Rubella – Recommendations for Testing for Clinicians

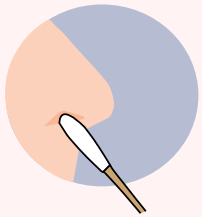
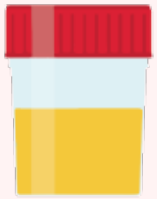
Rubella is a mandatory, immediately notifiable disease. Please report confirmed and probable cases of rubella to your local health department.

	Preference	Test	Specimen	Indication	Timing	Notes
ACUTE DISEASE	Preferred Test	RT-PCR	**Nasopharyngeal (NP) or throat (OP) swab** *(preferred)* Urine can be collected in addition to an NP/OP swab	Acute Disease	• A specimen for detection of virus should be collected as soon as possible upon suspicion of rubella. • Specimen should be ideally collected within 3 days after rash onset but can be collected up to 7 days. • If >7 days since rash onset, PCR testing is generally not recommended.	• NP/OP swab collected <3 days after rash onset is the preferred specimen. Ideally, RT-PCR should be performed for all suspect rubella cases identified within 7 days of rash onset. • Collecting a urine specimen along with an NP/OP swab may improve test sensitivity. • Contact your health department regarding where to send specimens for testing and genotyping, if appropriate.
	Preferred Test	IgM (with IgG)	Serum	Acute Disease	• Ideally, serology will be obtained for suspect rubella cases, in addition to RT-PCR. • IgM is most sensitive 4+ days after rash onset and may be negative days 0–3 after rash onset. IgM can be detected for 30 days after acute rubella.	• Detection of rubella IgM can aid in the diagnosis of rubella and can increase the detection window for acute cases. • Testing IgG for acute cases can provide evidence of pre-existing immunity, which can be helpful to differentiate rare instances of vaccine failure. • **Rubella IgM testing in asymptomatic, unexposed pregnant people is inappropriate.**
IMMUNITY	Only test for immunity	IgG only	Serum	Evidence of Immunity	• IgG can be detected approximately 2 weeks after rubella vaccination.	• The presence of rubella-specific IgG indicates a recent or prior exposure to rubella virus or rubella vaccine. • **IgM is <u>not</u> an appropriate test for immunity.**

* Viral culture is a valid way to confirm cases of acute rubella disease; however, is not generally recommended as it takes longer to receive results than RT-PCR, which is widely available. Specimen collection and timing is similar to that for RT-PCR.
** Acute and convalescent phase serum specimen collection (separated by at least 2 weeks) to demonstrate a 4-fold increase in IgG titer can confirm rubella infection but is generally not required.

Useful References:

- CDC Vaccine Preventable Disease Surveillance Manual: Rubella - Vaccine Preventable Diseases Surveillance Manual | CDC
- CDC Rubella page for Healthcare Providers: Rubella for Health Care Professionals | CDC
- CDC Rubella Serology Webpage: Serology Testing for Rubella and Congenital Rubella Syndrome (CRS) | CDC
- CDC Rubella Laboratory Information: Rubella Laboratory Testing | CDC

	Rubella Tests		When to Collect?
Acute Disease	PCR	**Nasopharyngeal (NP) or Throat (OP) Swab** 	As soon as possible upon suspicion of rubella. Specimen should be ideally collected **0-3 days** after rash onset, up to **7 days** after rash onset.
	PCR	**Urine** 	**Within 7 days** of rash onset **Collecting a urine specimen along with an NP/OP swab may improve test sensitivity, especially if at the end of the RT -PCR detection window.*
	IgM	**Serum** 	Most sensitive **4+ days** after rash onset. IgM **can be detected for 30 days** after acute rubella.
Immunity	IgG	**Serum** 	When assessing evidence of immunity, can be detected ~ **2 weeks** after MMR vaccination

Test Types Typically Available to Clinicians and Descriptions for Measles, Mumps, Rubella, and Varicella

