

## 4.7 Mumps

### Etiology

Mumps is caused by the mumps virus (family Paramyxoviridae; genus *Paramyxovirus*). It is antigenically related to the parainfluenza viruses.

### Case Definitions

#### Confirmed Case

Clinical illness<sup>1</sup> and laboratory confirmation of infection in the absence of recent immunization with a mumps-containing vaccine:

- isolation of the mumps virus from an appropriate clinical specimen

OR

- detection of mumps virus RNA

OR

- seroconversion or a significant rise (e.g. fourfold or greater) in mumps IgG titre by any standard serologic assay between acute and convalescent sera

OR

- positive serologic test for mumps IgM antibody

Clinical illness in a person who is epidemiologically linked to a laboratory- confirmed case.

#### Probable Case

Clinical illness<sup>5</sup> in the absence of appropriate laboratory tests OR in the absence of an epidemiologic link to a laboratory-confirmed case.

### Clinical Presentation

An acute viral disease characterized by fever, swelling and tenderness of one or more salivary glands, usually the parotid, with possibility of orchitis in 20% - 30% of post-pubertal males. Subclinical infection is common. The prodromal period tends to be rather nonspecific and may include a low grade fever, anorexia, malaise and headache. Parotitis (unilateral or bilateral) is the most common manifestation occurring in 30% - 40% of infected persons. Pain on chewing or swallowing is one of the earliest symptoms. Sublingual or submandibular glands may also be affected. The virus may be found in the saliva for one to six days before the glands swell and for the duration of glandular enlargement (5-9 days). Up to 30% of cases are asymptomatic. Complications may include CNS involvement, orchitis, oophoritis, and deafness. Encephalitis is rare, occurring in 1% - 10% of patients manifested by a headache and stiff neck. Mumps during the first trimester of pregnancy may increase the rate of spontaneous abortion.

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<sup>5</sup> Clinical illness is characterized by acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland lasting > two days and without other apparent cause.

There is no firm evidence that mumps during pregnancy causes congenital malformations.

## **Diagnosis**

During an outbreak, the clinical diagnosis of mumps is easy, however when cases are sporadic the clinical diagnosis is less reliable. For confirmation on laboratory specimens go to the public health laboratory web site [www.publichealthlab.ca](http://www.publichealthlab.ca) or call 709-777-6583.

## **Epidemiology**

### **Occurrence**

The incidence has declined in countries where there are universal immunization programs; however, cases still occur in countries where vaccination rates are low.

### **Reservoir**

Humans.

### **Transmission**

Mumps is spread by respiratory droplets, as well as direct contact with the saliva of an infected person.

### **Incubation period**

The incubation period is typically 15-18 days, ranging from 12-25 days.

### **Communicability**

The range of communicability is from seven days before onset of parotitis to nine days after onset. However, the most infectious period is 1-2 days before onset of parotitis to 5 days after onset.

## **Control Measures**

### **Management of Cases**

#### ***Investigations***

- Confirm the diagnosis and ensure appropriate clinical specimens have been collected
- Determine immunization history.
- Determine history of recent travel.
- Determine source of infection.

#### ***Treatment***

- No specific treatment, treatment should be based on the symptoms of the patient.

### ***Immunization***

If a case has not been immunized or if immunization status is uncertain, immunize according to the Newfoundland and Labrador Immunization Manual

<http://www.health.gov.nl.ca/health/publichealth/cdc/immunizations.html>.

### ***Exclusion***

Exclude the case from childcare, school, or work until five days from the date of parotitis onset. If hospitalized the case must be on droplet precautions.

### **Management of Contacts**

#### ***Definitions***

##### ***Contact***

A close contact is someone who has direct contact within the two meters of a case.

##### ***Susceptible contact***

A susceptible contact include the following

- Those born in Canada in 1970 or later who did not receive two doses of mumps-containing vaccine (first dose given on or after the first birthday)
- Those who have not had laboratory confirmed mumps; and
- Those who do not have document immunity to mumps.

#### ***Immunoprophylaxis***

Prompt identification of contacts will allow for administration of mumps containing vaccine to prevent further infection. Special attention must be given to those who are increased risk such as those who are immunocompromised. Immunization post exposure may not prevent infection. Known susceptible contacts should be immunized according to the Newfoundland and Labrador Immunization Manual.

### ***Exclusion***

Isolation of mumps-susceptible contacts is not required. Refer HCWs who are contacts to occupational health for assessment.

### **Management of Outbreaks**

An outbreak management team should be established to address infection prevention and control measures.

### **Education and Preventive Measures**

- The most effective preventive measure against mumps is vaccination. The NACI statement recommends two doses of MMR vaccine be given for measles prevention after the first birthday, at least one month apart, and this vaccine also contains mumps

- Ensure high vaccination rates are maintained in the population
- Additional information on mumps is available at web site  
<http://www.phac-aspc.gc.ca/im/ivc-vve/faq-dis-mal/mumps-oreillons-eng.php>
- A fact sheet is available on the web site  
<http://www.health.gov.nl.ca/health/publichealth/cdc/infectioncontrol/Mumps%20May%202013.pdf>

## Reporting Requirements and Procedures

- The laboratory (hospital or public health laboratories) report case/s to the attending physician, the Chief Medical Officer of Health and the Medical Officers of Health (MOH)
- MOH office will notify, as required, local physicians, nurse practitioners, environmental health officers, community health nurses, communicable disease control nurses (CDCNs) and Infection control practitioners (ICP), in the particular region as required for follow-up and case investigation
- The CDCN in collaboration with the ICP (if necessary) will collect case details
- The CDCN will enter the case details into the electronic reporting system and utilize the Canadian Network for Public Health Intelligence (CNPHI) tool for alerts and/or outbreak summaries

## Provincial Disease Control

- Reports the aggregate case data to Public Health Agency of Canada
- Provides an analysis of the case/s with reports in the Quarterly Communicable Disease Report (CDR), also posted on the Public Health website  
<http://www.health.gov.nl.ca/health/publichealth/cdc/informationandsurveillance.html>
- Coordinates the response if an outbreak occurs across RHAs

## References

Beers MH. Mumps. The Merck Manual of Diagnosis and Therapy. 18 ed. Whitehouse Station, NJ: Merck Research Laboratories; 2006. Retrieved May 27, 2013, from  
[http://en.wikipedia.org/wiki/Infectious\\_mononucleosis](http://en.wikipedia.org/wiki/Infectious_mononucleosis)

Case definitions for Communicable Diseases under National Surveillance. Retrieved May 27, 2013, from <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/index-eng.php>

Centers for Disease Control and Prevention. Mumps. In: Atkinson W, Wolfe S, McIntyre L, Hamborsky J, editors. The Pink Book: Epidemiology and Prevention of Vaccine-Preventable Diseases. 11th ed. Washington D.C.: Public Health Foundation; 2009. p. 189-98.