonorrhea

Collect and Review Demographics

- Patient name(s)
- Aliases
- Date of birth
- Gender
- Emergency contact
- All known addresses
- Telephone number(s)
- Preferred language
- If employed, name and location of workplace
- If enrolled in school, name and location of school

Collect and Review Medical Risk Factors

HIV/AIDS

Diabetes mellitus

TNF alpha inhibitors

End stage renal disease

Solid organ transplantation

Other immunosuppressive condition

Collect and Review
Social & Behavioral Risk Factors

Substance use
- Alcohol
- Smoking
- IDU and NIDU

Mental illness

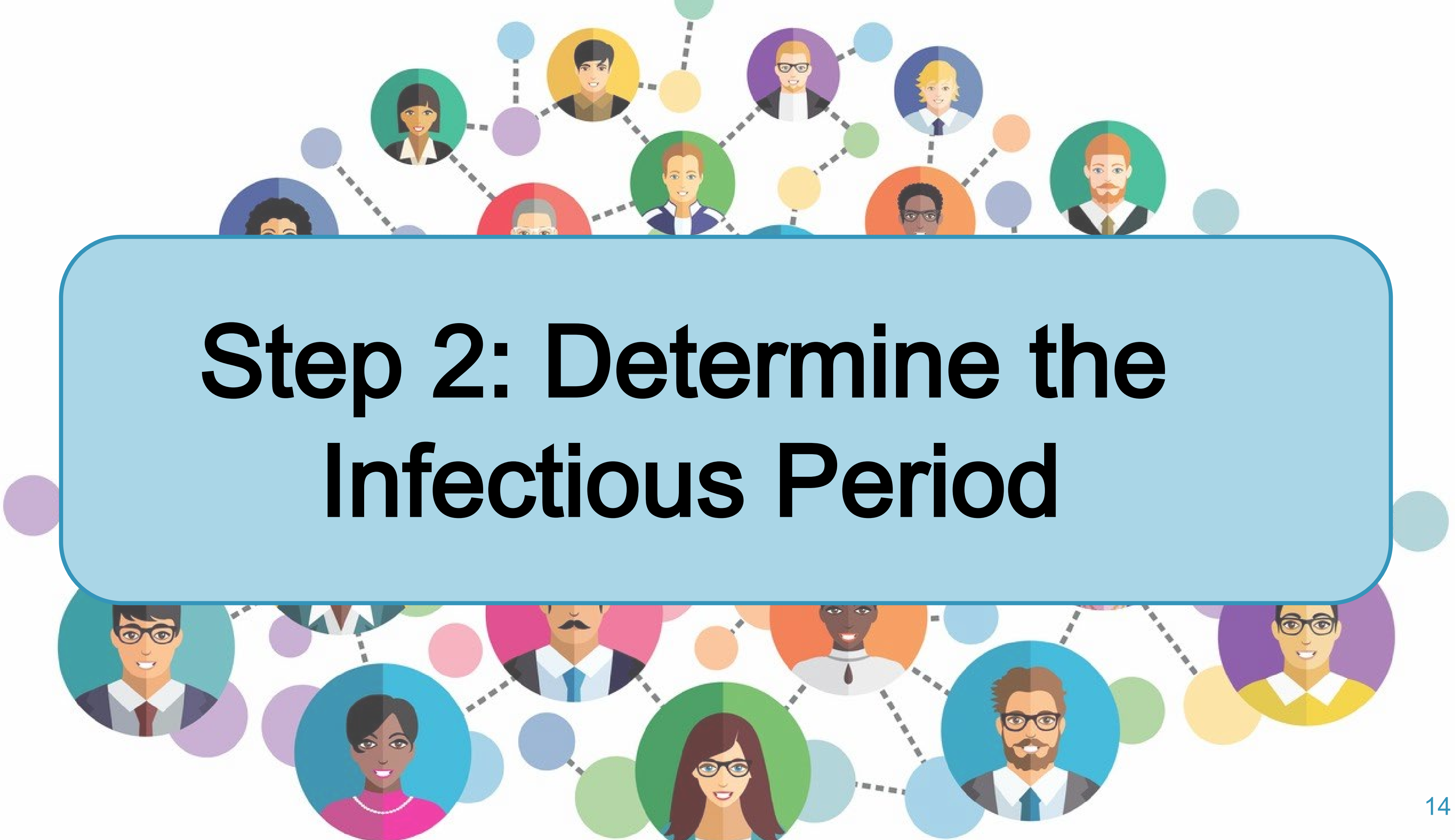
History of homelessness

History of incarceration

History of immigration or travel

Collect and Review Medical History

Documented history of exposure, diagnosis, or previous treatment	Current site(s) of disease	Current treatment regimen
Symptoms and estimated onset date	Radiologic imaging dates and/or other test results	Sputum smear (if applicable)
Culture dates and results (if available)	Drug susceptibility test results (if available)	Genotype results (if available)



Step 2: Determine the Infectious Period

What is the infectious period?

The time period during which a patient is able to transmit a disease

e.g. *M. tuberculosis*

Importance of Determining the Infectious Period

Focuses investigation on contacts most at risk for exposure

Sets the time frame for contact assessment

Determining the Start of the Infectious Period for TB

Characteristic of Index Patient				Likely Period of Infectiousness
TB symptoms	**AFB sputum smear or NAAT positive**	**Abnormal or cavitary chest x-ray**	**Culture**	
Yes	No	No	Pending	3 months before symptom onset or first finding consistent with TB disease, whichever is longer
Yes	Yes	Yes	Pending	3 months before symptom onset or first finding consistent with TB disease, whichever is longer
No	Yes	Yes	Pending	3 months before finding consistent with TB disease
No	No	No	*M. tb*	1 month (4 weeks) before date of suspected diagnosis

Determining the End of the Infectious Period for Tuberculosis

A patient's infectious period ends with:

- Effective treatment ≥ 2 weeks, improved symptoms (i.e., cough), and Mycobacteriologic response*
  - <u>For CI purposes</u>, **effective isolation** can also end the infectious period
  - Biologically the infectious period officially ends with three negative smears**

