Public Health Management of Mumps Outbreaks Guideline

1. Guiding Principles

The WA Country Health Service (WACHS) Guidelines for the Public Health Management of Mumps Outbreak were originally formulated during the 2015 mumps outbreak in Western Australian (WA) regional areas.

This guideline provides guidance for regional Public Health Teams (PHTs) to support the management of mumps outbreaks in regional WA. Specific reference has been made to Aboriginal communities and people, given the 2007/08 and 2015 outbreaks occurred almost exclusively among Aboriginal people in regional settings. However, the basic principles of mumps outbreak management would apply to other populations and settings.

2. Guideline

2.1 Summary

Public health priority

Semi-urgent (response within two-three working days of notification)

Case management

- Initiate response to clinically suspected and confirmed cases within two-three working days.
- Only confirmed cases should be entered in WANIDD; within one-two working days of notification. (Case definition can be found in section 2.3.)
- Confirmation of clinical diagnosis by laboratory testing (buccal swab and/or urine PCR) is important for sporadic cases; given that both false-negative and false-positive results are commonly seen with IgM serological tests.
- Treatment of cases is supportive and information regarding possible complications should be offered.
- While infectious, the case should remain isolated for five days, preferably within their home.

Contact management for sporadic cases

- Advice is given to those who may have been exposed regarding clinical signs of mumps and when to seek care.
- In general, contacts of sporadic cases are not offered post-exposure vaccination or immunoglobulin, as it will not prevent disease.
- Identified household and close contacts should be age-appropriately vaccinated.

Management of outbreaks

- The regional Public Health Physician/Consultant, in consultation with other regional PHT members, will declare an outbreak when there is a greater than expected number of cases in each community with evidence of ongoing transmission. The regional PHT will lead the response within the region.

- A priority public health action in the event of a mumps outbreak should be to alert regional clinicians, with the aim of facilitating the timely identification and isolation of new cases.
- A second priority is to limit the number of susceptible individuals within a community and ideally throughout the entire region, by encouraging all community members to ensure they are up to date with their recommended MMR (Measles, Mumps and Rubella) and MMRV (Measles, Mumps, Rubella, Varicella) vaccinations (two doses).
- In discrete Aboriginal communities, once an outbreak has been declared, the use of a third or booster dose of MMR vaccine is recommended to those most at risk of mumps infection. Those most at risk are typically defined by age, family/friendship links and/or household proximity criteria.
- In other specific settings, such as boarding school facilities, childcare centres or some workplaces, the regional PHT will consider the targeted use of a third or booster dose of MMR vaccine. The aim of this intervention is to target those people who are most at risk of infection and are likely to come in to contact with future cases despite best efforts at isolation.
- Target groups for a third or booster dose of MMR vaccine are defined by age and other criteria based on epidemiological data from current and previous outbreaks.

2.2 The disease

Infectious agent

Mumps is a virus; a member of the family Paramyxoviridae, genus *Rubulavirus*.

Reservoir

Humans

Mode of transmission

By airborne spread; also, direct contact with the saliva of an infected person.

Incubation period

Usually 16-18 days (range 12-25 days).

Infectious period

- Mumps virus has been isolated in the saliva of infected persons from seven days prior to symptom onset, to up to nine days after. Asymptomatic infections can be communicable.
- In general, maximum infectiousness occurs between two days before onset of parotitis and five days afterwards.

Clinical presentation and outcome

Mumps is an acute viral illness and is classically manifest by fever, swelling and tenderness of the salivary glands; most notably the parotid, but sometimes the sublingual or submaxillary glands may be involved. Generalised symptoms of malaise, headache, myalgia and anorexia are common. Parotitis may be unilateral or bilateral and usually lasts seven-ten days in unvaccinated individuals. Respiratory symptoms are common, particularly in young children (40-50%). Milder disease can occur in vaccinated populations and subclinical disease has been reported in up to 30% of those infected.

