

Current Situation

Community-wide levels of influenza-like illnesses in Clark County remains low but levels are slowly increasing (week 40, 0.92%; week 41, 0.86%; week 42, 0.88%; week 43, 0.98%; week 44, 1.2%).* Criteria for inclusion as a case of ILI are fever of 100° F and cough or sore throat. Statewide, Nevada reported sporadic activity for week 44 (ending November 3, 2007). Nationally, 1.2% of patient visits reported through the U.S. Influenza Sentinel Provider Surveillance Network were due to ILI. This is below the national baseline of 2.2% (1).

Adenovirus serotype 14

Respiratory illness surveillance may be complicated this season by the emergence of a new Adenovirus serotype. Adenovirus 14 (Ad14) is a rarely reported adenovirus that can cause severe and sometimes fatal respiratory illness in patients of all ages, including healthy young adults. During March-June 2007, 140 cases of confirmed Ad14 were identified in clusters of patients in New York, Texas, Oregon, and Washington. Of these patients, 38% (53) were hospitalized, 17% (24) were admitted to intensive care units, and 5% (9) died. All isolates from the four states were identical by sequence data from the full hexon and fiber genes, however, the isolates were distinct from the Ad14 strain from 1955. This suggests the emergence and spread of a new Ad14 variant in the United States (2).

Clinical Features

Adenoviruses were first described in the 1950s, since then 51 adenovirus serotypes have been identified. Adenoviruses are associated with a broad spectrum of illness, including conjunctivitis, febrile upper respiratory illness, pneumonia, and gastrointestinal disease. Generally severe illness occurs in newborn and elderly patients or in patients that are immunocompromised; but adenovirus infection is usually not life-threatening in healthy adults (2).

Epidemiology

Adenoviruses are known to cause outbreaks of disease, including keratoconjunctivitis, and tracheobronchitis and other respiratory diseases among military recruits. These viruses are transmitted by direct contact, fecal-oral route, and occasionally waterborne

transmission. Additionally, the clinical spectrum of disease associated with infection varies depending on the site of infection, i.e., inhalation versus oral transmission. Some adenovirus serotypes establish asymptomatic infections in the tonsils, adenoids, and intestines that may persist for months and even years. In some areas in the world, adenovirus is endemic and most individuals become infected during childhood (2).

Laboratory testing

Due to the emergence of a new and virulent Ad14 variant, medical providers that see patients with severe or worsening upper respiratory symptoms, should consider testing for adenovirus. Several testing methods are available for adenovirus. However, it is recommended that healthcare providers in Clark County order a commercial viral culture. If adenovirus is isolated from culture, it can then be sent to the Centers for Disease Control and Prevention (CDC) for serotyping if deemed necessary. Since adenovirus can be shed for prolonged periods, a positive test does not necessarily indicate its association with disease and laboratory testing should be assessed in conjunction with clinical symptomatology (3).

Treatment and Prevention

Treatment for patients with adenovirus infections is largely supportive. Thus far, antiviral drugs that have been used to treat adenoviral infections such as Ad14 have not shown any efficacy. Oral vaccines for Ad4 and Ad7 are in clinical trials and work is being done to determine whether the new Ad4 and Ad7 vaccines will protect against an Ad14 infection (3).

Healthcare providers are reminded that outbreaks of communicable disease are reportable to Southern Nevada Health District. Outbreaks, questions related to adenovirus infection or reports of severe adenovirus disease should be directed to the Office of Epidemiology at (702) 759-1300.

*Weighted Average

- (1) Department of Health and Human Services. Centers for Disease Control and Prevention. "Flu activity and surveillance: reports and surveillance methods in the United States." Accessed on Nov. 20, 2007 at: <<http://www.cdc.gov/flu/weekly/fluactivity.htm>>
- (2) Department of Health and Human Services. Centers for Disease Control and Prevention. MMWR Weekly. "Acute respiratory disease associated with adenovirus serotype 14—Four States, 2006-2007." Nov. 16, 2007: 56(45);1181-1184. Accessed on Nov. 19, 2007 at: <<http://www.cdc.gov/epo/mmwr/preview/mmwrhtml/mm5645a1.htm>>
- (3) Department of Health and Human Services. Centers for Disease Control and Prevention. "Adenoviruses." Accessed on Nov. 20, 2007 at: <<http://www.cdc.gov/ncidod/dvrd/revb/respiratory/eadfeat.htm>>