***A patient returning to a congregate setting should have 3 or more consecutive negative sputum smears**

Step 3: Interview the Index Patient

Objectives of the Conducting an Interview

- Discuss confidentiality
- Establish rapport
- Gather and confirm information
- Provide disease education
- Identify contacts

Identification of Contacts

Ask the index patient about the following during their infectious period:

- Persons with **WHOM** they spent time
- Places **WHERE** they spent time
- Participation in activities and events (**WHAT**, **WHEN**, and **HOW LONG**)

Conduct the Interview

Two interviews is the minimum

- Initial interview
- Re-interview

Every patient encounter is an opportunity to

- Provide education
- Gather additional information
- Identify high -risk behaviors
- Identify additional contacts, especially children

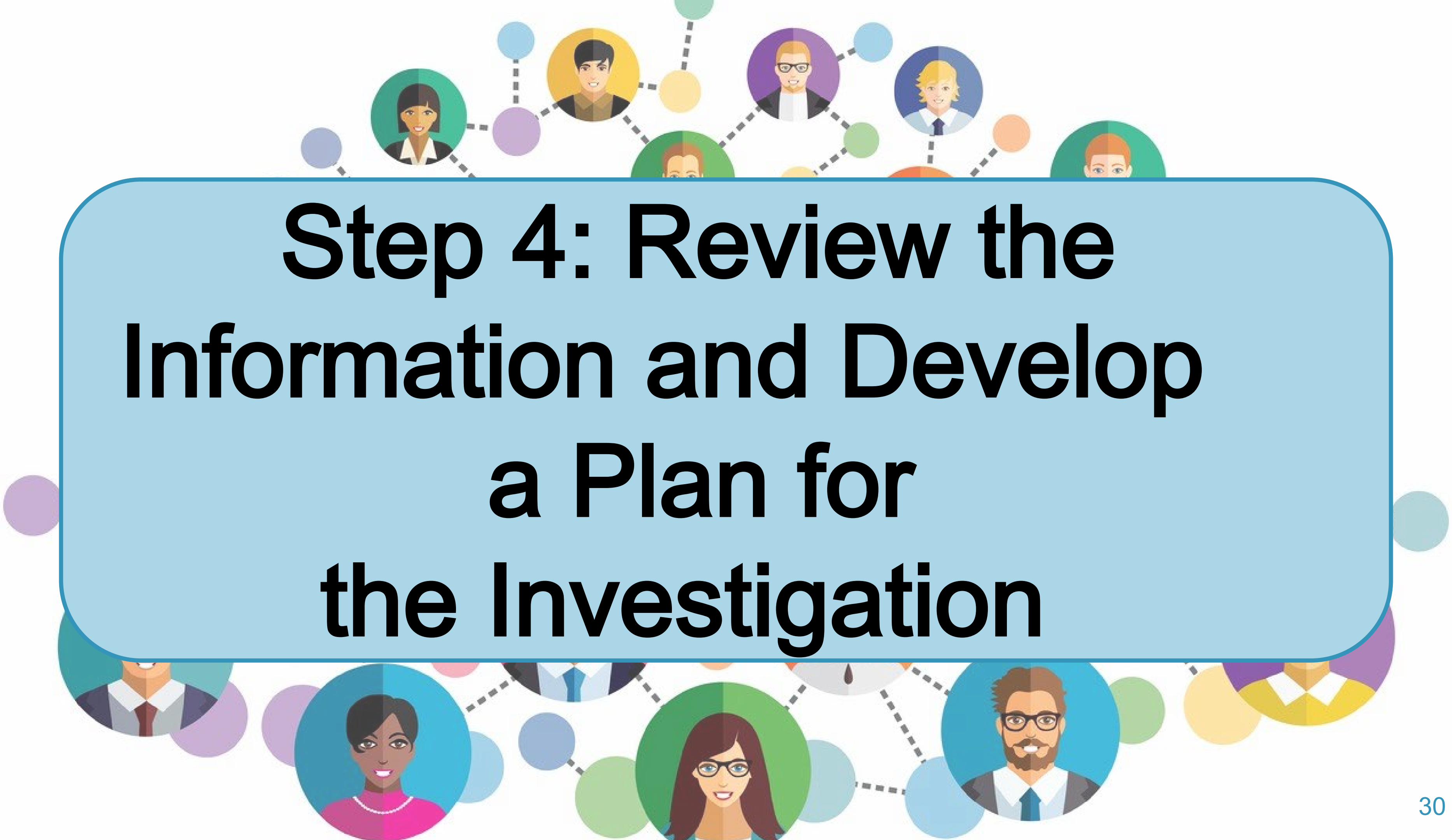
Conduct the Interview Cont'd

Initial interview	• Within **1-3 business days** for presumed or confirmed infectious cases
Second interview (re-interview)	• **7 to 14 days** after the initial interview

Initial Interview with the Index Patient

The initial interview with the index patient should be conducted:

- In-person
- At a hospital, medical clinic, patient's home, or any convenient location that allows for privacy
- In the patient's primary language
- With cultural sensitivity
- Using appropriate infection control measures (e.g., respirators, masks, and ventilation)



