SOUTHCOAST
PUBLIC HEALTH COALITION

EVERY QUESTION COUNTS

Strengthening local disease investigations through complete data collection

Hannah Ragozzino, MPH
Regional Epidemiologist
Southcoast Public Health Coalition

DISCLOSURE

I have no financial interests or relationships to disclose.

LEARNING OBJECTIVES



- Describe the role of complete data collection in strengthening local disease investigations



- Identify how missing data impacts local response efforts, surveillance, and reporting



- Apply practical strategies to improve data completeness in real-world investigation settings

What’s the ask?

You want to know which populations in your community are being affected by a particular disease

How do we do that?

SURVEILLANCE DATA

Local health departments play a key role in collecting data that informs state and national surveillance systems

maven
MASSACHUSETTS VIRTUAL EPIDEMIOLOGIC NETWORK

- Follow up on cases and identify contacts
- Implement control measures
- Identify high-risk groups
- Rapidly detect increases in disease occurrence
- Monitor disease trends over time
- Guide public health policy and action

The Problem

Blank questions = ambiguity

Was the question

- unasked?
- unknown?
- unanswered?



This limits the usability of the data and can introduce bias.

HOW DOES ONE MEASURE “COMPLETENESS”?



- Is it when 100% of questions are answered?



STOCK.ADOBE.COM

- Quality of questions answered?



THE WASHINGTON POST VIA GETTY IMAGES

- When the button pops up on the turkey?

THE PROBLEM WITH "UNKNOWN"

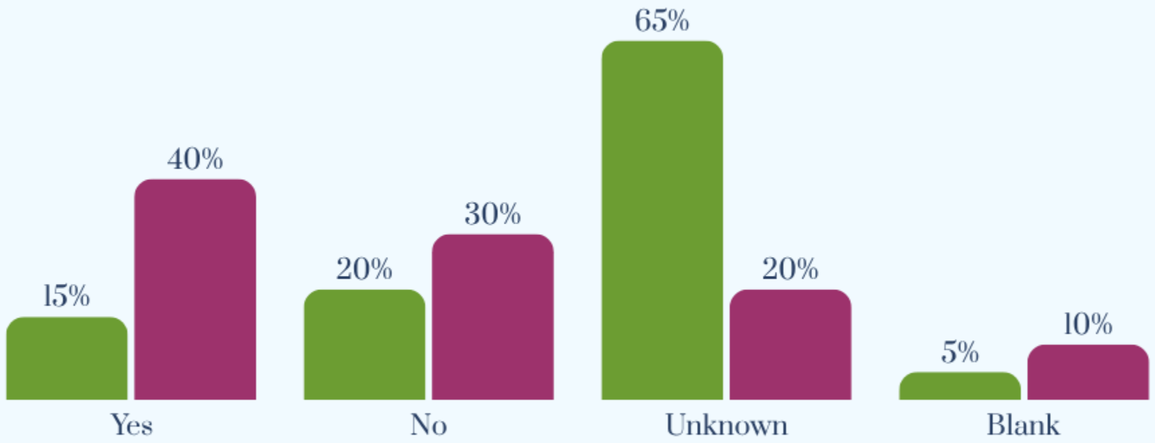
Percent of Question Completed



Town A

Town B

Percent of Responses- "Are you a food worker?"

