RUSH UNIVERSITY MEDICAL CENTER

24th Annual Chicago Infection Control Conference

September 18, 2019

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Dr. Ruestow has disclosed that there is no actual or potential conflict of interest in regards to this presentation

The planners, editors, faculty and reviewers of this activity have no relevant financial relationships to disclose. This presentation was created without any commercial support.

Learning Objectives

At the conclusion of this course participants will be able to

- **Recognize the importance of prompt Salmonellosis case reporting to outbreak detection and response**
- **Describe public health department foodborne illness outbreak response elements**
- **Draw plausible conclusions from epidemiological, environmental, and laboratory findings from a foodborne illness outbreak**

To obtain credit you must:

- **Complete an electronic evaluation**
- **After completing the evaluation you can generate your certificate immediately.**

In support of improving patient care, Rush University Medical Center is accredited by the American Nurses Credentialing Center (ANCC), the Accreditation Council for Pharmacy Education (ACPE), and the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing education for the healthcare team.

Rush University Medical Center designates this live activity for a maximum of 6.0 AMA PRA Category 1 Credit(s)™. Physicians should claim only credit commensurate with the extent of their participation in the activity.

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Rush University is an approved provider for physical therapy (216.000272), occupational therapy, respiratory therapy, social work (159.001203), nutrition, speech-audiology, and psychology by the Illinois Department of Professional Regulation.

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HEALTHY CHICAGO
CHICAGO DEPARTMENT OF PUBLIC HEALTH

Idle Hands

An Outbreak of Salmonella Infantis in Chicago, IL, 2019

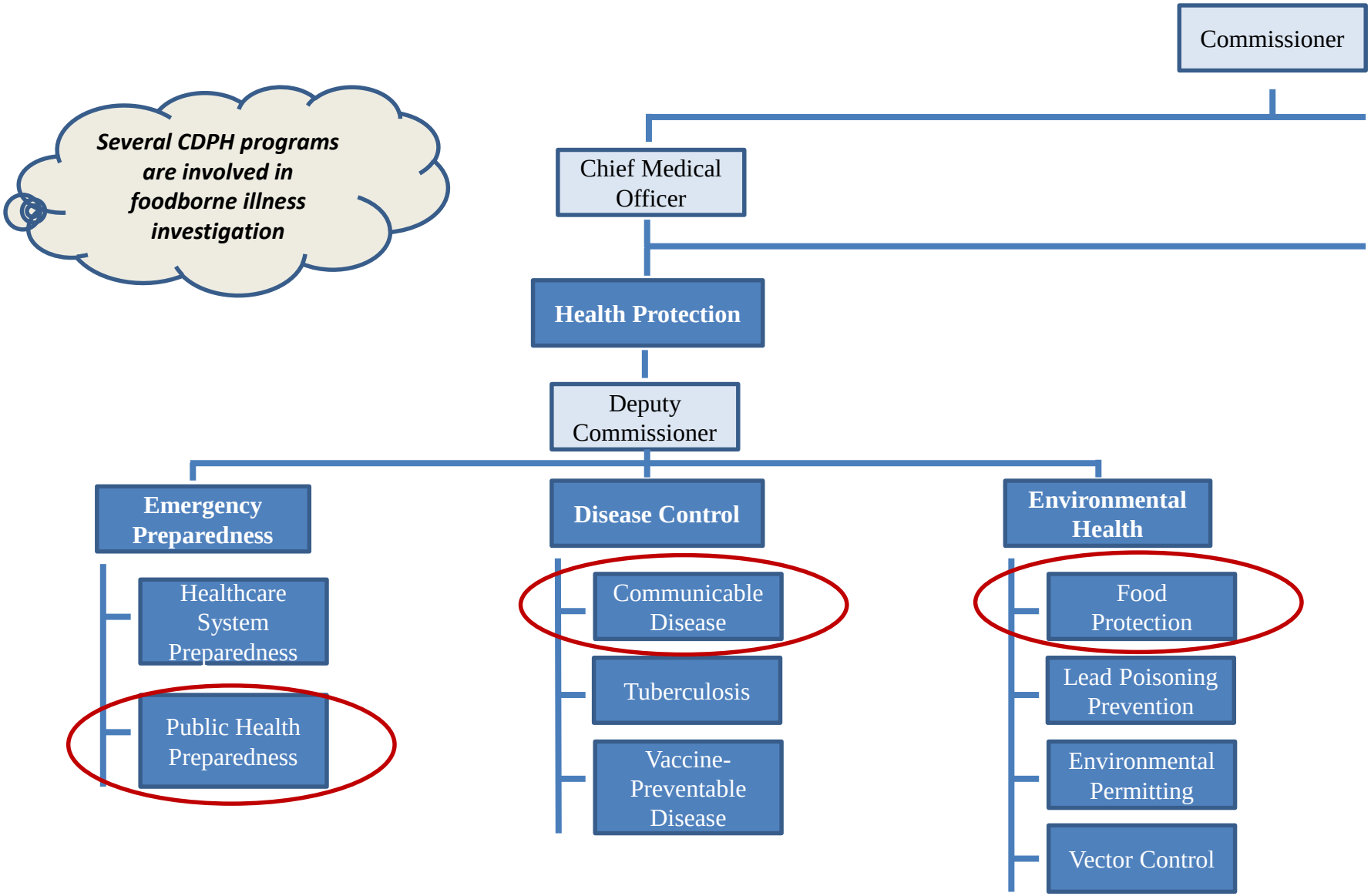
Peter Ruestow, Ph.D.
Communicable Disease/Emergency Preparedness
Bureau of Health Protection
Chicago Department of Public Health
09/18/2019