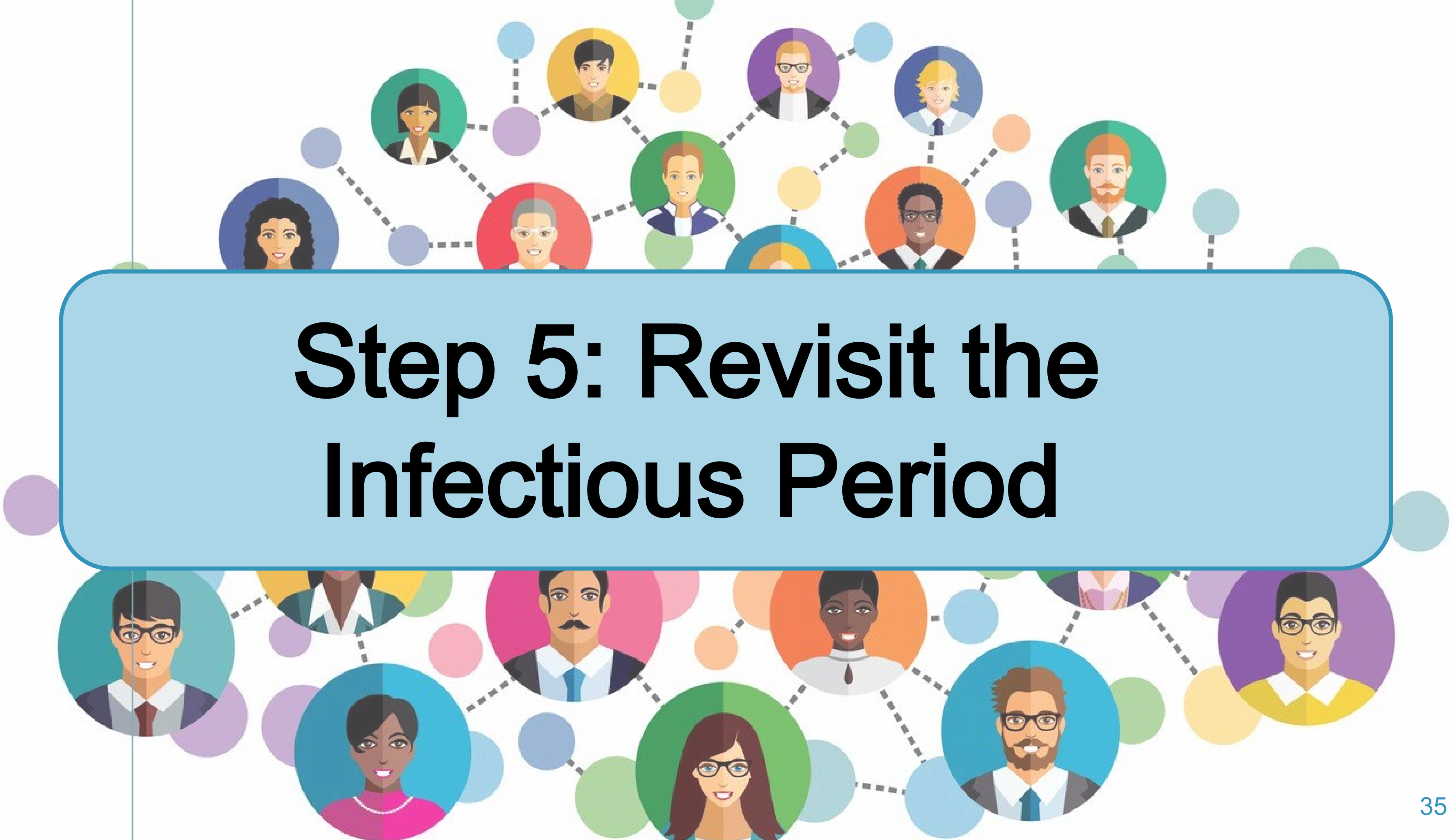
Step 4: Review the Information and Develop a Plan for the Investigation

Review Information and Develop a Plan for the Investigation

After conducting an interview with the index patient, the investigator may meet with a supervisor or the contact investigation team to

- Review the information obtained thus far
- Develop a plan on how to proceed

Step 5: Revisit the Infectious Period



Revisit the Infectious Period

Initial interview provides information to help <u>estimate</u> the infectious period

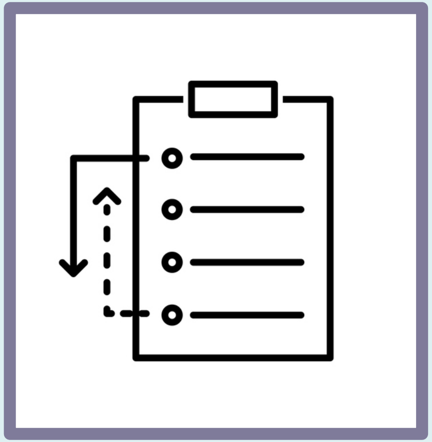
The re-interview may provide additional information to potentially revise the infectious period and elicit additional contacts

Step 6: Prioritize Contacts

Prioritizing Contacts

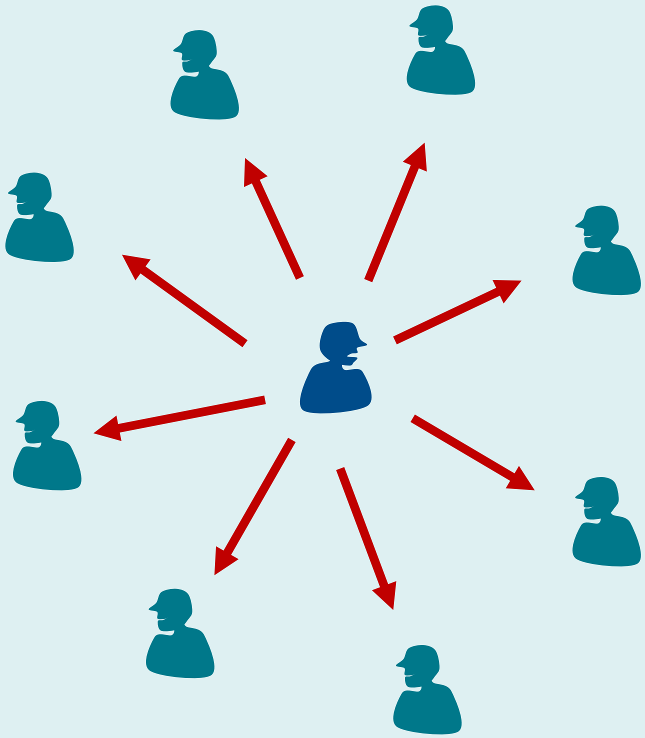
- Once a list of contacts is obtained, the contacts should be prioritized **(high vs. low risk)** to determine who should be immediately located and assessed for the disease or infection