	Test	Test Description
Measles	RT-PCR*	RT-PCR can be performed on respiratory (nasopharyngeal or throat) swabs and on urine. RT-PCR is most sensitive within 3 days of rash onset but can be positive up to 10 days after rash onset. Ideally, specimens should be collected at first patient contact once measles is suspected and should be paired with serology testing (IgM) for evaluation of all suspect measles cases. **For many jurisdictions, RT-PCR is primarily available through the state/local health department.**
	IgM*	Detection of measles IgM can confirm measles. IgM is most sensitive 3 or more days after rash onset, so a negative IgM within 3 days of rash onset should be interpreted with caution. False-positive IgM can occur due to cross-reactivity with other causes of febrile rashes (e.g., Parvovirus). Ideally, RT-PCR and serology should be performed together for all suspect measles cases. **IgM is <u>not</u> an appropriate test when evaluating for immunity.**
	IgG*	The presence of measles-specific IgG indicates a recent or prior exposure to measles virus or measles vaccine and is appropriate to test for evidence of immunity.
Mumps	RT-PCR*	A buccal swab specimen (after massaging the parotid (salivary) glands for 30 seconds) collected <3 days after parotitis onset is the preferred specimen and RT-PCR testing is the preferred method for laboratory confirmation of mumps disease. Specimen should be ideally collected 0-3 days after parotitis onset but can be collected up to 10 days. **For many jurisdictions, RT-PCR is available through the state/local health department.**
	IgM*	Detection of mumps IgM can aid in the diagnosis of mumps disease, although a positive IgM result is only supportive laboratory evidence If it has been >3 days since symptom onset, collect a serum specimen for IgM detection in addition to a buccal swab specimen for RT-PCR. **IgM is <u>not</u> an appropriate test when evaluating for immunity.**
	IgG*	The presence of mumps-specific IgG indicates a recent or prior exposure to mumps virus or mumps vaccine and is appropriate to test for evidence of immunity.
Rubella	RT-PCR*	RT-PCR can be performed on respiratory (nasopharyngeal or throat) swabs and on urine. RT-PCR is most sensitive within 3 days of rash onset but can be positive up to 7 days after rash onset. Ideally, specimens should be collected at first patient contact once rubella is suspected and should be paired with serology testing (IgM) for evaluation of all suspect rubella cases. **For many jurisdictions, RT-PCR is primarily available through the state/local health department.**
	IgM*	Detection of rubella IgM can confirm rubella. IgM is most sensitive 4 or more days after rash onset, so a negative IgM within 3 days of rash onset should be interpreted with caution. False-positive IgM can occur due to cross-reactivity with other causes of febrile rashes (e.g., Parvovirus) or the presence of rheumatoid factor. Ideally, RT-PCR and serology should be performed for all suspect rubella cases. **IgM is <u>not</u> an appropriate test when evaluating for immunity.**
	IgG*	The presence of rubella-specific IgG indicates a recent or prior exposure to rubella virus or rubella vaccine and is appropriate to test for evidence of immunity.
Varicella	RT-PCR*	RT-PCR is the standard method for confirming varicella, being sensitive, specific, and widely available. Vesicular swabs and scabs from crusted lesions are the preferred specimens. In the absence of vesicles or scabs (likely for cases among vaccinated persons), scrapings of maculopapular lesions can be collected for testing. Adequate collection of specimens from maculopapular lesions can be challenging (needs abrading of the lesion) but cases can be laboratory confirmed with a high success rate by testing properly collected specimens. **RT-PCR testing is available at many clinics and some state/local health departments. RT-PCR to differentiate between wild type and vaccine strain is available at designated reference centers.**
	IgM	**IgM is <u>not</u> recommended for laboratory confirmation of varicella.**
	IgG*	A single serologic IgG test can be used for evidence of immunity, to determine if a person has antibodies to VZV from past varicella disease or vaccination. Of note, commercially available VZV IgG assays are not sensitive enough to detect all seroconversions after vaccination and may yield false negative results in varicella vaccinated persons. Routine testing for varicella immunity after vaccination is not recommended, documentation of receipt of two doses of varicella vaccine supersedes the results of subsequent serologic testing. Serum should be collected 3 or more weeks after rash onset.

** Tests should be available to clinicians*

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