

***E. coli* Linked to Ground Beef**

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Overview

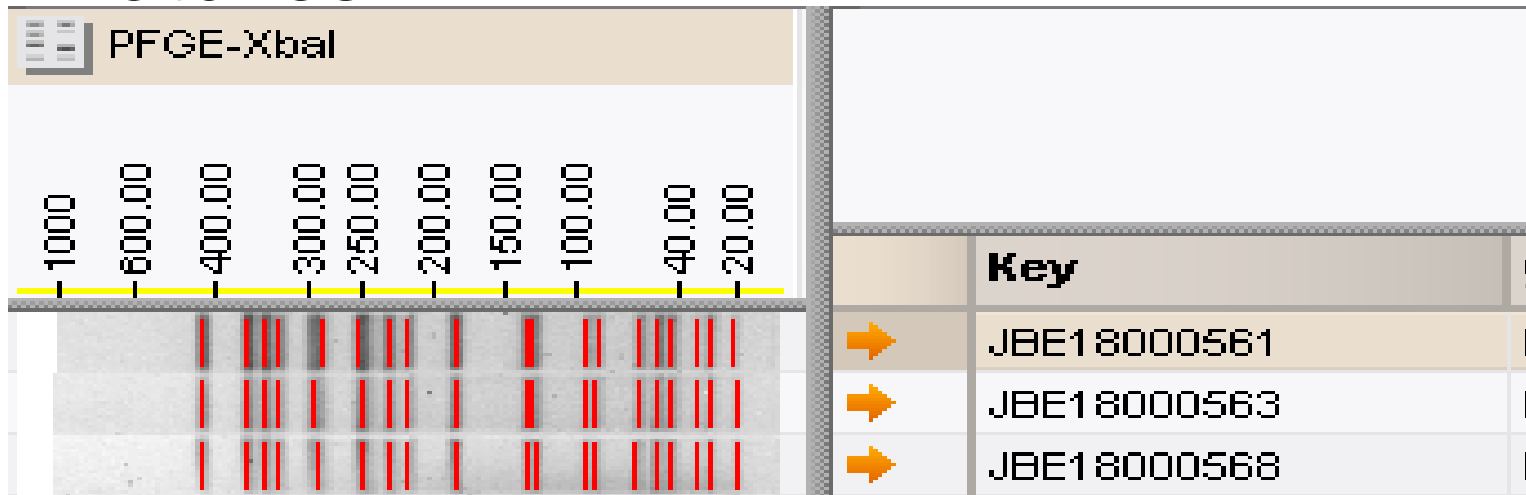
- STEC investigation
- Traceback
- Opportunities
- Questions

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STEC Cluster

- August 1, 2018 Bureau of Public Health Laboratories (BPHL) in Jacksonville notifies Food and Waterborne Disease Program of three pulsed field-gel electrophoresis (PFGE) STEC O26 matches



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STEC O26

- Reviewed cases looking for commonalities
- Limited questionnaire available in Merlin
- Requested National Hypothesis Generating Questionnaire (NHGQ) be administered to better identify commonalities
- Two case are Orange County residents, one from Brevard County

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August 14

- CDC notification and multistate cluster code provided 1808MLEVC-1
- Six cases with rare PFGE pattern combination EVCX01.0934/EVCA26.0597
- Case reside in CO (1), FL (3), MA (1) and TN (1)
- Age of cases range 7-59 with median of 16 years
- 83% Male
- Isolate dates 7/9-7/18/18

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Tennessee Update

- August 14
- Tennessee investigator notifies DOH that their case traveled to Windemere, FL and Lake Butler during exposure period
- 7 year old, Female
- Case developed HUS

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August 15

- TN case reports ground beef exposure purchased from Grocery Store Chain A (GSCA)
- Three Florida cases report ground beef exposure purchased from GSCA

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What Steps Did DOH Take Next

- Request additional details on store location and type of ground beef purchased
- Florida Department of Agriculture and Consumer Services (FDACS) notified of potential linkage
- GSCA notified of linkage
- Summary of investigation sent to Senior DOH leadership

