Appendix 1

Information on Laboratory Testing

Measles serology

- An IgM response will be present in approximately 75% of measles cases 3 days after rash onset, rising to approach 100% after 7 days. A measles IgG antibody test should preferably be performed together with the IgM assay to aid interpretation.
- Measles IgM is a sensitive and specific marker of recent measles infection, but can also be detected for 1 - 2 months following immunisation.
- A negative result does not rule out a diagnosis of measles if the sample was taken earlier than 72 hours after onset of the rash. When no measles IgM or IgG antibody is detected in a sample collected within 3 days of rash onset from a suspected case of measles, repeat testing is recommended 7 days from rash onset (alternatively, a measles PCR could be requested upon the sample – see below).
- False positive measles IgM can also occur, and if suspected, the IgM test should be repeated or PCR requested – see below. Serology for rubella and parvovirus B19 should also be considered as cross-reactivity is known to occur.
- Where a false negative or false positive IgM result is suspected, testing for measles specific IgG seroconversion by EIA on paired sera collected 10 -14 days apart is helpful.
- Clotted blood is the preferred specimen for serological testing.

Measles virus isolation

- Measles virus may be identified by cell culture from blood, conjunctival swab, throat swab, nasopharyngeal swab or aspirate if taken within 5 days of the onset of the rash, and from urine for up to 10 days after the onset of rash. (Any isolate will be referred to Victorian Infectious Diseases Reference Laboratory (VIDRL) for genotyping.)
- Nasopharyngeal aspirates or nasopharyngeal swabs are the preferred sample for culture. Throat swabs or nasal washes are also suitable for culture. The swabs should be placed immediately after collection into viral transport medium, and all these samples should be transported at 4°C.

Measles PCR

- Respiratory specimens and early catch urine collected up to 7 days after onset of the rash or sera collected after 3 days can be referred to Queensland Health Forensic and Scientific Services (QHF&SS) for measles PCR on an urgent basis if necessary. The PHU should facilitate communication with and between the laboratories involved concerning collection of suitable specimens and transport arrangements.
- Being aware of the relatively poor sensitivity of blood samples in general and serum in particular, nasopharyngeal aspirates or nasopharyngeal swabs are the preferred respiratory samples for PCR. Throat swabs or nasal washes are also suitable for PCR. A dry sterile swab of the nasal
passage combined with a similar swab from the back of the throat is the recommended specimen for detection of viral nucleic acid (PCR). Swabs should be cotton, rayon or dacron-tipped, plastic-coated or aluminium shafted swabs. They should be placed into viral transport medium. Samples should be stored and transported at 4°C to arrive at QHF&SS within 72 hours of collection.

- Early catch urine samples should also be stored and transported at 4°C to arrive within 72 hours.
- Heparinised blood for PCR should be collected in an EDTA tube and transported at room temperature.

**The effect of recent vaccination**

- Vaccine-induced “measles” is a modified form of measles occurring 5 -12 days after measles vaccination. It is not transmissible and should NOT be classified as measles.
- Serologically-diagnosed cases who received a measles-containing vaccine 8 days to 8 weeks before testing may be classified as confirmed measles ONLY if they are also epidemiologically linked to a confirmed case.