



Unappetizing

An Outbreak of Salmonella Schwarzengrund in Chicago, IL, 2017

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The Windy City



- **Large population center**
 - Estimated 2,695,598 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





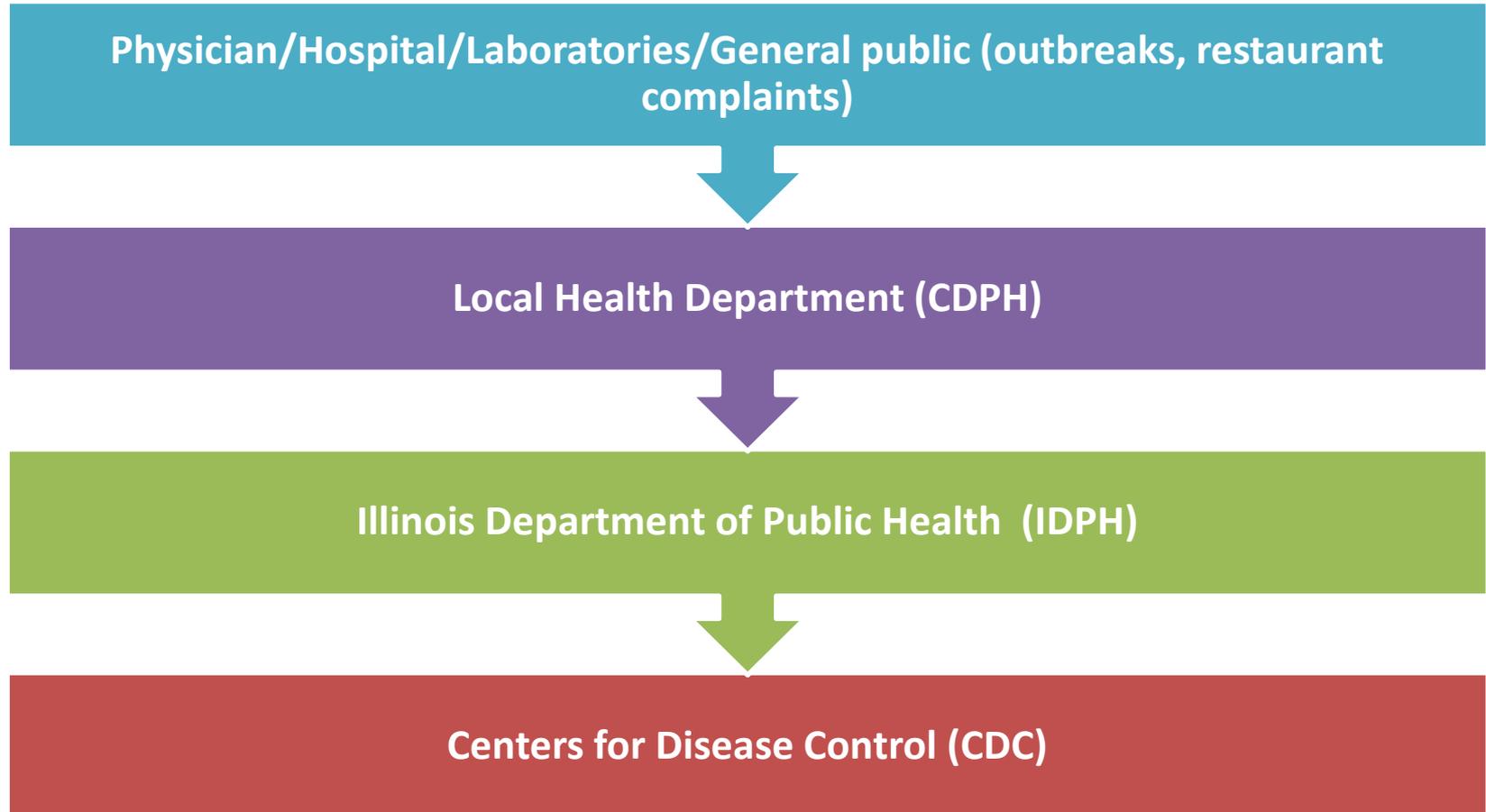
- CDPH Program Areas:

- **Communicable Disease**
- **Food Protection**
- STI/HIV/AIDS
- Tuberculosis Control
- Immunization
- Mental Health Services
- Substance Abuse
- School Health
- Violence Prevention
- Lead Poisoning Prevention
- Women's and Children's Health
- **Emergency Preparedness**
- Environmental Health
- Epidemiology Programs