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GSCA

- Doesn't utilize shopper cards
- Interviews from individuals identifies store locations however the type and brand of product recalled is likely inaccurate
- GSCA can look up customer receipts if the customer or DOH provides the name on the credit card used to purchase product and first six digits and last four digits and date range

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August 17

- CO and MA cases report no travel to Florida
- Both report exposure to ground beef
- Both states attempt to collect receipt information to aid in traceback activities

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August 21

- CDC notifies DOH of another PFGE match
- Seven additional O26 isolates from BPHL being further evaluated by whole genome sequencing due to different PFGE pattern
 - Florida 11 cases
- USDA-FSIS requesting conference call to receive update on investigation

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August 22

- New Florida case reports purchasing and consuming pre-made beef patties with cheddar and bacon from GSCA

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August 24

- Receipts from two cases that purchased product from GSCA shared with USDA-FSIS

Publix Store #	Date	Lane #	Sales Transaction Line Item	Item Description	UPC #	Item Sales
873	7/3/18	106	1554	1 BH OVENGOLD TURKEY BREAST	29499000000	\$5.40
873	7/3/18	106	1554	2 BH LND BRL TOP RND RST BF	26940600000	\$6.70
873	7/3/18	106	1554	3 COD FILLET	29683900000	\$10.21
873	7/3/18	106	1554	4 GROUND CHUCK	29603900000	\$4.39
873	7/3/18	106	1554	5 GROUND CHUCK	29603900000	\$4.87
873	7/3/18	106	1554	6 PUBLIX CLAW CRABMEAT	4141510445	\$8.99
873	7/3/18	106	1554	7 REDDI WIP TOP CRMY 13OZ	7027223204	\$5.19
873	7/3/18	106	1554	8 PUBLIX CLAW CRABMEAT	4141510445	\$8.99

Store	Date	Terminal	Sales Transaction Line Item	Item Description	UPC #	Item Sales
1158	7/3/18	104	1944	1 KAISER ROLLS 6 CT	29218400000	\$2.00
1158	7/3/18	104	1944	2 SKINTMT 2IN1 SHY CRM CCNT	84105800299	\$4.49
1158	7/3/18	104	1944	3 SKINTIMATE RASPBERRY RAIN	84105800549	\$3.38
1158	7/3/18	104	1944	4 BAGON & CHEDDAR BURGER	29800300000	\$4.44
1158	7/3/18	104	1944	5 BAGON & CHEDDAR BURGER	29800300000	\$4.54
1158	7/3/18	104	1944	6 CORN & PEPPER TATER TOTS	1212221221	\$2.27

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August 27

- CDC notifies DOH of another PFGE match
- DOH identifies case that has left over product frozen at home (no original packaging)
- Sample secured and shipped to FDACS laboratory for analysis

