To: CAHAN San Diego Participants
Date: March 15, 2019
From: Immunization Program, Public Health Services

Mumps and Acute Parotitis Cases Increase in San Diego

This health advisory informs CAHAN participants that mumps may be circulating in San Diego County and contributing to an increase in acute parotitis cases seen at local emergency departments (EDs). Information is also provided on the clinical presentation, laboratory testing, and reporting of mumps.

Key Messages

- To date in 2019, five unrelated mumps cases have been reported in San Diego residents. Two patients had not travelled outside the county, indicating local mumps exposures are occurring.
- Local EDs have treated an increased number of acute parotitis cases in 2019. Some of these cases may be undiagnosed mumps.
- Patients with acute parotitis should have travel and sexual histories obtained, and viral causes should be considered, including mumps, influenza, and HIV.
- Mumps should be considered when individuals present with parotitis, other salivary gland swelling, orchitis, and aseptic meningitis, even when patients have been fully vaccinated.
- Polymerase chain reaction (PCR) testing of a properly collected buccal swab is preferred for mumps diagnosis in acute parotitis. The mumps PCR test is performed in some commercial labs and in the San Diego County Public Health Laboratory (SDCPHL).
- Providers are requested to promptly report any suspected mumps case to the County Immunization Program by calling 866-358-2966 (after hours call 858-565-5255).
- Mumps is endemic in many countries. Outbreaks are ongoing in Honduras and parts of Mexico. Anyone ≥6 months of age planning to go abroad should have age appropriate immunization with measles, mumps, and rubella (MMR) or evidence of immunity before travel.

Situation

To date in 2019, five San Diego County residents have been reported with mumps. Two cases went abroad within three weeks of symptom onset: a 26-year-old who traveled to China, and a 28-year-old who traveled to India. Two cases (a 2-year-old and a 62-year-old) had no travel outside the county. The fifth case was a 19-year-old with an unknown travel history. The infant was known to be up-to-date on MMR vaccination, but no adult was known to have more than one MMR shot. There are no epidemiologic links between any of the cases.

The cases without travel indicate that some local exposure to mumps is occurring, but the extent of possible circulation of the virus in the county is unknown. The travelers who did not have two documented MMR vaccinations prior to going abroad represent missed opportunities for prevention.

Syndromic surveillance of 12 local EDs indicates that, to date in 2019, 23 individuals presented with acute parotitis in the county. This compares to only two cases presenting in these EDs at this same point in 2018. Review of available charts indicates that testing for potential viral causes was rarely performed, with most patients being discharged with antibiotics to treat presumed bacterial causes. Some of these patients had histories compatible with viral causes, and some may have had undiagnosed mumps. No local surveillance information is available in settings where most patients with acute parotitis are likely to present (primary, urgent or dental care providers).

Mumps is important to identify to prevent potential outbreaks. Other viral causes of parotitis (notably HIV and influenza) are also important to identify for treatment and prevention.

As of February 28, 2019, 151 mumps cases have been reported this year to the Centers for Disease Control and Prevention (CDC). Mumps outbreaks are occurring among various facilities in the United States that house migrants detained by Immigration and Customs Enforcement (ICE) (examples here and here). Outbreaks are occurring in various regions of the country, including outbreaks recently identified at Temple University in Pennsylvania and the Indiana University Bloomington. The figure on the last page of this advisory displays mumps cases reported in San Diego County residents from 1993 to date.

Mumps Epidemiology and Clinical Symptoms

Mumps virus is spread through infected respiratory tract secretions. It can be spread via droplets within three 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, especially among adults. Orchitis is a common complication and may occur in as many as 20% of unvaccinated 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 polyradiculititis, 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. Even though vaccine use has drastically reduced mumps cases, outbreaks still occur. Outbreaks have most commonly occurred among groups of people who have prolonged, close contact, such as sharing water bottles or cups, kissing, practicing sports together, or living in close quarters, with a person who has mumps. Some vaccinated people may still get mumps if they are exposed to the virus. However, disease symptoms are milder in vaccinated people.

Travel histories are important in determining risk for mumps. The disease is endemic in many countries, and large outbreaks have been reported in Europe, Asia, Africa and the Pacific over the years. Outbreaks declared in 2018 in Honduras and Mexico are ongoing. In August 2018, Orange County reported an increase in mumps cases in young adults, some of which were travel-related. In June 2017, Los Angeles County reported an outbreak of mumps in men who have sex with men (MSM).

Mumps vaccine is 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. Disease symptoms are milder and complications are less frequent in vaccinated people. Also, high vaccination coverage helps to limit the size, duration, and spread of mumps outbreaks.

The Advisory Committee on Immunization Practices (ACIP) recommends that before traveling internationally, people should be protected against measles, mumps and rubella. Before departure from the United States, children aged 6 through 11 months should receive one dose of MMR vaccine. Children aged ≥12 months and adults should receive two doses of MMR vaccine separated by at least 28 days, with the first dose administered at age ≥12 months.

Mumps 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 (especially H3N2), coxsackieviruses and other enteroviruses, lymphocytic choriomeningitis virus, and human immunodeficiency virus (HIV). Bacterial causes of parotitis include *Staphylococcus aureus* and nontuberculous *Mycobacterium*.

The preferred method for confirming mumps infection in acute parotitis 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. Specimens should be collected at Wharton's duct (under the tongue) if the submandibular or sublingual salivary glands are involved.

Serology is not used to confirm mumps, but may aid in diagnosis. Mumps IgG tests are not recommended, but mumps IgM may be collected three days after parotitis onset. Mumps IgM response may be attenuated or absent in vaccinated persons. A useful job aid for mumps testing is located here.