- The priority assigned to individual contacts should be based on the following:
  - Likelihood of transmission
  - Risk for development of disease



Prioritizing Contacts

- Re-examine priority level assigned to contacts throughout the investigation
  - If evidence of significant transmission has occurred in priority contacts, CI may need to be expanded to additional contacts
- However, investigation should **not** expand to additional contacts if doing so would compromise the program's ability to assess and treat the known priority contacts



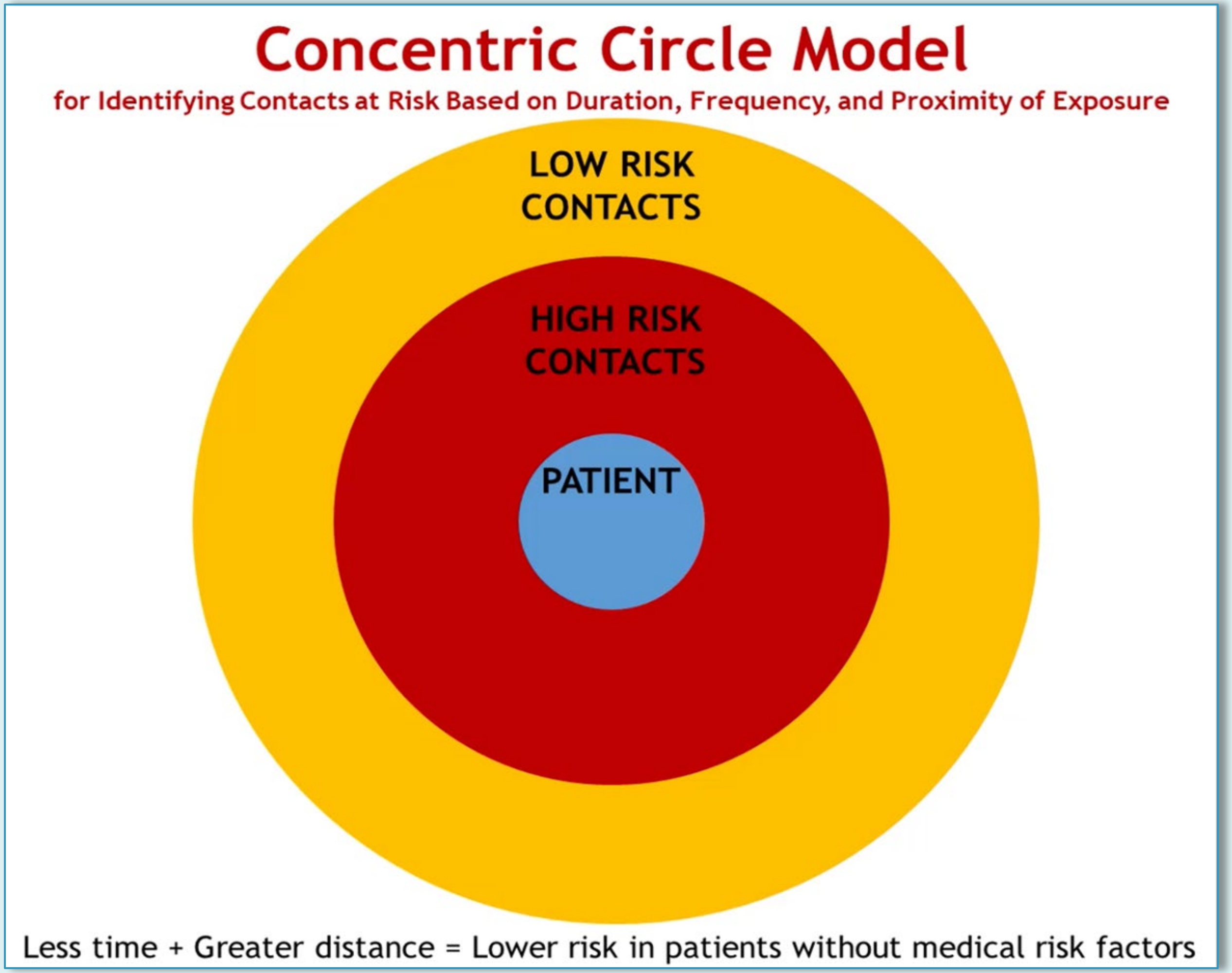
High vs. Low Risk

High Risk: Contacts who spend a lot of time with the index patient

Low Risk: Contacts who spend little amount of time with the index patient

Risk Assessment and Testing

- **Contacts who**
  - Are symptomatic
  - Are at increased risk for progression to disease
  - Have repeated, close prolonged exposure
  - Were exposed in an environment that is conducive to transmission
  - Were exposed during medical procedures


Concentric Circle Model
for Identifying Contacts at Risk Based on Duration, Frequency, and Proximity of Exposure
LOW RISK CONTACTS
HIGH RISK CONTACTS
PATIENT
Less time + Greater distance = Lower risk in patients without medical risk factors

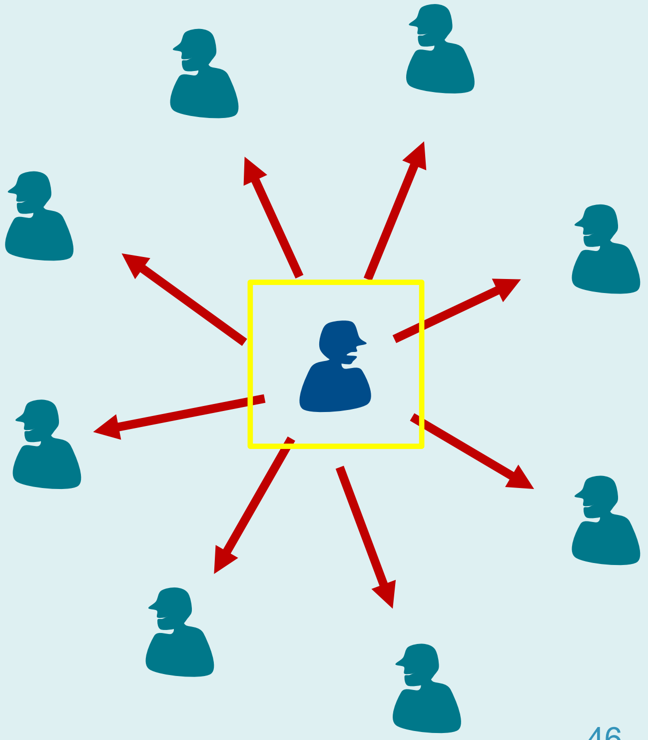
Step 7: Conduct Field Visits

What is a field visit?

