



North Carolina Department of Health and Human Services
Division of Public Health

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To: North Carolina Clinicians
From: Megan Davies, MD, State Epidemiologist

Subject: **Mumps Update (2 pages)**

The North Carolina Division of Public Health is working with local health departments to investigate and control an outbreak of mumps in the Charlotte region. This memo is intended to summarize information regarding mumps diagnosis, management and prevention and to encourage clinicians to promptly report suspected mumps cases.

Recent activity

As of March 7, 15 cases had been identified among persons in the Charlotte region with parotitis onset dates ranging from January 10–February 29, 2016. Mumps cases were first reported among employees at a large home improvement corporate office in Iredell County. More recent cases have been identified among persons with no known link to this office or to previously reported cases, including two students at a university in Mecklenburg County. Mumps outbreaks have also been recently reported among students at colleges and universities in several other states, including cases among vaccinated students.

Clinical features

Mumps usually involves pain, tenderness, and swelling in one or both parotid salivary glands (cheek and jaw area). Parotitis lasts at least 2 days, but may persist longer than 10 days. Other salivary glands (submandibular and sublingual) under the floor of the mouth also may swell but do so less frequently. Complications can include orchitis, oophoritis and mastitis. Other rare complications include pancreatitis, deafness, meningitis, and encephalitis.

Parotitis is most often confused with swelling of the lymph nodes of the neck. Lymph node swelling can be differentiated by the well-defined borders of the lymph nodes, their location behind the angle of the jawbone, and lack of the ear protrusion or obscuring of the angle of the jaw, which are characteristic of parotitis.

Nonspecific prodromal symptoms may precede parotitis by several days, including low-grade fever, myalgia, anorexia, malaise, and headache. Mumps infection may present only with nonspecific or primarily respiratory symptoms, or may be asymptomatic.

Epidemiologic features

The mumps virus is spread through direct contact with respiratory secretions or saliva or through fomites. The risk of spreading the virus increases the longer and the closer the contact a person has with someone who has mumps. The average incubation period for mumps is 16 to 18 days, with a range of 12–25 days. People with mumps are considered most infectious from two days before through five days after the onset of parotitis.

By 2005, high two-dose childhood vaccination coverage had reduced disease rates by 99% compared with the pre-vaccine era. Less than 10 mumps cases per year were reported in North Carolina during 2011–2015.

Diagnosis

In general, mumps is an uncommon cause of sporadic parotitis in the United States. More common causes include infections with other viruses (e.g. Epstein-Barr virus) or bacteria (e.g. Staphylococcus or Streptococcus species). Factors that should increase suspicion for mumps include international travel during the 25 days before

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parotitis onset; lack of prior vaccination with the measles, mumps, rubella (MMR) vaccine; and contact with other persons with similar symptoms. The index of suspicion should also be higher during outbreaks and periods of increased mumps virus circulation.

The preferred mumps tests are RT-PCR and viral culture performed on a swab of the mouth near the affected gland, collected no later than 8 days after beginning of parotitis/swelling. These tests are available through the State Laboratory of Public Health (SLPH) *with prior approval* or through commercial or hospital-based laboratories. To request approval for mumps testing at SLPH, contact the Communicable Disease Branch epidemiologist on call (919-733-3419) or your local health department.

Clinicians can also use serologic tests to diagnose mumps. However, these results can be difficult to interpret, particularly if the person is vaccinated.

Failure to detect mumps by laboratory testing does NOT rule out mumps as a diagnosis. The likelihood of detecting mumps is dependent on the timing of collection and quality of the clinical sample.

Management

When a person is ill with mumps, he or she should avoid contact with others from the time of diagnosis until at least 5 days after the onset of parotitis by staying home from work or school and staying in a separate room if possible. No specific treatment is available.

Prevention

Vaccination is the best way to prevent mumps. Two doses of MMR vaccine are approximately 88% effective at preventing the disease; one dose is approximately 78% effective.

MMR vaccine should be administered to persons without evidence of immunity and everyone should be brought up to date with age appropriate vaccination (one or two doses). Although MMR vaccination has not been shown to be effective in preventing mumps in persons already infected, it will prevent infection in those persons who are not yet exposed or infected. Those born before or during 1957 are considered immune based on likely exposure during childhood.

It is important to recognize that mumps can occur in vaccinated people. During mumps outbreaks in highly vaccinated communities, the proportion of cases that occur among people who have been vaccinated may be high. This should not be interpreted as meaning that the vaccine is not effective; people who have not been vaccinated against mumps usually have a much greater attack rate than those who have been fully vaccinated.

Clinicians should ensure that all healthcare personnel in their offices have presumptive evidence of immunity. Healthcare personnel who lack evidence of immunity and have had unprotected exposures to mumps (i.e., being within three feet of a patient with a diagnosis of mumps without the use of proper personal protective equipment) will face exclusion from work from the 12th day after the first unprotected exposure through the 25th day after the last exposure. Presumptive evidence of immunity for healthcare personnel is defined as:

- Written documentation of vaccination with two doses of MMR vaccine administered at least 28 days apart;
- Laboratory evidence of immunity;
- Laboratory confirmation of disease; or
- Birth before 1957.

Surveillance and reporting

Physicians in North Carolina are required to report suspected mumps cases to public health so that appropriate control measures can be applied. To report suspected mumps cases, contact the Communicable Disease Branch epidemiologist on call (919-733-3419) or your local health department.

Additional information is available at www.cdc.gov/mumps/ and <http://epi.publichealth.nc.gov/cd/diseases/mumps.html>.