

Infection Prevention and Control Roundtable with Acute Care Facilities in Chicago

04-28-23





Agenda

- **Important Updates**
 - Healthcare Settings Team | CDPH
- **Overview of TB & Reporting**
 - Sylvia Dziemian, Program Director | Tuberculosis Program, CDPH
 - Theodore Bonau, Epidemiologist | Tuberculosis Program, CDPH
- **Legionellosis Disease Trends & Best Practices on Primary Prevention**
 - Karrie-Ann Toews, Career Epidemiology Field Officer | CDC
 - Janice Turner, Industrial Hygienist | CDPH
 - Vera Chu and Amanda Brown, IP&C Team | The University of Chicago Medicine
- **Discussion and Q&A**



Who is at the Roundtable today?

In the chat, please
share your name
and facility name





Project Firstline Updates

Alison VanDine, MPH, CIC

Infection Prevention Specialist | Project Firstline Lead

Healthcare Program



CDPH's Project Firstline: Learning Needs Assessment

- As a CDC [Project Firstline Partner](#), the [Chicago Department of Public Health](#) working to identify priority IPC training needs among frontline healthcare personnel in 2023.
- Have an idea for a new IPC training topic to train frontline staff or an area you would like to learn more about? Please complete [this brief survey](#).
- This survey can also be distributed among your frontline staff (e.g., Nurse educators, EVS staff, technicians, etc.).
- Please contact the **PFL-Chicago team** at projectfirstline@cityofchicago.org:
- For support in distributing the survey to your frontline staff
- To schedule an onsite training tailored to your facility
- Learn more about CDC's Project Firstline!





Important Updates

- **NEW (4/26/23): NHSN COVID-19 Hospital Data Reporting after May 11, 2023:**
 - Data elements reduction: the number of data elements required to be reported to CDC will be reduced from 62 elements to 44 elements.
 - Many fields will no longer be required and will be made optional.
 - NHSN will hold two identical webinars: Tuesday, May 2 and Thursday, May 4.
 - Dialysis facilities will no longer be required to report COVID-19 cases and deaths among patients and staff.
 - Dialysis facilities only need to report COVID-19 vaccination data for patients and staff for the last week of each month.





Save the Date: Friday 06/09/2023

We are planning to host in-person roundtable (if there is enough interest)

Please fill out this [form](#) to tell us your interest!

Located at: 1340 S. Damen Ave (4th floor)

Date: Friday 06/09/2023

Time: 1:30-3:00pm

***No roundtable in May**



Reporting Case Report (CRF) Forms: INEDSS vs. REDCap Entry

- CDPH requires additional epidemiologic information for certain cases in addition to the reporting requirement.
 - CRFs will always be requested from CDPH when needed
- This information can be entered directly into INEDSS **OR** REDCap if INEDSS access is limited: <https://redcap.link/MDROcasereportform>
- For MDRO reporting training, questions and CRF completion requirements, please contact: cecilia.pigozzi@cityofchicago.org



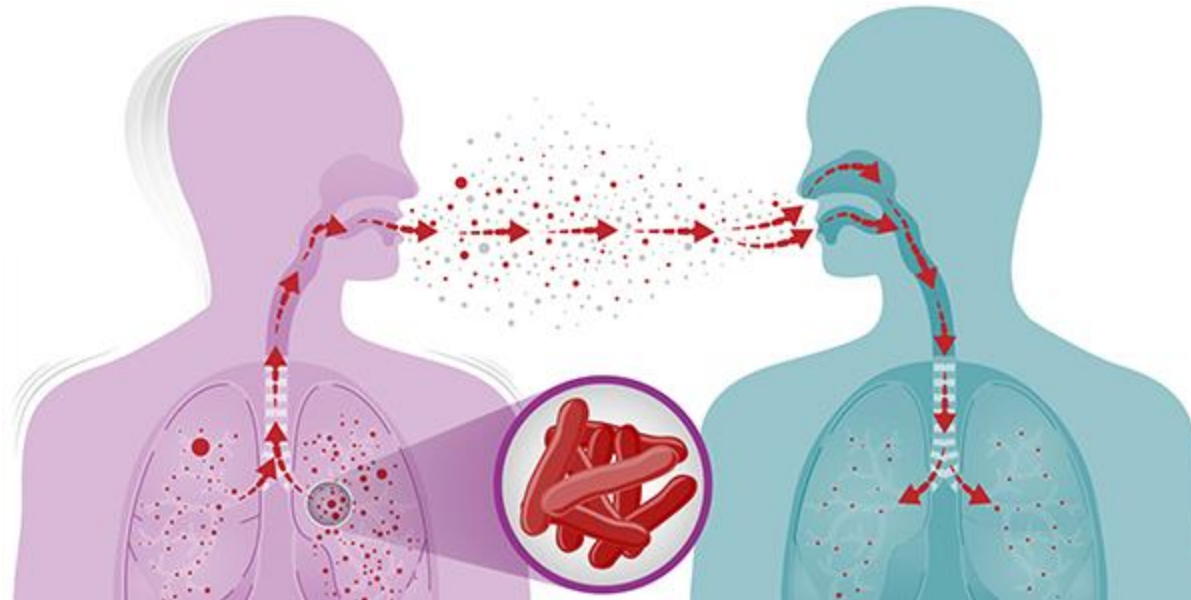
Overview of TB and Reporting

April 28th, 2023

Theodore Bonau, MPH, *Epidemiologist III, TB Program*

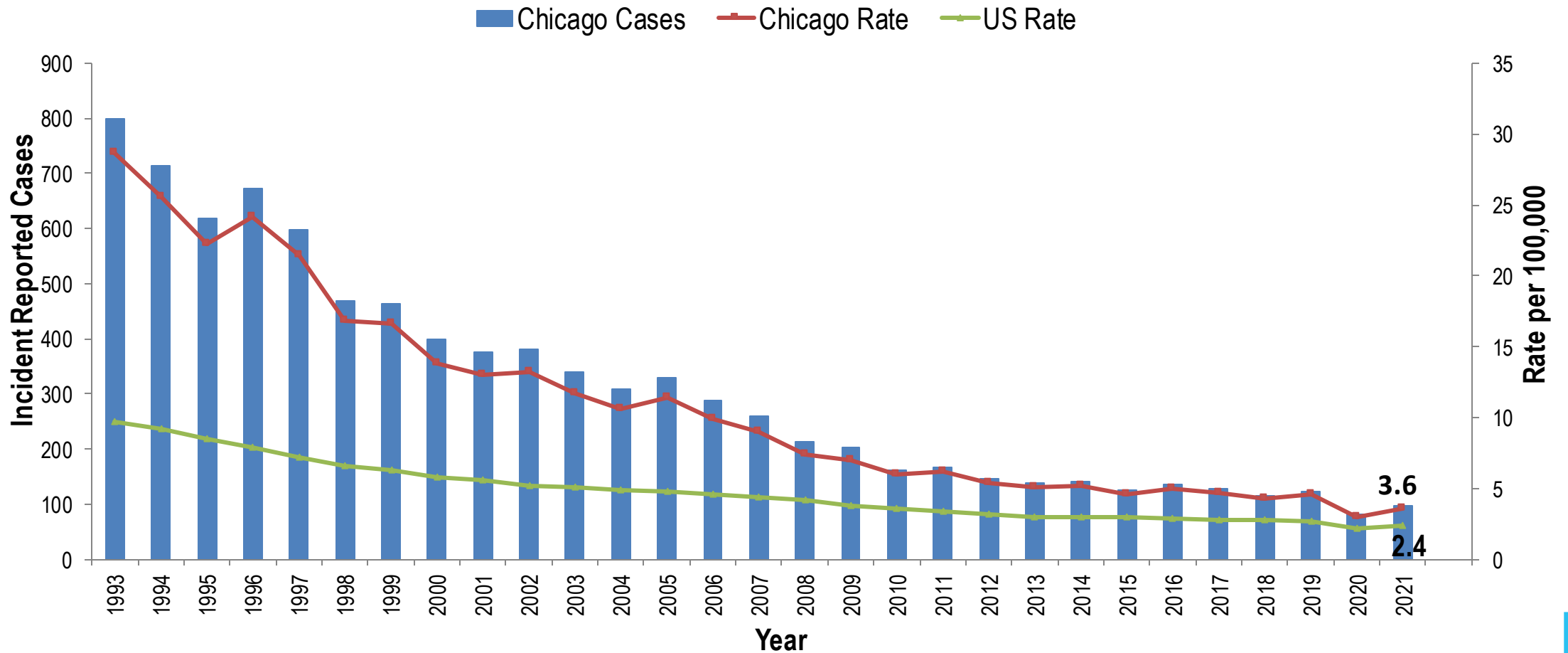
Sylvia Dziemian, *Program Director, TB Program*

★ Background





Trend in TB Case Count and Rate, United States and Chicago, 1993-2021





TB Basics

- Caused by bacteria *Mycobacterium tuberculosis*
- Transmitted person-to-person through the air
- Bacteria enter the lungs and multiply
- Immune system can keep bacteria in check (= LTBI)
- If immunity fails, patient can develop TB disease
 - Soon after or many years after infection
- TB bacteria usually grow in the lungs (pulmonary TB), but TB bacteria can live and multiply in any part of the body
- Symptoms of TB disease depend where in the body the TB bacteria are growing



TB Signs and Symptoms

TB disease in the lungs may cause symptoms such as:

- A bad cough that lasts three weeks or longer
- Pain in the chest
- Coughing up blood (hemoptysis) or sputum (phlegm from deep inside the lungs)

Other symptoms of TB disease are:

- Weakness or fatigue
- Weight loss
- No appetite
- Chills
- Fever
- Sweating at night

How contagious is TB?

It depends...



Source Case

- Severity of disease and symptoms
- Treatment

Environment

- Size of space
- Ventilation
- Filtration system



Individuals Exposed

- Immune status
- Duration of exposure

★ TB germs are NOT spread by...