The Windy City

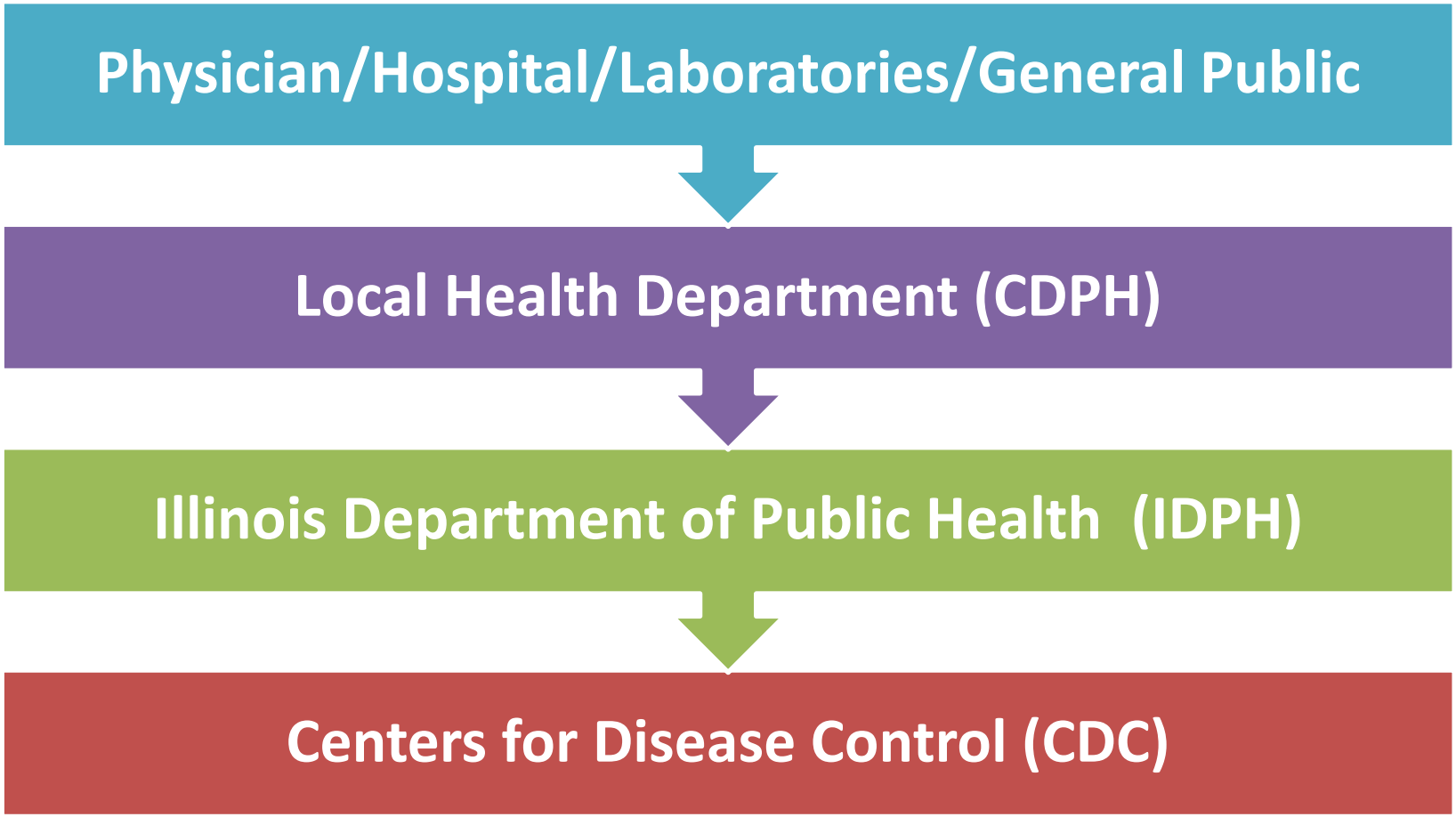
- **Large population center**
  - **Approximately 2.7 million residents**
- **High population density**
  - **>12,000 persons per square mile**
- **Tourism hub**
  - **~35 million tourists per year**
  - **Willis Tower, John Hancock Center, Navy Pier, Millenium Park**

