Southern Nevada Health District

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Technical Bulletin

April 4, 2006

Mumps Outbreak In Iowa

Current Situation

On March 30th, the Centers for Disease Control and Prevention (CDC) announced an ongoing epidemic of mumps occurring in Iowa and neighboring states. Through March 30th, the Iowa Department of Public Health has reported a total of 300 cases; Iowa typically reports about 5 cases of mumps each year. The first cases were reported in mid-December, and occurred in students attending a university in eastern Iowa. Reports steadily increased throughout the first three months of 2006 figure 1), and are being reported in thirty-six counties. Cases are also being reported in Illinois (11), Kansas (6), Nebraska (2), Wisconsin (2), and Minnesota (1). Missouri has also reported cases, although the number of cases has not been released (figure 2).

Figure 1. Outbreak Curve Through March 30, 2006

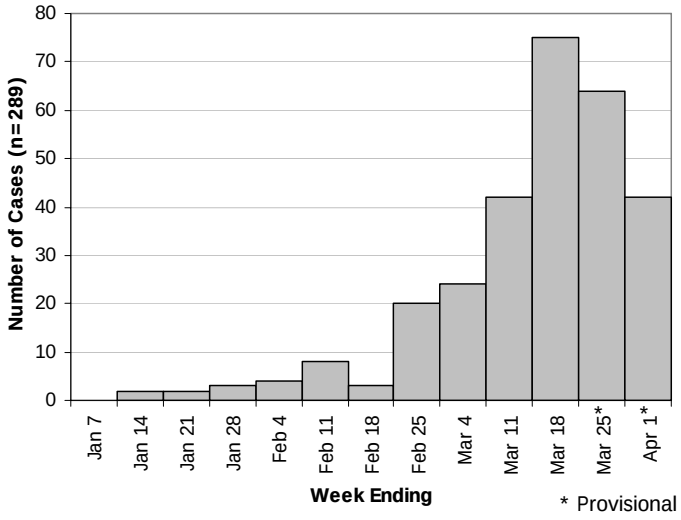
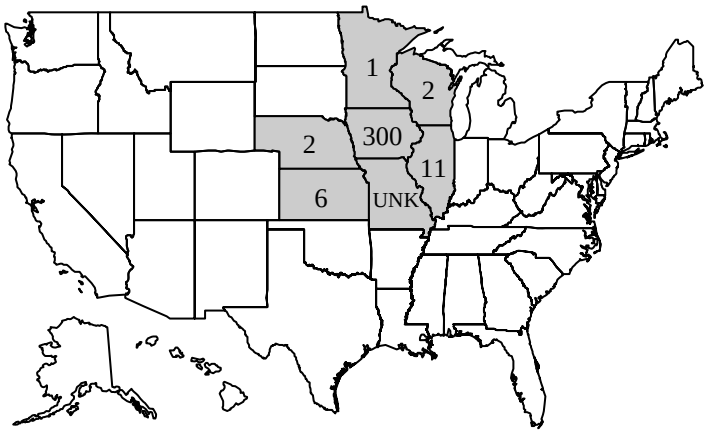


Figure 2. States Reporting Cases of Mumps



Symptoms and Case Profiles

Mumps is an acute viral infection characterized by fever and nonsuppurative swelling of the salivary glands; an estimated 20%–30% of cases are asymptomatic. Complications can include inflammation of the testicles or ovaries, meningitis/encephalitis, spontaneous abortion, and deafness.

The incubation period for mumps is typically 14-18 days, although it maybe be as long as 25 days. Persons with mumps are infectious to others from three days before to four days after the onset of disease. The average duration of symptoms in this outbreak (table 1) is 7 days. Symptoms in vaccinated and unvaccinated persons have been reported to be similar in previous outbreaks.