An essential program activity where a public health worker conducts an in-person visit

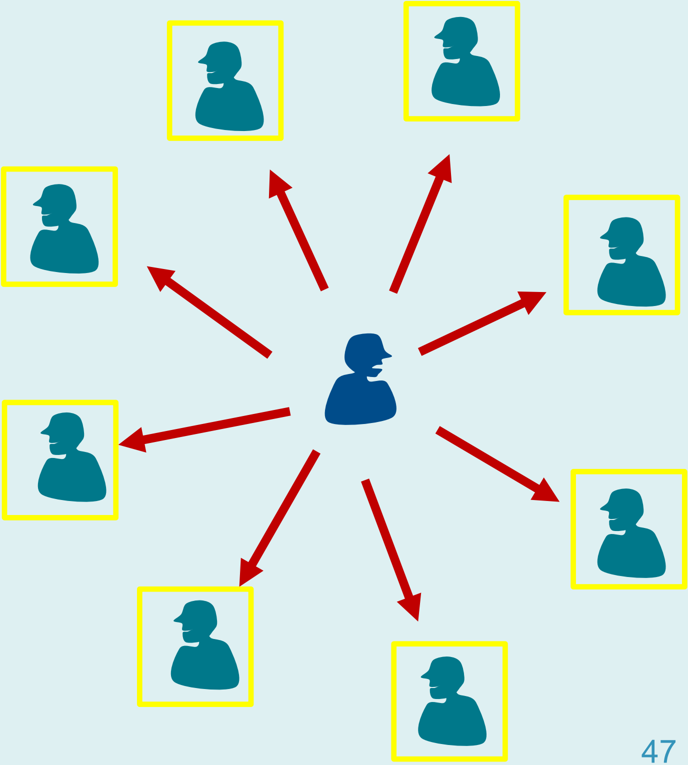
Purpose of a Field Visit for the Index Patient

Assess the residential environment of the index patient	Interview or re-interview the index patient
Maintain patient confidentiality	Provide disease specific education
Assess symptom history	Gather information about other exposure environments not previously identified



Purpose of a Field Visit for Contacts

Maintain patient confidentiality	Inform contacts of exposure
Provide disease specific education	Assess symptom history
Refer for medical evaluation	Identify additional cases and contacts



Step 8: Evaluation and Testing

What Happens After Contacts Have Been Identified and Prioritized?

A field visit should be conducted within 7 working days to locate contacts

→

Inform contacts of exposure and schedule evaluation

Contact Testing

- **Test with IGRA or TST unless a previous documented positive result exists**
- **A TST induration of ≥5 mm is positive**
- **A contact with a**
  - Positive IGRA or TST requires a chest x-ray and medical evaluation
  - A negative IGRA/TST requires post exposure testing 8-10 weeks after last known exposure to determine possible conversion
    - 8-10 weeks represents the "window period"
  - If initial negative test occurred 8-10 weeks after last date of exposure, no further testing is required

Window Period

The **window period** is the time span between the contact's last exposure to the index patient and when reliable detection of the disease can be identified

Example: It takes 2-10 weeks after TB infection for the body to mount an immune response that is detectable by a TB

