

Prevention & Control of Mumps in Healthcare Settings

Background

Mumps transmission has occurred in past outbreaks involving hospitals and long-term care facilities housing adolescents and young adults. Mumps is transmitted by contact with virus-containing respiratory secretions, including saliva; the portals of entry are the nose and mouth. The incubation period varies from 12 to 25 days and is usually 16 to 18 days. In unvaccinated persons, unilateral or bilateral parotitis occurs in approximately half of patients infected with mumps; 15-20% are asymptomatic and the remainder have nonspecific, flu-like symptoms without parotitis. Although the virus has been isolated from saliva from 2 to 7 days before parotitis and may persist for as long as 9 days after onset of disease, the infectious period is considered to be from 3 days before to 9 days after symptom onset. The risk of transmission from infected individuals who are asymptomatic or have non-specific respiratory symptoms is not known.

Preventing transmission of mumps in healthcare settings consists of four major components: 1) assessment of evidence of immunity of healthcare workers, including: a documentation of physician-diagnosed mumps, laboratory evidence of immunity, birth before 1957 or appropriate vaccination history 2) vaccination of those without evidence of immunity, 3) exclusion of healthcare workers with active mumps illness as well as non-immune healthcare workers who are exposed to confirmed, probable or suspected mumps patients, and 4) isolation of patients in whom mumps is suspected.

Although birth before 1957 is generally considered proof of immunity, during outbreaks, this criterion should not be used as proof of immunity for healthcare workers. During outbreaks, all healthcare workers should be asked to demonstrate immunity based documentation of physician-diagnosed mumps, vaccination or serologic evidence of immunity. Because outbreaks of mumps cannot be anticipated, healthcare facilities may choose to proactively assess the immunity of healthcare workers born before 1957 and recommend serologic testing for immunity or vaccination to those without documentation of physician-diagnosed mumps.

Healthcare worker immune-status assessment:

Prevention and control strategies should be applied in all healthcare settings where patient care occurs, including outpatient and long-term care facilities. An effective vaccination program is the best approach to prevent healthcare-associated mumps transmission. Healthcare facilities are encouraged to review employee immunization status for this and other vaccine preventable infections. Vaccination with MMR vaccine is recommended unless otherwise contraindicated for all healthcare workers for whom immune status cannot be documented. Receipt of MMR vaccine is not a reason to exclude personnel from work. Ideally, healthcare facilities should provide MMR vaccine at no charge to all eligible employees involved in direct patient care.

The immune status of personnel should be determined by either of the following criteria:

- Documentation of physician-diagnosed mumps
- Documentation of mumps vaccination (mumps or MMR vaccines)
 - Current recommendations state that healthcare personnel should receive one dose of mumps vaccine and 2 doses of measles containing vaccine preferentially administered as MMR vaccine. During an outbreak of mumps, health care facilities should ensure that health care personnel have received two doses of mumps vaccine.

Serologic evidence of immunity (i.e., positive mumps IgG):

- Though there is no data that correlates levels of serum antibody with protection from disease, in unvaccinated persons or persons with a history of mumps disease, presence of mumps specific antibodies should be considered evidence of natural infection and immunity. However, documentation of physician diagnosed mumps is considered reliable proof of immunity and antibody testing of such individuals is not recommended. Serologic testing may be helpful in assessing the true immune status healthcare workers with a reported history of mumps, but without documentation of the diagnosis.
- Results of serum antibody tests in vaccinated persons are difficult to interpret. In vaccinated persons, antibody levels are often lower than following natural infection, and commercially available tests may not detect such low levels of antibody. As a result, post-vaccination serologic testing to verify an immune response to MMR or its component vaccines is not recommended. There are no data on the impact of additional (greater than two) doses of mumps vaccine on antibody levels or protection from disease.

Healthcare worker exclusion:

Exclude healthcare workers with active mumps illness; and those who are non-immune and have been exposed to mumps. Exposure is defined as being within three feet of a patient with a diagnosis of mumps. Irrespective of their immune status, all exposed healthcare workers should report any signs or symptoms of illness during the incubation period, 12-25 days after exposure.

Management of healthcare workers with illness due to mumps:

- A diagnosis of mumps should be considered in exposed healthcare workers who develop non-specific respiratory infection symptoms during the incubation period after exposure to mumps, even in the absence of parotitis.
- Healthcare workers with mumps illness should be excluded until 9 days after the onset of parotitis.

Management of healthcare personnel who are exposed to patients with mumps

For healthcare personnel who are non-immune

- Non-immune personnel should be excluded from the 12th day after the first exposure to mumps through the 26th day after the last exposure. The mumps vaccine cannot be used as post-exposure therapy. Hence, previously unvaccinated healthcare personnel who receive a 1st dose of vaccine after an exposure are considered non-immune and must be excluded from the 12th day after the first exposure to mumps through the 26th day after the last exposure.

For healthcare personnel who are immune

- Healthcare workers with any of the following are considered immune to mumps: history of physician diagnosed mumps, past receipt of at least one dose of mumps vaccine or positive mumps IgG.
- Those personnel who had been previously vaccinated for mumps, but received only one dose of mumps vaccine may continue working following an exposure to mumps. Such workers should receive a 2nd dose as soon as possible, but no sooner than 28 days after the first.
- Healthcare personnel who are immune do not need to be excluded from work following an exposure. However, health care workers should be educated about symptoms of mumps, including non-specific presentations, and should notify employee health if they develop these symptoms. Because 1 dose of MMR vaccine is about 80% effective in preventing mumps and 2 doses is about 90% effective, vaccinated personnel remain at risk for infection.

Patient isolation:

- In addition to standard precautions, patients with clinical signs and symptoms of mumps illness should be cared for using droplet precautions (http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html)
- Droplet precautions should be maintained for 9 days after onset of parotitis.