The Windy City

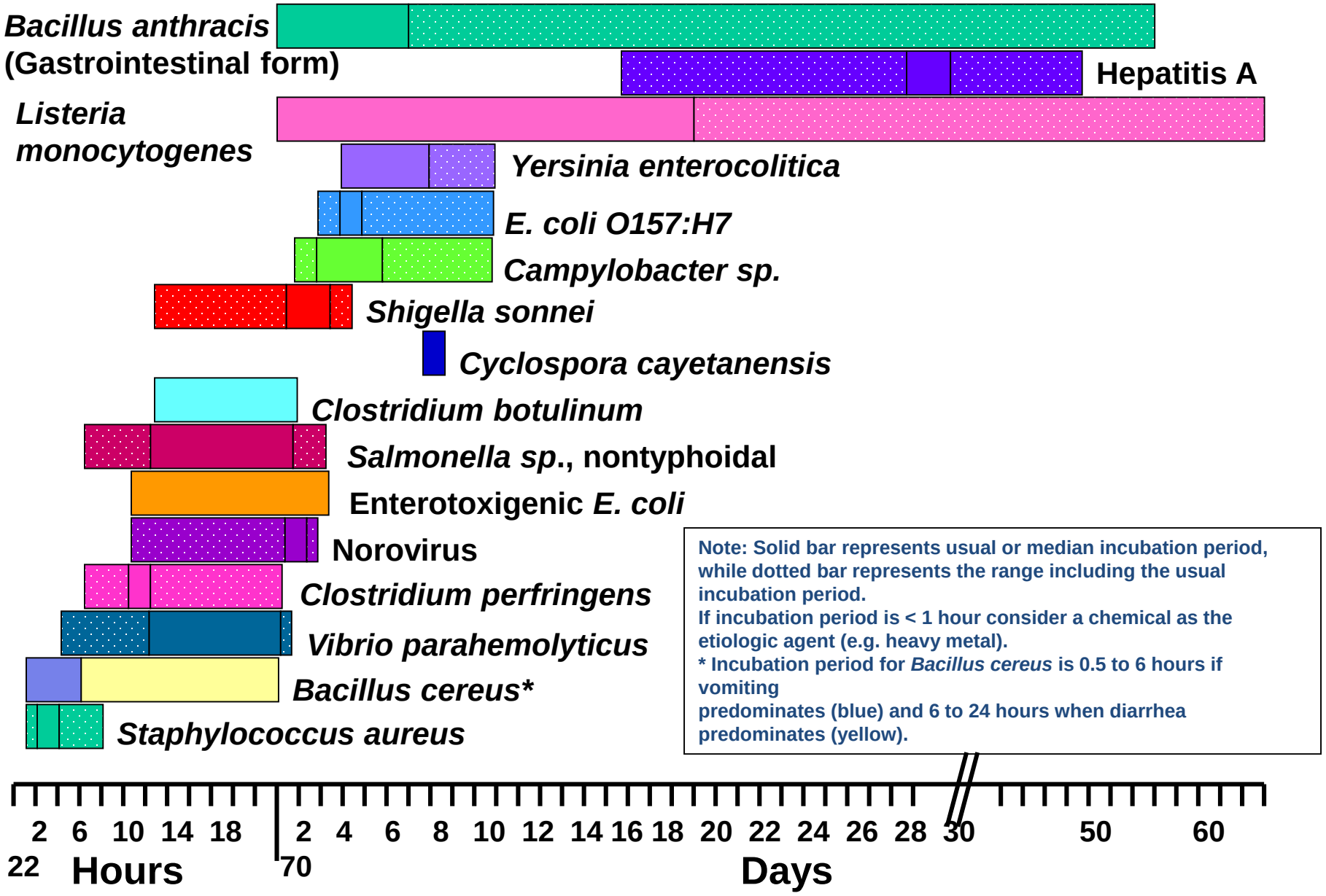
Chicago Department of Public Health



Mechanics of Reporting



Incubation Period for Selected Foodborne Agents



* Source: Illinois Department of Public Health Communicable Disease Control Section

Outbreak Detection

Routine Surveillance

- Temporal trends
- Spatial distribution
- Communications from astute clinicians

Reports from the Public

- Direct calls
- Registered complaints
- Social media?