- Communicable Disease (CD) Program

- Activities
 - Infectious disease case investigation
 - Outbreak detection and response
 - Emergency preparedness
- Current Focus Areas
 - **Foodborne illness**
 - Hepatitis C
 - Healthcare-associated infections
 - Zika virus

Mechanics of Reporting



Disease Cluster Detection

CDC definition: *A cluster refers to an aggregation of cases grouped in place and time that are suspected to be greater than the number expected, even though the expected number may not be known*

Clusters are identified by CDPH using:

- Various analytical techniques
 - Temporal trends
 - Spatial distribution
- Numerous data sets
 - Illinois National Electronic Disease Surveillance System (I-NEDSS)
 - System for Enteric Disease Response, Investigation, and Coordination (SEDRIC)
 - National Syndromic Surveillance Program (NSSP)
- Communications received from astute clinicians

The Outbreak

“Thanks to the sharp eyes of a Minnesota man, it is possible that two identical snowflakes may finally have been observed. While out snowmobiling, Oley Skotchgaard noticed a snowflake that looked familiar to him. Searching his memory, he realized it was identical to a snowflake he had seen as a child in Vermont. Weather experts, while excited, caution that the match-up will be difficult to verify.”

- George Carlin

Investigation Timeline

TIMELINE

8/8/17:

- *Salmonella* Schwarzengrund cluster detected
- Cases reside in and around southwest Chicago
- Cases prioritized for interview

8/11/17:

- CDPH Food Protection program inspects southwest Chicago Jewel Meat and Deli section

8/15/17:

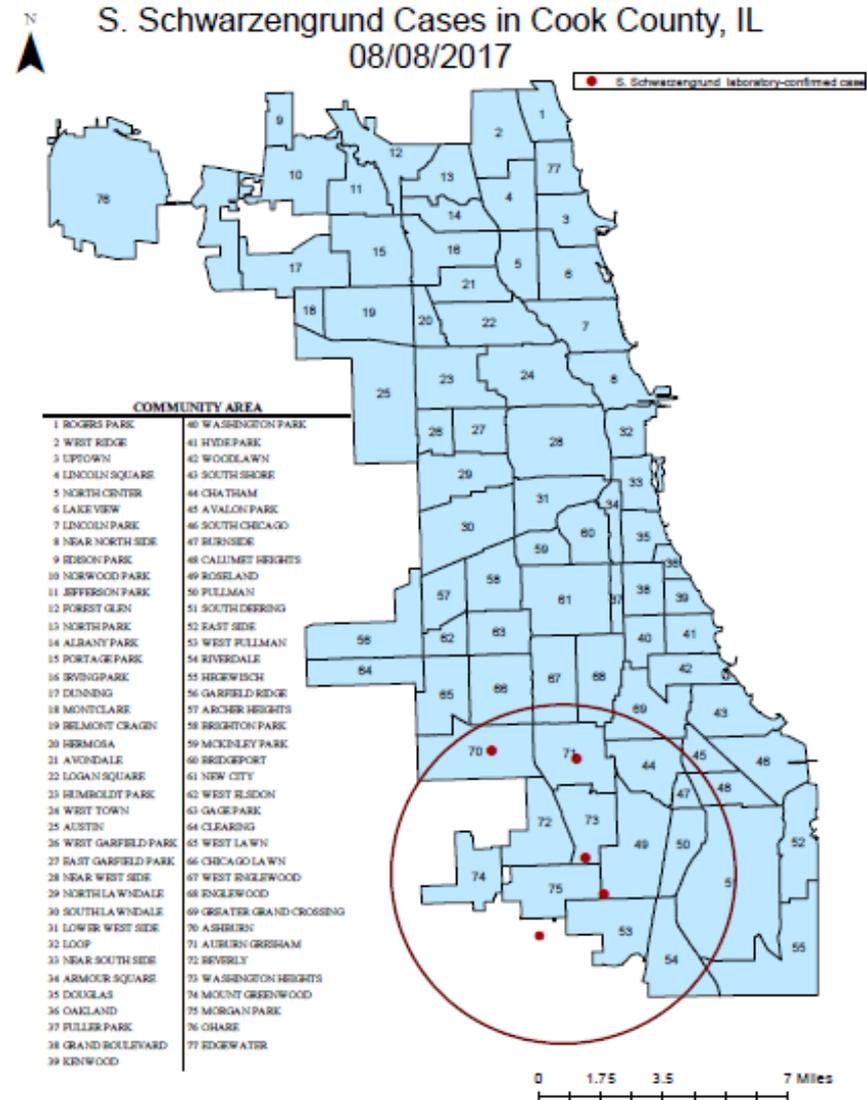
- Up to 8 cases, no obvious leads

8/17/17:

- Case with same subtype identified in Colorado

8/21/17:

- CDC flags as multistate cluster



Investigation Timeline (cont'd)

TIMELINE

8/8/17:

- Hypothesis generating questionnaires administered

8/24/17:

- Supplemental questionnaire deployed

8/30/17:

- Second of two cases reports eating at the same BBQ restaurant

8/31/17

- Food Protection inspects BBQ restaurant

CDDB #: 274877 I-NEDSS #: 17-085289

DEOs enter FOOD CONSUMPTION HISTORY IN INEDSS Pages 9-14

7 DAY FOOD CONSUMPTION HISTORY

Please indicate for each of the food items listed below whether you definitely ate it, maybe ate it, or definitely did not eat it during the week before illness onset.

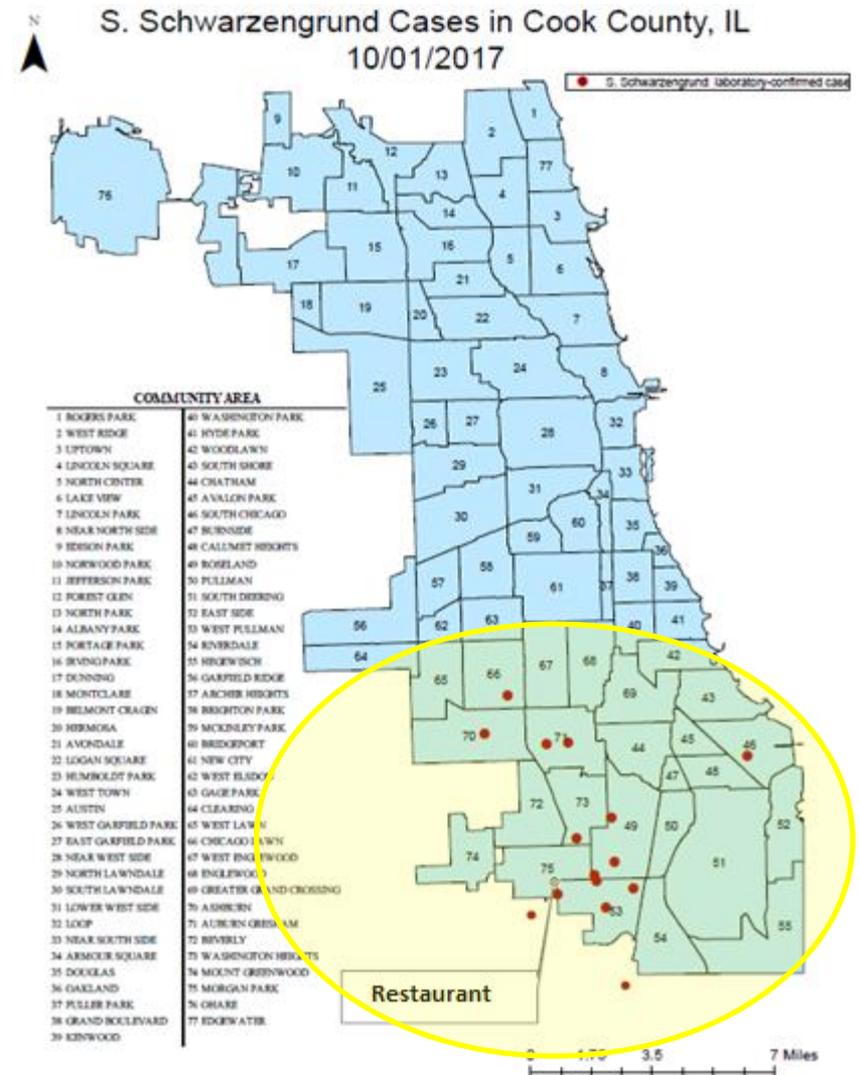
Item MEAT/POULTRY/FISH	Ate	Did not eat	May have eaten	How prepared	Variety or brand	Date purchased	Grocery store where purchased	Date eaten	Restaurant where eaten (include address)
Chicken (including ground)	✓			baked, roasted		/ /	Jewel 7400 S. Ashland Chicago, IL 60620	various dates	Kingdom Hall Event, consume left overs.
Stuffed chicken product (e.g., chicken Kiev)		✓				/ /		/ /	
Turkey (including ground)	✓			breakfast sausage		Daily		various dates	Dunkin' Donuts 3306 W. 111th St Chicago, IL
Pork (e.g., ham, bacon)	✓			barbecue		twice during the wk of illness		various dates	Kingdom Hall event, consume left overs.
Lamb		✓		Pork ribs & tips					
Ground beef			✓	cooked w/ meat sauce		during the wk of illness		various dates	Kingdom Hall event, consume left overs.
a. Ground beef as an ingredient: type of dish b. Ground beef: raw <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> U rare (red in middle) <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> U medium (pink in middle) <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> U well done (no pink) <input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> U									
Other beef (e.g., steak, roast)		✓				/ /		/ /	
Sausage (e.g., salami, pepperoni, summer sausage)		✓				/ /		/ /	
Other meat/poultry/wild game		✓				/ /		/ /	
Fish		✓				consumed during the wk of illness		can't recall	Kingdom Hall event, consume left overs.
Shrimp		✓				/ /		/ /	
Other seafood		✓				/ /		/ /	