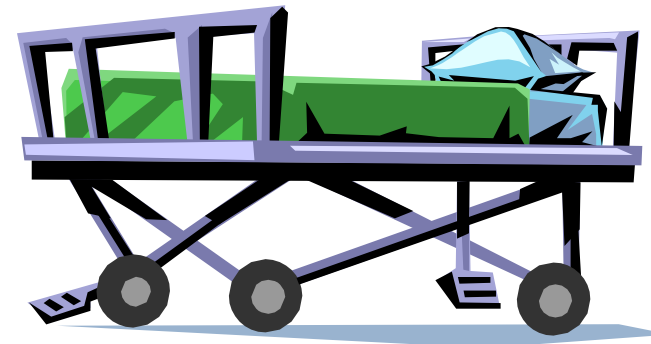
Sharing:

- Spoons and forks
- Drinking glasses
- Bathrooms



Handling:

- Bedding, clothes, or towels
- Rubbish
- Food

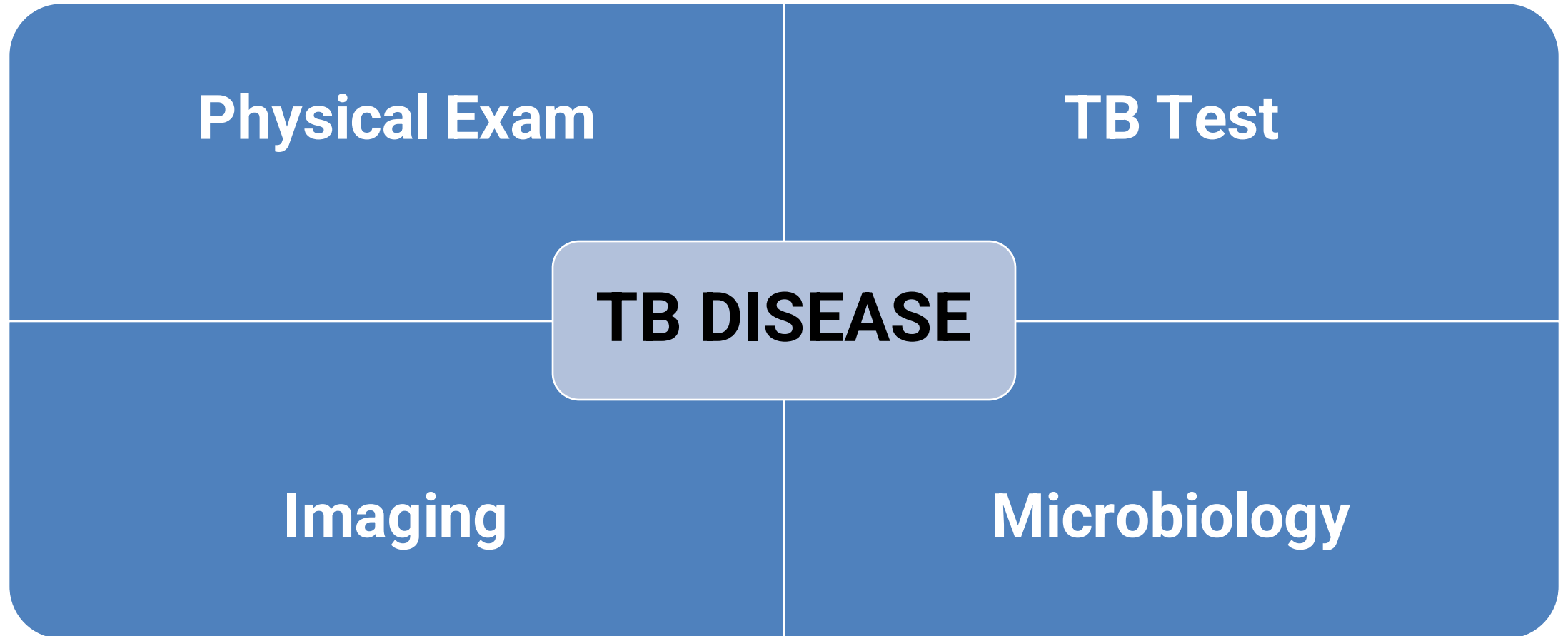


★ TB Evaluation





Four Components of the TB Evaluation



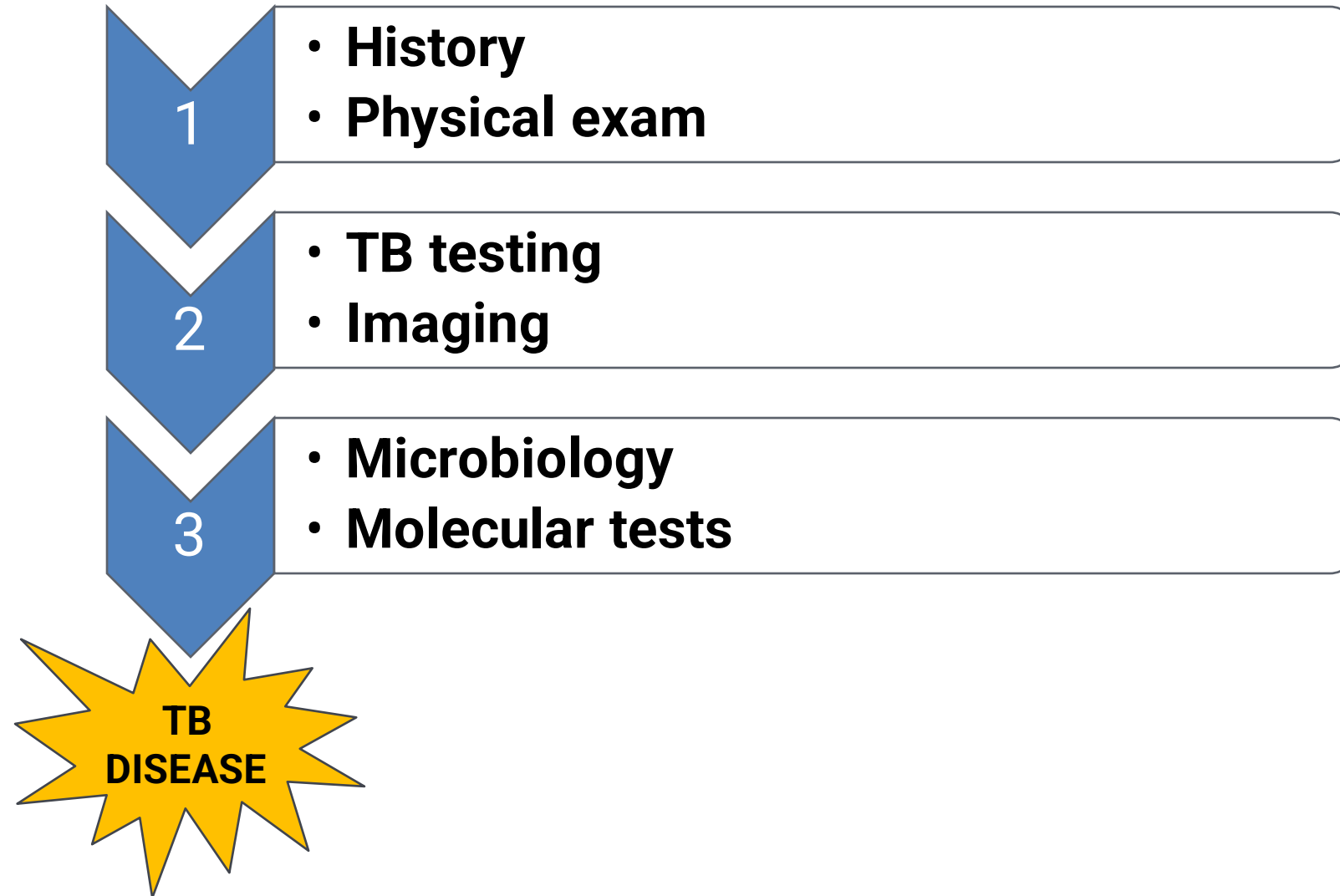
Skin Test vs. Blood Tests

TST vs IGRAs

TST	IGRA
Tuberculin is injected under the skin and produces a delayed-type hypersensitivity reaction if the person has been infected with <i>M. tuberculosis</i>	Blood is drawn for testing; test measures the immune response to the TB bacteria in whole blood
Requires two or more patient visits to conduct the test	Requires one patient visit to conduct the test
Results are available 48 to 72 hours later	Results can be available in 24 hours (depending on the batching of specimens by the laboratory and transport)
Can cause boosted reaction	Does not cause boosted reaction
Reading by HCW may be subjective	Laboratory test not affected by HCW perception or bias
BCG vaccination can cause false-positive result	BCG vaccination does not cause false-positive result and infection with most nontuberculous mycobacteria does not cause false-positive result
A negative reaction to the test does not exclude the diagnosis of LTBI or TB disease	A negative reaction to the test does not exclude the diagnosis of LTBI or TB disease

TB Evaluation Often Done Sequentially

“Building the Case for TB”

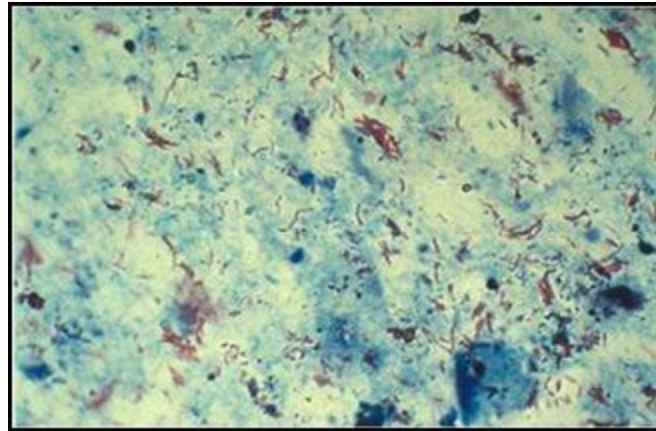




Active vs. Latent Tuberculosis Infection

Latent TB Infection (LTBI)	TB Disease (in the lungs)
Inactive , tubercle bacilli contained	Active , tubercle bacilli multiplying
TST or IGRA test results usually positive	TST or IGRA test results usually positive
Chest x-ray usually normal	Chest x-ray usually abnormal
Sputum smears and cultures negative	Sputum smears and cultures may be positive
No symptoms	Symptoms such as cough, fever, weight loss
Not infectious	Often infectious before treatment
Not a case of TB	A case of TB

★ Laboratory Testing





Mycobacteriologic Examination

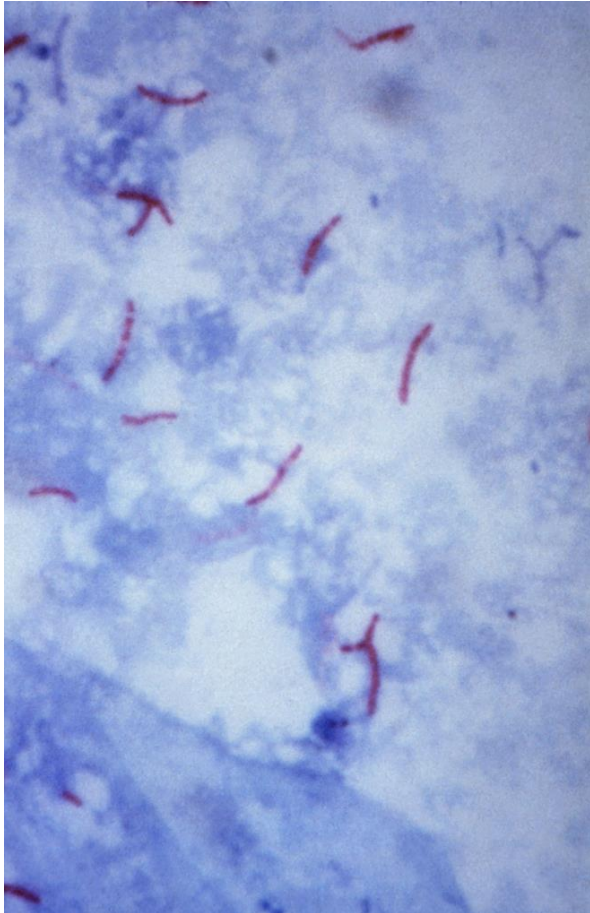
Proper specimen collection

- Collect at least 3 sputum specimens at 8-24 hr intervals, at least one should be collected early morning
- Sputum not saliva
- Specimen types
 - Expectorated sputum
 - Induced (hypertonic saline neb)
 - Bronchoscopy
 - Gastric aspirates
- Follow infection control precautions during collection





Mycobacteriologic Examination



Acid-Fast Bacilli (AFB) Smear

- Microscopic exam
- Results available in 24 hrs
- Need at least 10,000 AFB/ml to be positive
- Positive result supports diagnosis of TB disease; however does not distinguish between viable and dead organisms
- Does not distinguish between MTB and non-tuberculosis mycobacteria