IDPH Illinois Department of Public Health
I-NEDSS

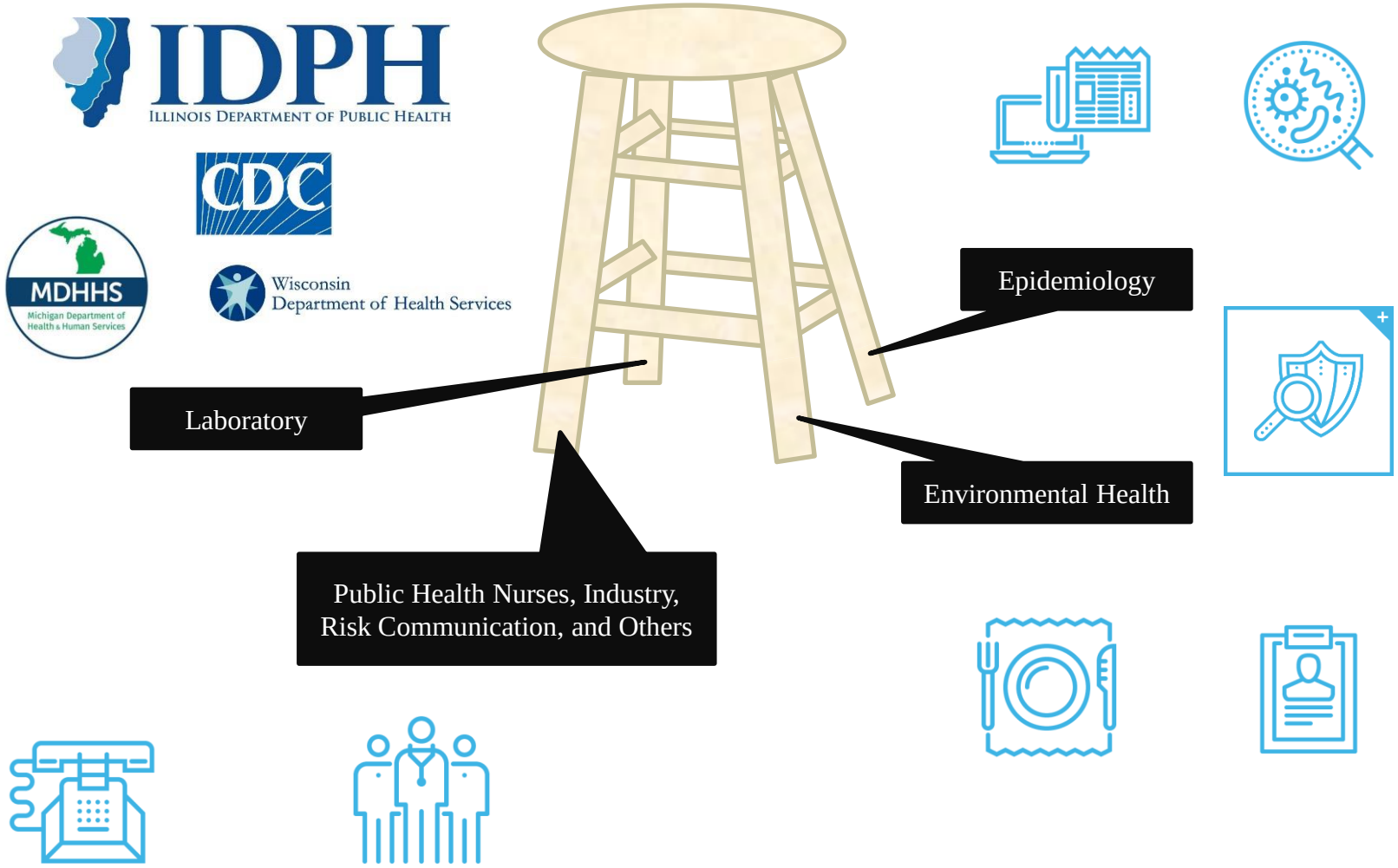
CDC
sedric

NSSP National Syndromic Surveillance Program
BioSense Platform

CHI 311

Foodborne Chicago
@foodbornechi

Foodborne Outbreak Response

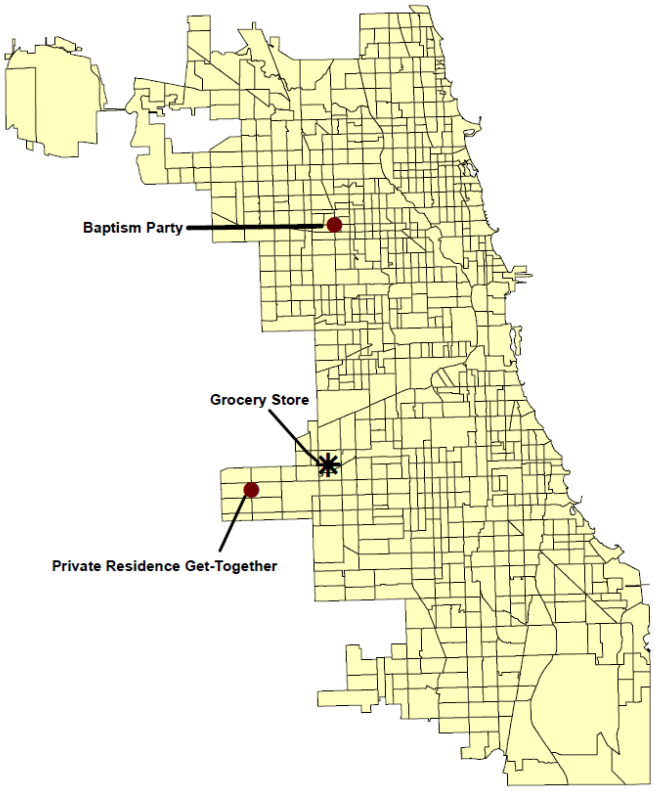


Notification

“It is the long history of humankind (and animal kind, too) that those who learned to