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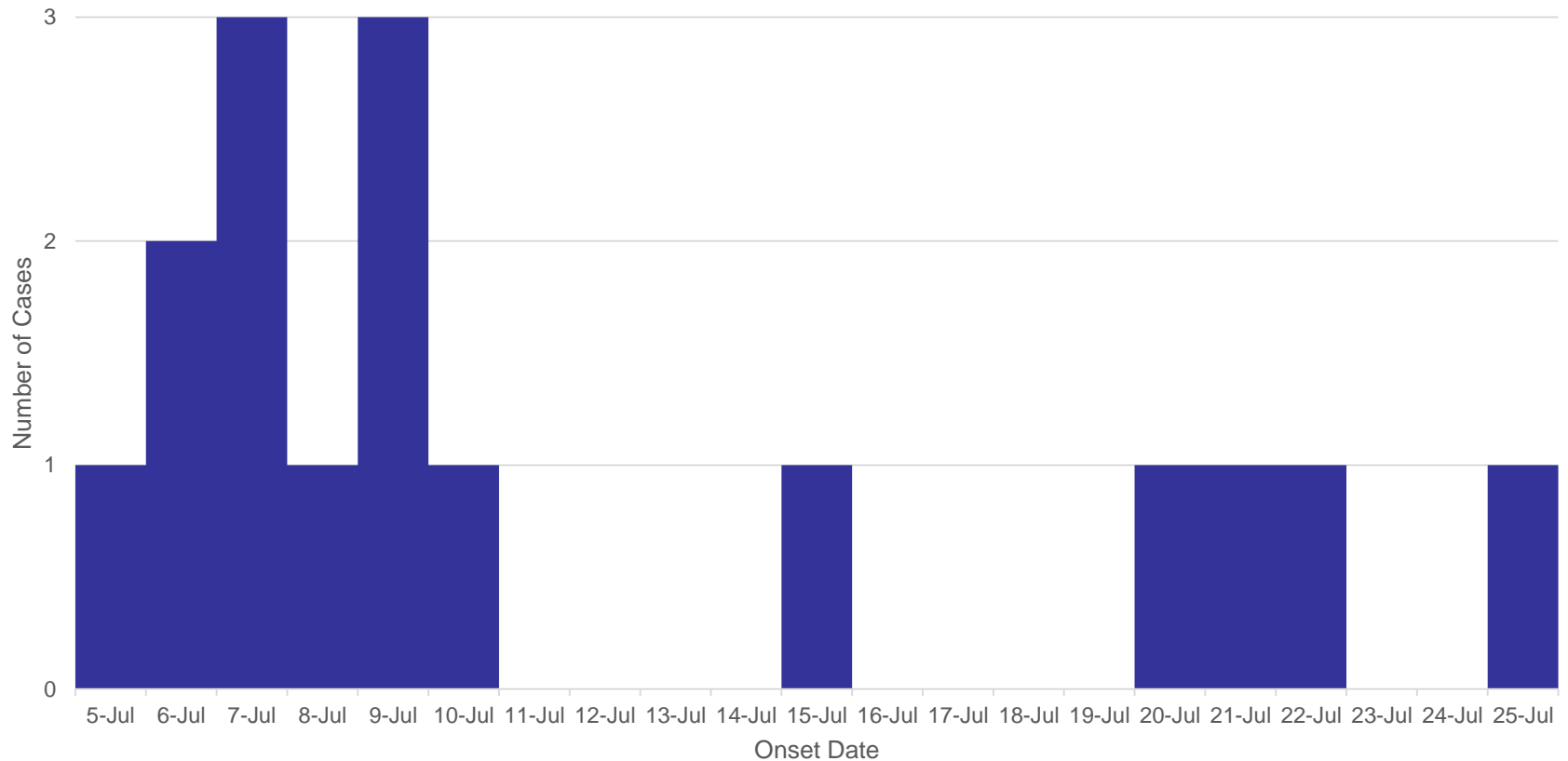
August 28

- Five conference calls scheduled
 - Call with CDC
 - Call with FDACS
 - Call with FDACS and GSCA
 - Call with FDACS and Florida USDA-FSIS
 - Call with FDACS, CDC, USDA-FSIS and GSCA

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Onset Date of Cases for Outbreak (n=16*)



*2 cases had unknown onset dates

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Outbreak Summary

- 18 cases associated with outbreak
 - FL (15), CO (1), MA (1) and TN (1)
- 33% Female
- Ages ranged from 1-75 years with median 16 years
- 33% hospitalized
- 1 case developed HUS
- 1 death

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August 29

- Call with USDA-FSIS, CDC, FDACS, GSCA and DOH
- Still unable to identify common source of ground chuck products

