

MAINE PUBLIC HEALTH ALERT NETWORK SYSTEM



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****ADVISORY – Important Information****

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Mumps Outbreak in Maine

Summary

Since late September, Maine CDC has confirmed seven people with mumps in central and southern Maine, and is awaiting the results of laboratory testing on other patients with clinically-suspected illnesses. Confirmed patients reside in Cumberland, Androscoggin, Oxford, and Somerset Counties and range in age from late teens to late fifties. Mumps exposures at two acute care hospitals have resulted in serological testing for immunity and/or expedited vaccine boosting of a significant number of health care workers. Although no formal epidemiological link has been made, it is likely that these infections may be associated with an ongoing outbreak of mumps in New Brunswick and Nova Scotia. The epidemiology of recent outbreaks in North America, including the current situation in Canada, suggests that college and university students and health care workers should be priority populations for vaccination initiatives.

This Advisory includes new and strengthened immunization recommendations. In addition, clinicians are being asked to immediately report all cases of parotitis that is not clearly related to another etiology through Maine CDC's 24 hour toll-free reporting line. Maine CDC epidemiologists will provide detailed guidance on the collection and submission of diagnostic specimens to Maine CDC's Health and Environmental Testing Laboratory and on recommendations for any necessary school and work exclusions and other infection control measures.

Background on Mumps

Mumps is an acute viral infection of the salivary glands. Symptoms include fever, headache, muscle ache and swelling and tenderness of the salivary glands at the angle of the jaw (parotid glands). Prodromal symptoms of mumps are non-specific, and may include myalgia, anorexia, malaise, headache, and low-grade fever. Parotitis usually occurs within the first two days of the onset of illness and is seen in 30-40% of infected individuals. Parotitis can be unilateral or bilateral with any combination of single or multiple salivary glands being affected. Approximately one-third of infected individuals do not display parotid or salivary gland swelling, and sometimes mumps manifests itself only as a non-specific upper respiratory illness. Symptoms usually improve after a week, and tend to resolve within 10 days.

Mumps infection in adults is often more severe than in children, and most deaths, although rare, occur among adults. More than 50% of mumps infections cause cerebrospinal fluid pleocytosis, and 10-15% of persons with mumps present with symptomatic meningitis. Encephalitis is very rare. Orchitis is the most prevalent complication among adult males (20% -50%). Other mumps complications are oophoritis (5% of adult women), and rarely, pancreatitis, transient or permanent deafness, and myocarditis.

Transmission occurs through direct contact with respiratory droplets from the nose or throat of an acutely infected individual such as through coughing and sneezing, contact with saliva (sharing utensils, kissing, towels, etc.) or from contact with surfaces that have been contaminated with mumps virus. Persons with mumps infection are presumed to be infectious from 3 days before the onset of symptoms through 9 days after symptom onset. The incubation period after exposure is 16-18 days.

See the CDC "Pink Book" for additional clinical information on mumps:

<http://www.cdc.gov/vaccines/pubs/pinkbook/downloads/mumps.pdf>

Background on Recent Outbreaks

Since March of this year, Canada has been experiencing an outbreak of mumps. As of mid-November, over 900 confirmed cases had occurred in 13 provinces, with the outbreak activity centered in Nova Scotia and New Brunswick. Most cases in Canada have occurred in persons ages 17 – 37, many of whom are college or university students. http://www.phac-aspc.gc.ca/mumps-oreillons/prof_e.html

Likewise, in the United States, more than 2,500 persons became ill in 2006 during a multi-state outbreak of mumps that primarily affected young adults residing on college and university campuses in the Midwest, mostly in Iowa.

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5542a3.htm?s_cid=mm5542a3_e

Before Measles Mumps Rubella (MMR) vaccine was introduced in 1967, an average of 200,000 persons were reported with mumps every year in the United States, and 20 – 30 of those died annually. After the vaccine was introduced, the incidence plummeted to about 8,000 per year, and after a second dose of MMR was recommended for children in 1989, the incidence again declined. From 2001-2003, fewer than 300 total cases were reported, representing a 99% decline from pre-vaccine incidence. .