collaborate and improvise most effectively have prevailed.”

- Charles Darwin

That's No Moon

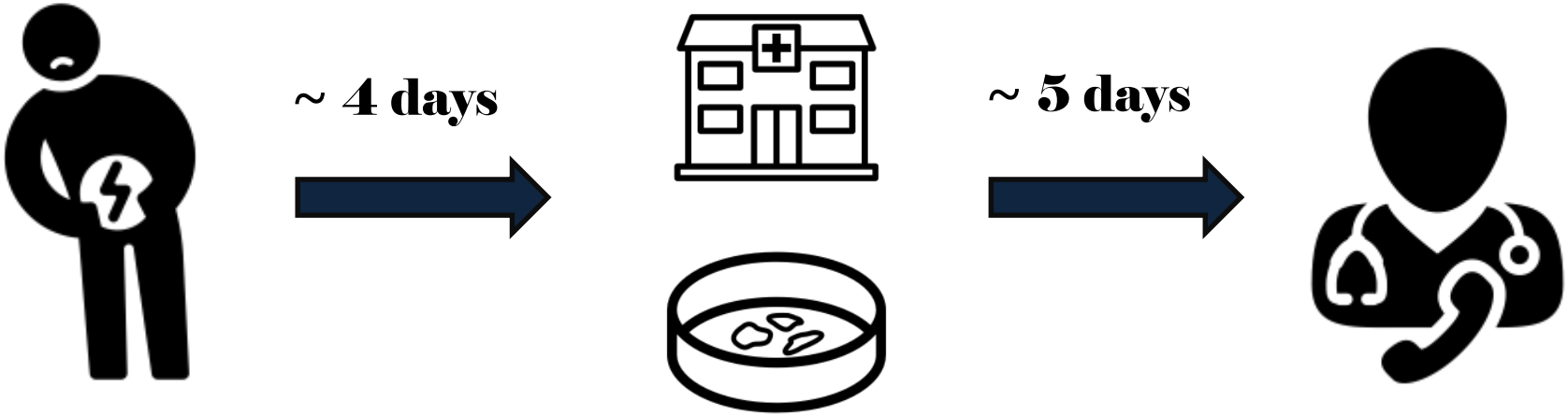


Routine interviews conducted on 3/1/19 for 2 salmonellosis cases:

- Case 1: 7 family members purchase food from grocery store on 2/23/19
  - 5 ill
- Case 2: Baptism party (20-25 attendees) on 2/23/19 catered by grocery store
  - At least 3-4 ill