★ How to interpret QFT results

- Nil- (control) baseline background
- Mitogen-(control) measures patient's immune system
- TB1- CD4 cells
- TB2-CD4 + CD8 cells
 - TB2-TB1 difference >0.6 more indicative of new TB infection or presence of active TB
- Positive results
 - If TB1-Nil or TB2-Nil >0.35 then QFT is +
 - Indeterminate result means test failed



Mycobacteriologic Examination

Nucleic Acid Amplification Test (NAAT)

- Performed *directly* on a respiratory specimen
- Results available in about 1 day
- Should be done for each patient with signs & symptoms of active pulmonary TB for whom a diagnosis of TB is being considered
- PROs: high sensitivity and specificity; earlier diagnosis may lead to earlier treatment, guides infection control decisions and public health interventions; Xpert gives info about RIF resistance
- CONs: does not replace AFB culture, adds lab cost, susceptible to contamination, does not distinguish between live and dead organisms



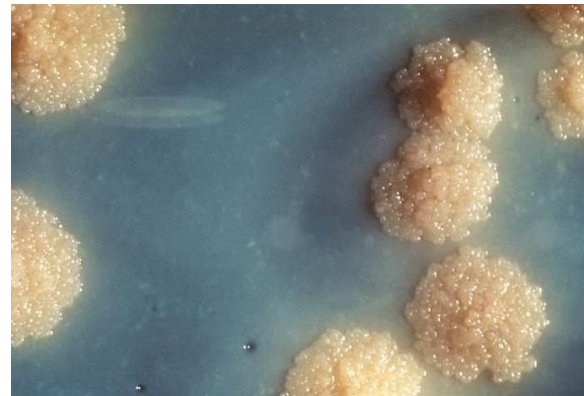


Mycobacteriologic Examination

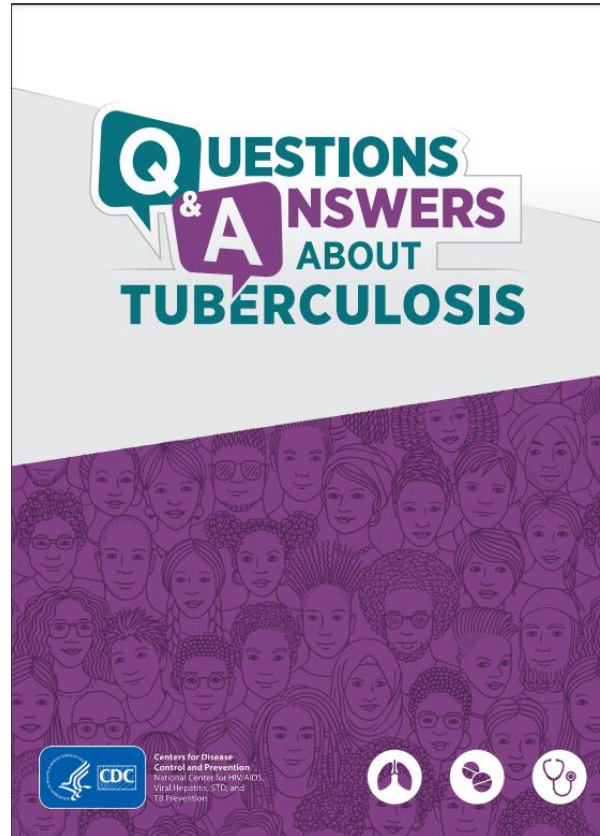


AFB Culture and Identification

- More sensitive than smear: need only 10 AFB/ml for a positive result
- Results as soon as 4-14 days if liquid media ("broth") used
- Incubate at least 6 wks to confirm no growth



★ Infection, Prevention, and Isolation



★ Masking



Person with active TB



Healthcare staff should be fit-tested and wear an N95



Isolation and Infectiousness

- Effective treatment for ≥ 2 weeks, AND
 - Diminished symptoms, AND
 - Bacteriologic response
-
- Has an exposure occurred?





TB in Healthcare and Congregate Settings

- Baseline for healthcare workers
 - Re-testing is not indicated anymore
- Establishing a baseline for patient
 - Negative → Positive
 - Positive





More Resources and Education

- <https://www.cdc.gov/tb/default.htm>
- <https://www.cdc.gov/tb/publications/faqs/pdfs/qa.pdf>
- <https://www.cdc.gov/tb/education/ssmodules/default.htm>



Guidelines for Reporting TB

- LTBI is not reportable in Illinois
 - Only Civil Surgeons must report LTBI
- A patient is reportable when:
 - Anti-TB Rx is started (RIPE) even if empirically (in absence of + biologics)
 - MTB PCR+
 - MTB Cx is +
- Positive AFB smears are not reportable unless patient was started on Anti-TB Rx
- Active TB is reportable
 - Call 312 743-7218
 - Fax 312 746-5134



Documents needed by CDPH

- Any biological specimens for TB:
 - Specimens sent for AFB smear and culture
 - Even if pending or several were collected
 - HIV Testing
 - QuantiFERON
 - Adenosine Deaminase (ADA) on pleural fluid
- Chest Imaging
 - Both CXR and CT if done
- H&P
 - Why patient came to the ER, etc
- Med List
 - Containing RIPE start date and dosages
- Demographic Page
 - CDPH nurse will need patient's contact information
- ID Note



TB Care During Treatment

- Nurse Case Management
- Directly Observed Therapy
 - In-person
 - Video
- Incentives/Enablers
 - Nutritional support
 - Transportation to CCH Chest Clinic appointments
 - Financial Incentives
 - Gift cards
 - CTA cards
- Housing
 - Heartland Alliance Health Delegate Partnership

★ Questions?



Thank you!



[Chicago.gov/Health](https://www.chicago.gov/Health)



HealthyChicago@cityofchicago.org



[@ChicagoPublicHealth](https://www.facebook.com/ChicagoPublicHealth)



[@ChiPublicHealth](https://twitter.com/ChiPublicHealth)



Legionellosis Trends and Prevention

Karrie-Ann Toews and Janice Turner (CDPH Industrial Hygienist)

Long term care roundtable

April 27th, 2023

From *legionella* in fresh water to clinical disease: a multi-step cascade

Legionella
lives in fresh
water



- Natural reservoir for legionella
- Insufficient quantities to cause disease

Certain conditions in
large, complex water
systems can lead to
legionella amplification



- Temperature (77-108° F)
- Stagnation
- Scale and sediment
- Biofilm
- Protozoa
- Absence of disinfectant

Certain devices
can aerosolize
water containing
legionella



- Showerheads and sink faucets
- Cooling towers
- Hot tubs
- Decorative fountains

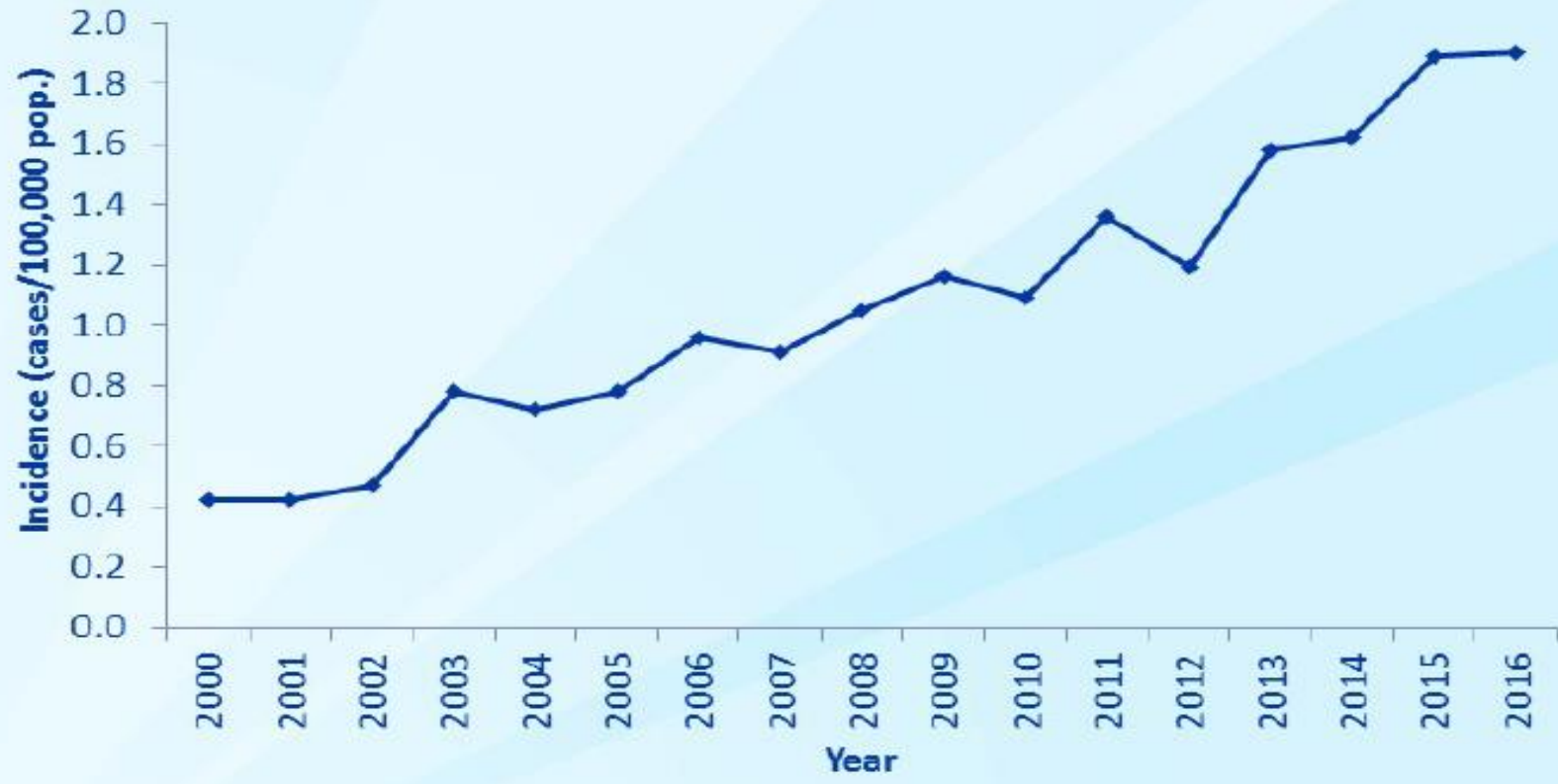
Legionella can
be transmitted
to susceptible
hosts and
cause disease



