

Mumps - 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 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 asymptotically infected 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 maximum infectious period is considered to be from 3 days before to 5 days after symptom onset. While transmission of mumps in healthcare settings has been rarely reported, during community outbreaks, unprotected exposure of healthcare workers to mumps is common, both in outpatient settings and in the community. These exposures can have a significant impact on healthcare resources, in that exclusion of non-immune exposed healthcare workers can be for as long as 26 days.

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 persons with mumps, and
4. Isolation of patients in whom mumps is suspected.

Healthcare Worker Vaccination

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 mumps and other vaccine preventable infections.

Persons born during or after 1957: Adequate mumps vaccination for healthcare workers born during or after 1957 consists of 2 doses of a live mumps virus vaccine. Healthcare workers with no history of mumps vaccination and no other evidence of immunity should receive 2 doses (at a minimum interval of 28 days between doses). Healthcare workers who have received only 1 dose previously should receive a second dose.

Persons born before 1957: Because birth before 1957 is only presumptive evidence of immunity, healthcare facilities should consider recommending at least 1 dose of a live mumps virus vaccine for unvaccinated workers born before 1957 who do not have physician-diagnosed mumps or laboratory evidence of mumps immunity. In addition, during a mumps outbreak,

healthcare facilities should strongly consider recommending 2 doses of a live mumps virus vaccine to unvaccinated healthcare personnel born before 1957 who do not have evidence of mumps immunity. Facilities should plan in advance the logistics required to implement this 2-dose recommendation and may choose to proceed with appropriate assessment and vaccination before an outbreak occurs.

Receipt of MMR or mumps 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.

Healthcare Worker Acceptable Presumptive Evidence of Immunity

The following criteria should be followed to assess evidence of immunity among healthcare workers:

- Documentation of physician-diagnosed mumps
- Documentation of mumps vaccination (mumps or MMR vaccines)- see above
- Serologic evidence of immunity (i.e., positive mumps IgG):
 - Though there are no data that correlate levels of serum antibody with protection from disease, presence of mumps specific IgG antibodies can be considered evidence of mumps immunity. However, documentation of physician diagnosed mumps is considered reliable proof of immunity and antibody testing of such individuals is not recommended. Routine serologic testing is not recommended for healthcare personnel but may be useful for evaluating personnel who have had unprotected exposure to mumps who do not have other proof of immunity. If serology is to be used to assess the immune status of a healthcare worker after an unprotected exposure, the test should be done as soon after the exposure as possible,
 - 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 effect 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 had unprotected exposures to mumps. Unprotected exposures are defined as being within three feet of a patient with a diagnosis of mumps without the use of proper personal protective equipment (surgical mask). Irrespective of their immune status, all exposed healthcare workers should report any signs or symptoms of illness during the incubation period, from 12 until 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 unprotected exposures 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 persons with mumps:

For healthcare personnel who do not have acceptable presumptive evidence of immunity

- Non-immune personnel should be excluded from the 9th day after the first unprotected exposure to mumps through the 26th day after the last exposure. The mumps vaccine cannot be used to prevent the development of mumps after exposure. 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 9th day after the first exposure to mumps through the 26th day after the last exposure.

For healthcare personnel with partial vaccination

- Those personnel who had been previously vaccinated for mumps, but received only one dose of mumps vaccine may continue working following an unprotected exposure to mumps. Such workers should receive a 2nd dose as soon as possible, but no sooner than 28 days after the first. They should be educated about symptoms of mumps, including non-specific presentations, and should notify occupational health if they develop these symptoms.

For healthcare personnel who are immune

- Healthcare personnel who are immune 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 is about 90% effective, some vaccinated personnel may remain at risk for infection. Therefore, healthcare workers should be educated about symptoms of mumps, including non-specific presentations, and should notify occupational health if they develop these symptoms.

Patient Isolation

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

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