Although usually a mild disease, mumps can cause complications such as:

- orchitis (in 20-30% of post pubertal males)
- aseptic meningitis (10% of cases)
- oophoritis (7% of post-pubertal females)
- sensorineural hearing loss (4% of cases)
- pancreatitis (4% of cases).

Encephalitis is a rare complication (1-2/100,000) with a case fatality rate of approximately 1%. Mumps infection in pregnancy is not thought to cause congenital anomalies, but infection in the first trimester may cause spontaneous abortion.

Routine prevention activities and vaccination

- In Australia, immunisation against mumps is currently achieved using the MMR (measles-mumps-rubella) and MMRV (measles-mumps-rubella-varicella) combination vaccines in a two-dose schedule as part of routine childhood immunisation at 12 and 18 months of age, respectively.
- Older individuals may have received different vaccine formulations and at different ages, depending on the schedule at the time.
- Mumps vaccine was introduced to the childhood schedule in WA in 1981 as a single dose given at age 12 months. A second dose (as part of the combined MMR vaccine) was added to the schedule in 1994 – initially at age 12 years and from 1998 at age 4-5 years. In 2013, the second dose of MMR (now combined with varicella) was brought forward from 4 years of age to 18 months of age.
- Immunity following wild-type mumps virus infection is generally long-lasting.
- Immunity following two doses of vaccination is generally considered to be high (around 88% to 95%). However, outbreak data suggest immunity from vaccination can wane in as little as ten years.

Persons at increased risk of disease

- Unvaccinated individuals
- Australians born in the late 1960s to mid-1980s, particularly those born between 1978-1982 around the time of the introduction of a mumps vaccine, are recognised to be at a greater risk, as many missed being vaccinated (including catch-up campaigns) and may not have been exposed to ‘wild-type’ mumps virus, as disease incidence was decreasing during that time. Adults born during or since 1966 are recommended to have received two documented doses of mumps-containing vaccine.

Disease occurrence in Australia

Mumps has been a notifiable infection in Australia since 2001. In that year there were 114 notifications nationally, a rate of 0.6 cases per 100,000. In 2007 the national notiifcation rate rose to 2.7 per 100,000 due to a large outbreak that affected primarily Aboriginal people in the Northern Territory (NT) and northern WA, particularly the Kimberley Region. In 2017 the national rate continued to increase to 3.4 per 100,000.

The 2007-08 Kimberley outbreak was very unusual, in that there was clearly intense and sustained local transmission, primarily in Aboriginal residents aged between 5 and

29 years (peaking in 15-19 year-olds), a high proportion of whom were partially or fully vaccinated. A total of 148 cases were notified in Kimberley residents between July 2007 and September 2008. The Kimberley outbreak was caused by a genotype *J* mumps virus.

In 2015, another large mumps outbreak occurred almost exclusively in highly vaccinated Aboriginal children, teenagers and young adults in regional WA. The outbreak commenced in the East Kimberley area and subsequently moved through the Kimberley, Pilbara, northern Goldfields and the Midwest, as well as seeding outbreaks in distant boarding schools when students returned from holidays in affected areas. By November 2015, over 300 cases had been notified and in 2016 the national notification rate had risen to 3.3 per 100,000, with most cases being in Indigenous people from the NT and WA. In more recent years, from 2017 to 2021, rates in WA have returned to low levels of below 1.2 cases per 100,000.

Resurgent mumps outbreaks overseas and in Australia have been attributed to several factors, including: primary vaccine failure; waning immunity in young adults who were vaccinated in childhood; lack of natural immunity due to decreased circulation of wild-type virus; and diminished serologic cross-protection due to antigenic differences between the Jeryl Lynn mumps vaccine strain (genotype A) and those of circulating strains, including genotypes *G* and *J.*

2.3 Case definition Mumps

Reporting

Both **confirmed cases** and **probable cases** should be notified.

Confirmed case - A confirmed case requires laboratory definitive evidence.

Laboratory definitive evidence

1. Isolation of mumps virus*
   OR
2. Detection of mumps virus by nucleic acid testing*
   OR
3. IgG seroconversion or a significant increase in antibody level or a fourfold or greater rise in titre to mumps virus EXCEPT when there has been recent mumps-containing immunisation eight days to eight weeks prior to specimen collection. (NOTE: paired sera must be tested in parallel).