Although mumps vaccination is highly effective, no vaccine is 100% protective. A single dose of MMR is estimated to provide a protective efficacy of about 80%, while two MMR doses provide approximately a 90% efficacy. Factors that may have contributed to recent college and university outbreaks include the ease with which respiratory transmission can occur among persons living, studying, and socializing in close quarters; the high contagiousness of mumps; and the effect of waning immunity against mumps among students who were vaccinated only once in early childhood or at least 10 years before entering college.

Diagnosis

As noted above, mumps cases have been very infrequent in this country for the past several decades, and most clinicians have seen few, if any cases. Although parotitis may occur in fewer than one-half of all mumps cases and is not pathognomonic for mumps, it remains the most distinguishing feature of this disease. In the current epidemiological setting, clinicians should maintain a very high index of suspicion for mumps when they encounter people with parotitis, *even among persons who are over age 50, whose symptoms are mild, and/ or who have a history of receiving two doses of MMR vaccine.*

Laboratory testing of suspected mumps cases is critical, but obtaining evidence of infection can be problematic, ***especially when appropriate specimens are not obtained during the first 2-3 days of illness.*** The diagnosis of mumps in persons with suggestive clinical presentation can be confirmed through viral culture of stool or saliva, by identifying mumps IgM antibody in serum, or through polymerase chain reaction (PCR) testing of saliva to amplify mumps nucleic acid early in the acute illness. The Federal CDC is also evaluating newer diagnostic methods utilizing whole blood in tests of mumps cell-mediated immunity. Attempts to demonstrate rising IgG antibody titers may also be of some limited utility.

Maine CDC epidemiologists and microbiologists have been working closely with mumps specialists at the Federal CDC in recent weeks to find ways to expedite diagnostic testing and improve the sensitivity of testing procedures. We are requesting that clinicians who see patients with parotitis or otherwise suspected mumps to do the following:

1. Immediately report suspect cases by calling the Maine CDC 24-hour disease reporting line: **1-800-821-5821**.

2. The on-call epidemiologist will provide the reporting clinician or office staff professional with instructions on collection and submission of diagnostic specimens to the Maine CDC's Health and Environmental Testing Laboratory (HETL). HETL does not charge patients for performing these tests, although offices and hospitals must use their regular courier services to get the specimens to HETL. Desirable specimens may include:

- An oral swab (with a non-cotton tip) taken from the area around Stenson's duct (at the level of the lower molars) after a 30-second massage of the parotid area. This will be used for PCR testing and viral culturing for mumps virus.
- A single red-top tube for serum collection, to be used for IgM antibody testing.
- Collection of 20 - 40 cc of whole blood in green top tubes – if possible. This will be sent to federal CDC laboratories for cell-mediated immunity testing.
- A nasopharyngeal swab to test for alternative etiologies for parotitis by PCR and viral culture, including for parainfluenza, Epstein-Barr virus, adenovirus, and influenza virus.

We will not be requesting convalescent specimen collection at this time.

3. While clinicians may wish to continue sending diagnostic specimens for mumps IgM antibody to commercial laboratories, Maine CDC requests that specimens (per above) also be sent to the HETL so that this information is available for outbreak control purposes.

Again, testing should be done within the first few days after the onset of illness if at all possible.

Treatment

Treatment is supportive.

Isolation

All Settings:

- Patients with mumps are infectious for up to **nine days** after the onset of illness and should be excluded from social events, school or employment activities for that period of time.
- Because the incubation period may be as short as 12 days and as long as **25 days**, non-immune people exposed to mumps may need to out of school, work and other high-risk settings from the 12th through the 25th day after exposure. Epidemiologists can work directly with patient and their schools/employers on an individual basis.

Healthcare Setting: In addition to standard infection control precautions, droplet precautions are recommended for hospitalized mumps patients until nine days after onset of disease.

Prevention and Control of Mumps in Healthcare Settings: <http://www.cdc.gov/vaccines/vpd-vac/mumps/outbreak/control-hcw.htm>

Vaccine Recommendations

The MMR vaccine is given to protect against mumps.