- Age > 50 years
- Smoking
- Weakened immune system
- Chronic disease

Slide courtesy of Darrah Dunlap, IDPH

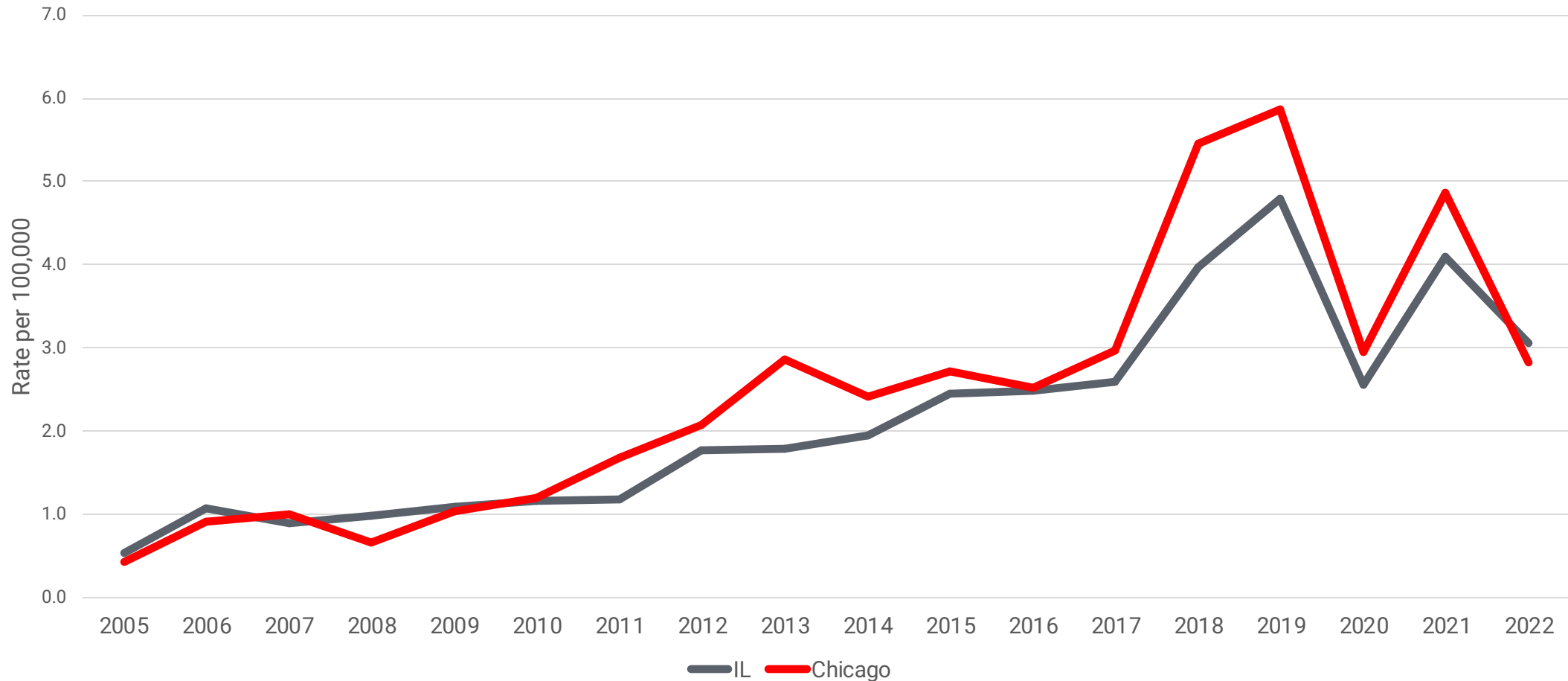
Legionnaires' Disease Is On The Rise 2000—2016*



*National Notifiable Diseases Surveillance System

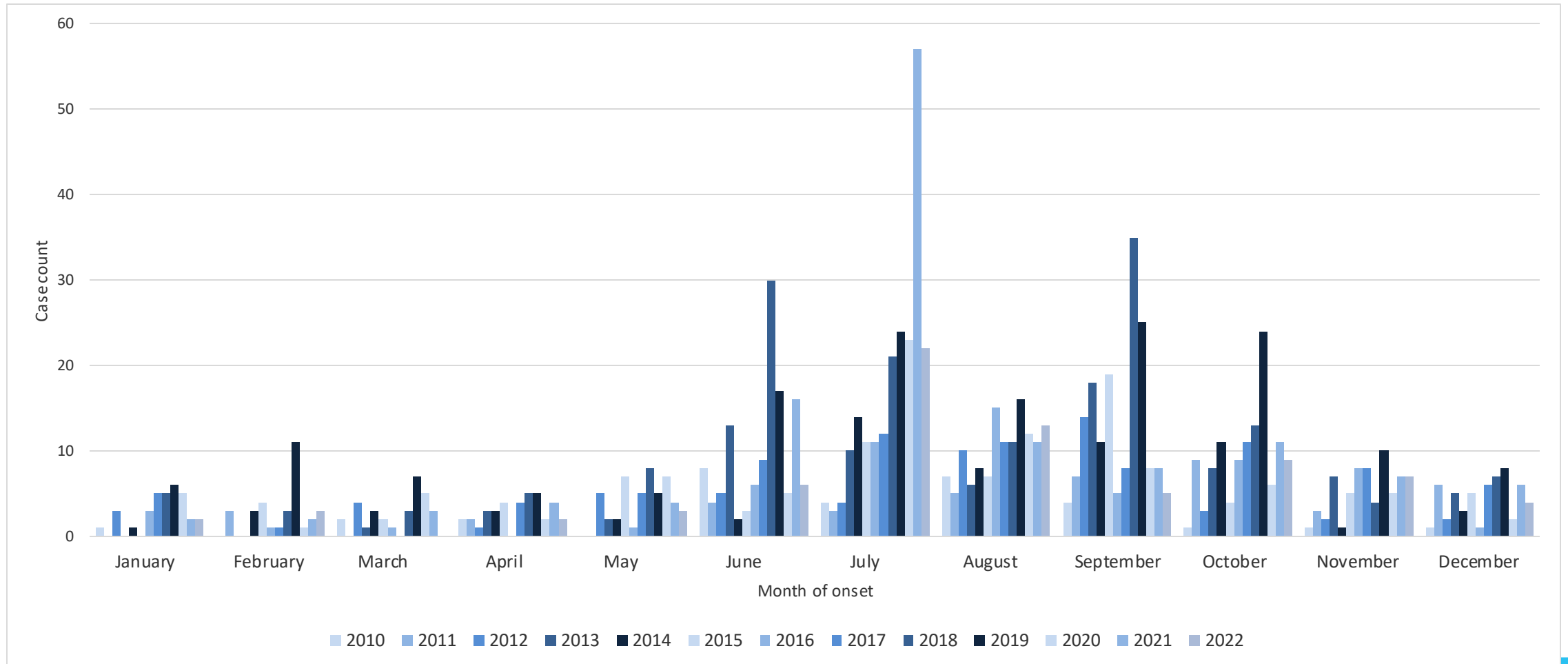


Legionellosis rates have been increasing steadily in IL and Chicago





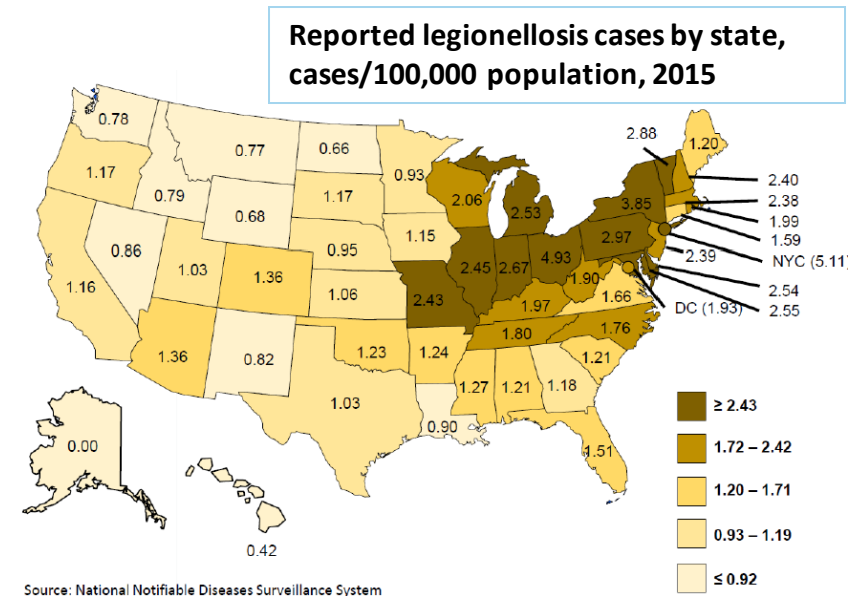
Legionellosis cases peak from June to October in Chicago





Possible reasons for increasing number of reported cases

- Increased susceptibility of the population
 - Aging US population
 - More people with immune suppressing medications
- More Legionella in the environment
 - Warmer temperatures
 - Aging infrastructure
 - Water-saving building modification
- Improved diagnostic capabilities
 - Urine antigen test
- Improved diagnosis and reporting
 - Increased awareness and testing
 - Increased surveillance capacity



From *legionella* in fresh water to clinical disease: a multi-step cascade **Prevention**

Legionella
lives in fresh
water



- Natural reservoir for legionella
- Insufficient quantities to cause disease

Certain conditions in
large, complex water
systems can lead to
legionella amplification



- Temperature (77-108° F)
- Stagnation
- Scale and sediment
- Biofilm
- Protozoa
- Absence of disinfectant

Certain devices
can aerosolize
water containing
legionella



- Showerheads and sink faucets
- Cooling towers
- Hot tubs
- Decorative fountains

Legionella can
be transmitted
to susceptible
hosts and
cause disease



- Age > 50 years
- Smoking
- Weakened immune system
- Chronic disease

Possible exposure locations



- 2016: CDC analyzed data from 27 building-associated outbreaks (2000-2014)
- Common Settings
 - Hotels (44%)
 - Long-term care facilities (19%)
 - Hospitals (15%)
- Common Sources
 - Potable water was the most frequent source of exposure (56%)
 - Cooling towers (22%)
 - Hot tubs (7%)
 - Industrial equipment (4%)
 - Decorative fountains (4%)

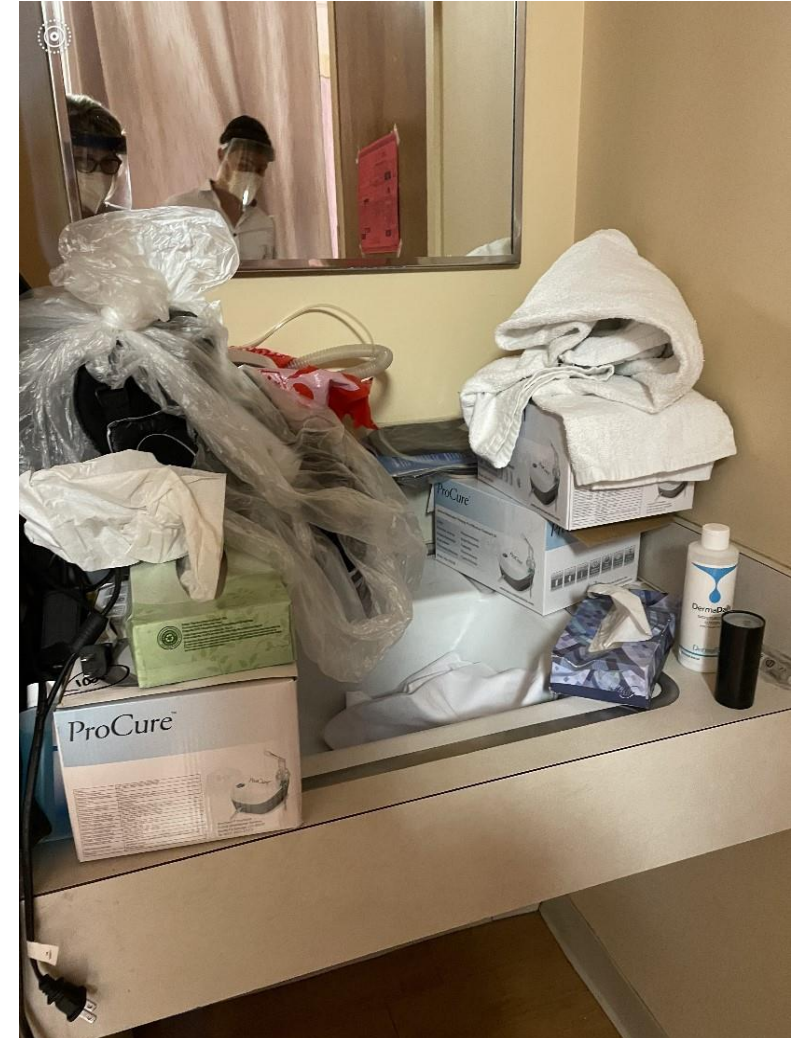


Source: Garrison LE et al. *MMWR*.2016; 65 (22):557-61 *CSTE All-State Epi Call*; CDC; February 26, 2018

