Figure 8 (A-C). Flowchart for laboratory testing for suspected measles or rubella case in an elimination setting.

Panel 8A. Virologic specimen testing by RT-PCR
Figure 8 (A-C). Laboratory testing for suspected measles or rubella case in an elimination setting.

Panel 8B. Flowchart for serologic specimen testing ≥4 days post rash for measles or ≥ 6 days for rubella suspected cases (footnotes to 8B on following page).
Footnotes for Figure 8, Panel 8B

1. A measles reinfection case can have a negative IgM result. If measles reinfection is suspected, consult with the regional laboratory coordinator. Reinfection cases can be confirmed by RT-PCR, a rise in IgG titer or by measuring high levels of measles neutralizing antibody levels (≥ 40,000 mIU/mL) by plaque reduction neutralization testing.

2. Parallel, or reflex, testing should be performed according to the resources available and regional surveillance recommendations.

3. An equivocal IgM result is obtained after repeat of test. The equivocal or positive IgM result was obtained using a validated assay in accredited laboratory.

4. A positive IgG result and an equivocal IgM for rubella are inconsistent with primary rubella. If acute serum was IgM positive, rubella avidity testing or evaluation of IgG titers with paired specimens may be necessary to resolve the case. Low avidity is associated with recent primary rubella infection; high avidity is associated with past infection, vaccination, or reinfection.

5. If the acute serum was IgG negative, the absence of seroconversion can be demonstrated with a second serum collected ≥ 10 days post rash.

6. In most instances, a suspected case with an equivocal IgM result obtained from acute serum and a positive IgM from the second serum confirms the case. However, an evaluation of IgG titers may be deemed necessary to support the IgM result.

7. Test for IgG if test is available (by semi-quantitative EIA) using appropriately timed paired specimens, tested together. Seroconversion or demonstration of a diagnostically significant rise confirms the case. Absence of seroconversion (both IgG negative) rules out the case.

Note: failure to measure a diagnostically significant rise in titer must be interpreted with caution since the ideal timing for demonstration of a rise in titer can vary among individuals.

8. The rise in IgG titer from a measles reinfection case is rapid and remarkably high titers in acute serum are typical. Consultation with the regional laboratory coordinator is recommended to determine if additional testing is warranted and feasible.
Figure 8 (A-C). Laboratory testing for suspected measles or rubella case in an elimination setting.

Panel 8C. Flowchart for serologic specimen testing ≤3 days post rash for measles or ≤5 days for rubella suspected cases, when result for IgM (and RT-PCR) is negative.