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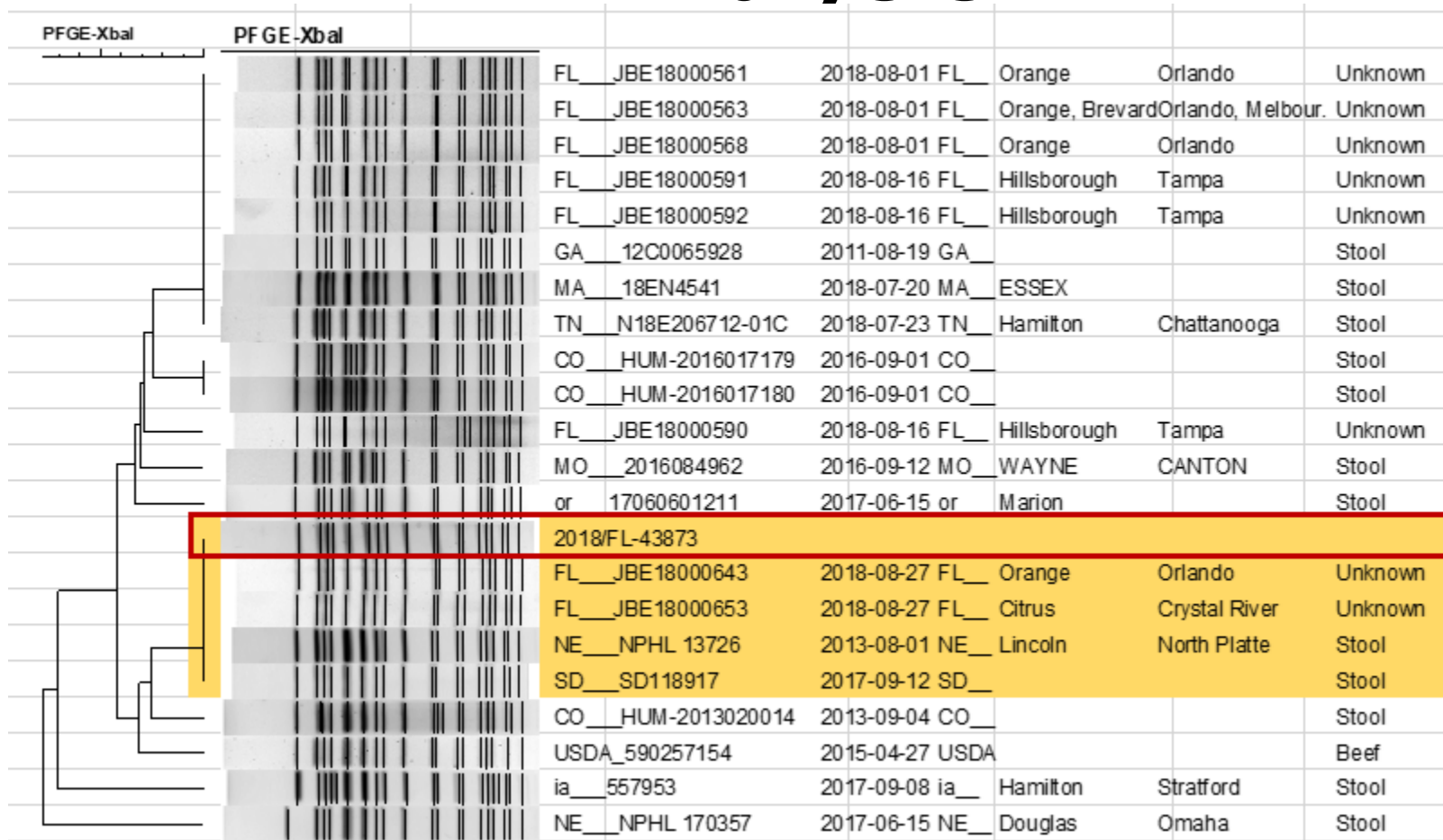
August 30

- GSCA issues recall
- All ground chuck items purchased between June 25 – July 31, 2018
- 24 Florida counties receiving ground beef products

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September 6 – Ground Beef Analysis