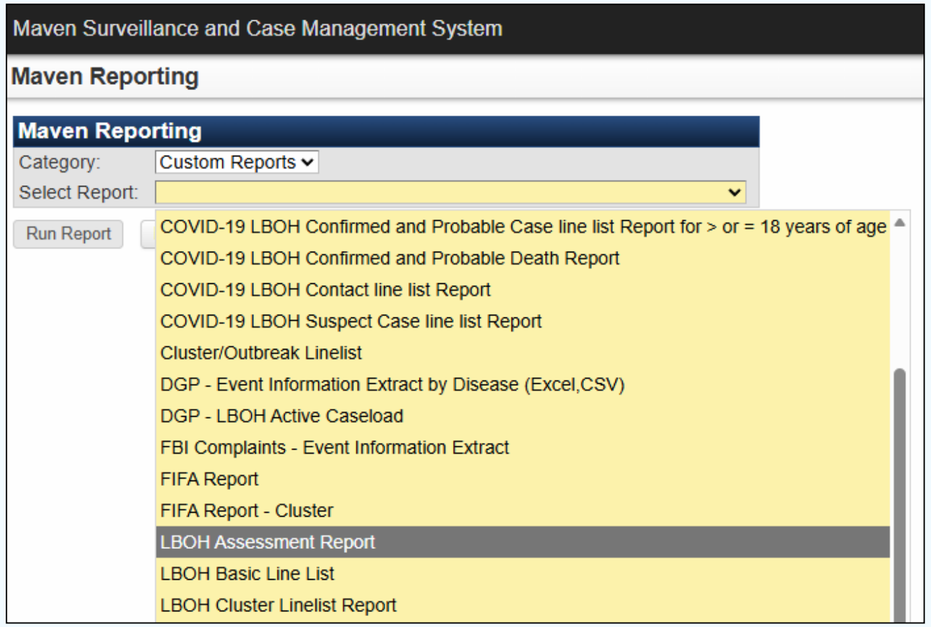


What does the data tell us?

What doesn't the data tell us?

CART Assessment

- The Capacity Assessment Results Toolkit (CART) in 20
  - Many indicators included
    - "MAVEN Score"
      - Measure of average # of days from case create date to completion of step 1



LBOH ASSESSMENT REPORT

- Available in MAVEN Reporting
- SOGI Variables

Immediate Diseases													
Town	Type	Total Case	Average #	Average #	Average #	Percent of	Percent ac	Percent of	Percent of	Percent of	Percent of	Percent of	Percent of
FALL RIVER	Cyclosporiasis	1	0	0	0	100%	100%	100%	100%	100%	100%	100%	0%
FALL RIVER	Group A streptoco	14	1	1	1	100%	86%	100%	86%	71%	100%	86%	0%
FALL RIVER	Hepatitis A	1	4	4	1	100%	0%	0%	100%	100%	100%	100%	0%
Routine Diseases													
Town	Type	Total Case	Average #	Average #	Average #	Percent of	Percent ac	Percent of	Percent of	Percent of	Percent of	Percent of	Percent of
FALL RIVER	Giardiasis	3	1	1	1	100%	100%	100%	100%	100%	100%	100%	0%
FALL RIVER	Babesiosis	17	2	2	2	100%	53%	94%	76%	65%	88%	88%	0%
FALL RIVER	Shiga toxin produc	4	2	2	1	100%	75%	100%	100%	100%	100%	75%	25%

DISEASE BASED ASSESSMENT REPORTS

Enteric Disease Assessment Report

AK31

	A	B	C	E	F	H	J	M	Y	AB	AC	AD	AE	AF	AG	AI
1	Town	Disease	Total Cases Count	Average # of Days from Create Date of Case to Investigation Started Dated	Average # of Days from Create to Case Report Form Complete	Percent of cases completed within 30 days	Percent started within 2 days (Create date to started completed)	% Lost to Followup	Percent Household Contacts Complete	cases with symptom onset completed	Percent of cases with Occupation completed	Percent of cases with Industry completed	% Food worker completed	% Any Food History Complete	% Any Exposure compelte	% CRF Complete
2	All	All Enterics	426	2.18	7.71	96%	66%	17%	82.86%	79%	68%	57%	86%	69%	89%	78.64%
7	All	Campylobacteriosis	106	2.365	8.02	96%	64%	14%	83.96%	87%	61%	50%	85%	75%	92%	83.02%
12	All	Salmonellosis	67	2.01	8.11	99%	67%	22%	86.57%	81%	75%	69%	91%	76%	88%	74.63%
17	All	Norovirus	143	2.38	7.48	94%	62%	16%	83.22%	71%	73%	59%	87%	73%	87%	74.13%

Tick Borne Disease Assessment Report

AJ31

	A	B	C	E	F	H	J	N	P	W	Y	Z	AA	AB	AD
1	Town	Disease	Total Cases Count	Average # of Days from Create Date of Case to Investigation Started Dated	Average # of Days from Create to Case Report Form Completed	Percent of cases completed within 30 days	Percent started within 2 days (Create date to started completed)	% Lost to Followup	Percent of cases with clinical criteria complete	Percent of cases with Symptoms_YN complete	Percent of cases with symptom onset completed	Percent of cases with Occupation completed	Percent of cases with Industry completed	% Any Exposure compelte	% CRF Complete
2	All	All Tick Borne	177	2.05	6.77	97%	69%	5%	92%	93.79%	82%	40%	25%	92%	92.09%
7	All	BABESIOSIS	96	1.76	7.25	96%	70%	6%	93%	92.71%	83%	38%	24%	90%	89.58%
12	All	HG ANAPLASMOSIS	69	2.22	6.39	99%	70%	3%	94%	95.65%	83%	41%	22%	94%	95.65%

