

Date: March 25, 2013

*Reviewed  
December 2015*

To: Alberta Health, Medical Officers of Health, Communicable Disease Nurses,  
Infection Prevention and Control, Laboratory Directors and Managers

From: Provincial Laboratory for Public Health (ProvLab)

Re: Laboratory Testing for Mumps

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### Background:

Sporadic mumps cases still occur in individuals who have received two doses of the vaccine. These patients will excrete mumps virus for a much shorter period and upwards of 65% will not produce a detectable mumps IgM antibody response. Consequently direct detection of mumps virus by RT-PCR, in addition to serology, is the preferred test for establishing a clinical diagnosis.

In specific cases, comparing IgG antibody titres between acute and convalescent bloods collected between 10 to 14 days apart may also show a significant rise indicative of a recent infection.

### Clinical presentation:

Testing should be considered for individuals presenting with the following symptoms:

- Fever and acute onset of unilateral or bilateral tender, self-limiting swelling of one or more salivary glands, lasting >2 days, with recent travel to areas where mumps activity is occurring **OR** in individuals with compatible symptoms, with or without contact to a mumps case.
- Meningitis, encephalitis or neurological symptoms, orchitis or myocarditis with epidemiological links through travel or contact with probable or confirmed cases.

Other causes of unilateral parotitis include bacterial infections, Epstein Barr Virus (EBV) or “mono”, influenza, parainfluenza, and blocked ducts, and should be considered part of the differential diagnosis if there is no contact with a mumps case.

Table 1: Clinical disease and appropriate clinical samples

Phase	Samples to be collected	Test request	Notes
<u>Acute illness</u> (Up to 10 days after onset of parotitis)	1) Buccal swab in Viral Transport medium <b>AND</b> 2) Blood (3-5 ml in gold top serum separator Vacutainer)	Request mumps PCR on swab  Request mumps IgM & IgG antibody on blood <sup>a</sup>	<sup>a</sup> In consultation with the MOC/VOC send a follow up blood sample 10 – 14 days after the acute sample if both mumps IgM antibody and detection of virus are negative <b>AND</b> when there is <u>strong clinical suspicion</u> of mumps. Label blood as “convalescent sample” and contact Virologist-on-Call to alert the laboratory testing section.  <b>Buccal swab:</b> collected from the buccal cavity (space between the cheek and back teeth) with a Dacron or cotton tip swab on a plastic shaft. Gently massage the affected gland area for about 30 seconds prior to collecting these secretions on the swab.  <b>Urine samples:</b> (5 mL or more) should preferably be the first morning sample
<u>Late stage/convalescence</u> (10 days or more after onset of parotitis)	1) Blood (3-5 mL in gold top serum separator vacutainer) <b>AND</b> 2) Urine (if within 2 weeks of onset of parotitis and orchitis/oophoritis were also noted)	Request mumps IgM & IgG antibody on blood  Request mumps PCR on urine	
<u>Mumps meningitis</u> (Up to 10 days after onset of illness)	1) Blood (3-5 mL in gold top serum separator Vacutainer) <b>AND</b> 2) CSF (at least 1 mL) <b>AND</b> 3) Buccal swab in Viral Transport medium <b>AND</b> 4) Urine in sterile container	Request mumps IgM & IgG antibody on blood  Request mumps PCR on CSF, swab and urine	

**Inquiries and feedback may be directed to:**

- Dr. Kevin Fonseca, Program Lead at [Kevin.Fonseca@albertahealthservices.ca](mailto:Kevin.Fonseca@albertahealthservices.ca) or
- Edmonton Site – Phone: 780-407-7121 (ask for Virologist-on-Call)
- Calgary Site – Phone: 403-944-1200 (ask for Virologist-on-Call)

**This bulletin has been reviewed and approved by:  
Dr. Graham Tipples, Medical / Scientific Director, ProvLab**