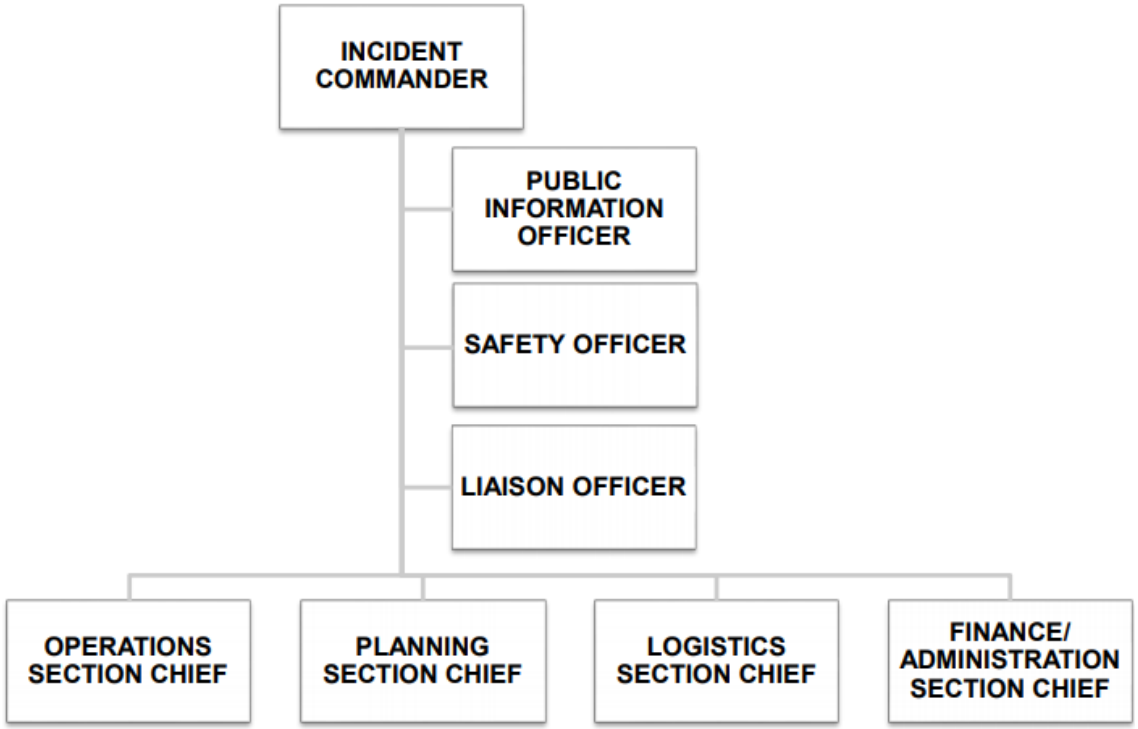
What did you eat two weeks ago?

According to our salmonellosis case data:



According to CDC, it can take an additional 0-7 days to ship to a public health laboratory and 2-10 days to get typing results

National Incident Management System (NIMS) Concepts



Incident Command Structure

INCIDENT OBJECTIVES (ICS 202)

1. Incident Name:	2. Operational Period:	Date From:	03/05/2019	Date To:	03/08/2019
Salmonella (IL2019-016		Time From:	8:00AM	Time To:	5:00PM

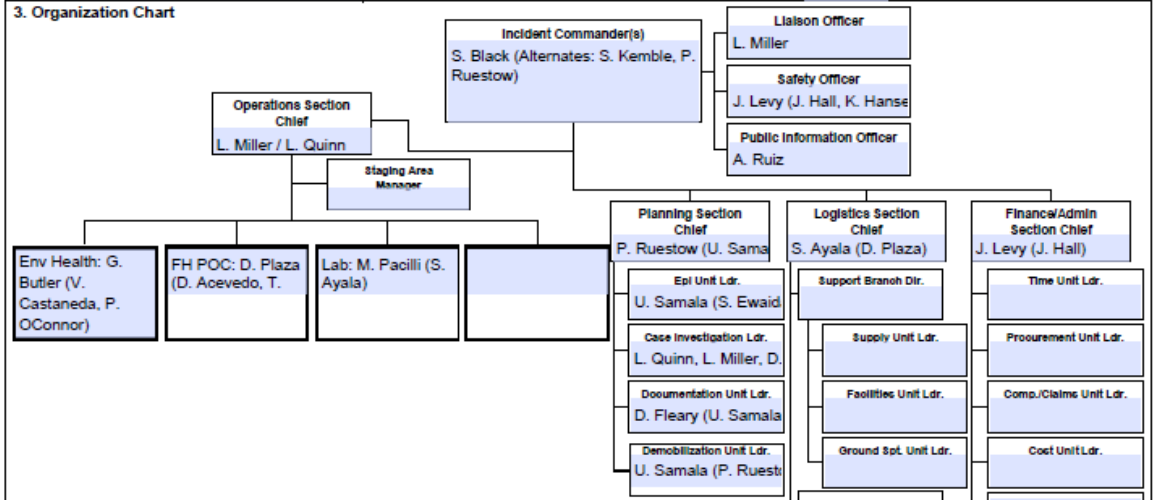
3. Objective(s):

