

DID YOU KNOW...

- Serum IgM is frequently not detected in mumps patients with a history of vaccination
- RT-PCR and cell culture are the best currently available diagnostic tests for mumps



- Additional tests to diagnose mumps in previously vaccinated individuals are being developed
- Education and laboratory training opportunities are available for public health laboratories to learn more about mumps diagnostics

For more information, please contact APHL at (240) 485-2745.



Produced by the Association of Public Health Laboratories in conjunction with the Centers for Disease Control and Prevention. March 2010

This brochure funded by the American Recovery and Reinvestment Act of 2009 (ARRA).

LABORATORY TEST RESULTS: QUICK GUIDE

What laboratory results can be expected from persons with different vaccination and exposure histories?

The table below shows expected laboratory results, by mumps exposure history, following wild-type mumps infection.

Mumps exposure history	IgM	IgG	Comments
Unvaccinated with no history of mumps	+	+ or -	IgM may be detected for weeks to months; low levels of IgG may be present at symptom onset
1-dose vaccine history	+ or -	Likely +	50% of serum samples collected 1-10 days after symptom onset were IgM-positive; 50%-80% of serum samples collected >10 days after symptom onset were IgM-positive
2-dose vaccine history	+ or -	Likely +	13%-15% of serum samples collected 1-3 days after symptom onset were IgM-positive; 30%-35% of buccal swabs collected 1-3 days after symptom onset were positive by RT-PCR

Narita et al. 1998; Jin et al 2004; Krause et al. 2007; Bitsko et al, 2008; Rota et al. 2009; Meurman et al. 1982; Sakata et al. 1985.

CASE STUDY #1

- Low grade fever and parotid gland swelling
- Vaccination Status: Unknown
- **Lab Results:**
IgM Negative, IgG Positive

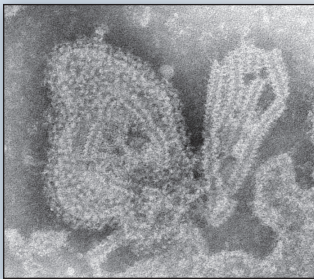
It Could Still be Mumps...

CASE STUDY #2

- Nonspecific symptoms with parotid gland swelling
- Vaccination Status: 1 or 2 MMR doses
- **Lab Results:**
IgM Negative, IgG Positive

LABORATORY FAQS

- Q. Will symptomatic persons infected with mumps who have a history of 1 or 2 doses of MMR have an IgM response?**
- A. Frequently not.** Failure to detect mumps IgM in those presenting with clinically compatible mumps disease does not rule out mumps as a diagnosis.



- Q. If the suspected mumps patient has positive IgG and negative IgM test results, can mumps be ruled out?**
- A. No.** Vaccinated people exposed to mumps may already have existing, detectable serum IgG but may not have a detectable IgM response. The IgM response may be absent, transient, or delayed.

For more information on mumps testing and specimen collection, please visit:
<http://www.cdc.gov/mumps/clinical/qa-lab-test-infect.html>

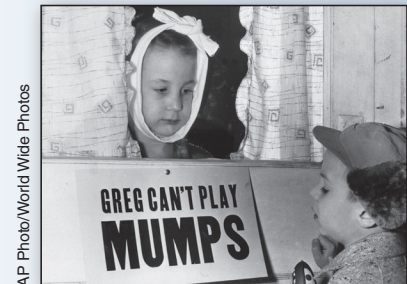
LABORATORY FAQS

- Q. How do we interpret our mumps laboratory results?**
- A.** To properly interpret laboratory results, it is essential to consider both clinical and epidemiological information in addition to the laboratory results.
- Q. What are some important factors to consider when interpreting laboratory results?**
- A.** Vaccination history, travel history, and timing of sample collection relative to disease onset are all important factors to consider.

- Q. What is a laboratory-confirmed case of mumps?**
- A.** Acute mumps infection can be confirmed by any one of the following:
- The presence of mumps IgM in serum.
 - A 4-fold rise in mumps IgG titer between acute and convalescent serum specimens by a standard serological assay.
 - Isolation of mumps virus from a clinical specimen.
 - Detection of mumps virus RNA by RT-PCR.

LABORATORY FAQS

- Q. What specimens should be collected from patients meeting the clinical case definition for mumps?**
- A.** CDC recommends that a buccal or oral swab and a blood serum specimen be collected from all patients with clinical features compatible with mumps.



- Q. Why should I ask for buccal or oral swab specimens in addition to the serum sample?**
- A.** RT-PCR methods can be used to test these specimens for the presence of mumps virus RNA. If possible, virus culture should also be attempted. Viral isolates can be sent to CDC for genotyping.

For more clinical information about mumps disease, please visit:
<http://www.cdc.gov/vaccines/vpd-vac/mumps/outbreak/default.htm#lab>