

Measles, Mumps and Rubella – November 2002

By Brian Labus, MPH

The Clark County Health District Office of Epidemiology (OOE) frequently receives reports from parents and school nurses of clinically diagnosed cases of measles, mumps and rubella. Nevada Administrative Code requires the OOE to investigate each one of these cases to determine the source of the infection, contacts, and if necessary, exclude children from school. A diagnosis of measles, mumps or rubella requires that a child be excluded for five, nine or seven days respectively. Any unvaccinated children attending the same school as a measles or rubella case must be excluded for at least fourteen days.

Most of these investigations do not result in the confirmation of the clinical diagnosis. Actual cases of these diseases are rare, as measles, mumps and rubella (MMR) vaccine coverage has exceeded 90% for the past four years in preschool-aged children¹, and most adults have evidence of immunity².

Laboratory testing is critical to the correct diagnosis of these diseases, and is strongly recommended when measles, mumps or rubella is suspected. Suspected or confirmed cases of measles, mumps or rubella should be reported to the OOE at 383-1378, or by fax to 383-4936.

Measles (Rubeola)

Through August 10, there have been only fifteen (15) confirmed cases of measles reported to the Centers for Disease Control and Prevention (CDC) this year³. In 2001, 91 confirmed cases were reported. A majority of these cases were unvaccinated, and had recently traveled to or arrived from a foreign country.³ The low number of cases over the past several years suggests that measles is no longer endemic in the United States.⁴

The CDC clinical case definition requires a generalized rash lasting three or more days, a

fever of at least 38.3 C (101° F) and cough, coryza or conjunctivitis.⁵ Other diagnoses should be considered in individuals with evidence of immunity to measles. Individuals are considered to be immune to measles if they were born before 1957, had a documented case of the disease, have serologic evidence of immunity or have received two doses of MMR vaccine.⁶

In order to confirm a case of measles, laboratory testing is required. Although measles-specific IgM antibody is the most frequently ordered test, it may be unreliable. Measles IgM can be detected for up to 28 days after the onset of rash. However, testing within the first 72 hours after the onset of rash may yield a false-negative result. Serologic testing for a significant rise in measles IgG can also be used to confirm a case of measles, although this test requires both acute and convalescent sera.⁵

The preferred test is measles virus isolation, which can also be used to confirm the case. The isolated virus can then be genotyped, which can potentially identify the geographic origin of the infection. The virus can be isolated from urine, which should be collected within seven days after the onset of rash.⁵ Arrangements for measles virus isolation can be made through the Office of Epidemiology (OOE).

Mumps

Like measles, mumps is a rare disease in the United States. In 2001, a total of 231 cases were reported to the CDC. As a result of high immunization coverage, a significant portion of parotitis is caused by coxsackie or parainfluenza virus infection and not the mumps virus⁶. Thus, laboratory testing is crucial to making the correct diagnosis.

The CDC clinical case definition is “an illness with acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other

salivary gland, lasting two or more days, and without other apparent cause".⁵ Mumps can be confirmed serologically, either through a positive IgM or through a four-fold rise in IgG titers between the acute and convalescent phases. The acute specimen should be collected within 7 days of onset, and the convalescent specimen should be collected two to three weeks later. Testing of salivary amylase is not considered to be a confirmatory test by the CDC. The virus can also be isolated from urine, throat or CSF specimens, although culture is rarely indicated in uncomplicated cases.⁶

Rubella

A total of 176 cases of rubella were reported in 2000, with adults 15-39 years of age accounting for 87% of these cases. The majority of rubella cases reported in the last decade have occurred among foreign-born Hispanic young adults.²

The CDC clinical case definition requires a generalized maculopapular rash, temperature above 37.2 C (if recorded) and either arthralgia or arthritis, lymphadenopathy or conjunctivitis. Laboratory confirmation of the case requires either culture or serology.⁵ IgM serology often results in false positive results, so the preferred serologic method is the paired acute and convalescent IgG.⁷

Persons can be considered immune to rubella only if they have documentation of prior vaccination or have serologic evidence of immunity. Birth before 1957 provides presumptive evidence of immunity, although this is not acceptable proof of immunity in women who might become pregnant. Because many rash illnesses mimic rubella, clinical diagnosis is unreliable as an indicator of immune status and should not be relied upon.²

References

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