Slide courtesy of Darrah Dunlap, IDPH

★ Deficiencies identified

- Inadequate disinfectant levels (70%)
- Water temperatures in optimal range for legionella growth (52%)



★ Controlling legionella in potable water

	Water Parameter	Control Measure	Recommendations
S	Sediment and Biofilm	Flushing, cleaning, and maintenance	<ul style="list-style-type: none"> • Flush after an intrusion event (e.g., water main break). • Clean and maintain water system components such as water heaters, mixing valves, aerators, showerheads, hoses, and filters regularly as indicated by water quality measurements.
T	Temperature	Control limits	<ul style="list-style-type: none"> • Store hot water above 140°F (60°C) and maintain circulating hot water above 120°F (49°C). • Store and maintain circulating cold water below the growth range most favorable to <i>Legionella</i> (77–113°F, 25–45°C). Note that <i>Legionella</i> may grow at temperatures as low as 68°F (20°C).
A	Water Age	Flushing	<ul style="list-style-type: none"> • Flush low-flow pipe runs and dead legs at least weekly. • Flush infrequently used fixtures regularly.
R	Disinfectant Residual*	Control limits	<ul style="list-style-type: none"> • Chlorine: Detectable residual as directed by WMP. • Monochloramine: Detectable residual as directed by WMP.

* Disinfectant residual recommendations apply to disinfectant delivered by the municipal water authority. Supplemental disinfection system control limits are not prescribed here and must be dictated by the water treatment professional and water management program.



Cooling Towers



At least the size of a car




Visible fan blades





Best Practices to Control Spread of *Legionella* in Cooling Towers

- **Operation**
 - Clean and disinfect
 - Monitor water parameters
 - Flush weekly
 - **Inspections/Maintenance**
 - Frequent visual inspection of all components
 - Tower and basin free from biofilm and debris
 - Look for signs of excessive drift
 - **Design**
 - Equip water collection areas with drains
 - Install drift eliminators
 - **Cleaning**
 - Clean and disinfect at least twice per year
- 

Legionella Control Measures for Cooling Towers



Water Parameter	Control Measure	Recommendations
Sediment and Biofilm	Cleaning frequency, scale and corrosion inhibitors	<ul style="list-style-type: none">• Cleaning frequency varies based on operational factors.• Remove from service, clean, and disinfect at least annually.• Monitor scale and corrosion inhibitor levels frequently as indicated by water quality measurements.
Temperature	Control limits	<ul style="list-style-type: none">• Operate at the lowest possible water temperature outside the favorable growth range for <i>Legionella</i> (77–113°F, 25–45°C).
Water Age	Make-up water quality and turnover frequency	<ul style="list-style-type: none">• Flush low-flow pipe runs and dead legs at least weekly.• During wet system standby (water remains in system and shutdown for less than 5 days), maintain water treatment program and circulate water 3 times a week through the open loop of a closed-circuit cooling tower and entire open-circuit cooling system. Ensure system water quality is managed through automated system blow down.• Use potable water for system make-up water or ensure reclaimed or condensate sources are appropriately managed.
Disinfectant Residual	Control limits	<ul style="list-style-type: none">• pH: Maintain based on type of disinfectant used and manufacturer recommendations to prevent corrosion.• Oxidizing disinfectants (e.g., chlorine & bromine): Maintain measurable residuals throughout each day. Consult manufacturer recommendations.• Non-oxidizing disinfectants: Maintain based on product label concentration and contact time.

Table 1. Routine Legionella Testing: A Multifactorial Approach to Performance Indicator Interpretation

The Centers for Disease Control and Prevention (CDC) have established this figure as a general guideline intended for use during routine testing. The table indicates guidance when concentration, change in concentration, and extent indicates *Legionella* growth.

The following table guidelines are intended to help clients better understand sampling results and summarize common responses based on sampling from the domestic potable water system.

Concentration indicates that *Legionella* growth appears:

Uncontrolled	Poorly Controlled	Well Controlled			
≥10 CFU/mL ¹ in potable water	1.0–9.9 CFU/mL in potable water	Detectable to 0.9 CFU/mL in potable water	No <i>Legionella</i> detected in a single round of testing	No <i>Legionella</i> detected in multiple rounds of testing	No <i>Legionella</i> detected in multiple rounds of testing with methods that detect viable and non-viable bacteria of any <i>Legionella</i> species
OR ≥100 CFU/mL in non-potable water	OR 10–99 CFU/mL in non-potable water	OR Detectable to 9 CFU/mL in non-potable water			

Change in concentration over time indicates that *Legionella* growth appears:

Uncontrolled	Poorly Controlled	Well Controlled			
100-fold or greater increase in concentration (e.g., 0.05 to 5 CFU/mL)	10-fold increase in concentration (e.g., 0.05 to 0.5 CFU/mL)	<i>Legionella</i> concentration steady (e.g., 0.5 CFU/mL for two consecutive sampling rounds)	No <i>Legionella</i> detected in a single round of testing	No <i>Legionella</i> detected in multiple rounds of testing	No <i>Legionella</i> detected in multiple rounds of testing with methods that detect viable and non-viable bacteria of any <i>Legionella</i> species

Extent indicates that *Legionella* growth appears:

Uncontrolled	Poorly Controlled	Well Controlled			
Detection in multiple locations AND a common source location ²	Detection in a common source location that serves multiple areas	Detection in a few of many tested locations within a water system	No <i>Legionella</i> detected in a single round of testing	No <i>Legionella</i> detected in multiple rounds of testing	No <i>Legionella</i> detected in multiple rounds of testing with methods that detect viable and non-viable bacteria of any <i>Legionella</i> species
OR Detection across many locations within a water system	OR Detection in more than one location within a water system				

Type* of *Legionella* (species and serogroup) associated with Legionnaires' disease:

Highly Associated	Less Associated
<i>L. pneumophila</i> serogroup 1; Non-Lp1 <i>L. pneumophila</i> ; Presence of multiple different <i>Legionella</i> species or serogroups	Any non- <i>pneumophila</i> <i>Legionella</i> species including "blue-white" fluorescent <i>Legionella</i>

*This figure is intended for use during routine testing only. Test results are performance indicators and are not a measure of risk of human illness. This figure is not intended for use if a building or device is associated with Legionnaires' disease (LD) cases or an outbreak.

¹See "Routine testing for *Legionella*" for guidance regarding suggested response activities. Comparable results may lead to different suggested response activities when other factors are considered (e.g., if there is evidence of poorly controlled growth at a healthcare facility).

²Considering the type of *Legionella* identified along with other *Legionella* testing performance indicators provides a clearer picture of water system control than the results of any single indicator. For example, facility owners and operators may consider implementing immediate interventions for a healthcare facility with: A. detectable but <10

colony-forming units per milliliter (CFU/mL), B. non-Lp1 *Legionella pneumophila*, C. observed at steady concentrations, but D. detected at multiple distal locations including a central water heater.

³Concentrations expressed as CFU/mL are for test results generated by traditional spread plate culture methods. If other test methods are used, consult testing lab or manufacturer instructions for appropriate interpretation.

⁴Common source location examples include water heaters, hot water returns, storage tanks, and cooling tower basins.

⁵If a facility has a history of associated LD cases, then sequencing isolates obtained during routine testing may provide performance indicators regarding outbreak strain persistence (if that strain is detected).



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention






Resources

- Controlling Legionella in potable water systems
- Controlling Legionella in cooling towers
- Interpretation of routine environmental Legionella testing





Take-aways

- Legionellosis rates have been increasing the past few decades nationally and locally
 - Reduce *Legionella* growth in water systems to prevent disease
 - Monitor water parameters frequently
 - Cooling towers require regular monitoring and scheduled maintenance
 - Many resources are available for guidance
- 



AT THE FOREFRONT

**UChicago
Medicine**

Water Management at UCM

Vera Chu, MS, MLS(ASCP)^{cm}, CIC

Infection Prevention Manager

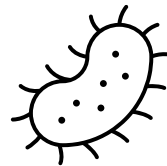
Amanda Brown, MS, MLS(ASCP)^{cm}, CIC

Infection Prevention Education Lead

Areas at High Risk for Legionella

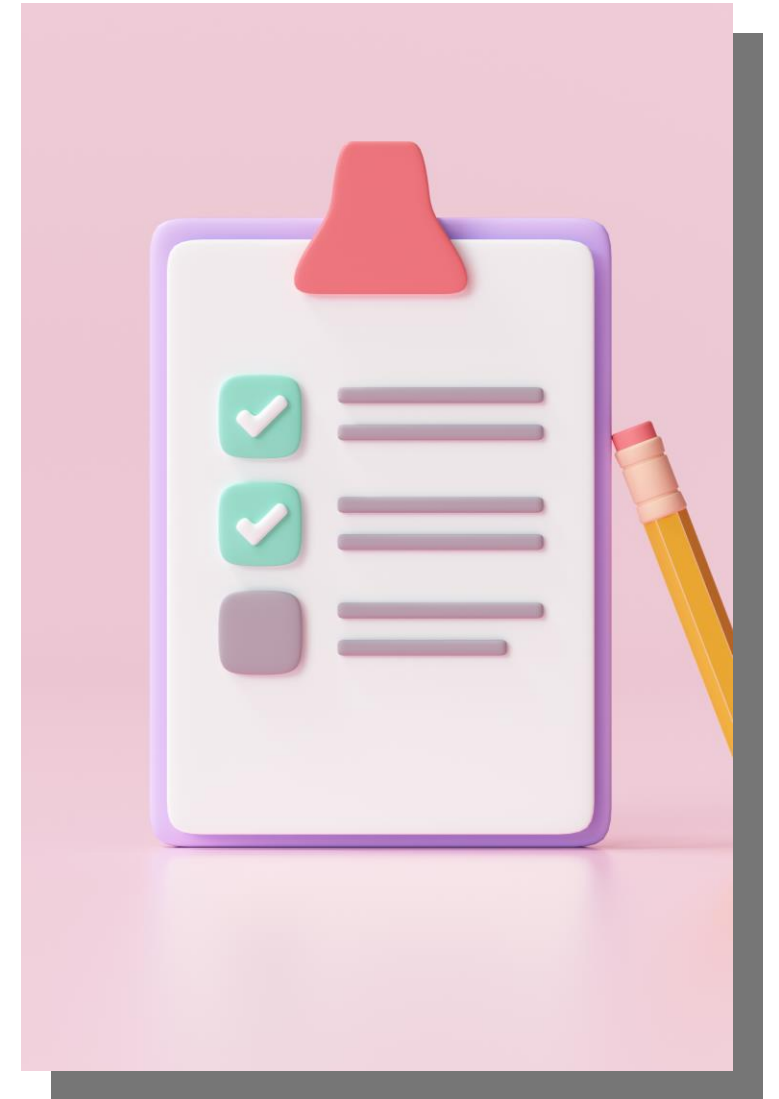


AT THE FOREFRONT
UChicago
Medicine



Risk Assessment

- Annual and as needed
- Review changes in each building and water system
 - » Did changes increase risk?



