

**Massachusetts
Public Health Inspector Training
(MA PHIT)
Food Certificate Program
Day 4, Session 4
Foodborne Illness Activity**

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Learning Objectives

- Collect information about a foodborne illness
- Complete the foodborne illness worksheet
- Provide recommendations to prevent cases of foodborne illness

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Notification

- On Monday, LBOH receives a call from the mother of a bride. The wedding was Saturday evening at a hotel in Boston (not the town where she lives) and she and her husband got sick on Sunday. The mother of the bride is starting to get calls from other guests (who live out of town) who were also sick on Sunday. She is quite embarrassed and concerned.
- Is a laboratory diagnosis required for LBOH to begin investigation?
- Next steps?



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DPH Collates Information

- Common thread among all three: wedding cake
- Now what?
- What additional information do you need?
- What are roles of LBOH and DPH?



Continued Investigation

One bakery provided all the cakes!

Discuss roles and responsibilities:

- EPI
- FPP
- LBOH



Investigation Reveals.....

- Bakery filled 800-900 orders on the weekend in question
 - 46 of those orders were for wedding cakes
- How can we make sure that we learn of all cases of illness associated with the bakery?
- How can we make sure no one else gets sick?



Next steps

- Upon DPH recommendation, the bakery released information to the press advising people to dispose of any remaining cake from the weekend.
- DPH also conducted surveys and collected food and stool samples.



Additional MDPH Study

- A **cohort study** is an investigation of risk factors associated with a group of people who share a common exposure within a defined time period.
- A **case definition** is used in public health practice to define who should be included and excluded as a case in an outbreak. It includes time, place and person.

What should the case definition be for this outbreak?

Outbreak Case Definition

- A case was defined as any person who:
- Attended a wedding during the weekend in question and
 - Had been supplied a cake by the identified bakery and
 - Experienced illness onset within three days of the event with at least one of the following four symptoms: vomiting, diarrhea, nausea, or abdominal cramps.



Questions

What should be asked in the questionnaire sent to wedding guests?



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Questionnaires

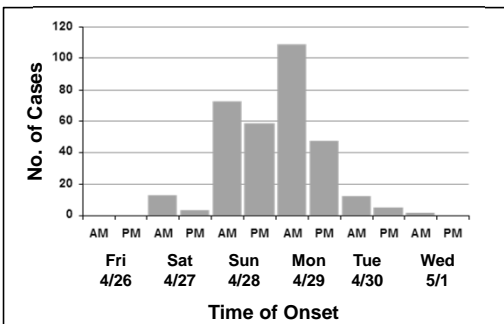
- ▣ 21 of 42 weddings agreed to participate
- ▣ Mailed out to 1,750 wedding guests
 - 937 surveys were completed (54%) which incorporated all 21 weddings
 - 334 were classified as cases



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Epi Curve



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Environmental Investigation

- Wedding reception sites were inspected
 - No critical violations observed
- Bakery was inspected
 - Several violations noted:
 - > Improper thawing of liquid frozen pasteurized eggs
 - > Failure to change single-service gloves between tasks
 - > Wiping hands on heavily soiled uniforms
 - > Washing hands in 3-bay sink



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Cake Preparation

- Involves numerous employees over 2-3 days
- Cakes baked on one day, filled the day before the order is due, and decorated the day of
- Continuous handling of cake ingredients and partially assembled cakes by many food employees



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Cake Composition

Baked Cakes

- Gold
- Chocolate
- Carrot

Fillings

- White Chocolate Mousse
- Strawberry
- Chocolate Mousse
- Mocha
- Cream Cheese



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Baking and filling cake layers



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Preparing filling



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Relative risk of cake fillings

	# Cases Exposed	# Non-cases Exposed	Relative Risk
White Chocolate Mousse Filling	264	173	5.41
Strawberry Grand Marnier	252	156	4.15*
Chocolate Mousse	19	17	1.20
White Chocolate Mousse only	4	5	1.00
Raspberry Chocolate Mousse	2	1	1.50
Cream Cheese Filling	6	17	0.58

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Further Investigation Revealed....

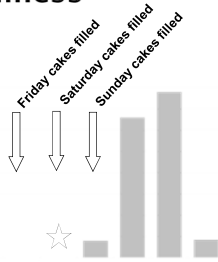
- A bakery employee became ill on the Friday evening of the weekend in question with:
 - Diarrhea
 - Vomiting
 - Headache
 - Abdominal cramps
 - Muscle aches
 - Dizziness
- He/she was out sick on Saturday and reported being ill until Tues.
- Employee's duties on Friday included:
 - Shave chocolate for decoration of non-wedding cakes
 - Place wedding cakes in walk-in
 - Bring filled wedding cakes to decorating table
 - Box wedding cakes



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Timeline of cake preparation and illness

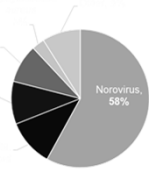


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Norovirus

- Causes the largest amount of domestically acquired foodborne illness in the United States
- Transmission via viral particles shed in stool or vomit
 - Foodborne
 - Direct person-to-person
 - Indirect person-to-person
- Viral shedding
 - Asymptomatic
 - Symptomatic



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What would you recommend to the bakery to prevent such an outbreak from happening again?

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Conclusion

The Centers for Disease Control & Prevention estimates that every year, 1 out of 6 Americans get sick from, and 3,000 die, of foodborne illness. The majority of illnesses are caused by viruses!

Reducing foodborne illness by 10% would prevent 5 million Americans from getting sick each year. Preventing a single fatal case of E. coli O157 infection would save an estimated \$7 million.

State and local health departments play a critical role in all aspects of food safety.

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