KEY INDICATORS- Time Line

1	Town	Disease	Total Cases Count	Average # of Days from Investigation Start Date to Case form Completed	Average # of Days from Create Date of Case to Investigation Started Dated	Average # of Days from Create to Case Report Form Completed	Percent of cases completed within 30 days	Percent started within 2 days	% Lost to Followup	Percent Contact Employed at Supervsed Care Setting	Percent Key Symptoms Complete	Percent Employed Supervised Care Setting	Percent Household Contacts Complete	Percent of cases with symptom onset completed	Percent of cases with Occupation completed	Percent of cases with Industry completed	% Food worker completed	% Any Food History Complete	% Any Exposure compelte	% CRF Complete
2	All	All Enterics	426	4.65	2.18	7.71	96%	66%	17%	80.28%	84.51%	82%	82.86%	79%	68%	57%	86%	69%	89%	78.64%
7	All	Campylobacterios	106		2.365	8.02	96%	64%	14%	82.08%	92.45%	83%	83.96%	87%	61%	50%	85%	75%	92%	83.02%
12	All	Salmonellosis	67		2.01	8.11	99%	67%	22%	82.09%	83.58%	84%	86.57%	81%	75%	69%	91%	76%	88%	74.63%
17	All	Norovirus	143		2.38	7.48	94%	62%	16%	79.02%	74.83%	83%	83.22%	71%	73%	59%	87%	73%	87%	74.13%

Days to key steps

- Create Date to Investigation Start Date
- Investigation Start to Case Complete Date
- Create to CRF complete
- Cases started within 2 days
- Cases completed within 30days
- Cases Lost to Follow up

KEY INDICATORS- Case Completeness

1	Town	Disease	Total Cases Count	Average # of Days from Investigation Start Date to Case form Completed	Average # of Days from Create Date of Case to Investigation Started Dated	Average # of Days from Create to Case Report Form Completed	Percent of cases completed within 30 days	Percent started within 2 days	% Lost to Followup	Percent Contact Employed at Supervsed Care Setting	Percent Key Symptoms Complete	Percent Employed Supervised Care Setting	Percent Household Contacts Complete	Percent of cases with symptom onset completed	Percent of cases with Occupation completed	Percent of cases with Industry completed	% Food worker completed	% Any Food History Complete	% Any Exposure compelte	% CRF Complete
2	All	All Enterics	426	4.65	2.18	7.71	96%	66%	17%	80.28%	84.51%	82%	82.86%	79%	68%	57%	86%	69%	89%	78.64%
7	All	Campylobacterios	106		2.365	8.02	96%	64%	14%	82.08%	92.45%	83%	83.96%	87%	61%	50%	85%	75%	92%	83.02%
12	All	Salmonellosis	67		2.01	8.11	99%	67%	22%	82.09%	83.58%	84%	86.57%	81%	75%	69%	91%	76%	88%	74.63%
17	All	Norovirus	143		2.38	7.48	94%	62%	16%	79.02%	74.83%	83%	83.22%	71%	73%	59%	87%	73%	87%	74.13%

Key Symptoms

- Diarrhea
- Abdominal Cramps
- Nausea
- Vomiting
- Fever

Food History

- Food_Resturant
- Eat_At FoodTruck
- Gatherings Attended
- Suspect Food or Drink

Exposure History

- Any Animal Contact
  - Handle Pet Food
  - Household Pets
- Travel
- Drinking Water Source

Contacts

- Household Contact Ill
- Contact Food Handler
- Contact Supervised Care Setting

Employment

- Is Case a Food Handler?
- Employed at Supervised Care Setting?