1. Conduct case investigations for recent un-typed salmonellosis cases to determine scope of the outbreak
   - Establish epi-links to outbreak, with special consideration of meal dates and food items consumed (focus on getting receipts)
2. Administer special questionnaire to outbreak cases to identify common food items
   - Define outbreak cases
   - Create special questionnaire in REDCap
   - Concentrate on obtaining receipts and descriptions of food item ingredients
3. Coordinate testing of food and food handlers
   - Obtain list of food handlers from Food Protection
   - Contact food establishment management to arrange testing times/locations
   - Coordinate logistics around obtaining specimens and delivering to IDPH Chicago laboratory
   - Develop rules for restriction
4. Establish communication with IDPH laboratories
   - Determine serotype/subtype of Salmonella infections
   - Ensure timely receipt of food and food handler testing results
5. Maintain readiness to address communication with public and/or provider
   - Draft and distribute HAN message
   - Discuss need for press release

INCIDENT ORGANIZATION CHART (ICS 207)

1. Incident Name:	2. Operational Period:	Date From:	03/05/2019	Date To:	03/08/2019
Supermercado Rivera outbreak (IL2019-0161)		Time From:	8:00AM	Time To:	5:00PM

3. Organization Chart



Preliminary Epidemiology

3/1/19 - 3/6/19

- Up to 7 laboratory-confirmed cases
- Baptism party (20-25 attendees)
- Private residence get-together (5 ill)
- CDPH employee and friend (1 ill)
- Suspected food poisoning complaints

**Several cases reported eating carnitas*
**Some cases have leftovers*

CASE DEFINITION:

- **Confirmed case:** *S.* Infantis isolated from a clinical specimen collected on or after February 10, 2019 with a PFGE pattern indistinguishable from one of two patterns associated with the outbreak or identification of Salmonella from a clinical specimen by culture or CIDT (culture independent test) in a person with illness onset on or after February 10, 2019 with exposure to foods purchased from the grocery store
- **Probable Case:** Clinically compatible illness (diarrhea with ≥3 stools in a 24-hour period) in the absence of laboratory confirmation, with reported exposure to food prepared by the grocery store

Communications and Case Finding


Chicago Department of Public Health

Health Alert

HEALTHY CHICAGO
CHICAGO DEPARTMENT OF PUBLIC HEALTH

City of Chicago
Rahm Emanuel, Mayor

www.chicagohan.org

Chicago Department of Public Health
Julie Y. Morita MD, Commissioner

Salmonella Infantis Outbreak

March 7, 2019


wttw

schedule watch programs events kids about support

NEWS

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HEALTH

City Investigating Salmonella Exposure at Archer Heights Grocery Store

Kristen Thometz | March 8, 2019 10:22 am

Environmental Assessment

Environmental Assessment

Environmental Assessment

Key Findings:

- Sink compartments too small for large pots
- Deep grooves on cutting boards in meat cutting area
- Identified 7 potential food handlers
- Allowed customer self-service at counter
- Documented carnitas cooking process (though not observed)

Laboratory Findings

- Carnitas +
- Salsas —

- Seven food handlers

Must test negative 2X, 24 hours apart

IL Administrative Code Title 77 Part 690 requires clinical laboratories to refer isolates to IDPH laboratories for Salmonella, Shigella, and STEC infections

Outbreak Overview

85
Total Cases

Two similar PFGE* patterns:
- JFXX01.0731 (n=27)
- JFXX01.0081 (n=2)

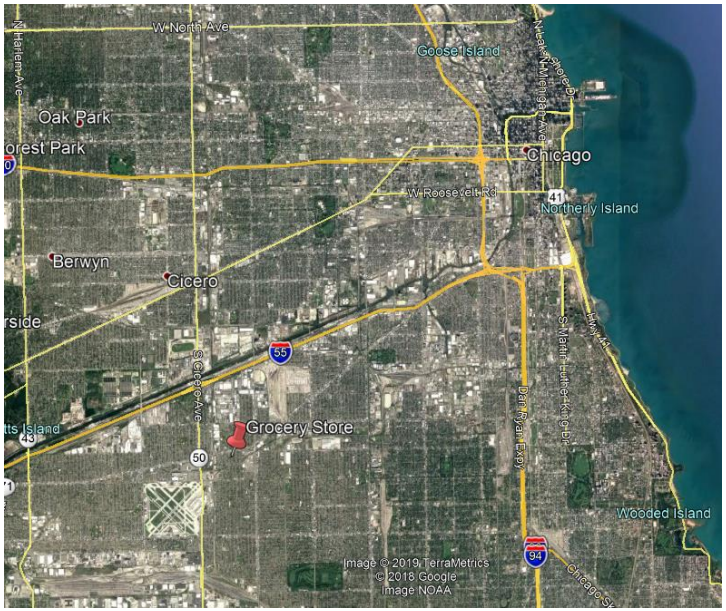
29
Lab-confirmed

56
Probable

Median age: 37 yrs (10-74 yrs)