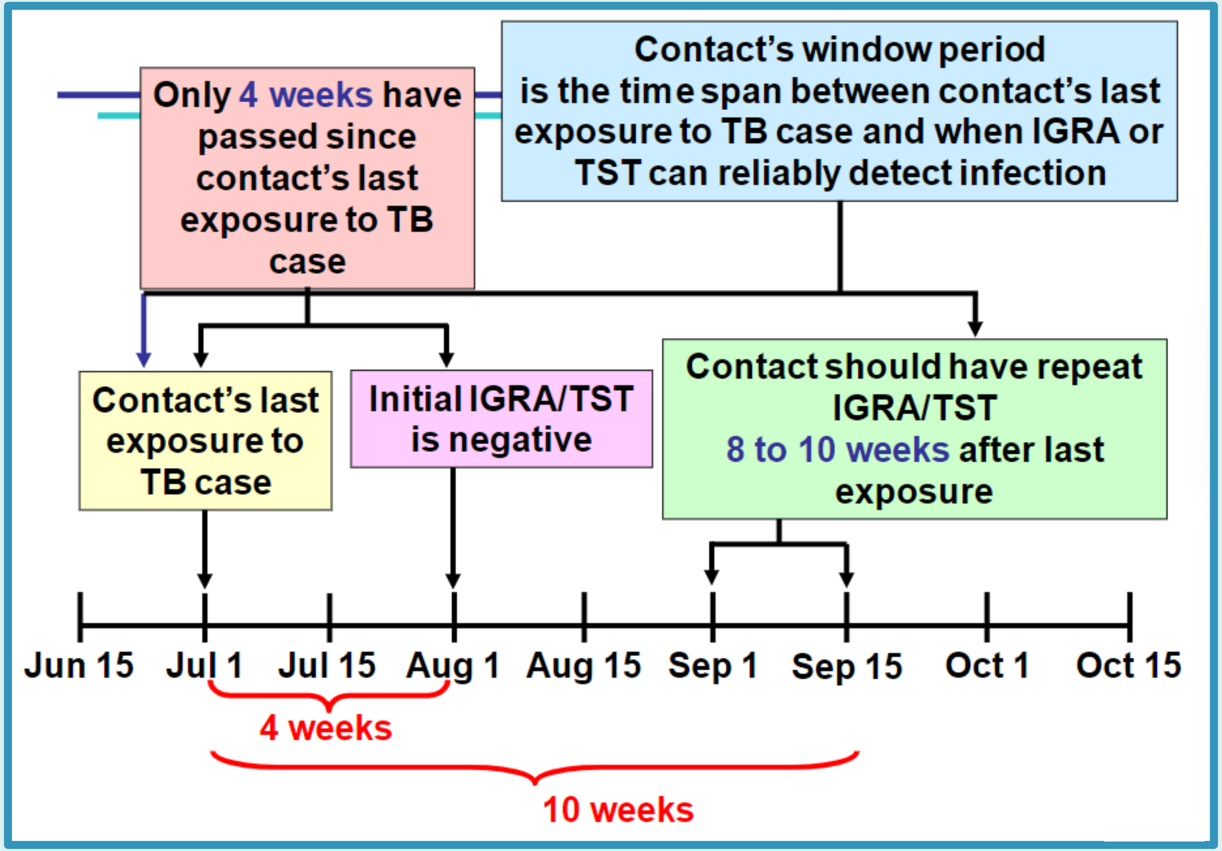
Calculating the Window Period

Identify last exposure date during the infectious period for each contact

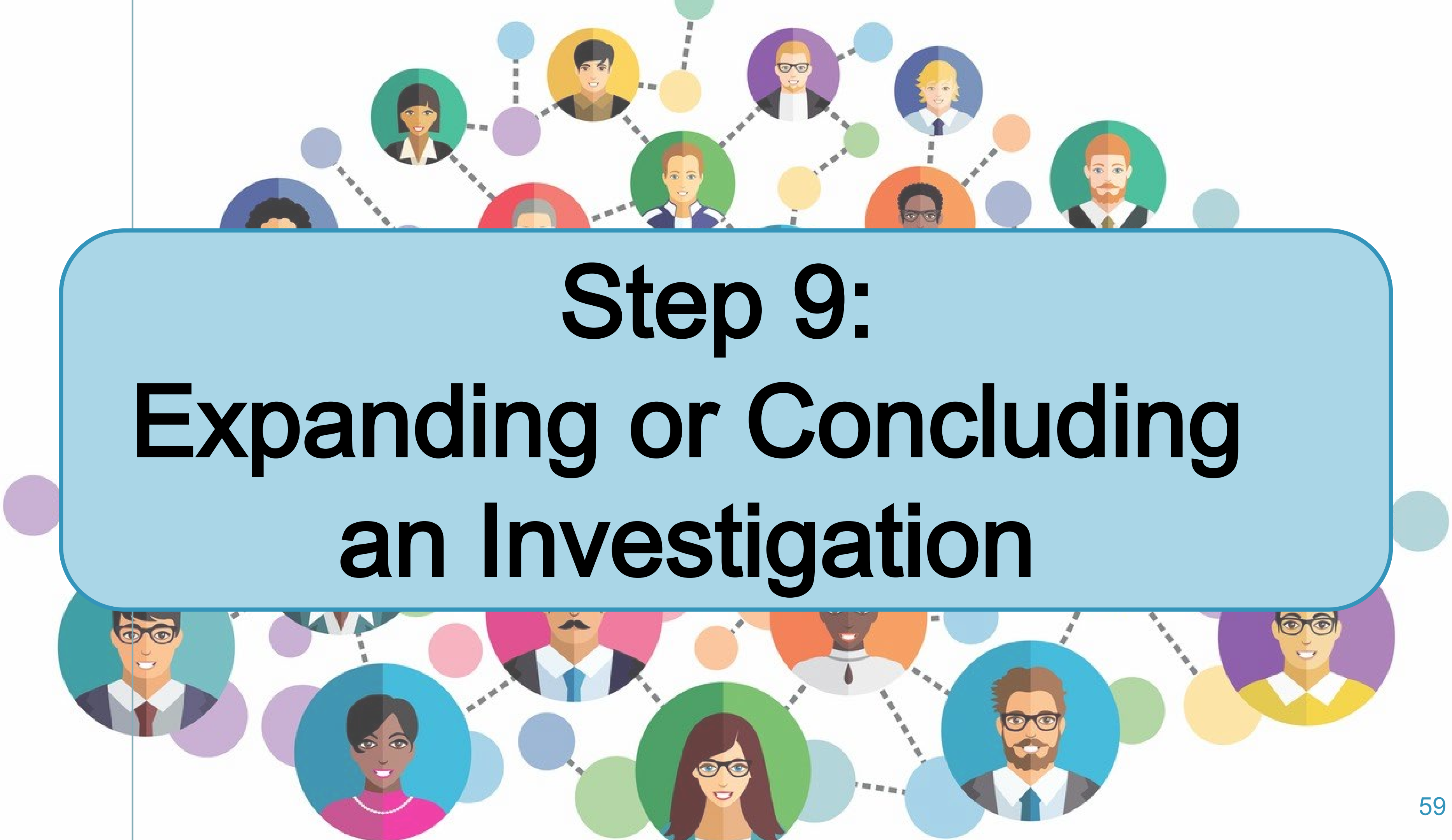
Calculate 8-10 weeks (e.g. TB) from last exposure for each contact for post -exposure testing date

For multiple contacts, each contact may have a different last date of exposure

Calculating the Window Period Cont'd



Step 9: Expanding or Concluding an Investigation



Expanding a Contact Investigation

Expansion is determined by evidence of recent transmission and includes

- Identification of secondary cases
- Local standards of practice

In absence of recent transmission, a contact investigation should not be expanded

Concluding a Contact Investigation

- A contact investigation is completed if local program objectives have been met
  - ☑ No evidence of ongoing transmission
  - ☑ Contacts diagnosed have completed preventive treatment