**If mumps vaccine has been given in the 25 days prior to illness onset wild-type virus must be detected to be classified as a confirmed case. Vaccine-associated mumps illness (genotype A) is not notifiable, but rather should be reported as an adverse event following immunisation.*

Probable case - A probable case requires either:

1. Laboratory suggestive evidence AND Clinical evidence
   OR
2. Clinical evidence AND epidemiological evidence

Laboratory suggestive evidence - Detection of mumps-specific IgM antibody EXCEPT

a – if ruled out by more specific mumps IgM serology testing at a jurisdictional public health laboratory

OR

b – if the case received a mumps-containing vaccine eight days to eight weeks before specimen collection.

Clinical evidence - A clinically compatible illness characterised by swelling of the parotid or other salivary glands lasting two days or more without other apparent cause.

Epidemiological evidence - An epidemiological link is established when there is:

1. Contact between two people involving a plausible mode of transmission at a time when:
   a.) one of them is likely to be infectious (6-7 days before onset of overt parotitis to 9 days after);
   AND
   b.) the other has an illness that starts within approximately 12 to 25 days after this contact;
2. At least one case in the chain of epidemiologically linked cases (which may involve many cases) is a laboratory confirmed case.

(Government of WA, 2021)

2.4 Laboratory testing

All clinically suspected sporadic cases of mumps infection (see 2.3 for case definition) and at least one case in each chain of transmission in isolated clusters and larger outbreaks should be tested to verify the diagnosis via buccal swab and/or urine PCR, +/- culture and serology (IgG and IgM).

Preferred specimens for virus detection and culture are swabs from the buccal mucosa and urine. (Refer Appendix 2*:* How to collect a buccal swab for mumps virus testing). Specimens should be referred to PathWest at the QEII Medical Centre for testing.

- Serology alone is unreliable for diagnosing mumps in people who have been previously vaccinated as many have measurable IgG antibodies but do not mount an IgM response. Both IgG and IgM may be absent in very early infection in unvaccinated individuals, and false positive IgM results may also occur.
- In previously unvaccinated cases, virus can be isolated from 6 days prior to and up to 9 days after symptom onset. While the likelihood of isolating mumps virus in previously vaccinated cases is lower, PCR remains very sensitive and should still be requested.
- Since PCR is not positive in all cases, a baseline and convalescent serum sample can be helpful in detecting a rising mumps IgG titre. The common mumps IgG tests used by most laboratories cannot detect rising IgG, so these specimens should also be referred to PathWest at the QEII Medical Centre.
- Genotyping of mumps virus will be undertaken by PathWest on sporadic cases and on at least one case in a chain of transmission, including apparent new chains within larger outbreaks, to clarify source and relatedness. Genotyping is also useful in distinguishing wild-type virus infection from illness associated with the mumps vaccine strain in individuals who develop symptoms after vaccination, including where MMR boosters are used as part of an outbreak control strategy.
- Testing of cases or contacts for any reason other than to ascertain the diagnosis and/or to assist with clinical care of an individual or the current outbreak response, should not be undertaken unless specific ethics approval is obtained.

2.5 Case management

There is no specific anti-viral treatment for mumps. Treatment is supportive and includes symptom management with simple analgesia.

Cases should be excluded from school, work and social gatherings for five days after parotitis onset and warned of the risk to their contacts during this period of infectivity. As mumps is notifiable in WA, clinicians must report all cases of mumps to the Regional Public Health Unit using the Department of Health infectious and related disease notification form - Rural . An enhanced surveillance form (available from CDCD) should be completed for all confirmed mumps cases.

In the post-vaccine era, complications of mumps infection are not common. However, patients should be made aware of the signs and symptoms of potential complications such as deafness (transient or permanent), orchitis, meningitis, mastitis, oophoritis, pancreatitis and encephalitis.

