

# Appendix B: Provincial Case Definitions for Reportable Diseases

Disease: Mumps

Revised January 2014

# Mumps

## 1.0 Provincial Reporting

Confirmed and probable cases of disease

## 2.0 Type of Surveillance

Case-by-case

## 3.0 Case Classification

### 3.1 Confirmed Case

Laboratory confirmation of infection with clinically compatible signs and symptoms (see Section 5.0) in the absence of recent history of immunization with a mumps-containing vaccine in the last seven to 42 days:

- Isolation of mumps virus from an appropriate clinical specimen (e.g. buccal swab, throat swab and urine culture)

**OR**

- Detection of mumps virus ribonucleic acid (RNA) from an appropriate clinical specimen (refer to above)

**OR**

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

**OR**

- Detection of mumps immunoglobulin M (IgM) antibody in a person who is either epidemiologically linked to a laboratory-confirmed case or has recently travelled to an area of known mumps activity

**OR**

- Clinically compatible signs and symptoms (see section 5.0) in a person who has been epidemiologically linked to a laboratory-confirmed case.

### 3.2 Probable Case

Clinically compatible signs and symptoms (see section 5.0) in the absence of appropriate laboratory tests and without an epidemiological link to a laboratory confirmed case.

## 4.0 Laboratory Evidence

### 4.1 Laboratory Confirmation

Any of the following will constitute a confirmed case of mumps:

- Positive mumps virus culture
- Positive RT-PCR for mumps virus RNA
- Positive for mumps IgM with clinical illness with an epidemiological link or travel history
- Seroconversion or significant rise (e.g. fourfold or greater) in mumps IgG titre between acute and convalescent sera

#### 4.2 Approved/Validated Tests

- Standard culture for mumps virus
- RT-PCR for mumps virus RNA
- Commercial tests for anti-mumps IgM and IgG antibodies

Consult with Public Health Ontario Laboratories about appropriate specimens for each testing methodology.

#### 4.3 Indications and Limitations

- IgM serology for mumps is most useful in cases of primary infection and may be of limited use in an individual who has a history of mumps vaccination.
- IgM serology has the potential for false-positive findings. In the absence of recent travel/exposure history, IgM results must be confirmed using other confirmatory methods as listed.
- A buccal swab, throat swab and urine are appropriate clinical samples for RT-PCR testing.
- Further strain characterization is indicated for epidemiologic, public health and control purposes.
- The Canadian Public Health Laboratory Network has endorsed the addition of mumps Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) testing as a standard approach for mumps virus RNA detection.

### 5.0 Clinical Evidence

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

Infection with mumps virus may present as aseptic meningitis, encephalitis, hearing loss, orchitis, oophoritis, parotitis or other salivary gland swelling, mastitis or pancreatitis.

Up to one third of infections do not cause clinically noticeable parotid swelling and may primarily manifest with respiratory tract symptoms.

### 6.0 ICD Code(s)

#### 6.1 ICD-10 Code(s)

B26 Mumps

## 6.2 ICD-9/ICD-9CM Code(s)

072 Mumps

## 7.0 Comments

Optimal recovery of mumps virus or detection of mumps RNA is achieved if specimens are obtained three to five days after symptom onset. Virus may still be detectable in buccal and throat swabs collected up to 9 days and urine up to 14 days after symptom onset.

For serology, acute serum specimen IgM and IgG for mumps should be collected as soon as possible or within five days of symptom onset. If the initial IgM antibody is negative or indeterminate at onset of illness and mumps is considered likely, a convalescent serum specimen IgM and IgG for mumps should be repeated at least ten to 14 days after the initial (acute) sample.

## 8.0 Sources

Public Health Agency of Canada. Supplement: guidelines for the prevention and control of mumps outbreaks in Canada. *Can Commun Dis Rep*. 2010 [cited 2013 Aug 27];36S1. Available from: <http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/10vol36/36s1/index-eng.php>.

