

## Measles Exposure in Southern Nevada

### Summary

The Southern Nevada Health District (SNHD) has been notified of a person infectious with measles who spent the night in Las Vegas on June 20, 2008, arriving by car and departing the next day. Although the risk to the overall population is low, the health district is encouraging physicians to include measles (Rubeola) in their differential diagnosis through July 2008 for *unvaccinated or incompletely vaccinated* patients seen with a maculopapular rash and fever. All suspected measles cases should be immediately reported to the SNHD Office of Epidemiology at 759-1300, option #2.

### Current Situation

The measles case who had visited Southern Nevada during his infectious period had not been previously immunized and acquired the disease before arriving in the United States. Travelling by car, he arrived in Las Vegas on June 20, 2008 and left the following day on June 21, 2008. While in Las Vegas, the case visited multiple resorts and dined at several restaurants. However, he could not provide details on his exact whereabouts. The following day, the case developed the classic symptoms of measles, sought medical care in another state and was laboratory confirmed as being infected with measles.

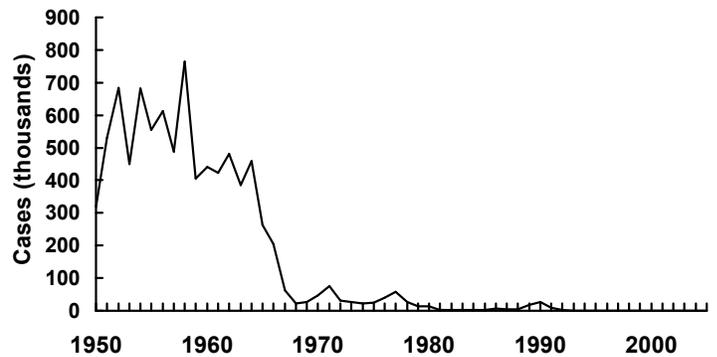
### Risk of Disease Transmission

Because of the potentially large number of tourists and residents with whom he may have had contact, it is impossible to determine who was exposed to measles, and to what degree. There is a high degree of immunity in the population, due to high immunization rates nationwide and a large number of people who were naturally infected with measles before vaccine use became widespread in the late 1960s. *While the risk to the overall population is low, unvaccinated individuals are at highest risk for disease.*

### Reporting

All suspected cases of measles (Rubeola) should be immediately reported to the SNHD Office of Epidemiology by telephone. Health district staff are available to take reports and assist medical providers 24 hours a day at 759-1300, option #2.

**Chart 1. US Measles Cases: 1950-2007**



Source: CDC

### Epidemiology of Measles

Childhood vaccination with measles-containing vaccines has resulted in the interruption of indigenous transmission of measles in the United States (Chart 1). Once a common childhood disease, the identification of a case of measles is a rare occurrence, requiring immediate public health intervention. Recent national statistics indicate that 95% of confirmed measles cases are import-associated.

### Measles Symptoms

The incubation period for measles averages 10-12 days. The prodromal symptoms of a high fever (103° F - 105°F), cough, coryza, and conjunctivitis last 2-4 days. Koplik spots, a rash which appears as small blue-white spots on the bright red background of the buccal mucosa, appear 1-2 days prior to the rash onset to 1-2 days after the rash onset. The discreet maculopapular rash begins at the hairline and over the course of 3 days progresses generally downward and outward toward the hands and feet.

Measles is transmitted person-to-person via large respiratory droplets. Airborne transmission via aerosolized droplet nuclei has been documented in closed areas for up to two hours after a person with measles has occupied the area. A person with measles is contagious from four days before to four days after rash onset. The disease is highly communicable, with greater than a 90% secondary attack rate among susceptible persons.

Measles presenting in an immunocompromised person may be severe with prolonged course, often occurring without the typical rash. This is reported almost exclusively in persons with T-cell deficiencies.

A variant of the disease called "atypical measles" only occurs in persons who have received the inactivated measles vaccine, which was available from 1963 to 1967. An estimated 600,000 to 900,000 persons received this vaccine. The vaccine sensitized the recipient to the virus antigens without providing protection. It is recommended that persons who have received the killed vaccine be revaccinated. Persons who received the vaccine before 1968 should be revaccinated if they received an unknown type of vaccine, as it may have been the inactivated vaccine.

**Diagnosis and Testing**

Measles should be included in the differential diagnosis through July 2008 for *unvaccinated* patients seen with a maculopapular rash and fever. Vaccinated individuals are unlikely to develop the disease.

Serologic testing is the preferred method of identifying disease. An ELISA test for Rubeola IgM antibody requires only a single serum specimen, and is considered to be diagnostic if positive. Commercial laboratories including Quest, LabCorp and Clinical Pathology Laboratories offer this testing (Table 1). IgM testing performed in the first 72 hours *after rash onset* will identify about 80% of cases. Negative tests drawn in this time period should be repeated in order to identify initial false negatives. Although paired acute and convalescent testing for measles IgG is available, it is not recommended as a diagnostic tool, as the diagnosis cannot be made until the second specimen is obtained, 10-30 days later.

**Post-Exposure Prophylaxis and Vaccination**

Live measles vaccine provides permanent protection and may prevent disease if given within 72 hours of exposure. Immune globulin may prevent or modify disease if given within 6 days of exposure. In this particular situation, the case was identified too late for either methodology to be effective. However, vaccination is still recommended for unvaccinated persons, as it provides an opportunity to prevent future disease (if the person does not develop illness).

**Table 1. Lab Testing for Measles**

<b>Lab: Test (Source)</b>	<b>Test Code</b>
<b>Quest</b> Measles (Rubeola) antibody, IgM, IFA (1 ml serum—refrigerated)	113610
<b>LabCorp</b> Measles (Rubeola) antibody, IgM, EIA (0.4 ml serum—refrigerated)	160218
<b>Clinical Pathologies Laboratories (CPL)</b> Measles (Rubeola) antibody, IgM, ELISA (1 ml serum—refrigerated)	4603

The measles vaccine is safe, and highly effective in preventing measles. Vaccination is recommended for all adults born in 1957 or later, who do not have a contraindicating medical condition, and do not have documentation of receiving a measles-containing vaccine. With the exception of persons who work in a medical facility, birth before 1957 can be considered acceptable evidence of immunity. Over 99% of people develop immunity after completing the two-dose schedule of vaccine, which must be given at least 28 days apart. Children should be vaccinated according to the Center for Disease Control and Prevention schedule which can be found at <http://www.cdc.gov/nip/recs/child-schedule.htm>

The Southern Nevada Health District provides measles vaccine to the public at a number of locations throughout Southern Nevada. More information can be found on the SNHD website at <http://www.southernnevadahealthdistrict.org>, or by calling (702) 759-0850.

Staff are also available to speak to the public about measles Monday through Friday, 8:00 am through 4:30 pm, at 759-1300, option #4.

**References**

Measles - United States, 2004. MMWR. 54(48);1229-1231  
 Epidemiology & Prevention of Vaccine-Preventable Diseases. 10<sup>th</sup> Ed. CDC. 2008.  
 Heymann, DL. Control of Communicable Disease Manual, 18<sup>th</sup> Edition. American Public Health Association. p 347-354.