



LABORATORY BULLETIN

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To: Laboratory Directors, Medical Officers of Health, Infectious Disease & Community Physicians

Re: Enhanced Laboratory Testing for Mumps

PLEASE POST OR DISTRIBUTE WIDELY AS APPROPRIATE

In response to cases of mumps that have been identified in Alberta, some with epidemiological links to cases in Nova Scotia and New Brunswick, the Provincial Laboratory will be implementing enhanced testing for mumps, **effective 14th November 2007**.

Enhanced testing has been broadened to encompass nucleic acid testing (NAT) for the virus in saliva and urine as an adjunct to serological testing. Key points of this change are:

- Implementation of enhanced mumps testing at the Provincial Laboratory, effective 14th November 2007
- Samples for nucleic acid testing (NAT) are:
 - Swab(s) of saliva in Universal Transport medium, collected from buccal cavity adjacent to infected salivary gland(s) AND
 - Urine (10 mL or more) in a sterile container, when indicated (see Table)

Order mumps NAT on the requisition for both saliva and urine.
- Serum for mumps serology. Collect 3-5 mL blood in a Serum Separator Tube (SST).
 - A convalescent serum sample collected 7 to 10 days after the initial blood is recommended, especially if the nucleic acid tests and mumps IgM test are both negative, and a mumps infection is strongly suspected

Order mumps IgM & IgG serology on the requisition for acute and convalescent serum samples

Background

Laboratory confirmation of suspected mumps is based upon the serological detection of either IgM antibody in acute serum samples or seroconversion of IgG mumps specific antibodies in acute and convalescent serum samples. Recent data shows that mumps IgM antibody can be negative or indeterminate in symptomatic individuals previously vaccinated with one or two doses of mumps-containing vaccine at the appropriate intervals. However, they are positive for mumps virus by nucleic acid testing and/or culture on saliva and urine specimens, and some also seroconvert for IgG antibody.

The Provincial Laboratory has developed a mumps nucleic acid test (NAT) for saliva and urine samples which should improve the detection rate of acute mumps infections and the turn-around time, as this testing is presently sent to the National Microbiology Laboratory (NML) in Winnipeg. Samples testing positive at the Provincial Laboratory, will be referred to the NML for genotyping and reference studies.

Clinical presentation

Testing should be considered for the individuals presenting with:

- Acute onset of unilateral or bilateral tender, self-limited swelling of one or more salivary glands, lasting >2 days, especially in persons with:
 - recent travel to areas where mumps activity is occurring
 - recent exposure to a probable mumps case
 - compatible symptoms without travel or exposure to a probable mumps case
- Meningitis, encephalitis or neurological symptoms with epidemiological links through travel or contact with probable or confirmed cases

Note: Although bilateral parotitis generally occurs only in mumps, recent lab confirmed cases have documented patients with unilateral parotitis. Other causes of unilateral parotitis include bacterial infections, 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.

Laboratory Testing

Information from the recent mumps cases indicates that vaccinated individuals who become infected may either not produce IgM antibody to mumps or have a delayed response, but shed the virus and are thus, infectious. Consequently, collection of **serum and saliva is strongly recommended** from patients in the acute phase of illness. In individuals with orchitis, oophoritis, and meningitis, and those in the later stage of illness, i.e., 10-14 days after onset of parotitis, a urine sample should also be obtained (see Table below).

Universal Transport medium, which maintains the sample and virus integrity, is available from the Provincial Laboratory, your local laboratory, and some public health units.

Note: Consult your regional Medical Officer of Health or CD Unit, for information relating to patient isolation, or if there are public health follow up implications, as mumps is a notifiable disease in Alberta.