Public Health Agency of Canada. Diseases preventable by routine vaccination: mumps. In: Supplement: case definitions for communicable diseases under national surveillance. *Can Commun Dis Rep*. 2009 [cited 2013 Aug 27];35S2:71. Available from: [http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/Mumps\\_Oreill-eng.php](http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/Mumps_Oreill-eng.php)

American Academy of Pediatrics. Meningococcal infections. In: Pickering LK, Baker CJ, Kimberlin DW, Long SS, editors. *Red book: 2012 report of the Committee on Infectious Diseases*. 29th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2012:500-509

Ontario Agency for Health Protection and Promotion (Public Health Ontario). OAHPP Public Health Laboratories diagnostic test recommendations for mumps, April 2010. Toronto, ON: Queen's Printer for Ontario;2010 [cited 2013 Aug 27]. Available from: <http://www.publichealthontario.ca/en/eRepository/Diagnostic%20Test%20Recommendations%20for%20Mumps%20-%20April%202010%20final.pdf>

## 9.0 Additional Resources

For further information about human diagnostic testing, contact the Public Health Ontario Laboratories or refer to the Public Health Ontario Laboratory Services webpage: <http://www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/default.aspx>

Roush SW, Beall B, Cassiday MS, Gentsch J, Icenogle J, Mayer L, et al. Chapter 22: Laboratory support for the surveillance of vaccine-preventable diseases. In: Roush SW, McIntyre L, Baldy LM, editors. *Manual for the surveillance of vaccine-preventable diseases*. 5th ed. Atlanta, GA: Centers for Disease Control and Prevention; 2012 [cited 2013 Aug 27]. Available from <http://www.cdc.gov/vaccines/pubs/surv-manual/chpt22-lab-support.html>

## 10.0 Document History

**Table 1: History of Revisions**

Revision Date	Document Section	Description of Revisions
January 2014	General	New template. Sections 9.0 Additional Resources and 10.0 Document History Added.
	3.1 Confirmed Case	<p>First sentence changed from “Laboratory confirmation of infection with clinically compatible signs and symptoms in the absence of recent immunization with mumps-containing vaccine” to “Laboratory confirmation of infection with clinically compatible signs and symptoms (<b>see Section 5.0</b>) in the absence of recent history of immunization with a mumps-containing vaccine <b>in the last seven to 42 days</b>”.</p> <p>Second bullet point changed from “Detection of mumps virus ribonucleic acid (RNA) by a validated nucleic acid amplification test (NAT) from an appropriate clinical specimen (e.g., buccal swab and urine sample; buccal swab is preferred)” to “Detection of mumps virus ribonucleic acid (RNA) from an appropriate clinical specimen (refer to above)”.</p> <p>Third bullet point changed from “Demonstration of seroconversion or a significant (e.g., fourfold or greater) rise in mumps IgG antibody level between the acute and convalescent sera” to “Seroconversion or significant rise (e.g. fourfold or greater) in mumps IgG titre by any standard serologic assay between acute and convalescent sera”.</p> <p>Fourth bullet point changed from “Positive serologic test for mumps Immunoglobulin M (IgM) antibody using a recommended assay in a person who is either epidemiologically linked to a laboratory-confirmed case or has recently travelled to an area of known mumps activity” to “Detection of mumps immunoglobulin M (IgM) antibody in a person who is either</p>

<b>Revision Date</b>	<b>Document Section</b>	<b>Description of Revisions</b>
		epidemiologically linked to a laboratory-confirmed case or has recently travelled to an area of known mumps activity”
	3.2 Probable Case	“Clinically compatible signs and symptoms in a person with recent travel to an area of known mumps activity” deleted.
	4.1 Laboratory Confirmation	Second bullet point (“Positive (NAT) for mumps virus”) deleted and replaced with “Positive RT-PCR for mumps virus RNA”.  Third bullet point changed from “Positive for mumps IgM antibody (with an epidemiologic link)” to “Positive for mumps IgM with clinical illness with an epidemiological link or travel history”.  Fourth bullet point changed from “Seroconversion or a significant (i.e., fourfold or greater) rise in mumps Immunoglobulin G (IgG) titre” to “Seroconversion or significant rise (e.g. fourfold or greater) in mumps IgG titre between acute and convalescent sera”.
	4.2 Approved/ Validated Tests	“NAT for mumps virus RNA” deleted. “RT-PCR for mumps virus RNA” added. “Consult with Public Health Ontario Laboratories about appropriate specimens for each testing methodology” added.
	4.3 Indications and Limitations	The following two bullet points deleted: “ Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) is the new gold-standard for mumps detection” and “A buccal swab is the preferred specimen”.  The second to fifth bullet points added.
	5.0 Clinical Evidence	Addition of second and third sentences.
	7.0 Comments	Entire section revised.
	8.0 Sources	Updated.