Risk Assessment

- Moderate to high exposure risk devices, located in buildings excluded from plan, are included
 - » Example: Select rooms in OP settings fitted with point of use filters in buildings considered low risk and without injection of chlorine into water handlers



Risk Factors		Buildings							
		CCD	Comer I	Comer II	Mitchell	DCAM	Rubloff	Gilman Smith	Adult Emergency Department Parking B
Building Information	1. Is the building a healthcare facility where patients stay overnight or does your building house or treat people who have chronic and acute medical problems or weakened immune systems?	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
	2. Does the building primarily house people older than 65 years (like a retirement home or assisted-living facility)?	No	No	No	No	No	No	No	No
	3. Does the building have multiple housing units and a centralized hot water system (like a hotel or high-rise apartment complex)?	No	No	No	No	No	No	No	No
	4. Does the building have more than 10 stories (including basement level)?	Yes	No	No	No	No	No	No	No
Devices	1. Does the building have a cooling tower?	Yes	No	No	No	No	No	No	No
	2. Does the building have a hot tub (also known as a spa) that is not drained between each use?	No	No	No	No	No	No	No	No
	3. Does the building have a decorative fountain?	No	No	No	No	No	No	No	No
	4. Does the building have a centrally-installed mister, atomizer, air washer or humidifier? (Note: UCMC humidification is direct steam injection)	No	No	No	No	No	No	No	No
Requirements	Building requires Water Management Program?	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
	Devices that require Water Management Program	Yes	No	No	No	No	No	No	No
	Cooling Tower	Yes	No	No	No	No	No	No	No
	Hot Tub	No	No	No	No	No	No	No	No
	Decorative Fountain	No	No	No	No	No	No	No	NO
	Centrally-installed mister, atomizer, air wash, or humidifier (Note: UCMC buildings are fed with direct steam injection humidification)	No	No	No	No	No	No	No	No

Reference ASHRAE 188: Legionellosis: Risk Management for Building Water Systems



AT THE FOREFRONT

UChicago Medicine

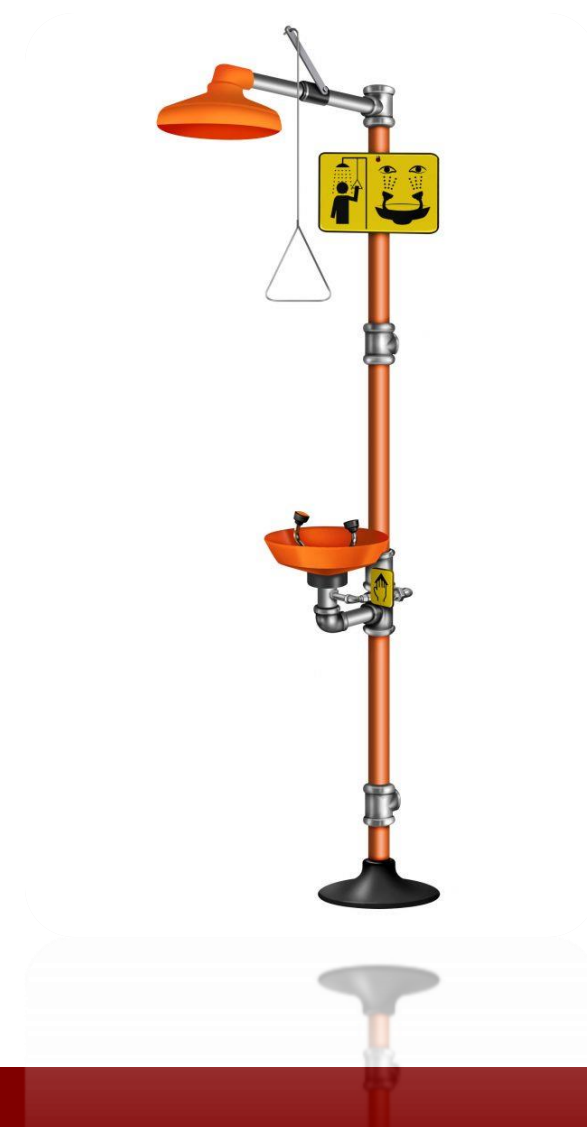
Determine Location of Control Measures and Monitoring



AT THE UNIVERSITY OF CHICAGO
UChicago
Medicine

Hazard Analysis

- Determine if control measure is needed at location, given risk level of device
- Public water supply – is a risk; no ctrl needed
 - » Low risk because water is treated to US standards given in CFR
- Eyewash stations – is a risk; control needed
 - » Tempered water more prone to bacterial contamination than cold water only
 - » Weekly flush required
 - » Low risk due to low usage of device



Hazard Analysis

- Ice machines – is risk; needs control
 - » Contamination with Legionella, Pseudomonas, etc.
 - » Point of use filter (e.g. nephros)
 - » Proper preventative maintenance
 - » Routine water sampling



AT THE FOREFRONT

UChicago Medicine

Hazard Analysis

- Shower heads – is risk; needs control
 - » High risk if receiving improper amount of chlorine in domestic hot water system, not used frequently
 - » Wand: promotes water stagnation if not drained
 - » Contamination if contact with floor
 - » Routine water sampling
 - » Daily flushing and at discharge



AT THE FOREFRONT

UChicago Medicine

Hazard Analysis

- Decommissioned units – designate responsible party
 - » Showers?
 - » Sinks?
 - » Water fountains?
 - » Ice machines?
- Construction
 - » No dead legs
 - » No horizontal runs for water pipe formations
 - » Prevent/limit water stagnation
 - » Capping off at the main
 - » Flushing during the project
 - » Flush after tie in



AT THE FOREFRONT

UChicago Medicine

Regular Education on Flushing

- Ensure EVS, Plant, and Contractors are aware of the importance that surrounds flushing water
 - » In-services
 - » Huddles
 - » Flyers
 - » Meetings

Flushing Water in Occupied Areas



What does “flushing water” mean?

- Run the **HOT** water from **showers** and **sinks** daily for **5 minutes**
- Keep the bathroom door closed during the flushing process
- Notify patient/family/employee that bathroom is out of use during the flushing/cleaning process

Why is it important to flush the water?

- Flushing the water prevents the growth of potentially harmful bacteria like *Legionella*. The chlorine and heat keeps growth under control.
- Individuals can become sick and die due *Legionella*.

How do people get sick with *Legionella* from the water if the bacteria is in the pipe?

- Spread by breathing in small droplets of water in the air or accidentally swallowing water containing *Legionella*.

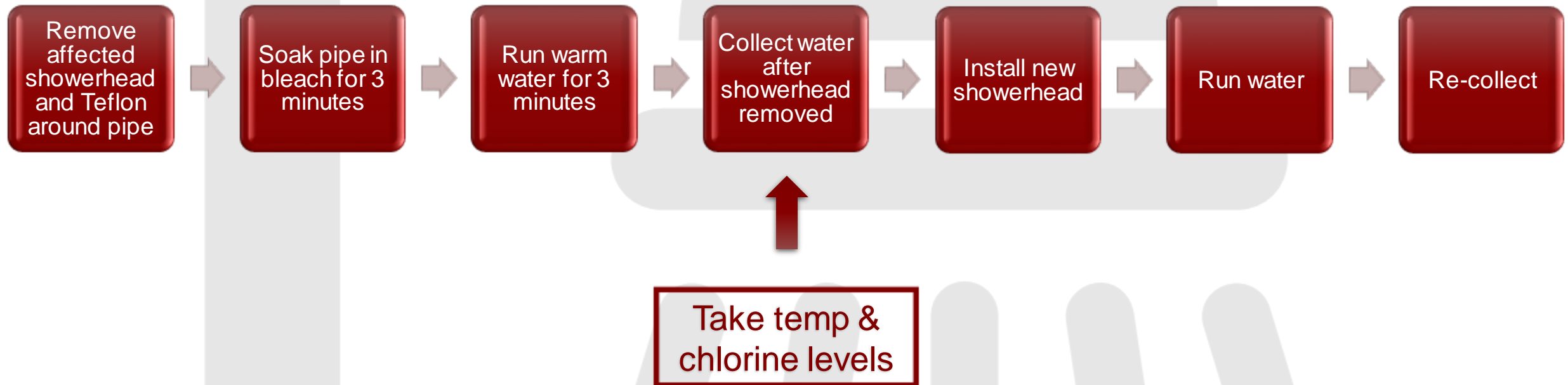


Interventions when Control Limits not met



AT THE FOREFRONT
UChicago
Medicine

Replace and Re-sample SOP



AT THE FOREFRONT

UChicago Medicine

Response in action

- Develop specific responses (like re-cleaning of ice machine with more rigorous cleaning instructions)
- Decontaminate water system
 - » Vendor shocks cooling towers
 - » Repeat cultures after treatment
- Review/revise plan



AT THE FOREFRONT

UChicago Medicine

Control Location	Control Limits	Monitoring	Frequency	Corrective Actions	Verification Procedures	Validation Procedures
Water Point of Entry	Not Applicable	Earthwise monitors Chlorine levels	Quarterly	No corrective actions taken on City water supply. Adjustment to UCM system as appropriate	Monitor chlorine from City of Chicago	Earthwise provides Sodium Hypochlorite test

Table 3 Continued

Control Location	Control Limits	Monitoring	Frequency	Corrective Actions	Verification Procedures	Validation Procedures
Water Softeners/RO water systems – covers sterilizers	Follow OEM / Best practice maintenance and cleaning procedures	Vendor provided	Quarterly	Contact Vendor for action plan and or plan of correction		
Domestic Hot Water Heaters	Per design	Digital Thermometer and BAS Sensors	Daily	Adjust or correct to meet intended set-point		
Faucets – manual and electronic – auto, Toilets Occupied Patient Units	EVS to flush daily and at discharge	Flushing per procedures	Daily	Flushing		
Ice Machines	Follow OEM/Best practice Maintenance & Cleaning procedures	Document in CMS Work Order System	Monthly	Clean and flush per OEM/ Best practices procedures in CMS/ Retest with Infection Prevention & Control		
Shower Heads & Wands	EVS to flush during each cleaning and/or daily	Flushing per procedures	Daily	Replace shower head and wand per established Infection Prevention & Control procedure if legionella identified	Monthly review of CMS by Zone manager of flushing in non-occupied areas.	Legionella testing by Infection Prevention & Control per established procedures Post replacement testing by Infection
Cooling Towers	Multiple Chemicals Used. See Cooling Water Treatment Matrix/ Follow OEM / Best practice maintenance and cleaning procedures	Chemical Monitoring as appropriate to chemical	Monthly	Troubleshoot chemical feed system. Contact Earthwise for additional technical assistance. Adjust as required.	Monthly review of CMS by Zone Supervisor. Quarterly Report by Physical Plant Director	Legionella testing validation by Earthwise per established procedures Legionella testing validation by Infection Prevention & Control per established procedures
Domestic Water bladders	Follow OEM/Best practice replacement and installation procedures	Document in CMS work order system	Quarterly	Replace bladder components/plumbing contractor	Monthly review of CMS by Zone Manager	Legionella testing validation by Infection Prevention & Control per established procedures

**Make sure program is running
as designed and effective**



AT THE FOREFRONT
UChicago
Medicine

Make sure things are running smoothly

- Continuous monitoring of chemical/disinfectant levels
- Monthly water sampling plan developed in 2013
 - » Approx. 90 inpatient samples/month
 - » 95% confidence in oncology units (sampled 2x/yr)
 - » 90% confidence in other units (sampled 1x/yr)
 - » Locations with POU filters sampled annually
 - » If operational, cooling towers and bladders sampled every other month



AT THE FOREFRONT

UChicago Medicine

Always check the source!