2.6 Contact management for isolated mumps case

Contacts of the case in the two days before and five days after symptom onset should be identified and informed of possible mumps exposure and symptoms.

Immunisation status of household and other close contacts should be determined, and 'catch-up' vaccination offered through primary healthcare for those not age-appropriately vaccinated. Post-exposure 'catch-up' vaccination (in those who have not already received two doses of MMR or MMRV) or a booster dose (in those who have had two doses already) is not effective in preventing mumps illness in those who are already infected and incubating the virus. However, it is justified in reducing the risk of the individual being infected by subsequent cases in the household/contact circle, ensuring protection against other antigens in the vaccine (measles, rubella +/- varicella), and in reducing the risk of ongoing transmission generally. There is no specific risk in vaccinating those who are already immune or those already infected and incubating the virus.

A child's vaccination history can be readily determined by accessing AIR (for those born after 1996), or health records. If doubt exists about an individual's vaccination status being complete, vaccination should be offered and recorded. 'Catch-up' vaccination for age-eligible children is in accordance with the WA schedule. Costs of these normal childhood vaccinations, including 'catch-ups' are borne by the National Immunisation Program.

Where a case has attended school or similar settings during the period of infectivity, information should be disseminated to inform identifiable contacts (e.g. classmates, sporting team-mates) of the signs and symptoms of mumps and the benefits of catch-up vaccination for those not age-appropriately vaccinated.

2.7 Public health management of a mumps outbreak

When the number of cases in a community in a given time period exceeds expectation and there is evidence of ongoing transmission, an 'outbreak' may be declared by the regional Public Health Physician/Consultant, in consultation with other regional PHT members. The circumstances that trigger a public health outbreak response, and the extent of the response will be based on a risk assessment made by the PHT, in consultation with CDCD and others as appropriate. This will depend on the number of cases, the epidemiological links between cases, the perceived risk of ongoing transmission (e.g. considering age, ethnicity, social and geographical factors) and logistic and other variables.

Efforts should be made to ensure that cases are identified quickly, isolated to reduce the spread of the infection and provided with information about the disease.

Vaccination

An important goal is to reduce the number of susceptible individuals in the community, by two methods:

- ensuring individuals are age-appropriately vaccinated with a mumps containing vaccine

- in specific circumstances, provide an unscheduled third or "booster" dose of MMR in a targeted or community-wide booster vaccination initiative to prevent ongoing transmission.

Booster vaccination will be considered where it is believed that there may be a sufficient number of individuals in a defined population group (e.g. extended household, remote residential community, boarding school population) who would be susceptible to infection (e.g. due to age, waning immunity or inadequate cross-protection of vaccine strain to the circulating virus genotype). In such a circumstance, booster doses of MMR are given regardless of the recipients' previous vaccination history. Individuals who have recently had mumps (i.e.cases) do not need to receive a booster at this time.

It is important to inform individuals having a 'catch-up' or 'booster' vaccination that they may still develop mumps if they have already been infected and are incubating the virus at the time of vaccination. If clinical signs/symptoms occur post-vaccination, laboratory testing should be performed (buccal swab and urine PCR) to identify the virus genotype, as a mild parotitis and/or submandibular swelling can occur in 0.3-1.6% of vaccine recipients.

Public Health Management of a mumps outbreak in an Aboriginal Community

In Aboriginal communities that have large household sizes, large social gatherings, frequent and/or ongoing movement of people between households and other communities, effective isolation of cases is problematic and there are increased risks of transmission of mumps by both known and unrecognised cases. This was demonstrated in the 2007/08 and 2015 outbreaks. In such settings the PHT will consider the possible benefits and risks of offering a third or 'booster' MMR vaccination in either a targeted 'at risk' or community-wide initiative.

