



Date: April 12, 2016
To: CAHAN San Diego Participants
From: Public Health Services, Epidemiology Program

Update: Mumps in Colleges and Universities

This health advisory updates CAHAN participants that 13 mumps cases have been reported to date at the University of San Diego (USD) and that mumps outbreaks continue at schools across the United States. Information is also provided on the clinical presentation, laboratory testing, and reporting of mumps.

Background

Since an initial case of mumps was confirmed in late February in an undergraduate student at USD, twelve more cases have been identified on campus with the most recent case onset on April 4. Most of the ill students were fully immunized. The school community was offered free measles, mumps, and rubella (MMR) vaccinations at clinics on campus, with over 2,100 individuals receiving a [third MMR booster](#). Individuals exposed to the most recent cases may present with mumps symptoms through April 29, however if new cases occur, individuals exposed to them may present after this date.

Several high schools, universities and colleges across the country are currently experiencing mumps outbreaks including institutions in [Indiana](#), [Kentucky](#), [Montana](#), [New Hampshire](#), [North Carolina](#), [North Dakota](#), and [Massachusetts](#). Over 560 mumps cases have been reported in an ongoing outbreak involving several schools in [Illinois](#), and over 580 cases have been reported since July 1, 2015 in [Iowa](#). The Spring Break season may have an impact on further and wider transmission.

Mumps Epidemiology and Clinical Symptoms

Mumps virus is spread through infected respiratory tract secretions. It can be spread within three to six feet when an infected person coughs or sneezes, or with direct contact with infected secretions (e.g., sharing water bottles). The incubation period is typically 16 to 18 days but can range from 12 to 25 days. The disease is seasonal, with more cases noted in the late winter and early spring.

Parotitis is the most common symptom (30-65%), but non-specific symptoms such as myalgia, anorexia, malaise, headache, and low-grade fever may precede the parotitis by several days. Before vaccine was in use, 15-30% of infections were asymptomatic. Mumps is usually a mild illness, but there can be complications. Orchitis is a common complication and may occur in as many as 50% of postpubertal males.

Central nervous system (CNS) involvement is also common, but fewer than 10% have symptoms of CNS infection. Other rare complications include arthritis, mastitis, glomerulonephritis, myocarditis, endocardial fibroelastosis, thrombocytopenia, cerebellar ataxia, transverse myelitis, ascending polyradiculitis, pancreatitis, oophoritis, and hearing impairment.

People are considered infectious from two days before symptoms begin until five days after the onset of parotid swelling. Therefore, those suspected of mumps should be isolated and should refrain from public activities for five days after the onset of swelling.

[Mumps vaccine](#) is highly effective in preventing mumps. One dose is 78% effective, and two doses are 88% effective. Protection appears to be long lasting; however immunity may wane and mumps cases do occur in vaccinated individuals. Individuals with one dose of MMR should receive a second dose of MMR, and those with two doses of MMR may benefit from a [third booster shot during outbreaks](#). Neither mumps vaccine nor immune globulin (IG) is effective for mumps post exposure prophylaxis; a third MMR booster is intended to protect from future exposures during an outbreak.

More information is available at the Centers for Disease Control and Prevention (CDC) [mumps website](#) and the California Department of Public Health (CDPH) [mumps website](#), which has an updated [mumps investigation quicksheet](#).

Diagnosis

Mumps virus is the only cause of epidemic parotitis. Parotitis – especially sporadic cases – [may be due to viruses other than mumps](#): Epstein-Barr virus, human herpesvirus B6, cytomegalovirus, parainfluenza virus types 1 and 3, influenza A virus, coxsackieviruses and other enteroviruses, lymphocytic choriomeningitis virus, and human immunodeficiency virus. Bacterial causes of parotitis include *Staphylococcus aureus* and nontuberculous *Mycobacterium*.

The preferred method for confirming acute mumps infection is detection of virus from a buccal specimen by PCR. Collection of a buccal specimen within 1 to 3 days of parotitis onset is optimal; however, virus may be detected for up to 9 days after parotitis onset. The parotid gland area (the space between the cheek and the teeth just below the ear) should be massaged for about 30 seconds prior to obtaining the specimen. Detailed specimen collection guidance is available at the [CDPH mumps website](#).

Acute mumps infection may also be laboratory confirmed by the presence of serum mumps IgM, a significant rise in IgG antibody titer in acute- and convalescent-phase serum specimens, or positive mumps virus culture. However, mumps IgM response may be attenuated or absent in vaccinated persons, making serologic confirmation difficult. In addition, studies have shown that individuals with detectable mumps IgG titers have still developed mumps infection. Serum for IgM testing should not be obtained earlier than three days after the onset of parotitis.

Actions Requested of Healthcare Providers

- **Consider a diagnosis of mumps** in anyone (especially college students and international travelers) presenting with typical symptoms of mumps, regardless of vaccination history. Consider mumps in the differential diagnosis of orchitis, meningitis, encephalitis, pancreatitis, and other potential presentations of the disease in individuals who are in an outbreak setting such as USD, regardless of the presence of parotitis.
- **Use droplet and standard precautions** when caring for suspect or confirmed cases and verify that healthcare workers likely to encounter these patients are up-to-date on immunizations or have documented immunity.
- **Obtain appropriate clinical specimens.** For acutely ill patients who have been previously vaccinated, or who are part of an outbreak, a buccal swab for PCR testing is preferred. Care should be used to [collect the specimen properly](#).
- **Isolate suspect and confirmed mumps cases** and instruct them not return to school, work, or other public places until five days after the onset of parotitis. Exposed healthcare providers, without presumptive evidence of immunity, will need to be excluded from work.
- **Report suspected cases before obtaining confirmatory lab results** by calling the Epidemiology Program at **619-692-8499** during business hours Monday through Friday, or **858-565-5255** after-hours on evenings & weekends.
- **Vaccinate** patients with MMR according to the CDC recommended schedules [for children](#) and [adults](#), including “catch-up” vaccination for those who are not up-to-date. Provide a third booster MMR when indicated for those who are in an outbreak setting, such as USD.

CAHAN San Diego

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