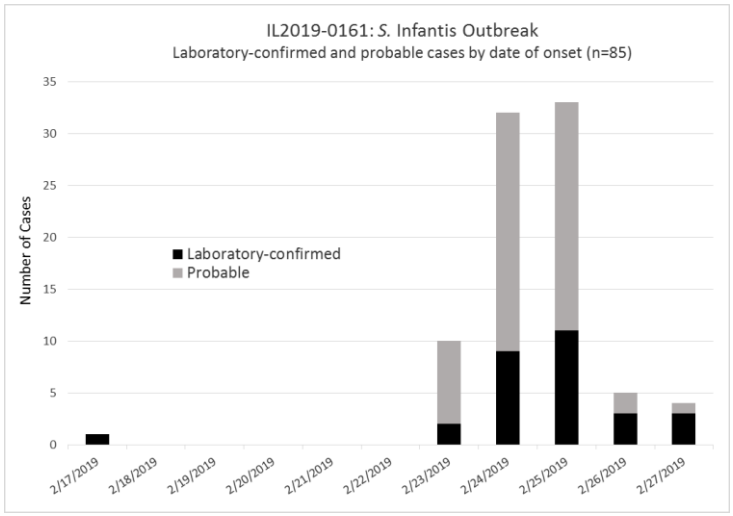
53% female

92% Hispanic/Latinx



Symptom onset
2/17/19-2/27/19

46% visit ER
16% hospitalized



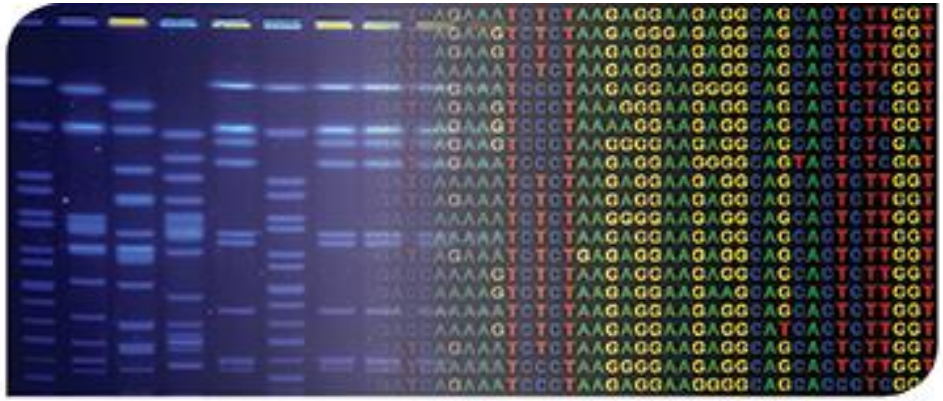
All but one case ate food from the counter on either 2/23/19 or 2/24/19

> 90% ate carnitas!

S. Infantis isolated in:
- 3/7 food workers
- Cooked carnitas sample

* PFGE = pulsed-field gel electrophoresis

Transition to Whole Genome Sequencing



PFGE ▶▶ WGS

Pulsed-Field Gel Electrophoresis || Whole Genome Sequencing

Source: Centers for Disease Control and Prevention

Happy Food Safety Education Month!

https://www.cdc.gov/foodsafety/communication/socialmedia.html#foodsafetyeducationmonth

HEALTHY CHICAGO
CHICAGO DEPARTMENT OF PUBLIC HEALTH

@ChiPublicHealth

ChicagoPublicHealth

HealthyChicago@CityofChicago.org

www.CityofChicago.org/Health

Appendix: Reference

FOODBORNE PATHOGENS AND DISEASE
Volume 1, Number 2, 2004

Emergence of Pork Carnitas as a Cause of Foodborne Disease Outbreaks in Chicago

RODERICK C. JONES, SUSAN I. GERBER, JULIO R. FERNANDEZ, FRANCES PATCH, PHILLIP KING, and PAMELA S. DIAZ

ABSTRACT

Carnitas are fried chunks of pork frequently served in Mexican-origin households, food service establishments, and social gatherings. During 1995–2002, carnitas emerged as the most frequently implicated vehicle of transmission in foodborne disease outbreaks in Chicago. Five (6%) of 90 foodborne disease outbreaks investigated and reported in Chicago during this period were linked to carnitas, and they accounted for 108 illnesses and 11 hospitalizations. The etiologic agent in four outbreaks was *Salmonella*, and these outbreaks accounted for 29% of the 14 Salmonella-associated foodborne disease outbreaks in Chicago during this period. Unsafe food handling practices that occurred after cooking were identified as contributing to multiple carnitas-associated outbreaks. Local health departments that serve significant Mexican-origin populations should be aware of carnitas as a potential source of foodborne disease, particularly salmonellosis.