There is very little published literature on the immune basis for the use of MMR boosters for mumps outbreak control in well vaccinated populations, but limited evidence suggests the strategy could be effective and worthwhile attempting in appropriate circumstances. Anecdotal and preliminary observations made during the 2015 mumps outbreak in the Kimberley and Pilbara regions indicated that MMR boosters are most likely to be effective when implemented promptly after recognition of initial cases in an extended household or community setting, and with maximal vaccine coverage achieved in a short period of time within the targeted age-range. Conversely, where implementation was delayed, spasmodic and coverage incomplete, or not feasible, such as in larger towns (Broome and Port Hedland) ongoing transmission of mumps was evident over many weeks.

Decisions regarding the scope of targeted (in populations with initial cases) or wider (in communities with no cases) MMR booster initiatives to control mumps outbreaks should be made by the PHT in consultation with local immunisation providers and communities, and with advice from CDCD, as appropriate. The rationale for the intervention and specifications of the target group should be clearly defined, and flexibility in-built to allow the response to be altered in accord with changes in epidemiology.

The overarching aim of either targeted or wider initiatives is to halt ongoing virus transmission within the community and to prevent spread to other communities.

Importantly, targeted and wider community initiatives are over and above 'catch-up' vaccination efforts, isolation of cases and raising awareness of healthcare providers and the community.

A sequential approach is recommended on the basis of efforts for controlling spread of the 2015 mumps outbreak in Aboriginal people in the north-west, as follows:

1. no cases in a community, but cases in the region: promote age-appropriate catch-up vaccination in children and eligible young adults within the whole region
2. first "sporadic" cases in a remote community or town setting: offer MMR booster doses to extended household members and defined close contact circles (e.g. classmates, sporting team-mates), for a specified target age group
3. second or further cases occur in a remote community setting within an incubation period of the initial case and outside those defined contact groups: extend MMR booster doses to *everyone in the community* aged within a specified target age group, subject to resources.

The specified target age group may vary, depending on the epidemiology of cases in the current outbreak, logistics, resources and other factors. In general, those born after 1978, who are at least eight years old are considered most 'at risk', based on the effects of waning immunity post-vaccination (presumed to occur in as little as five years) and reduced exposure to wild-type virus in older people. During the 2007/08 and 2015/16 outbreaks, an age-group of 8-35 years or 8-40 years was generally used, which corresponded to epidemiology of cases.

Management of outbreaks in town settings and regional centres

The optimum strategy for controlling transmission in town settings or regional centres is less clear. The sequence outlined above may be feasible where defined risk populations can be identified, such as fringe camps and clusters of households.

Other options for consideration in larger towns where cases occur more diffusely across the community could include a school-based initiative of booster MMR doses for Aboriginal children in a defined age group. Provision of opportunistic booster vaccinations at local Aboriginal Health Services could be considered, as it may provide some protection to individuals; however large population coverage is unlikely to be achieved.

Irrespective of the epidemiology it may be difficult to limit provision of booster MMR doses in communities and schools to Aboriginal people only. Public perception of equity and response needs to be considered prior to embarking on a targeted intervention of this type, as may the resource implications of extending the target group to include those that are not identified at risk by the outbreak epidemiological data.

Management of outbreaks in boarding schools and other educational settings and closed environments.

In both the 2007/08 and 2015/16 mumps outbreaks in WA, transmission occurred in school boarding facilities after infected Aboriginal students returned from holidays. In turn, individuals infected in boarding schools introduced mumps to their communities after returning home. Hence, in such settings, where the ability to effectively isolate known cases may be limited and ongoing transmission may occur, it is important that other students are up-to-date with at least two doses of MMR vaccine.

Timely provision of a third/booster dose of MMR to all residents and staff of an age determined by the outbreak epidemiology in a boarding school setting is recommended.

Resolution of the outbreak

Following the resolution of an outbreak:

- Aboriginal communities that were involved in the outbreak should be informed of its resolution, as should regional stakeholders involved in the response
- an outbreak debrief should be conducted, particularly to gather 'lessons learned' from the epidemiology and public health management of the outbreak
- for multi-regional outbreaks, CDCD should lead these discussions and provide collated information.

2.8 Exposure of healthcare workers

All healthcare workers and students directly involved in patient care or the handling of human tissues should ensure they are immune to mumps virus. Healthcare workers born during or after 1966 should have evidence of either receiving two doses of MMR vaccine or having immunity to mumps. Those born before 1966 are considered to be immune, due to high circulating virus prior to this time.

