Guidance forConfirming a Diagnosis of Measles, Mumps or Rubella (MMR)

February 2012
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1. **Introduction**

This guidance has been developed due to changes in the diagnostic testing of these three diseases by the Centre for Infections (CfI) at the Health Protection Agency (HPA).

Within the 'case definitions' of Appendix 2, it is preferable for confirmation to be obtained using the HPA salivary test kit.

1.1 **Rationale for confirming Measles, Mumps and Rubella (MMR) disease**

In order to monitor the effect of the national vaccination campaign the HPA offer a salivary testing service to confirm any suspected cases of measles, mumps or rubella. Because of high vaccination uptake, cases of MMR are now less common than similar illnesses caused by other infections. To plan future vaccination policy, therefore, we need laboratory confirmation of the vast majority of notified cases. In recent years the cases of measles and mumps infections, in particular, have been rising.

Salivary testing is an accurate, non-invasive method, and samples can easily be obtained.

Traditionally the salivary test was designed to measure the antibodies:

- \( \text{IgM} \) present is a confirmation of recent infection
- \( \text{IgG} \) denoted previous infection or immunisation

The implications of this were as follows:

- Detection of the antibodies could not be measured for at least a week after onset of symptoms.
- The salivary sample couldn’t be taken at the initial consultation – there was a forced delay in taking the sample.
- Results were not available until the patient had fully recovered.

The technological advances have now enabled the laboratory in CfI to undertake polymerase chain reaction (PCR) confirmatory testing.

The practical implications of this change are as follows:

- The sample for this test can be taken at the time of onset of symptoms and can therefore be done at the time when the patient presents to a clinician, either their GP, or at MEDS, MIU or A&E. If
for any reason it is not feasible to do the swab at the consultation time, the patient can be given a kit to do at home, or one can be posted to them as soon as possible.

- Results are available much quicker.
- Cost savings to the Isle of Man as serology testing will not be required.

Prompt notification to the Proper Officer in Public Health Directorate still needs to be made, to allow the Health Protection Nurses to undertake appropriate public health actions:

- Contact tracing in an attempt to identify the source and identification of susceptible contacts.
- Information to schools/nurseries re the seriousness of the disease suspected with a request to distribute a letter, from the Director of Public Health, to the parents of children in the childcare setting reminding them of the importance of vaccinations.
- Monitor local vaccine coverage to identify the need for local or targeted vaccination campaigns.

### 1.2 Procedure for taking a salivary sample

The sample is taken by gently brushing the teeth and gums (gum line) for a minute or two - with a sponge swab and is therefore painless even in young children. This can be done either by the clinician, the parent, or adult patient. The patients can of course refuse this test. This will not affect their future care.

If you think testing is required rapidly please contact the Immunisation Diagnosis Unit (IDU) on **0208 327 6253** at the time of taking the swab to discuss the level of urgency and to discuss transport options prior to sending the sample.
How to take an oral fluid swab

1. Pink swab (A) & clear tube (B)
2. Green screw top container (C)
3. Box (D)

Contents Swab Test package

1. Request form (E)
2. Pre-paid plastic envelope (F)

1. Swab the gum line (cheek side) for 1–2 minutes
2. Replace pink swab in clear tube (B), writing patient's name, DOB, today's date onto the tube (B)
3. Place clear tube (B) into green screw top container (C)
4. Complete request form (E) place with container (C) into cardboard box (D)
5. Place box (D) into plastic envelope (F)
6. Post plastic envelope (F) in your local Royal Mail post box

For further supplies of salivary test kits, please contact Public Health Reception on +44 (01624) 642688.
Case definitions

Measles

Measles is a systemic viral infection caused by paramyxovirus. It is highly infectious with a $R_0$ of 14 - 17 (influenza has a $R_0$ of 1.4).

If suspected the case needs to be isolated and excluded from school or work for four (4) days.

### Suggested case definition:

**Suspected case:**
- Fever (> 38°C if measured) plus
- Rash plus one of conjunctivitis, cough coryza

**Confirmed case:**
- Measles virus in the blood, urine, conjunctival or nasopharyngeal secretions; or
- Measles IgM in blood or saliva; or fourfold or greater rise in measles IgG in blood

**Clinical features:**

In an unvaccinated child there is prodromal illness with a high fever and a coryzal respiratory infection. There is cough, conjunctivitis and runny nose. Koplick’s spots appear during the early stage of the illness – these look like grains of salt on a red inflamed background and are found on the mucosa of the cheek next to the premolars and molars. The rash of measles starts on day 3 or 4, initially in the hairline, but spreads rapidly to cover the face, trunk and limbs. It is maculopapular but not itchy. Koplick’s spots fade as the rash appears. The rash fades over a week to 10 days.
Clinical features:

In a vaccinated child, the illness is usually mild with a low grade fever, transient rash and absent respiratory features.