Step 10:
Evaluate the Contact Investigation Activities

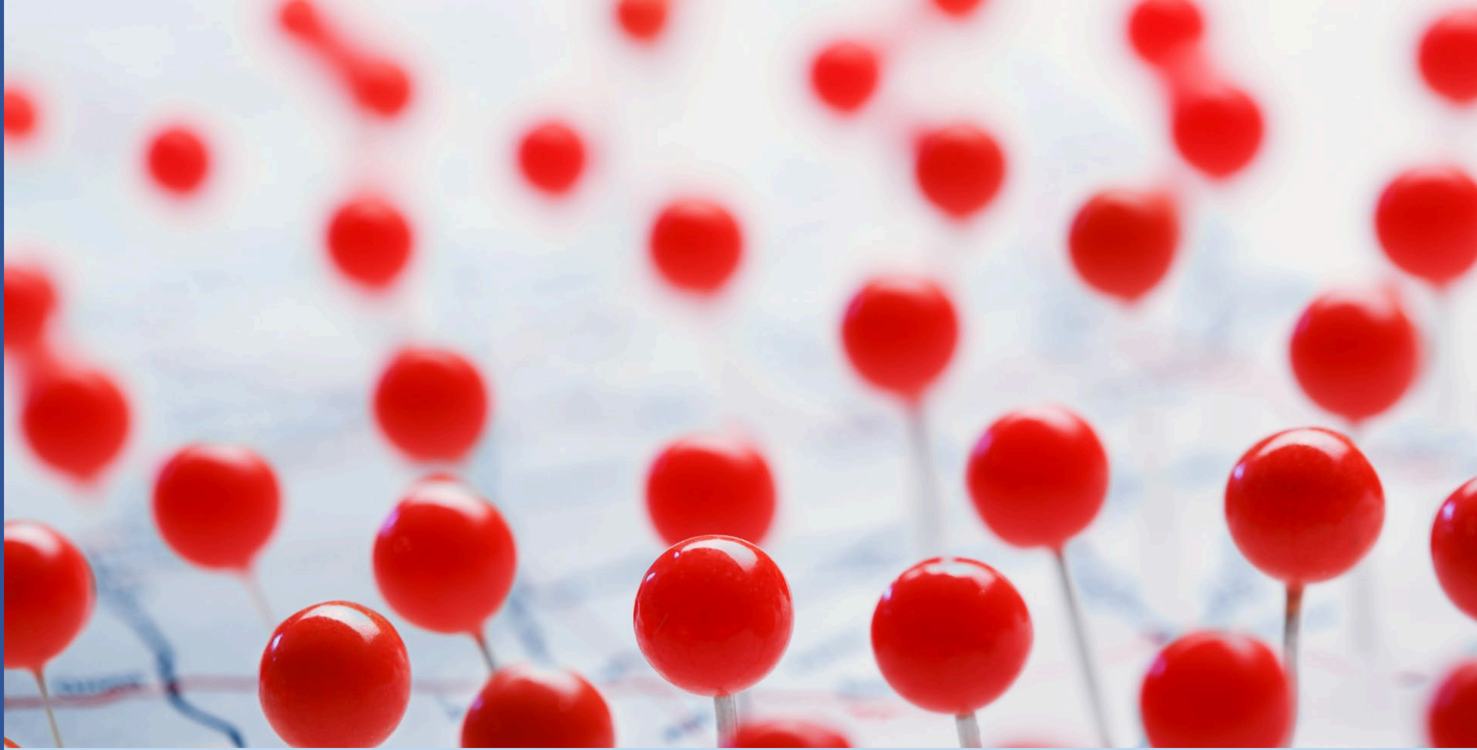
Evaluating Contact Investigation Activities

All activities of a CI should be evaluated to determine success towards meeting national program objectives:

- Number of contacts identified
- Arrival
- Number of contacts evaluated
- Number of contacts with infection
- Number of contacts initiated on preventive treatment
- Number of contacts who completed preventive treatment
- Number of contacts who did not complete preventive treatment
- Number of additional cases identified
- Number of contacts not located
- Number of contacts located but not evaluated
- Timeliness of identifying and evaluating contacts
- Was the CI performed in all identified settings
- Was the CI expanded based on local standards of practice
- Was the CI completed for secondary cases

Questions?

Thank You !



Kansas
Department of Health and Environment
Division of Public Health

Contact investigations

Jason Jones (KDHE, BDCP) April 16, 2026

Patient Cooperation

- Challenges

1. Inconsistent DOT/VDOT
2. Stigma associated w/ TB
3. Reluctance to test
4. Treatment for kiddos

- Solutions

1. Life-cycled smart devices
2. Community approach
3. Incentives
4. Get creative

Resource Limitations

- Challenges
  1. Funding
  2. Staffing
  3. Temp Excursions
  4. Field Operations
- Solutions
  1. Supplemental Request
  2. When/how to surge staff
  3. Resource management
  4. Public Health = Outdoor Sport

School Contact Investigation

[Tuberculosis Contact Investigation in Schools Toolkit | Curry International Tuberculosis Center]

All hands-on deck

1. Determine the need for CI
2. Establish communication
3. Develop contact list
4. Educate staff, students and parents
5. Notify contacts and obtain consent
6. Conduct testing

Prioritizing Risk for Contacts of Smear + Culture + MTB Cases or Cases with Cavitary Disease

High Risk Contacts

- Household Contact
- Child Contact less than age <5
- HIV+/AIDS Contacts
- Immunocompromised Contacts with medical risk factors
- Contact exposed during a medical procedure: bronchoscopy, sputum induction, autopsy.
- Contact exposed in Congregate Setting
- Contact greater than 8 hours in a small space, vehicle or small room or 25 hours in a larger room

Medium Risk Contacts

- Child Contacts age 5-15
- Contact of 25-100 hours per month in large spaces (large room, classroom, or large work room)
- Contact with greater than 100 hours exposure per month in a gymnasium, auditorium or warehouse