During an outbreak, a booster dose of MMR is recommended to staff only if they do not have documented evidence of immunity or vaccination OR if the staff member is also a member of the 'at risk' target group within a community where booster vaccinations are being offered more widely. For example, in an Aboriginal community in which booster vaccination is being offered to all Aboriginal people aged 8-40 years, healthcare workers that are within this target group should be offered a booster, regardless of previous vaccination history.

If a staff member known to be non-immune to mumps is exposed to the virus, consideration can be given to excluding them from direct patient care duties during the incubation period (12-25 days post exposure). Such a decision should be made based on a risk assessment of the situation and the implications to healthcare delivery. Advice can be sought from the local public health unit and/or CDCD.

2.9 Communication

Clinical alerts should be issued by the PHT advising all local primary healthcare and hospital clinicians that mumps cases have been identified and that further cases may be expected (Refer to Appendix 1: Mumps Alert for Health Professionals and Appendix 2: How to collect a buccal swab for mumps virus testing). The intent of this communication is to ensure that new cases are quickly identified, confirmed with appropriate laboratory testing, requested to remain in isolation, and notified promptly to the PHT. In addition, immunisation providers should be encouraged to check and ensure that all children are age-appropriately vaccinated against mumps, as specified in the WA schedule.

Following media approval from WACHS Communications, community awareness should also be raised, as appopriate, using local radio, local print, social and electronic media.

Where appropriate, information on cases and outbreaks should be shared between neighbouring regions (or other relevant regions). Specifically, PHTs should notify other

regional PHTs if there are cases of mumps in an Aboriginal community from which there may be movement of people to a community in a different region. Relevant information regarding significant outbreaks in Aboriginal communities should also be provided by the regional PHT to the Public Health Medical Officer at the Aboriginal Health Council of WA (AHCWA) as well as the local Aboriginal Medical Service (AMS).

A mumps factsheet should be provided to individual cases and their close contacts. Where appropriate, signage may be used within Aboriginal communities to inform residents of the risk of mumps infection and preventive measures.

2.10 Data management

Data will be collected by the regional PHT, particularly: age, sex, Aboriginality, clinical features, presence of complications, date of onset, mumps vaccination history (including vaccine booster doses), pathology test results, exposure history and identified linkages to other cases or affected communities.

Entering of data into WANIDD should commence within two-three days of notification and updates to fields performed as new information becomes available.

In order to inform policy and guide strategies for control of future outbreaks, regional PHTs implementing MMR booster initiatives and other outbreak response measures should collect data to facilitate evaluation of the impact of these interventions.

Information that should be collected includes:

- Epidemiological curve
- age-specific incidence (requiring both the number of cases and population estimates) of mumps in the target population, both before and after the intervention, by vaccination status
- the incidence of adverse events following vaccination with the booster dose,
- costs associated with the intervention (e.g. consumables, travel, personnel).

Production of reports and journal publications using this information to build a better evidence base will be encouraged by WACHS.

3. Definition

Mumps	Mumps is an acute viral disease caused by a paramyxovirus and transmitted by respiratory secretions including aerosol transmission, and by direct contact with infected saliva. The disease is characterised by fever, swelling and tenderness of one or more salivary glands, most commonly the parotid glands. Symptomatic aseptic meningitis occurs in up to 10% of cases. Other potentially serious complications are less frequent and include pancreatitis, orchitis and encephalitis.