Figure 1: Bladders Hot #1 and #2 (left) and Bladders Hot #3 and #4 (right) on the 2nd floor of CCD.



Figure 2: Bladders Cold #1 and #2 (left) and Bladders Hot #5 and #6 (right) in the CCD Penthouse.



Inside and out!



Figure 5: The sample should be collected by the door, inside the basin (yellow circle). Red arrow indicates the most turbulent part of the basin.



Questions???



AT THE FOREFRONT

UChicago
Medicine



Open Forum for Questions and Comments

Our general number: 312-744-1100

cdphaiar@cityofchicago.org

Thank you all for what you do!



[Chicago.gov/Health](https://www.chicago.gov/Health)



HealthyChicago@cityofchicago.org



[@ChicagoPublicHealth](https://www.facebook.com/ChicagoPublicHealth)



[@ChiPublicHealth](https://twitter.com/ChiPublicHealth)



Additional Slides/Resources



(not presented during the meeting)



★ Our Team

- Medical Directors:
 - Dr. Do Young Kim
 - Dr. Stephanie Black
- Project Administrator: Shane Zelencik
- Project Manager: Maria Bovee
- Infection Preventionists:
 - Alison VanDine
 - Kim Goitia
 - Val Cela
- Public Health Administrator:
 - Maggie Li
- General number for our team: **312-744-1100**
- cdphhaiar@cityofchicago.org





Our Team, Our Services

Our team consists of Infection Prevention Specialists, Epidemiologists, a Project Manager, a Project Administrator, and Medical Directors who provide the following assistance:

- IP&C Guidance and training
- Infection Control Assessments and Responses (ICARs)
- Epidemiology Support
- IP&C Roundtable
- Our partnerships and site visits are meant to be educational, constructive, non-regulatory, and non-punitive
 - We work with you to resolve any identified opportunities
 - These services are not in response to citations or complaints



Reporting Case Report (CRF) Forms

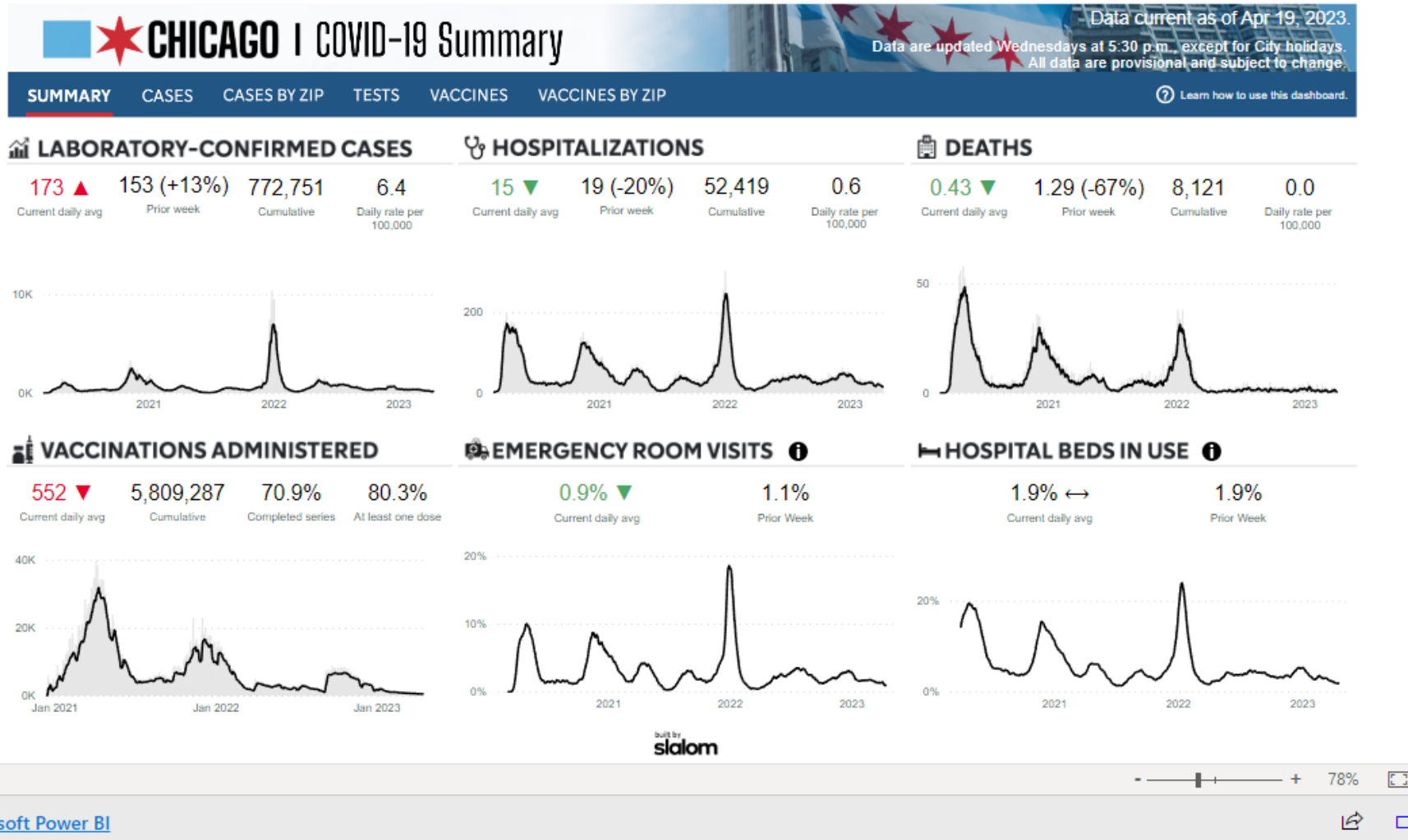
CDPH requires additional epidemiologic information for certain cases in addition to the reporting requirement. By providing this information to CDPH, it allows us to have a better understanding of this patient and how to limit the spread of further transmission for certain multi-drug resistant organisms.

For MDRO Reporting training (have a new IP? need a refresher?) questions and CRF completion requirements, please contact:

cecilia.pigozzi@cityofchicago.org



Chicago Dashboard



COVID-19 Variant Proportions



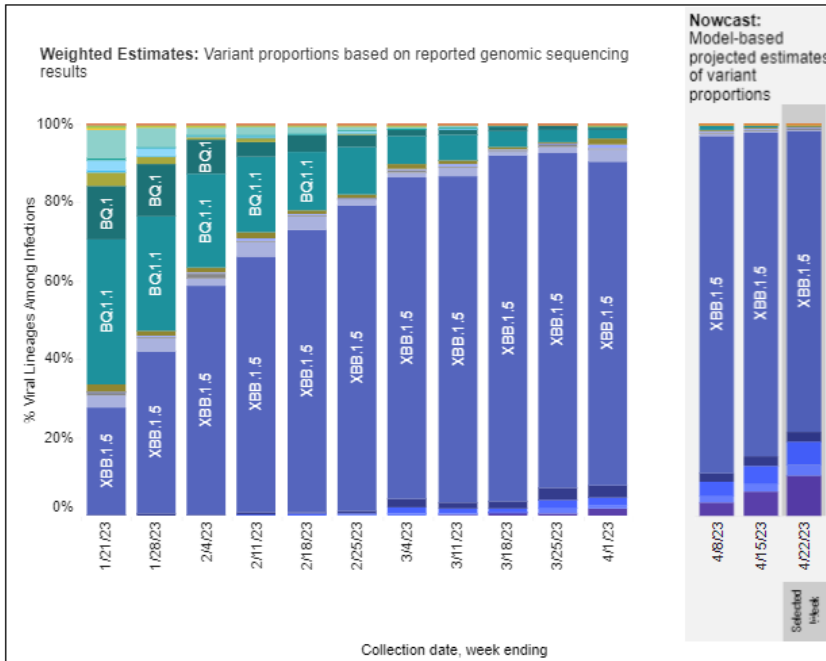
HHS Region: Region 5 - Illinois, Indiana, Michig... Data for Week Ending in: 4/22/2023 (Nowcast) View: Nowcast and Weighted Estimates Weighted Estimates Only

This shows weighted and Nowcast estimates for the United States. The table and map show estimates for the week ending in 4/22/2023 (Nowcast).

Weighted and Nowcast Estimates in HHS Region 5 for Weeks of 1/15/2023 – 4/22/2023

Nowcast Estimates in HHS Region 5 for 4/16/2023 – 4/22/2023

Hover over (or tap in mobile) any lineage of interest to see the amount of uncertainty in that lineage's estimate.



Region 5 - Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin

WHO label	Lineage #	US Class	%Total	95%PI
Omicron	XBB.1.5	VOC	76.8%	67.6-84.0%
	XBB.1.16	VOC	10.4%	4.0-23.0%
	XBB.1.9.1	VOC	5.9%	4.2-8.1%
	XBB.1.9.2	VOC	2.6%	1.7-4.0%
	XBB.1.5.1	VOC	2.6%	1.7-3.8%
	XBB	VOC	0.6%	0.3-1.3%
	BQ.1.1	VOC	0.5%	0.3-0.6%
	CH.1.1	VOC	0.3%	0.2-0.4%
	FD.2	VOC	0.2%	0.1-0.4%
	BQ.1	VOC	0.1%	0.0-0.1%
	BN.1	VOC	0.0%	0.0-0.0%
	BA.5	VOC	0.0%	0.0-0.0%
	BA.2.75	VOC	0.0%	0.0-0.0%
	BA.2	VOC	0.0%	0.0-0.0%
BA.2.75.2	VOC	0.0%	0.0-0.0%	
BF.11	VOC	0.0%	0.0-0.0%	
BA.5.2.6	VOC	0.0%	0.0-0.0%	
BA.4.6	VOC	0.0%	0.0-0.0%	
Other	Other*		0.1%	0.0-0.1%

* Enumerated lineages are US VOC and lineages circulating above 1% nationally in at least one week period. "Other" represents the aggregation of lineages which are circulating <1% nationally during all weeks displayed.
 # BA.1, BA.3 and their sublineages (except BA.1.1 and its sublineages) are aggregated with B.1.1.529. Except BA.2.12.1, BA.2.75, XBB and their sublineages, BA.2 sublineages are aggregated with BA.2. Except BA.2.75.2, CH.1.1 and BN.1, BA.2.75 sublineages are aggregated with BA.2.75. Except BA.4.6, sublineages of BA.4 are aggregated to BA.4. Except BF.7, BF.11, BA.5.2.6, BQ.1 and BQ.1.1, sublineages of BA.5 are aggregated to BA.5. Except the lineages shown and their sublineages, sublineages of XBB are aggregated to XBB. Except XBB.1.5.1 and FD.2, sublineages of XBB.1.5 are aggregated to XBB.1.5. For all the other lineages listed, their sublineages are aggregated to the listed parental lineages respectively. Previously, XBB.1.9.2 and XBB.1.16 were aggregated to XBB; FD.2 was aggregated to XBB.1.5. Lineages BA.2.75.2, XBB, XBB.1.5, XBB.1.5.1, FD.2, XBB.1.9.1, XBB.1.9.2, XBB.1.16, BN.1, BA.4.6, BF.7, BF.11, BA.5.2.6 and BQ.1.1 contain the spike substitution R346T.