See Vaccine Information Statement (VIS) for contraindications and other information on MMR: <http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-mmr.pdf>

In 2006, the Advisory Committee for Immunization Practices (ACIP) recommended key changes to the recommendations on mumps:

Acceptable Presumptive Evidence of Immunity

Documentation of adequate vaccination is now **2 doses** of a live mumps virus vaccine instead of 1 dose for school-aged children (i.e., grades K-12) or adults at high risk (i.e., persons who work in health-care facilities, international travelers, and students at post-high school educational institutions).

Routine Vaccination for Health-Care Workers

- Persons born during or after 1957 without other evidence of immunity: 2 doses of a live mumps virus vaccine.
- Persons born before 1957 without other evidence of immunity: 1 dose of a live mumps virus vaccine.

For Outbreak Settings

- Children aged 1 – 4 years and adults at low risk: if affected by the outbreak, consider a second dose of live mumps virus vaccine (such as MMR), with minimum interval between doses of 28 days.
- Healthcare workers born before 1957 without other evidence of immunity: strongly consider recommending 2 doses of live mumps virus vaccine (MMR).

Link to Updated ACIP Recommendations

http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5522a4.htm?s_cid=mm5522a4_e

Specific New Maine Vaccine Recommendations

In order to insure compliance with the above ACIP recommendations, especially in the context of the current outbreak of mumps, Maine CDC recommends the following:

K-12 Schools

- All vaccine records need to be reviewed and updated.
- Maine law requires vaccination of all school children with two doses of MMR. In outbreak situations in a school, unvaccinated children will be excluded.
- For those children who are not updated with their MMR vaccine, a letter should be given to the parents notifying them that Maine is currently experiencing an outbreak of mumps, and that if the infection is detected in their school their child will need to be excluded from school attendance for about 18 days. A sample letter will be available for use.

Maine K-12 School Immunization Requirements and School Exclusion Rules

<http://www.maine.gov/sos/cec/rules/10/144/144c261.doc>

Colleges and Universities

- All vaccine records need to be reviewed and updates.
- All college and university students should have documentation of **two doses** of MMR unless they are born before 1957, in which case they need documentation of one dose.
- Those students who are not updated should be notified of the outbreak in Maine and possible exclusion from school.
- Colleges and universities should consider a policy to insure that faculty and staff have adequate mumps vaccination (generally, 2 doses MMR if born during or after 1957 and 1

dose if born before 1957; or if an outbreak, 2 doses MMR for everyone – seek consultation from Maine CDC).

CDC and American College Health Association Strategies to Protect College Students

<http://www.cdc.gov/vaccines/vpd-vac/mumps/downloads/ACHAguidance-ltr.pdf>

Hospital Health Care Workers with Direct Patient Care

- All health care workers in hospitals who have direct patient contact should have their vaccine records reviewed and updated.
- Adequate mumps vaccination for those born during or after 1957 now consists of **two doses of MMR**, rather than the previous recommendation for one dose.
- Adequate mumps vaccination for those born before 1957 now consists of **one dose** of MMR, rather than no doses as previously recommended.
- If there is an outbreak of mumps in the area, a second dose of MMR should be considered for those born before 1957.

Prevention and Control of Mumps in Healthcare Settings

<http://www.cdc.gov/vaccines/vpd-vac/mumps/outbreak/control-hcw.htm>

State Assistance

For schools, colleges, universities, hospitals, and other settings impacted by these recommendations, the Maine CDC is working to provide some assistance. Some examples:

- Maine CDC professionals are available for consultation 24 hours per day (1-800-821-5821).
- We may be able to provide Public Health Nursing staff to assist with vaccine clinics.
- Free federally-funded MMR vaccine is available through Maine CDC for children under age 18.
- We are investigating if we can provide access to the government contract price for MMR vaccine (about \$18 per dose, versus \$45 per dose retail).
- Please call us if you are interested in these or other possible assistance.

Surveillance

Early detection and control of individual mumps cases could result in preventing an outbreak.

Please report a suspect case of mumps to the 24-hour disease reporting and consultation line at Maine CDC at 1-800-821-5821.

For More Information

Maine Mumps Page (clinical info, Q&A, lab testing, patient info, vaccine info, etc.)

<http://www.maine.gov/dhhs/boh/mumps.htm> or www.mainepublichealth.gov