4. Roles and Responsibilities

Director Population Health (Central Office)

The Director Population Health (Central Office) is responsible for:

- liaising and communicating with WACHS Central Office Executive and the Communicable Disease Control Directorate as appropriate

Regional Director Population Health

The Regional DPH is responsible for:

- ensuring strategies are in place to enable appropriate local and regional response should a mumps outbreak occur
- liaising and communicating with respective WACHS Regional Director, other regional executive staff and Public Health Physician/Consultant

Public Health Physician/Consultant

The regional Public Health Physician/Consultant is responsible for:

- declaring a mumps outbreak in consultation the Communicable Disease Control Directorate
- leading the overall regional response to the mumps outbreak within the region according to this guideline
- in conjunction with WACHS Comms carrying out media release and public health messaging to raise awareness and encourage age-appropriate vaccination
- liaising with Regional Director Population Health, and Public Health team

Public Health Manager

The regional Public Health Manager is responsible for:

- assisting the regional Public Health Physician/Consultant in responding to the mumps outbreak
- coordinating business continuity during the surge response
- Consideration should be given to adequate capacity of the current public health workforce. If the outbreak needs exceed the available capacity of the exisiting public health workforce, a 'surge' in staff may be necessary. The WACHS Public Health Workforce Surge Guideline should be referred to when identifying 'surge' requirement.

Public and Primary Health staff (Population Health)

Public and primary health staff are responsible for:

- Assisting with public health management of mumps cases and contacts and as delegated by Public Health Manager and/or Public Health Physician/Consultant in line with this guideline.
- The collection and entering of relevant data into WANNID in a timely manner.

5. Compliance

Failure to comply with this policy document may constitute a breach of the WA Health Code of Conduct (Code). The Code is part of the Integrity Policy Framework issued pursuant to section 26 of the *Health Services Act 2016* (HSA) and is binding on all

WACHS staff which for this purpose includes trainees, students, volunteers, researchers, contractors for service (including all visiting health professionals and agency staff) and persons delivering training or education within WACHS.

WACHS staff are reminded that compliance with all policies is mandatory.

6. Records Management

All records both clinical and non-clinical will be stored in the approved Electronic Documents and Records Management System and in line with the following policies:

Records Management Policy
Health Record Management Policy

7. Evaluation

The WACHS Population Health Leadership Team will undertake a review of guideline every three years or sooner if required.

Whenever this guideline is enacted, the relevant region will undertake an evaluation of the overall response to the outbreak.

8. Standards

National Safety and Quality Health Care Standards
Clinical Governance Standard: 1.01,1.02, 1.03,1.16,1.27

9. Legislation

Health Services Act 2016
Public Health Act 2016

10. References

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11. Related Forms

Department of Health infectious and related disease notification form - Rural

12. Related Policy Documents

WACHS Emergency (Disaster) Management Arrangements Policy (2017)
WACHS Public Health Workforce Surge Guideline

13. Related WA Health System Policies

Infectious Disease Emergency Management Plan, WA Health System (2017)

14. Policy Framework

Public Health Policy Framework
Clinical Services Planning and Programs Policy Framework
Clinical Governance, Safety and Quality Policy Framework

15. Appendices

Appendix 1: MUMPS ALERT for Health Professionals (see also - editable version)

Appendix 2: How to collect a buccal swab for mumps virus testing (see also - editable version)

This document can be made available in alternative formats on request for a person with a disability

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Version:	2.00	**Date Published:**	26/05/2022

MUMPS ALERT for Health Care Professionals

Update: < Insert Date >

Current Mumps Cases

The < insert > is currently experiencing an outbreak of mumps, with < insert > confirmed cases notified with illness onset between < insert > and < insert >. The most recent cases are from the < insert > area.

Most cases have documented evidence of being fully (2 doses) vaccinated against mumps.

Clinical Signs and Symptoms

Symptoms usually develop 12 to 25 days after being exposed to an infectious person. Symptoms include:

- fever
- mild upper respiratory illness
- headache
- aching muscles
- generally feeling unwell
- swollen salivary glands, most usually the parotid (behind and below the jaw and in front of the ear)
- pain near the ear, worsening when chewing.

About one-third of people with mumps have mild or no symptoms but can still infect others who are not immune.

Most children under two years have no symptoms.

Testing and specimen collection

All persons with illnesses compatible with mumps should be tested to verify the diagnosis.

It is recommended that *all suspect cases* have specimens collected for virus detection by isolation/PCR (both buccal mucosa swab and urine); in addition, serology may be used in adults (IgG and IgM).