| Phase | Samples to be collected (In order of priority) | Test request | Notes |
|--|---|--|--|
| <p><u>Acute illness</u> (Up to 10 days after onset of parotitis)</p> <p>-----</p> <p>With meningitis, orchitis or oophoritis</p> | <p><i>Up to 10 days after onset of parotitis.</i></p> <p>1) Serum [collect 3-5 mL blood in Serum Separator tube (SST)] AND 2) Swab of saliva in Universal Transport medium</p> <p>-----</p> <p>ALSO collect 3) Urine in sterile container</p> | <p>Request mumps IgM & IgG antibody on blood (see serology note*)</p> <p>Request mumps NAT on saliva and urine</p> | <p>*Send a follow up serum sample 7 to 10 days after the acute sample if both mumps IgM antibody and detection of virus are negative and mumps is strongly suspected.</p> <p>Swab of saliva collected from the buccal cavity (space between the cheek and back teeth adjacent to the swollen gland) with a Dacron or cotton tip swab on a plastic shaft. Gently massage the affected gland area for about 30 seconds prior to collecting the saliva that accumulates in the buccal cavity with a swab. In cases of bilateral parotitis, separate saliva swabs from each side are encouraged</p> |
| <p><u>Late stage/convalescence</u> (10 days or more after onset of parotitis)</p> | <p><i>10 to 14 days after onset of parotitis.</i></p> <p>1) Serum [collect 3-5 mL blood in Serum Separator tube (SST)] AND 2) Urine</p> | <p>Request mumps IgM & IgG antibody (see serology note*)</p> <p>Request mumps NAT on urine</p> | <p>Urine samples (10 mL or more), sent in a sterile container - should preferably be the first micturition of the day (morning sample)</p> |
| <p>Immunity determination/ previous exposure</p> | <p>Serum [collect 3-5 mL blood in Serum Separator tube (SST)]</p> | <p>Request mumps IgG antibody</p> | <p>Alert the microbiologist-on-call (Calgary 403 944 1200 or Edmonton 780 407 7121) to arrange for expedited testing</p> |

Patient information:

- **Complete the ProvLab Virology requisition** (*one per patient for all samples is acceptable, providing that ALL samples collected at that time are sent with this requisition*) with all of the following information: ordering physician, patient's name, date of birth, gender, PHN, home address and phone number, specimen type and source, date and time of collection, lab tests required and clinical history
 - **If the information provided is incomplete the sample may be discarded or testing will be delayed pending receipt of this information**
- The ordering physician and office address must be clearly provided. If copies to another physician are required, provide the physician name and complete address where copies should be sent to comply with current privacy legislation
- **Important:** Provide the date of onset of illness, symptoms and whether recently traveled (within the past 3 weeks) and to where. This information will be used to prioritize sample testing and to assist public health follow-up.

Transport

- Send only one sample per biosafety bag, with the sample and absorbent material in the reclosable side, and the requisition in the adjoining pouch. Samples can be sent at ambient temperature if within 8 hours of collection. If more than 8 hours – use a Cold-Pak or ice-pack to maintain the integrity of the sample and virus.
 - **If multiple samples are sent in one bag and one or more leak, ALL of the samples may be discarded.**

Contact information

Please contact Dr. Kevin Fonseca, Clinical Virologist at (403) 944-1263 or by e-mail at k.fonseca@provlab.ab.ca if you have questions or comments



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This bulletin was distributed to:

- ◆ Alberta Health and Wellness:
 - Provincial and Deputy Provincial Health Officers of Alberta
- ◆ Calgary Health Region:
 - Alberta Children's Hospital NICU
 - CUPS Community Health Centre
 - Critical Care Physicians- Calgary
 - Emergency Medicine Departments- Calgary
 - Family Medicine
 - Infectious Disease Physicians- Calgary
 - Infection Prevention and Control
 - Occupational Health and Safety
 - PCIS (Sunrise Clinical Manager) Project contact
 - Respiriologists- Calgary
 - 8th and 8th Community Health Centre
- ◆ Capital Health Region:
 - Boyle McCauley Clinic
 - Critical Care Physicians- Edmonton
 - Edmonton Remand Centre
 - Emergency Medicine Departments- Edmonton
 - Infectious Disease Physicians- Edmonton
 - Infection Prevention and Control
 - Occupational Health and Safety
 - Pediatrics Department Edmonton
 - Respirologists-Edmonton
 - University of Alberta Hospitals Service Chiefs
 - University of Alberta Hospitals Patient Care Areas
 - University of Alberta Hospitals Clinical Operations Groups
- ◆ CDC Alberta Nurses Working Group
- ◆ Infection Prevention and Control- Alberta Cancer Board, Regions 4, 5, 9
- ◆ Laboratory Directors/Consultants- Alberta
- ◆ Laboratory Managers- Alberta
- ◆ Laboratory Managers- Northwest Territories, Nunavut, Yukon
- ◆ Medical Officers of Health- Alberta, First Nations
- ◆ Medical Officers of Health- Alberta - Deputy/Associate
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