Stop the Outbreak.

Find the Outbreak

Prevent the Outbreak

Information is gathered and hypotheses are generated and tested until a food is implicated with sufficient degree of certainty to take regulatory action

HIGH Degree of Certainty

- Descriptive epidemiology
- Trace back / trace forward
- Generate & test hypotheses
- Product Distribution Analysis
- Environmental assessment

LOW Degree of Certainty

- Contributing Factors, Environmental Antecedents, Root Cause Analysis
- Facility inspection
- Intervention (recall)
- Recall effectiveness

NETWORK
Acknowledgments

• To all of our partners at the local, state and federal level who are always working with FDA initiatives…“Where the Rubber Meets the Road: RRTs in Action”

• Food Safety Magazine October/November 2015
Collaborative Power of Networks

- Innovative/Successful investigations
- Evaluation ideas and approaches
- Transcends the ‘routine’ for local, state and federal partners
- Translates findings into public health PREVENTION, policy and practice--Economical implications outbreaks
Collaborative Power of Networks

- *Listeria monocytogenes/Caramel Apples*
- *Listeria monocytogenes/Ice cream*
- *Listeria monocytogenes/soft cheeses*
- *Cyclosporiasis cayetanensis /Cilantro*
- *Salmonella Poona/Cucumbers*
Listeria monocytogenes Associated with Caramel Apples

★ 35 cases; 12 states.
★ AZ (5), CA (3), CO (1), MN (4), MO (5), NV (1), NM (6), NC (1), TX (4), UT (1), WA (1), WI (3)
★ Isolation dates: 10/17/14-1/6/15
★ Non-pregnancy-associated case-patient age range: 7-92 years; median age: 66
★ 34 hospitalized; 3 deaths
★ 11 cases pregnancy associated; 1 fetal loss
Opportunities to Improve Food Safety

- Apple assignment caramel apple producers
- Determine why illnesses associated with caramel apples but not whole unprocessed apples.
- Research: FDA pursuing enumeration studies positive product samples
Listeria monocytogenes
Associated with Ice cream

10 cases; 4 states
AZ (1), KS (5), OK (1), TX (3)

Isolation dates: 1/20/10 – 1/23/15

Case-patient age range: 42-83 years; median age: 70.5 years

10 hospitalized; 3 deaths
Opportunities to Improve Food Safety

• Work to understand *Listeria monocytogenes* risk associated with ice cream

• Research dose response effect for *Listeria monocytogenes*

• Collaborate with industry partners to share information/find methods to improve ice cream safety
Listeria monocytogenes Associated with Soft Cheeses

- 30 cases; 10 States
- 28 hospitalizations; 3 deaths; 1 fetal loss
- 4 PFGE patterns, closely related WGS
- WGS match environmental isolate manufacturer
  May 2010
- Hx consumption feta, nabulsi, and Armenian string cheese
Cyclospora cayetanensis Investigations: 2013-2015

- Illness Onset: May-August
- 2013: 631 cases; Nebraska, Iowa (270 Texas)
- 2014: 415 cases (130 Texas)
- 2015: 546 cases Wisconsin, Georgia (179 Texas)
- Additional Clusters/Other States, No vehicle identified
Cyclospora cayetanensis Associated with Cilantro: 2013-2015

- *Cyclospora* contamination fresh cilantro imported from Mexico recurring issue
- No convergence on single firm, but multiple cilantro suppliers from Puebla, MX identified
Inspections of Puebla firms

- 2014: FDA collaborated with Mexican authorities, SENASICA and COFEPRIS to conduct inspections at several cilantro packing facilities Puebla, MX
- 2015: FDA conducted Environmental Assessment several firms, Puebla, MX
Opportunities to Improve Food Safety

- FDA and Mexico working together through Produce Safety Partnership, 2014
- Environmental Assessment cilantro suppliers Puebla, MX ongoing
- *Cyclospora* workgroup – collaboration across agencies
- Research Needs: Develop molecular technology to identify different strains
Salmonella Poona Associated with Cucumbers

843 cases; 38 States

AL (1), AK (16), AZ (118), AR (11), CA (205), CO (18), FL (1), HI (1), ID (24), IL (9), IN (4), IA (6), KN (2), KY (1), LA (5), MD (1), MN (38), MS (12), MT (15), NE (7), NV (14), NM (31), NY (6), ND (6), OH (3), OK (12), OR (21), PA (2), SC (9), SD (3), TX (38), UT (53), VA (1), WA (24), WI (42), and WY (7).

- Onset dates: 7/03/15 – 11/1/15

Case-patient age range: <1 - 99 years; median age: 17 years

★ 165 hospitalized; 4 deaths
Opportunities to Improve Food Safety

• Adverse weather events, excessive rainfall/heavy winds may play role in spread of *Salmonella* affecting growing/harvesting areas. GIS signal platform could be useful in identifying potentially “high risk” firms for enhanced surveillance

• Examining practices retail level at establishments where people report shopping, but not consuming implicated food vehicle
Ceaseless Experimentation Sparks Fireworks, Art and Science

_The Rocket_, Edward Middleton Manigault