

Control of Mumps in Healthcare Settings

Oregon State Public Health Guidance

January 9, 2007

Preventing transmission of mumps in healthcare settings consists of the following:

- Assessing the immune status of those who work in healthcare settings and vaccinating those without it.
- Suspecting mumps in patients and healthcare workers with the appropriate symptoms and exposure histories
- Reporting cases to the local health department
- Collection of appropriate diagnostic specimens from persons with suspected mumps
- Isolation of patients in whom mumps is suspected
- Isolation (exclusion from work) of employees with mumps for 5 days after the onset of symptoms
- Quarantine (exclusion from work) of employees without evidence of immunity, who are exposed to confirmed or presumptive mumps from the 12th day after the first exposure through the 25th day after the last exposure
- Case follow-up

These preventive measures are discussed in more detail below.

Assessing immune status

The following are considered evidence of immunity to mumps for healthcare workers.

- **In non-outbreak settings**
 - Documented physician-diagnosed mumps
 - Serologic evidence of immunity
 - Documented receipt of
 - 1 dose of mumps vaccine if born before 1957
 - two doses of mumps vaccine if born during or after 1957
- **During an outbreak** (determination of which would be made by public-health officials)
 - Documented physician-diagnosed mumps
 - Serologic evidence of immunity
 - Documented receipt of two doses of mumps vaccine regardless of birth date.

Suspecting mumps

In general, mumps should be suspected in any patient with

- unexplained parotitis lasting >2 days; or
- unexplained fever and a history of contact with a mumps case within an incubation period (14–25 days) before onset.

The **prodromal** symptoms are nonspecific and include myalgia, anorexia, malaise, headache, and low-grade fever.

Parotitis is the most common manifestation and occurs in 30%–40% of infected persons. Parotitis may be unilateral or bilateral, and any combination of single or multiple salivary glands may be affected. Parotitis tends to occur within the first 2 days and may present as an earache and tenderness on palpation of the angle of the jaw. Symptoms tend to decrease after 1 week and usually resolve after 10 days.

Note: Swelling of the salivary glands can also be caused by infection with cytomegalovirus, parainfluenza virus types 1 and 3, influenza A, Coxsackie A, echovirus, lymphocytic choriomeningitis virus, HIV, and non-infectious causes such as drugs, tumors, immunologic diseases, and obstruction of the salivary duct.

Fever when present may persist for 3–4 days.

As many as 20% of mumps infections are asymptomatic and, as a result, the diagnosis is easily missed. An additional 40%–50% may have only nonspecific or primarily respiratory symptoms.

Reporting cases

- Notify the local health department for the jurisdiction wherein the suspected case resides. Report the usual demographic and clinical information, as well as how to contact the suspected case.
- Obtain specimens from the patient.

Laboratory testing

Because there are many causes of fever and parotitis other than mumps, attempts should be made to confirm suspected mumps through laboratory testing. Obtain specimens as soon as possible after symptom onset.

Currently OSPHL performs no test for mumps, but both IgM and IgG antibodies assays are available commercially. Acute serum samples should be collected within 5 days of onset; with convalescent 2–5 weeks after that.

As with measles and rubella, elevated mumps IgM levels may be transient or absent in persons who have had any doses of mumps-containing vaccine. Experience suggests that IgM assays from persons with acute infections may be negative in up to 50% of previously immunized individuals (i.e., a negative IgM does not rule out infection in a vaccinated person).

In contrast, IgG levels in previously vaccinated individuals may rise rapidly after exposure or infection. By the time an “acute” sample is collected, IgG levels may already be sky high, often making it difficult to detect a 4-fold rise in a convalescent specimen.

Isolation & Quarantine

- **Patient isolation.** Patients should be placed on droplet precautions for the duration of their hospitalization. Droplet precautions should be maintained for 5 days after onset of symptoms.
- **If an employee or healthcare worker develops a suspected case of mumps**
 - Exclude the person from work until 5 days after the onset of symptoms.
 - Patients known to have been cared for by a healthcare worker with a confirmed or presumptive (i.e., a compatible illness, along with an epidemiological link to another case) case of mumps during the communicable period (from 3 days before until 5 days after onset of symptoms) should be notified. This will not prevent illness in such patients, because vaccination after exposure is not effective; however, it will enable the patients to isolate themselves promptly should they develop symptoms.
 - Patients known to have been cared for by a healthcare worker with *suspected* mumps need not be notified while confirmatory tests are pending.
 - We are not currently recommending notification of patients or other non-workers “exposed” in a healthcare setting to suspected mumps cases among employees who were not providing direct patient care.
- **Healthcare workers without evidence of immunity who have had unprotected exposures to mumps** (defined as being within three feet of a patient with mumps without the use of a surgical mask)
 - Exposed healthcare workers with no documentation of mumps vaccination should be excluded from work during the 12th through the 25th day after exposure. Meanwhile, attempts should be made to vaccinate the healthcare worker.
 - Exposed healthcare workers with documentation of a single dose of mumps vaccine may work following an exposure to mumps, but they should be given a second dose as soon as possible, but no sooner than 28 days after the first.
- **Healthcare workers with evidence of immunity** do not need to be excluded from work following an unprotected exposure. However, because 1 dose of MMR vaccine is about 80% effective in preventing mumps and 2 doses are about 90% effective, some vaccinated personnel may contract mumps. Therefore, healthcare workers should be educated about symptoms of mumps, including non-specific presentations, and should notify employee health if they develop these symptoms.

Prevention of spread

Good personal hygiene (which consists of proper hand hygiene, disposal of used tissues, not sharing eating utensils, etc.) is also important.

Case follow-up

Public health staff will contact the case (and probably the case’s healthcare provider as well) and collect information about symptoms, laboratory tests, mumps

immunization history, recent history of travel, and whether there was any recent contact with anyone with similar symptoms.