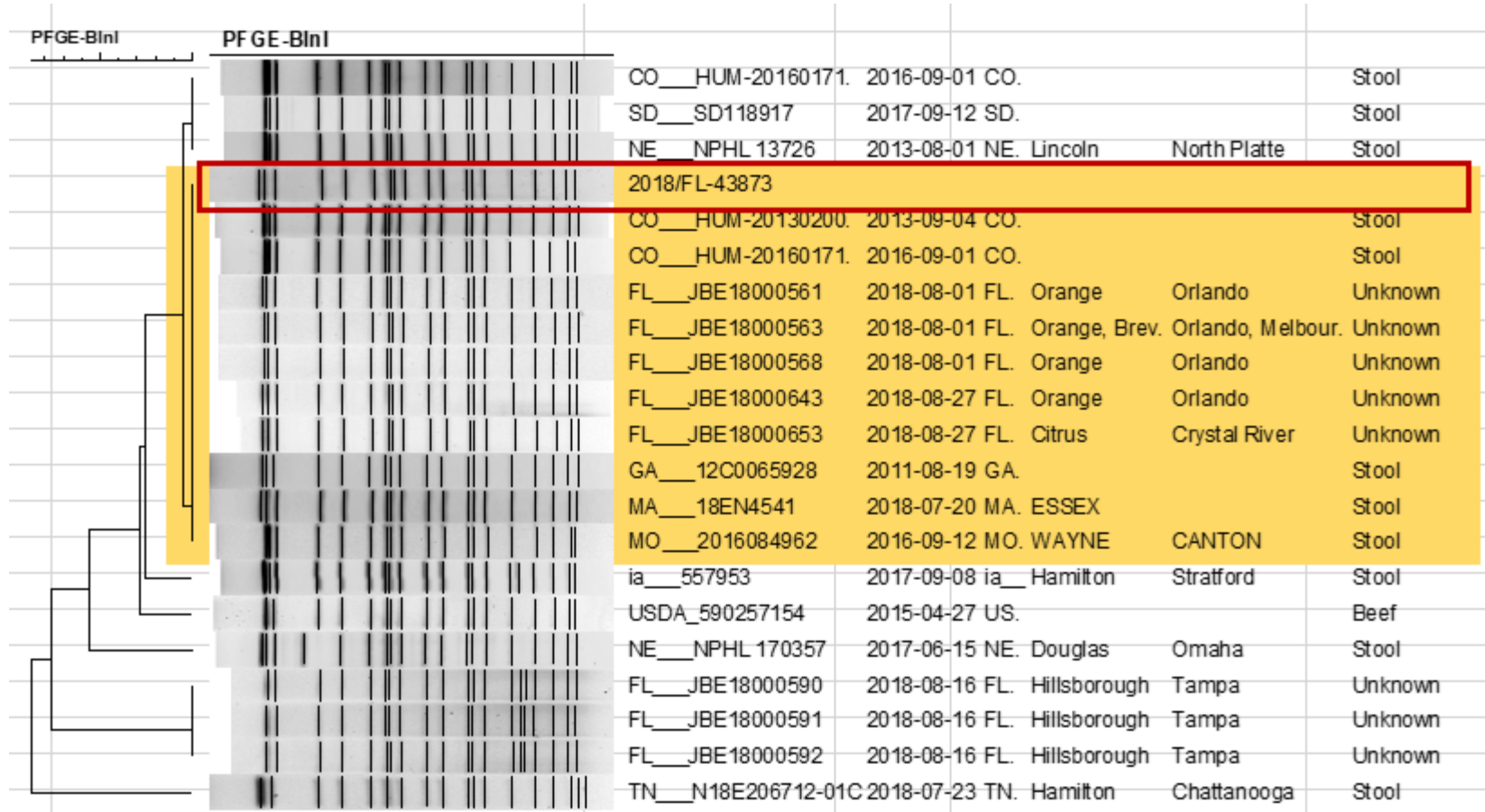


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Bln



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The methods used in the analysis of this sequence data are preliminary and remain under validation. Please email pulsenet@cdc.gov if you plan to use/distribute this phylogeny further.

E. coli O26 1808MLEVC-1 (EVCA01.0934/EVCA26.0597) – New Analysis

	FSIS1500972	PNUSAE016350	PNUSAE016421	PNUSAE016874	PNUSAE016876	PNUSAE016878	PNUSAE017317	PNUSAE017406
FSIS1500972	0	47	40	41	42	41	45	43
PNUSAE016350	47	0	0	0	0	0	0	0
PNUSAE016421	40	0	0	0	0	0	0	0
PNUSAE016874	41	0	0	0	0	0	0	0
PNUSAE016876	42	0	0	0	0	0	0	0
PNUSAE016878	41	0	0	0	0	0	0	0
PNUSAE017317	45	0	0	0	0	0	0	0
PNUSAE017406	43	0	0	0	0	0	0	0

