



**Infectious Disease Epidemiology Section**  
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## **MONONUCLEOSIS**

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Mononucleosis is a viral illness characterized by fever, sore throat, swollen lymph nodes, and abnormalities in the white blood cells.

### **Epidemiology**

It is estimated that 79% of infectious mononucleosis is caused by the Epstein-Barr virus (EBV), and the other 21% is caused by acute CMV infection (see Manual). CMV mononucleosis represents a primary infection in previously seronegative persons.

HHV-6, another human lymphotropic virus, was also linked to mononucleosis-like syndromes. These cases have been highly variable in the age of presentation and in severity, but most of them have been mild, with a modest number of atypical lymphocytes, and heterophil antibody responses are not often seen.

CMV mononucleosis may occur without a clear source, but "kissing" and direct transfer of infected lymphocytes and polymorphonuclear cells is sometimes identified as a source. Other forms of intimate sexual contact are also important in the transmission of CMV.

The most clearly identified source for transmission of CMV and EBV is blood transfusion. CMV is also readily transmitted by transfusion of leukocytes alone.

### **Clinical Description**

The onset may be abrupt, but often several days of prodromal symptoms can be elicited, including chills, sweats, feverish sensations, anorexia, and malaise.

The main signs and symptoms are:

Fever

Sore throat

Lymphadenopathy

Rash, which may be macular, petechial, scarlatinaform, urticarial, or erythema multiforme-like, is present in about 5% of patients.

Hematologic

More than 50% mononuclear cells

More than 10% atypical lymphocytes that possess abnormal nuclei and exhibit rosetting around red blood cells.

Distinguishing feature between disease caused by these CMV or EBV viruses is that:

- The sore throat with enlarged, exudate covered tonsils is more common with EBV infection

- The CMV-induced infectious mononucleosis syndrome has been termed *typhoidal* because the symptoms may be more systemic in nature, with fever predominating and fewer signs of enlarged lymph nodes or splenomegaly.

Most persons with mononucleosis recover in a few weeks, but some do not recover for several months.

### **Laboratory Tests**

#### 1. Serologic tests (commercial kits for rapid antibody tests)

Monospot

Monoscreen

Monotest

Not available at the State Laboratory

#### 2. EBV-specific antibody tests

immunofluorescence

Not available at the State Laboratory

Interpretation:

1. When using one of the rapid antibody tests, a titer of > 1:40 to 1:128 (based on kit used) is positive for mononucleosis. The titers start by the end of the first week of illness and disappear by the 4th week. False-positives can occur. If the rapid tests are negative and the clinical illness strongly suggests mononucleosis, EBV-specific antibody tests can be used.
2. EBV-IgM antibody titers of 1:80 to 1:160 are considered positive. False positives can occur. IgM occurs in early disease and drops rapidly after clinical disease resolves. EBV-IgG titers of > 1:5 suggests immunity to mononucleosis. IgG occurs early in disease.

The heterophile agglutinin test is negative in CMV mononucleosis and usually positive in EBV mononucleosis.

### **Surveillance**

Mononucleosis is not a reportable condition however, questions are often asked to OPH regarding mononucleosis.

### **Case Definition**

A case of mononucleosis is an illness characterized by fever, sore throat, and lymphadenopathy. In young children the disease is generally mild and difficult to recognize. Jaundice occurs in about 4% of young adults though 95% will have abnormal liver function tests. The disease is rarely fatal.

### **Investigation**

No routine investigation of cases is necessary.

**Hospital precaution and isolation:** Standard precautions