Preferred specimens for PCR/isolation are buccal swabs (and/or throat swabs) collected using a sterile dry cotton tipped swab placed into a sterile vial containing viral transport medium (VTM) (see Figure 2), as this allows testing by both PCR and culture. If VTM is not available and cannot be obtained quickly, then send dry swabs as these can still be used for PCR.

Virus detection by PCR should also be undertaken on a clean-catch urine specimen in a sterile screw-top jar.

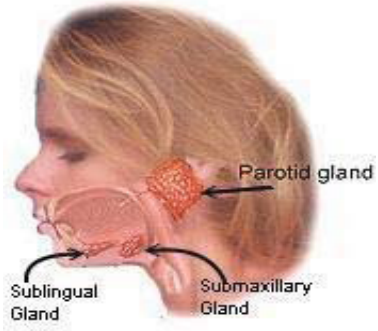
Swabs and urine specimens should be kept at refrigerator temperature (4-8^{0}C) but not frozen and referred to PathWest at the QEII Medical Centre for testing.

Serology alone is unreliable for diagnosing mumps in people who have been previously vaccinated. Since PCR is not positive in all cases, serology can be helpful if baseline and convalescent serum samples are taken and assessed for a rising IgG titre. The common mumps IgG tests used by most laboratories cannot detect rising IgG, so these specimens should be referred to PathWest at the QEII Medical Centre.

How to Collect a Buccal Swab for Mumps Virus Testing

Step 1:

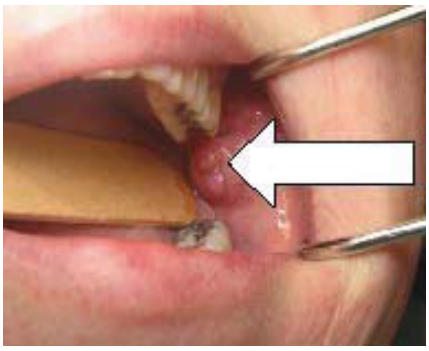
Massage the parotid gland (area between the cheek and teeth below the ear) for 30 seconds prior to the collection of buccal secretions. The parotid duct drains into this space near the upper rear molars.



Step 2:

Swab the buccal cavity near the upper rear molars between the cheek and teeth. Using a sterile dry cotton tipped swab (plastic or metal shaft, as pictured in Step 3), place between the molars and cheek and leave in place for 10 to 15 seconds.

Note: Charcoal and Gel based swabs are inappropriate for PCR and viral culture.

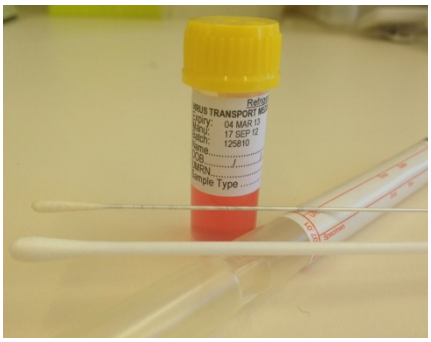


Step 3:

Place the swab immediately into a sterile vial containing 3mL of viral transport medium (yellow lidded vial pictured).
Break or cut shaft and seal in the vial and label with patient's name, date of collection and specimen site.

Keep sample cold, do NOT freeze.

If viral transport medium is unavailable, place dry swab back into tubing, seal and label with patient's name, date of collection and specimen site.



Notification and public health response

Cases should be excluded from school, other educational settings, work, and public places where other susceptible people may be present, for five (5) days after the onset of symptoms. Incompletely vaccinated close contacts should be offered MMR vaccine, although post-exposure vaccination will not prevent infection if already exposed.

All suspected or confirmed cases should be notified to the < insert > Public Health Team, preferably by telephone (< insert >) or fax (< insert >) using the standard notification form. Alternatively, email < insert >. Population Health Units will follow-up cases to investigate exposure history, facilitate testing where appropriate in liaison with the diagnosing clinician, and identify contacts who may benefit from advice or other action.