ENTERIC DISEASE ASSESSMENT RESULTS

426

enteric disease investigations

AVERAGE NUMBER OF DAYS FROM:

Create Date → Investigation Start



~2 DAYS

Create Date → CRF Complete



~8 DAYS

Investigation Start → CRF Complete



~5 DAYS

ENTERIC DISEASE ASSESSMENT RESULTS

66%

Investigations Started within 2 days



96%

Cases completed within 30 days



79%

Case Report Form Complete



17%

Lost to Followup



PHOTO: LOSTPEDIA

ENTERIC DISEASE ASSESSMENT RESULTS

SYMPTOM ONSET DATE:

79%

Completed



EXPOSURE HISTORY

69%

Completed



KEY SYMPTOMS:

84%

Completed



HOUSEHOLD CONTACTS

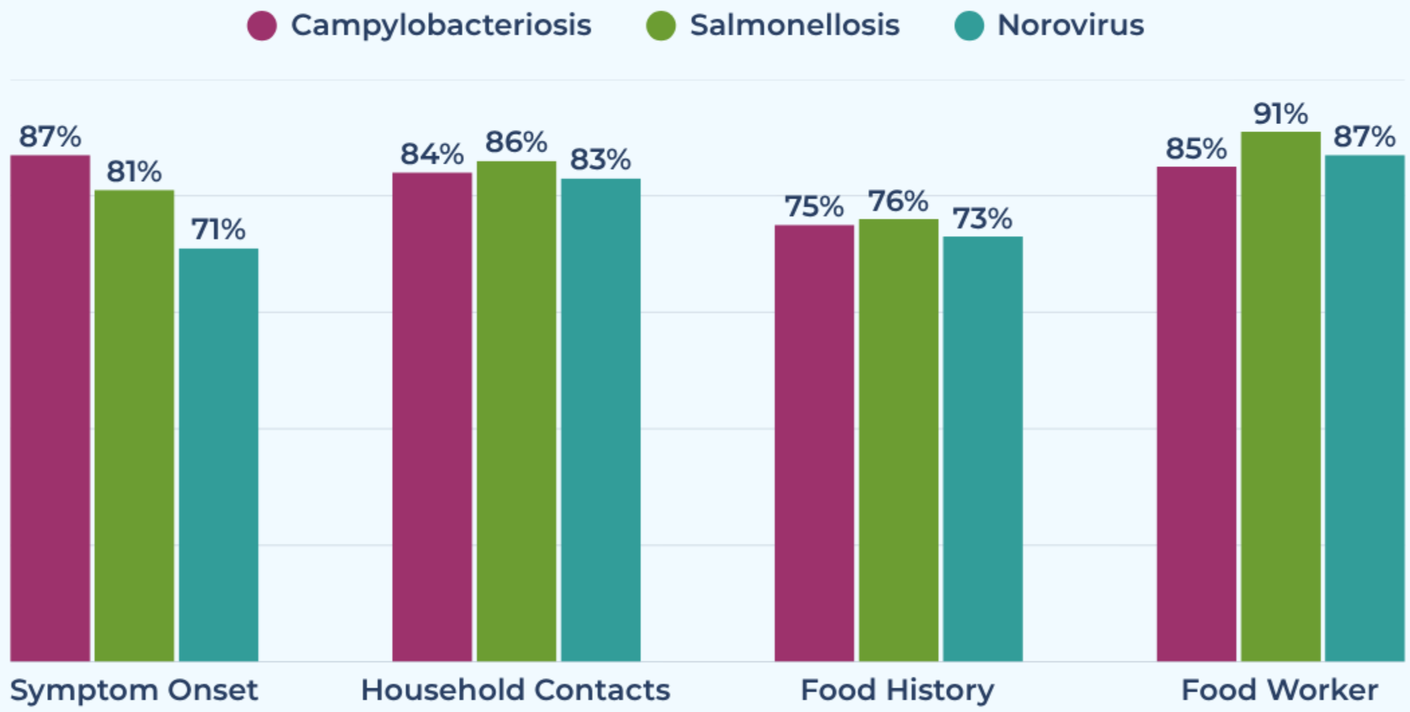
83%

Completed



DEEPER DIVE INTO ENTERICS

PERCENT OF KEY INDICATORS COMPLETE



FOOD WORKERS

(N=13)

Symptom Onset Date completed:



Key Symptoms completed:



Any food history completed:



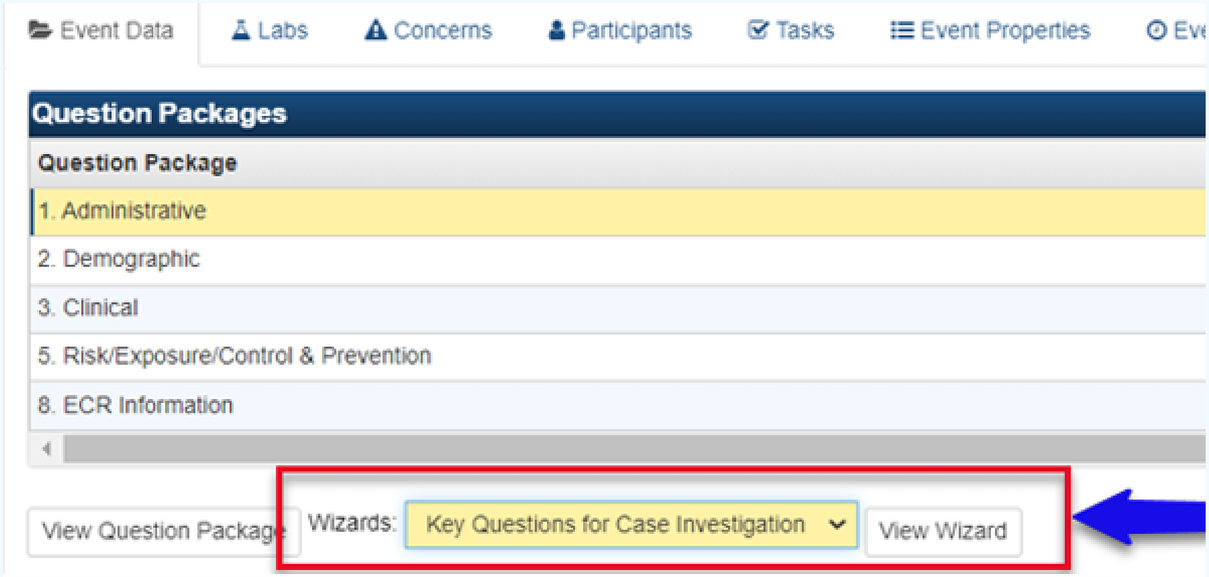
WHY ALL THE QUESTIONS?

Each disease is different, and our approaches for control are different based upon specific disease factors.

Case investigation – is this a real case?
Relevant questions help determine what, when, where, why, who, and how?

Control measures – who else is at risk?
Are there exposures or high-risk occupations?
What needs to be done to control the spread?

MAVEN Online Help



Wizards are your friend!

CASE CLASSIFICATION

Every disease event in MAVEN must have a Case Classification.

- Confirmed
- Probable
- Suspect
- Revoked

MAVEN Online Help:

- MAVEN Case Classification Manual
- Investigation Tip Sheets

Some Case Definitions need more than just a positive lab

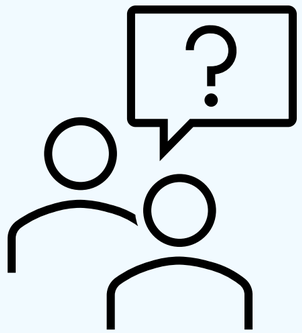
- Certain Tickborne diseases need clinical symptoms + lab information to meet probable and confirmed definitions
- Different types of tests create different classifications

Data collected during disease investigations helps MDPH epis determine the case classification.

REMEMBER: YOUR DATA IS ONLY AS GOOD AS THE INFORMATION YOU COLLECT.

If you want to know which populations in your community are being affected by a particular disease, you must collect AND enter the data.

- **When** the population was affected
- **Where** they were affected
- **Who** specifically was affected.



Note on notes- specific variables must be filled out in questions packages to be counted in analysis. Notes do not get pulled into reports.

SCENARIO

Routine MAVEN check shows a confirmed STEC case

You request the medical records to see the patient is:

- A 4-year-old child
- Hospitalized with hemolytic uremic syndrome (HUS)
- Stool sample positive for E. coli O157:h7

Ask: what's the first exposure source you think of for salmonella?

SCENARIO

Sometimes the answer is in a question we've mentally "ruled out"

The information needed for most enteric disease investigations comes from the ill individual or their parent/guardian, not a medical provider.



Detailed exposure history give epis the opportunity to make connections & identify exposure sources before outbreaks happen

Thank you!

Hannah Ragozzino, MPH
Regional Epidemiologist
hragozzino@fallriverma.gov
Southcoast Public Health Coalition