The median age of the reported cases in the outbreak is 21 years (range: 3-85), with 48% of cases occurring in people between 17 and 25 years of age; about a quarter of these cases are current college students. Two-thirds of the Iowa cases have received two MMR vaccine doses; 80% of cases reported history of at least one MMR vaccination. Only 16% of cases could be linked epidemiologically, suggesting frequent unapparent transmission. Asymptomatic transmission also may play a significant role.

Table 1. Symptom Distribution

Symptom	% Affected
Parotitis	77%
Swelling of the submaxillary or sublingual glands	42%
Sore Throat	35%
Fever	33%
Headache	10%
Cough	10%
Orchitis	5%

Laboratory Investigation

Viral isolates have been identified as belonging to genotype G, the genotype responsible for a 56,930-case outbreak of mumps in the United Kingdom (UK) in 2005. A 31-case outbreak at a summer camp in New York was caused by the same serogroup, and was likely introduced into a summer camp by an unvaccinated counselor from the UK. Nineteen of the cases had reported receiving two doses of MMR vaccine.

Implications for Southern Nevada

Although cases of mumps have yet to be reported in the western United States, it is possible that southern Nevada residents could become exposed to mumps. Because of the long incubation, and infected persons' ability to unknowingly transmit disease prior to the onset of symptoms, local residents could be exposed to persons with the mumps by:

- Travel to the affected areas
- Contact with persons from the affected areas at other locations (e.g. on spring break or at national conferences)
- Contact with tourists who are incubating the disease upon arrival in Clark County

Nevada State Law requires that all children entering schools in Nevada, including universities, be vaccinated with two doses of MMR. The ability of the vaccine to protect against the outbreak strain of mumps is not understood, as two-thirds of the outbreak cases have had two doses of MMR.

Diagnosis and Laboratory Testing

With the decrease in mumps incidence in the United States, health-care providers have become less likely to suspect mumps in patients with parotitis. In the camp outbreak, although patients were evaluated by multiple health-care providers, including camp and hospital physicians, parotitis was not recognized as mumps until well into the outbreak.

Patients presenting with glandular swelling without other apparent cause should be tested for mumps, if suspected. Mumps should not be ruled out in someone who is vaccinated if they have symptoms clinically consistent with mumps.

Because a number of diseases can cause parotitis, laboratory identification of the illness is crucial to the proper diagnosis of mumps. Laboratory testing for mumps is through direct culture of the virus, or through testing of serum for mumps IgM antibody (see table 2 for testing availability at local laboratories). Viral culture is the preferred method, as it allows for the serogrouping of the virus. Although paired acute and convalescent serum IgG can be used to diagnose mumps, the convalescent serum must be drawn three weeks after the acute serum, delaying laboratory confirmation of mumps.

Reporting

Per Nevada Administrative Code 441A, all known or suspected cases of mumps should be reported to the Southern Nevada Health District Office of Epidemiology at (702) 759-1300, option #2. This number is available 24-hours, seven days a week. Feel free to contact the Office of Epidemiology if you would like additional information or have questions about mumps.

Table 2. Lab Testing for Mumps

LabCorp Test Name (Source)	Number
Mumps Viral Culture (Blood, CSF, CNS, urine, buccal mucosa)	008573
Mumps Ab IgM by EIA (serum)	160499

Quest Test Name (Source)	Number
Viral Culture (Blood, CSF, CNS, urine, buccal mucosa)	3500 *Must request mumps in comments
Mumps Ab IgM by immunofluorescence (serum)	13595

References

- Iowa Mumps Update. Iowa Department of Public Health. April 3, 2006. Available at: http://www.idph.state.ia.us/adper/cade.asp
- Media Reports http://news.google.com/news?&q=mumps
- Mumps Epidemic—Iowa, 2006. *MMWR* March 30, 2006. 55(Dispatch); 1-3. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm55d330a1.htm
- Mumps Outbreak at a Summer Camp—New York, 2005. *MMWR* February 24, 2006. 55(07); 175-177.