2006 Mumps Epidemic: The Iowa Perspective

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Objectives

- Describe the implications of a large outbreak in the college population
- Detail the Iowa experience in the largest mumps outbreak in the U.S. in 20 years
- Outline what worked and what did not work
Measles outbreak hits Iowa

James Q. Lynch

DES MOINES State public health officials confirmed Tuesday that a third Eastern Iowan has measles and called on Iowans to make sure they are protected against the disease, which kills two to three out of every 1,000 people who get it. "I would call this a measles outbreak," state epidemiologist Dr. Patricia Quinlisk said at a news conference. Quinlisk said the third person with measles had "close personal contact" with a person who flew into...
Whooping cough persists in E. Iowa

Niki Jensen

Universities and colleges throughout the Technology Corridor report that whooping cough, a contagious infection of the respiratory tract, continues to inflict nasty hacking spells on students. "It's kind of panicky around here," said Lisa James, nurse manager at the University of Iowa Student Health Service. UI students, she said, have converged on the on-campus health center with concerns over contracting the infectious disease, also known as pertussis…
Cluster of cases reported in an Eastern Iowa college in December
Initially attributed to other causes
Two IgM+ results
January

- Additional 7-8 cases
- Continued to monitor though few commonalities
  - Most were college age but not same colleges
- Mumps virus isolated in 2 cases
February

- Surveillance revealed an additional 10 cases
  - Three colleges affected in 3 counties
- Some colleges and institutions had a 2-dose Measles, Mumps and Rubella (MMR) vaccine requirement
- Record keeping to assess vaccine coverage
- Student health services were primary care providers
Surveillance

- Students ill with mumps-like symptoms sought treatment
- Health care providers assessed for mumps (many were seen in student health clinics)
- County or state health departments were notified
- County health departments conducted student interviews
Advice to Students

- Told to stay home or in dormitory when ill
- Encouraged to be vaccinated if the student had fewer than 2 doses
- Told to not share saliva
- Email and websites used most often
Active Surveillance

- Each county/student health service used unique system
  - Some tracked reports from providers
  - Several colleges tracked epi-linkages
  - Testing was conducted at each site
  - Counties completed a supplemental questionnaire
Active Surveillance

- Assessed for exposure
- Detailed vaccination information
  - Location of all doses
  - Physician giving doses
  - Lot # and dates
- College status
March

- Cases started to increase significantly in part to increased awareness
- Education for spring break behavior widely disseminated
January
February 26 - March 11
March 21-25
March 26 - April 8
April 9-22
May 7 - Present
Age Distribution of mumps cases
Iowa 2006

Number of cases

Age

N=1867
Age distribution of mumps cases by onset week and age group through May 25th, 2006

Age_group
- 1-4
- 5-9
- 10-14
- 15-17
- 18-22
- 23-30
- 31-40
- >40

N=1865
# Demographic Profile*

<table>
<thead>
<tr>
<th>Total cases (of 18-25 year olds)</th>
<th>698</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cases with detailed information</td>
<td>587</td>
</tr>
</tbody>
</table>

### Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>67%</td>
<td>(469/698)</td>
</tr>
<tr>
<td>Male</td>
<td>31%</td>
<td>(219/698)</td>
</tr>
</tbody>
</table>

### Doses of MMR

<table>
<thead>
<tr>
<th>Dose Levels</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 doses</td>
<td>1%</td>
<td>(6/587)</td>
</tr>
<tr>
<td>1 dose</td>
<td>10%</td>
<td>(61/587)</td>
</tr>
<tr>
<td>2 or more doses</td>
<td>80%</td>
<td>(469/587)</td>
</tr>
<tr>
<td>Unknown</td>
<td>9%</td>
<td>(51/587)</td>
</tr>
</tbody>
</table>

### Student - post high school, including college, trade school, etc.

74% (434/587)

*As of May 25th, 2005*
# Clinical Profile

<table>
<thead>
<tr>
<th>Condition</th>
<th>Percentage</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parotid swelling</td>
<td>66%</td>
<td>389/587</td>
</tr>
<tr>
<td>Sore throat</td>
<td>52%</td>
<td>305/587</td>
</tr>
<tr>
<td>Sublingual/Submandibular swelling</td>
<td>44%</td>
<td>257/587</td>
</tr>
<tr>
<td>Headache</td>
<td>32%</td>
<td>190/587</td>
</tr>
<tr>
<td>Orchitis</td>
<td>15%</td>
<td>13/86*</td>
</tr>
<tr>
<td>Cough</td>
<td>10%</td>
<td>60/587</td>
</tr>
<tr>
<td>Encephalitis</td>
<td>0.5%</td>
<td>3/587</td>
</tr>
</tbody>
</table>

*Of male cases with additional information available*
Laboratory Profile

- Serology (IgM) 465
- Mumps virus isolated 117
- PCR 13

Laboratory submissions included:
- Buccal swab (viral culture and PCR)
- Clean-catch urine (viral culture)
- Blood/serum (serology)
Transmission

- Parties
- Sports teams
- Dormitories
- Travel
Interventions

Three-phase targeted vaccination strategy

- Targeted college-age population
- Stockpiled vaccine
- Affecting age group most affected and likely to spread to other age groups

Phase I: 18-22 year olds
Phase II: 18-25 year olds
Phase III: 25-46 year olds
Challenges

- Advertising
  - Tailoring campaigns to capture attention
- Timing
- Vaccination in highly vaccinated population
What worked

- Emailing students
- Spring break messages
- Education on college campuses before mumps cases occurred
- Assessing campus vaccine coverage
- Decreased period for isolation
What Worked

- Collaboration with state and local health agencies
  - Active surveillance excellent
    - Vaccination history
    - Epidemiologic information
- Using one centralized lab for testing
  - Free testing
  - Currier service
- Collaboration with CDC
  - Special studies
Challenges

- Determining when and for how long students should remain out of class
  - Communication to professors

- Difficult for student clinics to assess whether a case was truly epi-linked

- Isolation phase was not followed
  - Once reduced was still not applied well
  - Duration of mild illness was up to 2 weeks

- Using one centralized laboratory for testing
  - Need to expand capacity
Lessons Learned

- College-age group is prime for spread of respiratory and saliva-spread diseases
- Colleges can act as the foci for community spread
- Travel precautions are essential
  - Collaborate with CDC, State and Local Public Health
  - It’s not just Africa we need to worry about
- Gather as much information as possible in the beginning
  - Symptoms, onset date, links to others who are ill, appropriate laboratory testing and vaccination status
Contact Information

www.idph.state.ia.us/adper/mumps.asp

mharris@idph.state.ia.us