Reminder: CDC COVID Data Tracker

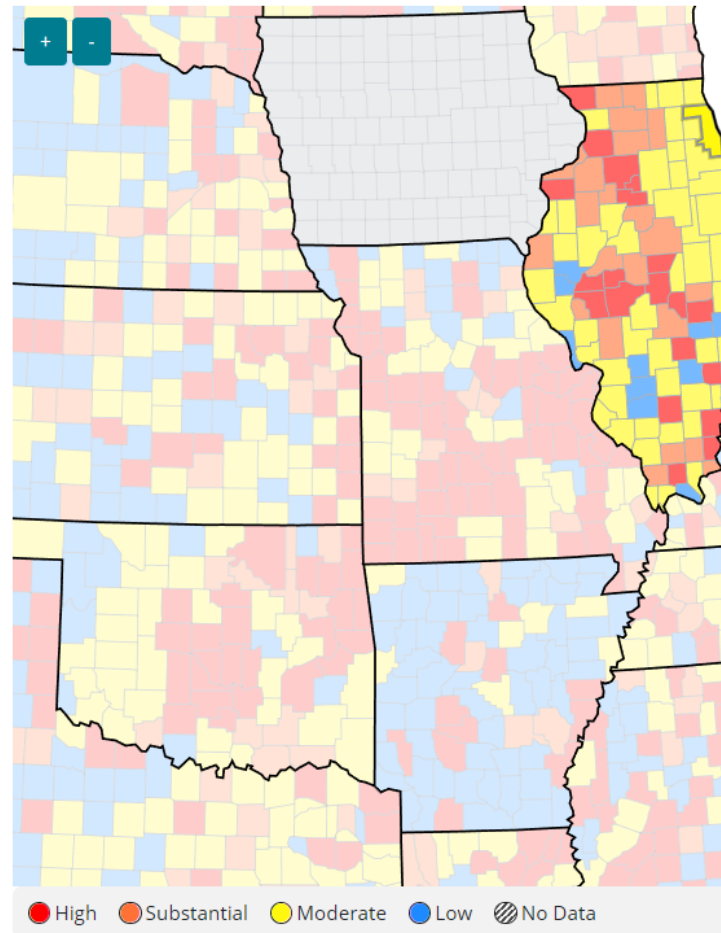
Indicator - If the two indicators suggest different transmission levels, the higher level is selected	Low Transmission Blue	Moderate Transmission Yellow	Substantial Transmission Orange	High Transmission Red
Total new cases per 100,000 persons in the past 7 days	0-9.99	10-49.99	50-99.99	≥100
Percentage of NAATs ¹ that are positive during the past 7 days	0-4.99%	5-7.99%	8-9.99%	≥10.0%

Note: Community transmission levels will now be updated weekly

CDC COVID Data Tracker: Cook County

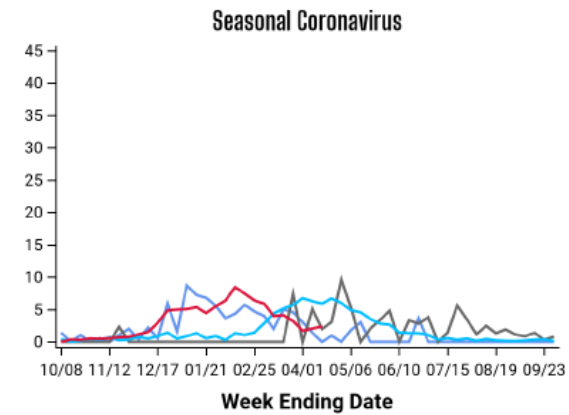
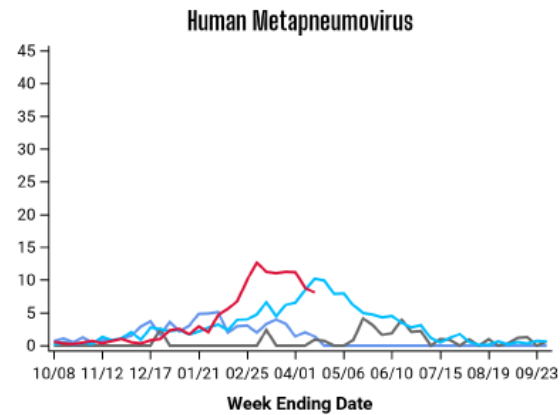
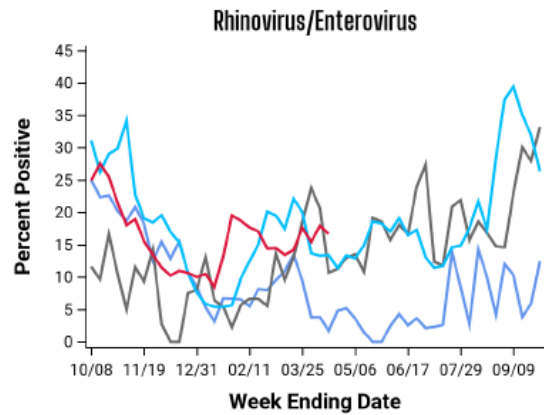
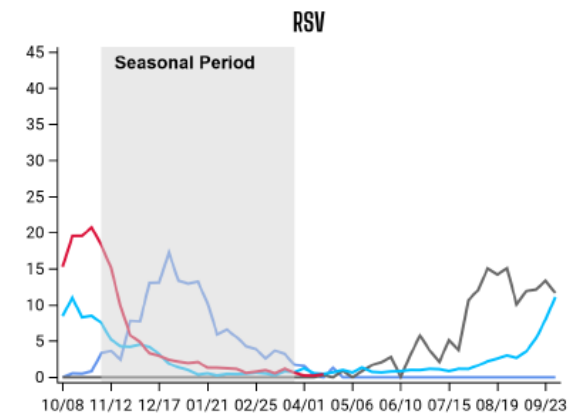
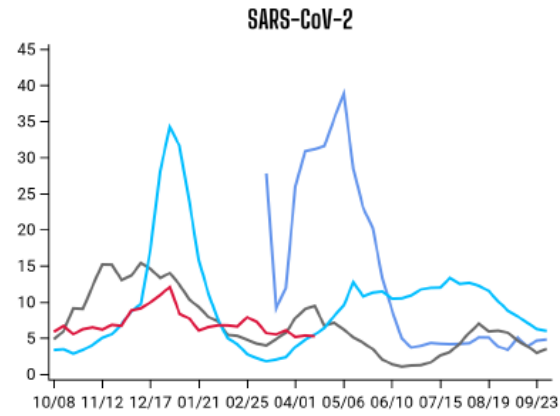
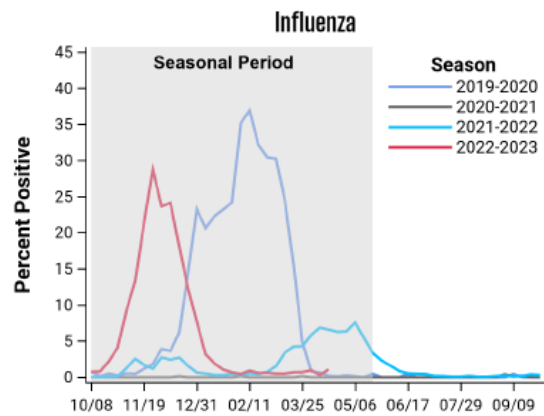


Data Type:
Community Transmission





Chicago Respiratory Virus Surveillance Report – Seasonal Trends





Chicago Respiratory Virus Surveillance Report – Current Week & Cumulative

Respiratory Virus Laboratory Surveillance - Current Week and Cumulative *The table below includes respiratory viral PCR tests performed by several hospital laboratories in Chicago as well as two commercial laboratories serving Chicago facilities. Reporting facilities represent nearly half of all acute care hospitals in the city. Data reported include Chicago and non-Chicago residents.*

Respiratory Pathogen	Week Ending April 15, 2023		Since October 2, 2022	
	# Tested	% Positive	# Tested	% Positive
Influenza*	3,429	1.1	144,328	8.6
RSV*	2,178	0.4	106,935	6.1
SARS-CoV-2*	3,175	5.3	176,170	7.2
Parainfluenza	1,648	5.2	47,290	2.9
Rhinovirus/Enterovirus	972	16.7	32,638	15.9
Adenovirus	977	5.1	32,523	3.7
Human Metapneumovirus	977	8.1	32,910	3.8
Seasonal Coronaviruses [†]	1,644	2.4	47,689	3.1

*Represents both dualplex and multiplex PCR data. All other data represents only multiplex panels that include the specified pathogens;† Four seasonal coronavirus strains include 229E, NL63, OC43, and HKU1.



2022 City of Chicago TB Rates, by Region

- **Central: 0.0**

- Near North Side
- Loop
- Near South Side

- **North Side: 2.2**

- North Center
- Lakeview
- Lincoln Park
- Avondale
- Logan Square

- **Far North Side: 4.9**

- Rogers Park
- West Ridge
- Uptown
- Lincoln Square
- Edison Park
- Norwood Park
- Jefferson Park
- Forest Glen
- North Park
- Albany Park
- O'Hare
- Edgewater

- **Far Southeast Side: 2.9**

- Chatham
- Avalon Park
- South Chicago
- Burnside
- Calumet Heights
- Roseland
- Pullman
- South Deering
- East Side
- West Pullman
- Riverdale
- Hegewisch



2022 City of Chicago TB Rates, by Region

- **Southwest Side: 3.7**

- Garfield Ridge
- Archer Heights
- Brighton Park
- McKinley Park
- New City
- West Elsdon
- Gage Park
- Clearing
- West Lawn
- Chicago Lawn
- West Englewood
- Englewood

- **Far Southwest Side: 2.3**

- Ashburn
- Auburn Gresham
- Beverly
- Washington Heights
- Mount Greenwood
- Morgan Park

- **South Side: 4.8**

- Armour Square
- Douglas
- Oakland
- Fuller Park
- Grand Boulevard
- Kenwood
- Washington Park
- Hyde Park
- Woodlawn
- South Shore
- Bridgeport
- Greater Grand Crossing



2022 City of Chicago TB Rates, by Region

- **Northwest Side: 5.1**

- Portage Park
- Irving Park
- Dunning
- Montclare
- Belmont Cragin
- Hermosa

- **West Side: 6.0**

- Humboldt Park
- West Town
- Austin
- West Garfield Park
- East Garfield Park
- Near West Side
- North Lawndale
- South Lawndale
- Lower West Side