Resfinder results: no resistance genes found for any isolates except PNUSAE016878 (tet(A))

Virulence Finder: positive for stx1 (all stx1a), stx2 (all stx2a), eae, ehxA, and others

WGS_id	Key	SourceState	PFGE-Xbal-pattern	PFGE-BlnI-pattern	Outbreak	SourceType	SourceSite	TypeDetails	IsolatDate
FSIS1500972	USDA_590257154	NE	EVCA01.0934	EVCA26.0597		Food	Beef	Carcass Swab	4/15/2015
PNUSAE016350	MA__18EN4541	MA	EVCA01.0934	EVCA26.0597	1808MLEVC-1	Human	Stool		7/10/2018
PNUSAE016421	TN__N18E206712-01C	TN	EVCA01.0934	EVCA26.0597	1808MLEVC-1	Human	Stool		7/9/2018
PNUSAE016874	FL__JBE18000561	FL	EVCA01.0934	EVCA26.0597	1808MLEVC-1	Human	Unknown		7/10/2018
PNUSAE016876	FL__JBE18000563	FL	EVCA01.0934	EVCA26.0597	1808MLEVC-1	Human	Unknown		7/9/2018
PNUSAE016878	FL__JBE18000568	FL	EVCA01.0934	EVCA26.0597	1808MLEVC-1	Human	Unknown		7/11/2018
PNUSAE017317	CO__1807200186	CO	EVCA01.0934	EVCA26.0597	1808MLEVC-1	Human	Stool		7/18/2018
PNUSAE017406	FL__JBE18000574	FL	EVCA01.0934	EVCA26.0597	1808MLEVC-1	Human	Unknown		7/11/2018

USDA-FSIS Traceback

- Traceback activities from MA and CO cases continue
- Receipts from additional out-of-state cases help identify source of product and aid in additional recall

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September 19 Cargill Recall

- Cargill Meat Solutions, a Fort Morgan, Colo. establishment, recalled approximately 132,606 pounds of ground beef products made from the chuck portion of the carcass that may be contaminated with *Escherichia coli* O26,
- Cargill products identified due to further investigation related to GSCA recall on August 30.

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Public Communications: E. coli O26 Infections Linked to Ground Beef

Natasha Dowell, MPH
Health Communications Specialist
Outbreak Response Prevention Branch,
CDC

PulseNet/OutbreakNet East Coast Regional Meeting
January 16, 2019

Should we communicate?

- **August 21**
 - Cases in 4 states, mostly in Florida with additional pending cases
 - Florida cases are reporting ground chuck from Grocery Store Chain A
- **Is this multistate?**
 - Cases in other states match by PFGE
 - TN case traveled to FL
 - Cases in CO and MA are not reporting travel to Florida
- **Communication decision: no public communication**
 - Work with USDA-FSIS and Grocery Store Chain A to determine source and distribution of ground chuck

Should we communicate?

▪ **August 30**

- 18 cases in 4 states, 15 in Florida and one death
- Grocery Store Chain A issues recall for ground chuck sold in certain Florida counties

▪ **Is this multistate?**

- USDA-FSIS continuing traceback to determine source of ground chuck
- Investigating whether ill people in other states could have gotten same ground chuck

▪ **Communication decision: GCSA public recall notice**

- Targeted for shoppers in Florida counties, not nationwide
- No CDC communications

Should we communicate?