Complications of measles include pneumonitis, encephalitis and secondary bacterial infection, especially acute otitis media and pneumonia. Complication rates are higher in malnourished or immunosuppressed children. Subacute sclerosing panencephalitis is a late, slow-onset, progressive complication that occurs in about 1 per million cases. It is always fatal.

Mumps

Mumps is a systemic viral infection characterised by parotitis. It is caused by a paramyxovirus.

If suspected the case needs to be isolated and excluded from school or work for five (5) days after onset of swelling.

Suggested case definition:

Suspected case:

Clinical: Acute onset of parotid swelling, in the absence of other obvious cause.

Confirmed: Positive by culture, IgM or fourfold increase in IgG. Does not need to meet suspected case definition.

Clinical features:

Tenderness and swelling of the parotid occur in about 70% of cases. It can be confused with swelling of the cervical lymph nodes. Other common features of mumps include meningitis (which is mild), orchitis (in adult males) and pancreatitis. Rare features are oophoritis, arthritis, mastitis and myocarditis.
**Rubella**

Rubella (German measles) is a systemic virus infection; the rubella virus is a member of the togaviridae.

If suspected, the case needs to be isolated and excluded from school or work for six (6) days.

<table>
<thead>
<tr>
<th><strong>Suggested case definition:</strong></th>
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<tbody>
<tr>
<td><strong>Suspected case:</strong></td>
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<tr>
<td>General maculopapular rash, fever plus one of cervical lymphadenopathy or arthralgia or conjunctivitis</td>
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<tr>
<td><strong>Confirmed:</strong></td>
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<tr>
<td>▪ Presence of IgM in blood, urine or saliva; or</td>
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<tr>
<td>▪ Fourfold or greater rise in haemagglutination inhibition antibody in serum; or</td>
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<tr>
<td>▪ Positive viral culture in blood, urine or nasopharyngeal secretions</td>
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<tr>
<td>▪ Positive by culture, IgM or fourfold increase in IgG. Does not need to meet clinical case definition.</td>
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<thead>
<tr>
<th><strong>Clinical features:</strong></th>
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<tr>
<td>The main differential diagnosis is parvovirus, which is now more common than rubella. In rubella there is sore throat, conjunctivitis and mild fever for 2 to 3 days before the macular rash appears. The lymph nodes of the neck are often swollen. Recovery is usually rapid and complete, although, as in parvovirus infection, persistent joint infection sometimes occurs, especially in adults.</td>
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<td>The features of congenital rubella syndrome range from mild sensorineural deafness to multiple defects of several organ systems.</td>
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Appendix 3

Contact Tracing Form for Measles, Mumps and Rubella (MMR)

### Contact Tracing Form for Measles, Mumps and Rubella (MMR)

#### Index case:

| Name: |  |
| Date of Birth: |  |
| Gender: | Male | Female |
| Address: |  |
| Telephone No.: |  |
| Mobile No.: |  |
| General Practitioner: |  |
| Disease identified: |  |
| Date of onset: |  |
| Vaccination history: |  |

#### Contact with another case:

| Date of contact: |  |
| Name of index case: |  |

#### Household Members:

<table>
<thead>
<tr>
<th>Name:</th>
<th>Date of Birth</th>
<th>Age</th>
<th>Gender</th>
<th>Fully Immunised?</th>
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<tbody>
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#### Close Contacts:

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<thead>
<tr>
<th>Name:</th>
<th>Date of Birth</th>
<th>Age</th>
<th>Gender</th>
<th>Fully Immunised?</th>
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**Other Contacts: (e.g. school or work)**

Please document on a separate sheet if necessary.
<table>
<thead>
<tr>
<th>Points to consider:</th>
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**Mumps**
- incubation 2-3 weeks, cases are infectious for up to a week (normally 2 days before swelling until 5 days after).
- consider exclusion from school for 5 days from onset of parotid swelling, if many school contacts are unvaccinated.

**Rubella**
- exclude from school/work for 6 days from onset of rash
- limit contact with those known to be pregnant. If contact, advise as per HPA Guidance on viral rash in pregnancy.

**Measles**
- is highly infectious incubation usually about 10 days
- exclude from school/workplace for 4 days after the onset of rash
- discuss with Director of Public Health, HNIG to immuno-suppressed close contacts and those under 12 months of age (unvaccinated).
The information in this booklet can be provided in large print or in audio format on request.