Outbreak of Mumps on a College Campus in Cambridge, Massachusetts: The Local Perspective

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Cambridge
Public Health
Department

CHA Cambridge Health Alliance

Presenter Disclosure Information

- I, Kristin Ward, have been asked to disclose any significant relationships with commercial entities that are either providing financial support for this program or whose products or services are mentioned during my presentation. I have no relationships to disclose.
- I may discuss the use of vaccines in a manner not approved by the U.S. Food and Drug Administration but in accordance with ACIP recommendations.

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Agenda

- Background
- Interagency Coordination
- Isolation & Quarantine
- Case Investigation
- Contact Tracing
- Best Practices
- Findings
- Risk Communication Challenges

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Background

January 1, 2016 – December 31, 2016

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Interagency Coordination

Massachusetts Department of Public Health	Cambridge Public Health Department	University Health Services
• Regional coordination • Statewide communication • Laboratory testing	• Primary case interviews • Contact tracing • Local communication	• Primary clinical investigation • Specimen collection • Isolation & quarantine

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Isolation & Quarantine

- **Isolation**: separates ***sick people*** with a contagious disease from people who are not sick
  - Mumps: ideally isolate suspect cases for entire infectious period
  - Challenge: mumps infectious period begins two days prior to symptom onset
- **Quarantine**: separates and restricts the movement of people who were exposed to a contagious disease to ***see if they become sick***
  - Mumps: only quarantine exposed unvaccinated individuals
    - Start date: 12 days after the first day of the suspect case's infectious period start date
    - End date: 25 days after the suspect case's infectious period end date

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Isolation & Quarantine

Example: April 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	31	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	**25** Symptom Onset	26	27	28	29
30	1	2	3	4	5	6

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Isolation & Quarantine

Example: April 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	31	1
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9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	**25**	26	27	28	29
30	1	2	3	4	5	6

Incubation Period

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Isolation & Quarantine

Example: April 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	31	1
2	3	4	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
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Incubation Period

Infectious Period

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Case Investigation

- **Clinical Symptoms**
  - Parotid swelling, orchitis, oophoritis, hearing loss, fever, encephalitis, meningitis
  - Parotid swelling: did it last at least 48 hours?
- **Vaccination History**
  - Two MMRs
- **Incubation Period Activities**
  - Classes, travel, athletic teams, gyms/exercise, dining hall usage, social activities/parties, extracurricular clubs, employment, etc.
- **Infectious Period Activities/Contacts**
  - Close Contact: any activity where saliva could be exchanged

Contact Tracing

- **Vaccination History**
  - Unvaccinated: begin vaccine series or be quarantined
- **Education**
  - What does mumps look like?
  - What is my risk?
  - What do I do if I think I have symptoms?
  - Can I continue my normal activities?

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Best Practices

- Set aside more space for isolation than you think you need, and prepare for issues related to:
  - Meal delivery
  - Hygiene needs
  - Mental health needs
- Host frequent calls with surrounding universities/jurisdictions
- Leverage athletic trainers and professors
- Set up a centralized hub of online information
- Provide tips to partygoers instead of discouraging them
- Utilize university administration to communicate to students/faculty
- Put emergency management personnel in charge of logical coordination

Findings

- **Sources of Exposure/Transmission**
  - **Social Clubs**
    - Primary goal is to offer prevention advice
  - **Athletic Teams**
    - Frequent inter-team socialization
    - Out-of-state travel
    - Daily contact outside and inside in close quarters
  - **Spring Break**
    - Out-of-state/out-of-country travel
    - Uptick **after** spring break: return to campus, assume risk is gone?
  - **Spread to Graduate Population**

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Risk Communication Challenges

- **False Negatives**
  - Continue to isolate suspect cases even if they are PCR negative but had 48+ hours of swelling and an epidemiologic link to the outbreak
- **Clinical Confusion**
  - You are still at risk if you have both MMR vaccines (~88% effective)
  - You are still at risk to others if you have no symptoms (unknown proportion of asymptomatic carriers in highly vaccinated population)
  - You can be infectious two days before showing any symptoms
- **Public Reporting**
  - Decision to only report laboratory confirmed cases: did that lead to false sense of security?

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Thank You!

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