Recommendations for Providers

- **Obtain vaccination, travel, and sexual histories in all patients with acute parotitis.**
    - Consider the diagnosis of mumps regardless of vaccination status. Immunity from the mumps portion of the MMR vaccine decreases over time.
    - Suspicion for mumps should increase in international travelers, college students, or patients with travel in the prior three weeks to locations with known outbreaks.
    - **Test for HIV in sexually active patients** who are not aware of their status. HIV infection is associated with various parotid disorders.

- **Obtain a buccal swab for PCR testing to evaluate for mumps in acute parotitis patients**.
    - Testing is particularly important when ill individuals are in a school, congregate living facility, or work site, or when they participate in large social gatherings.
    - Care should be used to collect the specimen properly.
    - A useful video on specimen collection is located here.
    - Mumps IgM testing may be useful in selected circumstances as noted here.
    - PCR tests are performed at some commercial laboratories; however, testing is also available at no cost at SDCPHL after approval by the County Immunization Program.
    - Questions about proper specimen collection, storage, and transportation may be directed to SDCPHL by calling 619-692-8500 (press 1 at the prompt) or via email.

- **Test for influenza in patients with acute parotitis and respiratory symptoms.**
    - Influenza A, especially H3N2, has been associated with acute parotitis.
    - The best way to test for influenza is a nasopharyngeal swab.
    - A buccal swab should not be used for influenza testing.

- **Consider mumps in the differential diagnosis** in anyone (especially college students and international travelers) presenting with symptoms of mumps without parotitis, including acute orchitis or oophoritis, pancreatitis, aseptic meningitis, mastitis, and sudden hearing loss.

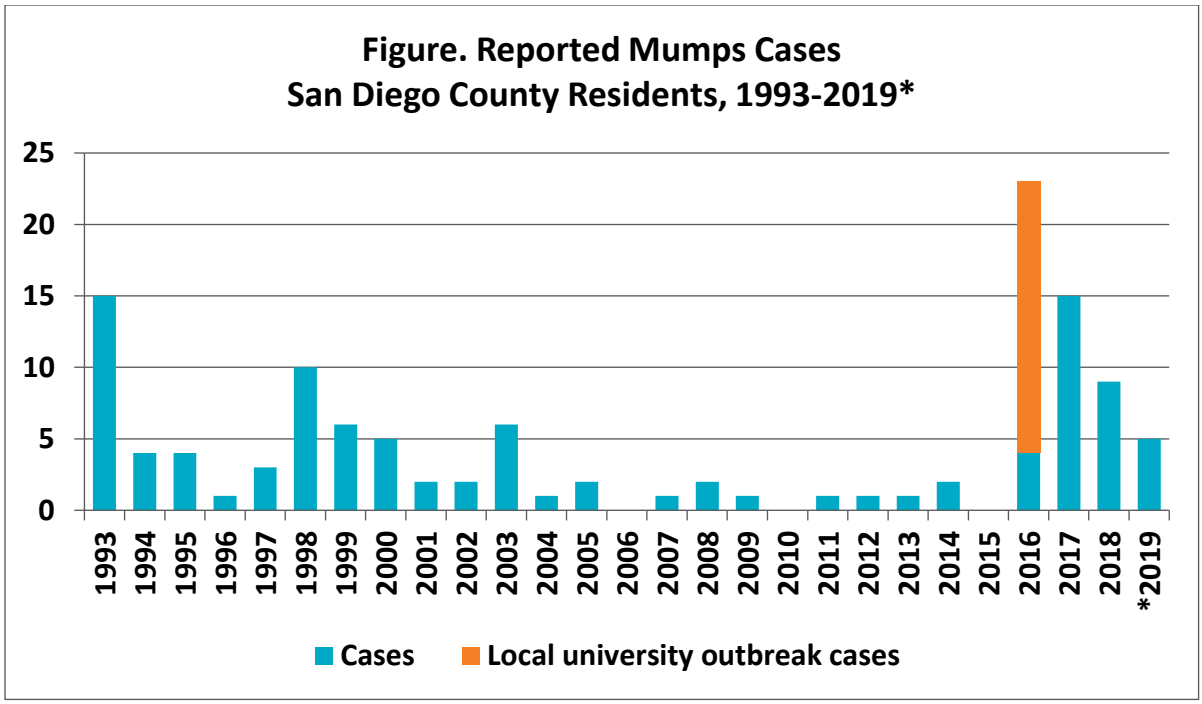
- **Use droplet and standard precautions when caring for suspected or confirmed mumps cases.**
    - Verify that healthcare workers likely to encounter these patients are up-to-date on MMR immunizations or have documented mumps immunity.

- **Isolate suspected and confirmed mumps cases.**
    - Instruct patients not to 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 mumps cases before obtaining confirmatory lab results.**
    - Contact the County Immunization Program at 866-358-2966 (press 5 at the prompt) during business hours Monday through Friday or via the answering service at 858-565-5255 after hours on evenings, weekend and County-observed holidays (ask for the Epidemiology Duty Officer).
    - This will facilitate time-sensitive public health actions and assist with clinical decision making and lab testing.

- **Vaccinate patients with MMR according to ACIP recommended schedules** for children and adults, including "catch-up" vaccination for those who are not up-to-date. Inform persons planning to go abroad about the need to have immunity to measles, mumps and rubella prior to travel. See ACIP recommendations and the CDC Travelers' Health website.

More information is available at the CDC mumps website and the California Department of Public Health (CDPH) mumps website, which has an updated mumps investigation quicksheet.



*2019 data are year to date. Prepared by the County of San Diego, Health & Human Services Agency, Public Health Services, Epidemiology & Immunization Services Branch, 3/8/19.

Thank you for your participation.

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