Epidemiological Assessment

Upon re-interview, >70% of confirmed cases reported eating from the same BBQ restaurant prior to illness



100% of these reported eating pork rib tips



Environmental Assessment



Investigation Timeline

TIMELINE (CONT'D)

8/31/17

- Food Protection inspects BBQ restaurant
- More cases linked to foods from restaurant

9/1/17

- Restaurant voluntarily closes



2017 SEPTEMBER						
SUN	MON	TUE	WED	THU	FRI	SAT
					1 	2
3	4  Labor Day	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Restaurant closes

Reopening Criteria

From: Stephanie Black, MD, MSc and Sarah Kemble, MD *Communicable Disease Program*
Gerrin Butler, *Director Food Protection Program*

Date: September 8, 2017

Re: Criteria for reopening restaurant

1. Owner submits specimens to public health lab.
2. Thorough cleaning and disinfecting of the facility and addition of a handwashing sink.
3. All food handlers must provide proof of training for hand hygiene (hand washing, use of gloves) and separation of raw and cooked meat.
4. Compliance with USDA trace-back and trace-forward of implicated food.
5. At reopening, employee must complete a daily sign-in sheet to say they do not have GI illness for two weeks.
6. Compliance with all violations noted on the inspection report.
7. All food that has not been hermetically sealed from the manufacturer is discarded. This includes barbeque sauces, meats, etc.
8. If further investigation findings indicate that other foods are of a concern or contributed to the foodborne illness outbreak, additional processes will be required.
9. A certified manager must be present at all times when food is being prepared and handled.
10. Approved process for preparation of rib tips. For approval, your process must address the following concerns:

Investigation Timeline

TIMELINE (CONT'D)

8/31/17:

- Onsite specimen collection

9/2/17:

- First of four food handler specimens test positive

9/7/17:

- USDA/FSIS inspects distribution warehouse

9/11/17:

- Cooked pork rib tips test positive
- Raw rib tips, raw/cooked pork links, and sauce negative



Outbreak Case Characteristics

Case counts

- 18 laboratory-confirmed
 - PFGE* patterns JM6X01.0038 (n=17), JM6X01.0158 (n=1)
- 12 probable

Case locations

- Most cases resided on Chicago's southwest side
 - Chicago and larger Cook County; Springfield, IL; Dayton, OH; Fort Collins, CO

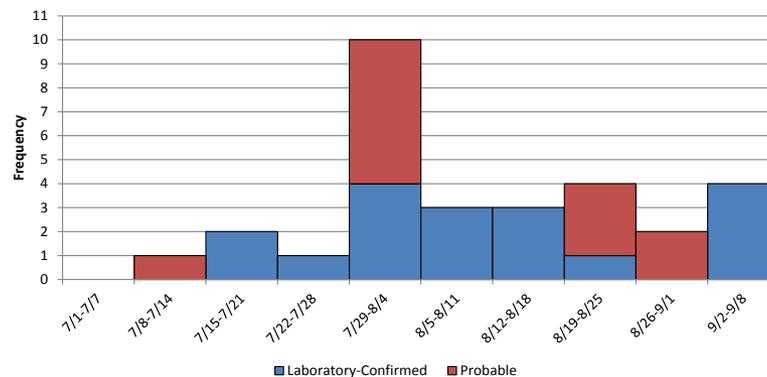
Demographics

- Age Range: 1 - 91 years (median 43 years)
- Gender: 20 (67%) female

Illness

- Illness onset range: 7/12/17 - 9/8/17
 - Eleven cases (37%) hospitalized
 - 6 (20%) with bacteremia
 - One fatality (51 year-old male Chicago resident)

Epi-Curve of S. Schwarzengrund Outbreak Cases
2017



* PFGE = pulsed-field gel electrophoresis

Acknowledgements

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- Jose Hernandez

Illinois Department of Public Health

Centers for Disease Control and Prevention

USDA Food Safety and Inspection Service



Thank you



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www.CityofChicago.org/Health