Low Risk Contacts

- All other contacts

Prioritizing Contacts of Smear – Culture + MTB Cases with Non- Cavitary Disease

High Risk Contacts ❖ Child Contact less than age <5 ❖ HIV+/AIDS Contacts ❖ Immunocompromised Contacts ❖ Contacts with medical risk factors ❖ Contact exposed during a medical procedure: bronchoscopy, sputum induction, autopsy
Medium Risk Contacts ❖ Household Contact ❖ Contact exposed in Congregate Setting ❖ Contact with greater than 120 hours exposure
Low Risk Contacts ❖ All other contacts

Prioritizing Contacts of Clinical Cases

Medium Risk Contacts ❖ Household Contacts ❖ Child contacts less than age <5 ❖ Contacts with medical risk factors ❖ Contact exposed during a medical procedure: bronchoscopy, sputum induction, autopsy
Low Risk Contacts ❖ All other contacts

Don’t wait until you have a school investigation to create an **approved** plan with templates

South Dakota Department of Health

Contact Investigations

Kristin Rounds, BA

TB Program Manager

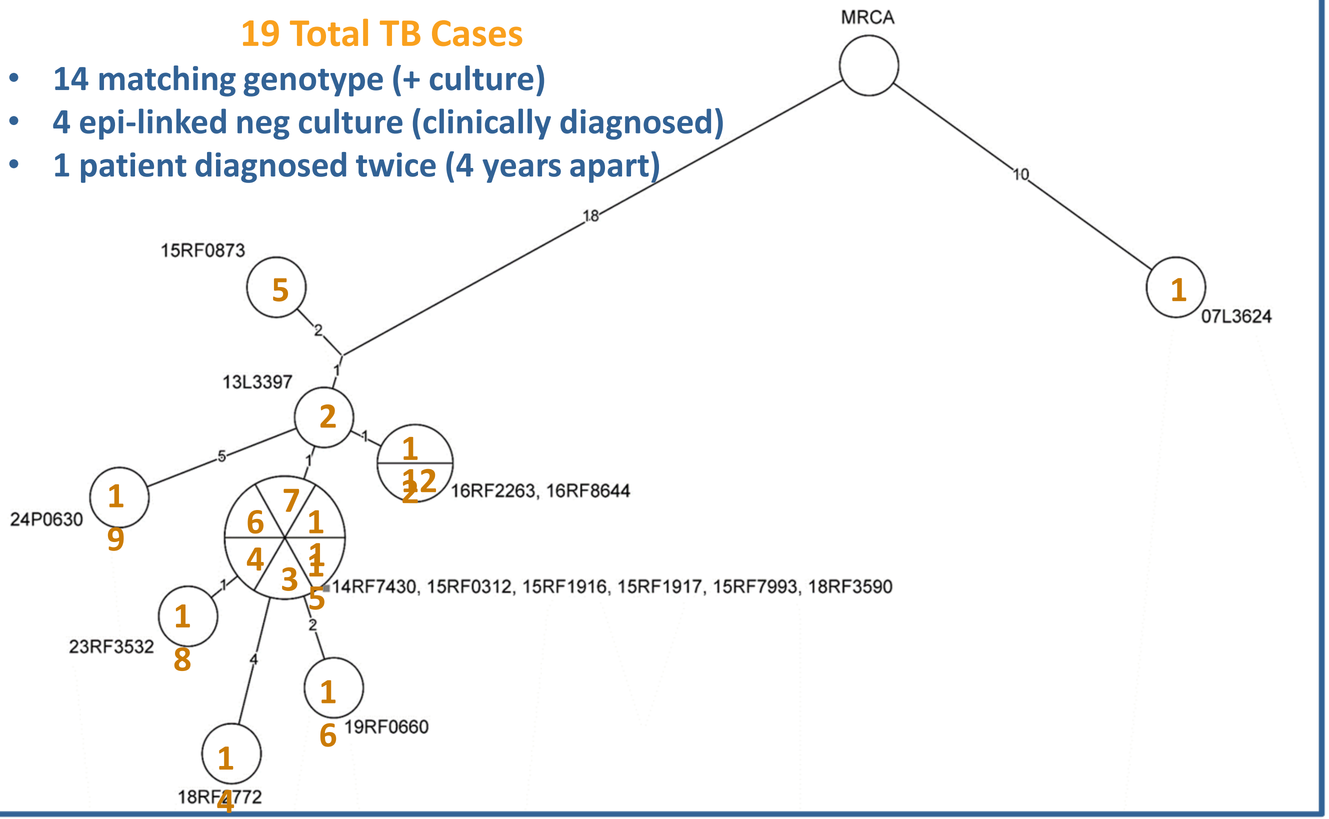
Contact Investigations

- Contact investigations are complex and difficult front line public health work
- It is easy to lose focus and therefore critical that staff are appropriately trained to focus on higher priority contacts
- Contact Investigation rule of thumb:
  - Higher priority contacts will be difficult to test
  - Lower priority contacts will be easier to test
- TB Programs need to monitor if staff are “drifting” into testing lower priority contacts who are easier to find and more cooperative
- Poor or inadequate contact investigations can lead to TB outbreaks and ongoing transmission

South Dakota TB Case Cluster
2007 to 2024

19 Total TB Cases

- 14 matching genotype (+ culture)
- 4 epi-linked neg culture (clinically diagnosed)
- 1 patient diagnosed twice (4 years apart)



Contact Investigations cont.

TB Program Manager role:

- Ensure written policy and procedure for consistency
- Provide staff training using real contact investigation case studies as table-top exercises
- Review contact investigations to ensure:
    - Deadlines are met
    - Higher priority contacts were initiated first
    - Contacts identified as TB suspects were medically evaluated and started on appropriate treatment
    - Contacts identified with LTBI were medically evaluated and started on appropriate treatment
- Contact investigation expanded if appropriate
- Conduct contact investigation analysis:
    - Evaluation rate
    - Positivity rate
    - Treatment rate
    - Active TB rate
    - # of contacts with LTBI
    - # of contacts with LTBI started on treatment
    - # of contacts with LTBI who completed treatment
    - # of contact with active TB

SOUTH DAKOTA DEPARTMENT OF HEALTH

DOH.SD.GOV