- **September 19**
 - 18 cases in 4 states, 15 in Florida and one death
 - Nationwide recall of ground beef products
- **Is this multistate?**
 - Receipt from ill person helps traceback investigation
 - National producer of ground beef from Colorado identified
- **Communication decision: Food Safety Alert**
 - CDC issued public warning on September 19
 - Included recall information: EST. number and production dates
 - Considered first and final because outbreak appeared to be over

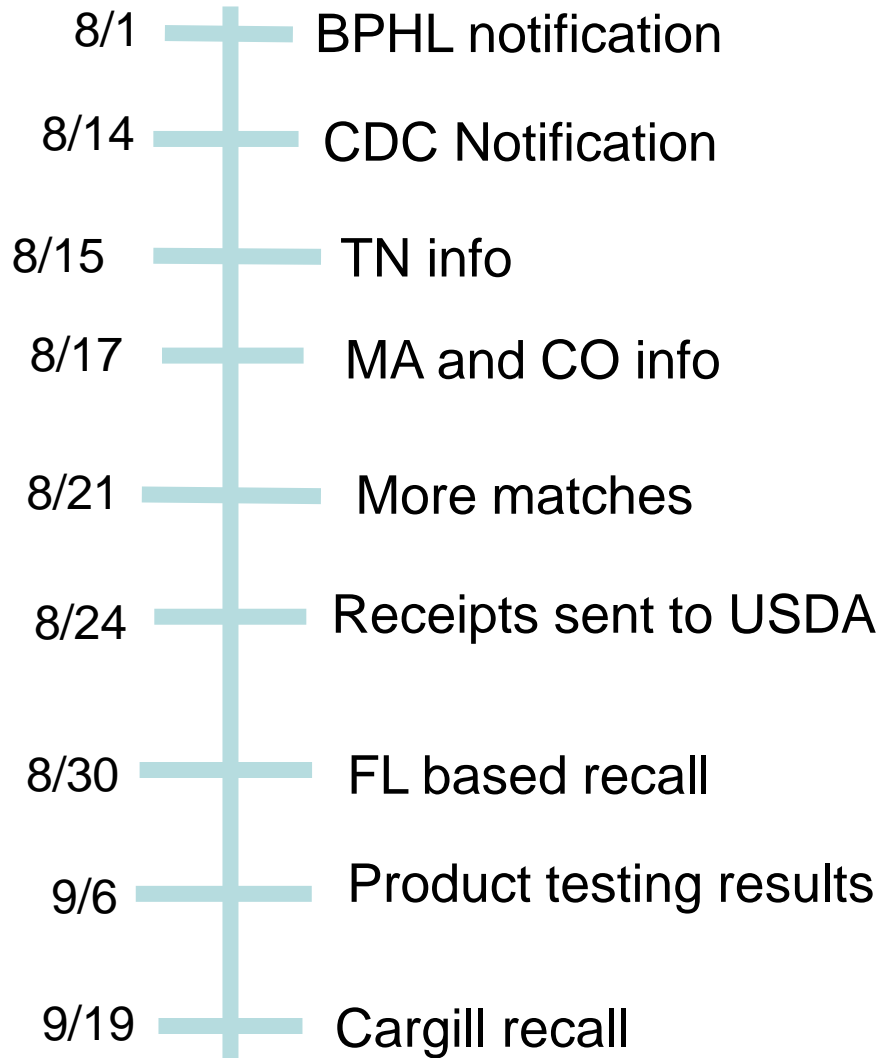
Opportunities – DOH

- Federal partners not all on same page during call with industry
- Bi-directional sharing of information from USDA-FSIS needed improvement
- SEDRIC use by USDA-FSIS (receipts)
- Ownership of outbreak
- Side conversations (CDC and GSCA)
- Unique food regulatory structure in Florida
- Negatively impact Florida business
- Recommendation for GSCA to add shopper card or implement another mechanisms to aid in traceback information

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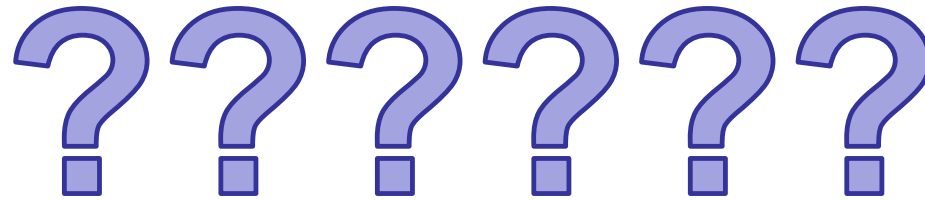
Timeline of Events



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QUESTIONS



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