Monkeypox and pregnancy

Recommendations of Practice

What is Monkeypox (MPX)?

- MPX is an infectious disease caused by the Monkeypox virus. There has been a global outbreak in 2022 affecting more than 100 countries. The outbreak has predominantly affected men who have sex with men so far, but there have been a minority of cases in other demographics including women and children. Case numbers in NZ remain low.
- Risk to pregnant women is very low at present.

How does MPX spread?

- MPX spreads predominantly through direct contact with (touching) skin lesions, and possibly also through direct contact with saliva. Touching surfaces contaminated with skin cells, especially clothing or linens may also be important (indirect contact/fomite). There is still uncertainty about the role played by respiratory droplets and aerosols. Transmission following prolonged face-to-face contact is possible but has not yet been reported. Transmission from semen and other sexual fluids is being investigated.
- Mother-to-child transmission via transplacental infection can occur. Infants may also be infected with skin-to-skin contact if a caregiver has skin lesions.
- A person with MPX is infectious from the time that prodromal symptoms occur (if present) until the skin lesions heal completely. This may be 3-4 weeks.

Clinical presentation:

- Incubation period (time from infection to symptom onset) is usually 7-10 days (range 4-21 days).
- >50% of people have a prodromal syndrome of fever, headache, sore throat, fatigue, lymphadenopathy, back pain, myalgia.
- Within a few days, rash develops. Rash may be localised to the site of inoculation, or can generalise. If generalised, more often on face, head and limbs than on trunk. Number of lesions vary from 1 to several hundred. Lesions can occur in oral mucosa and eyes. In the 2022 outbreak, many patients have only anogenital lesions at site of inoculation.
- Skin lesions typically begin as 2-5mm macules, and evolve to papules, then vesicles, then pseudo-pustules (papules that simulate pustules but are predominantly filled with cell debris and do not contain fluid or pus). Lesions are well circumscribed, deep seated and often develop umbilication (central depression on the top of the lesion)
- Lesions crust over, then crusts dry up and fall off. This typically occurs 7-14 days after the rash begins.
- Lesions often described as painful, but in healing phase (crusts), may become itchy.
- Complications:

    - Less commonly seen in 2022 outbreak
    - Most hospitalisations are due to painful lesions in mouth or genital mucosa which need analgesia and/or fluid support
    - Rare complications include encephalomyelitis, pneumonia, sepsis from secondary bacterial infection of skin lesions, keratitis
- Due to the association of acquisition with sexual activity there are reports of co-infection of sexually transmitted infections such as HIV and chlamydia.

MPX in pregnancy:

- MPX has only been reported in <20 pregnant women (of >50,000 cases) in this outbreak.
- Historically, pregnant women with MPX have higher risk of complications of MPX. This has not been reported in the 2022 outbreak, but due to low numbers of affected women, this remains a possibility.
- MPX virus can be transmitted to the fetus during pregnancy or to the newborn by close contact during and after birth.
- Adverse pregnancy outcomes including spontaneous pregnancy loss and stillbirth have been reported in historical cases. The frequency and risk factors for severity and adverse pregnancy outcomes are not known.
- It is recommended for those who are pregnant with MPX or have had an exposure to MPX to be managed in consultation with a maternal-fetal specialist and an infectious diseases physician.

Diagnosis and testing:

- MPX is a notifiable disease in NZ and must be notified to the Medical Officer of Health on suspicion.
- Any pregnant woman with a rash illness should be isolated in a single room with door closed until diagnosis made. Staff must wear appropriate PPE (see below).
- If MPX suspected, referral to Infectious Diseases team is advised if patient is in hospital setting. ID team can help advise on diagnosis, testing, infection control precautions and further management
- Prior to testing, contact Clinical Microbiologist on call to facilitate testing.
- A detailed travel and sexual history with a detailed physical examination should be undertaken.
- Specimen collection:
    - Staff collecting specimens should wear gloves, long sleeve gown, eye protection and medical mask. Note if taking samples from oropharynx, wear N95 particulate respirator.
    - Swab type: red viral swab (same swab as for influenza/COVID PCR testing) Choose vesicular or pustular lesions where possible.
    - May need to de-roof vesicle with needle (do not use scalpel blade to do this due to higher risk of sharps injury). Swab de-roofed vesicle, ensuring you sample at base of lesion to pick up cells.
    - Label swab with patient details and site of lesion. Ensure cap is screwed tightly on viral transport media tube to prevent leakage.
    - At least 2-3 vesicle samples are required.
    - If no vesicular lesions but scabs present, can send dry scab/crust material in sterile container (Send dry, do not add saline).
    - If oral lesions present, may swab these also with red viral swab in viral transport media.

    - Microbiologist may advise on other sites and whether other tests (to rule out differential diagnoses) are required.
- Additional testing:
    - Screening for concomitant STIs
        - Chlamydia, gonorrhoea
        - HIV
        - Syphilis

Infection control precautions:

- Patients with suspected or confirmed MPX should be isolated in single room with own bathroom during admission.
- Contact and droplet precautions must be used. As a minimum, staff should wear gloves, gown, eye protection and medical mask for all room entry.
- Sessional use of PPE is not permitted. PPE must be changed after each room entry.
- Enhanced cleaning is required for the room, including cleaning of high touch near-patient surfaces within room and bathroom.
- Patient must remain in room where possible. If she needs to come out of room, she should wear a medical mask and have any exposed skin lesions covered by clothing or dressings to prevent skin cells shedding.
- Dedicated equipment required – not to be shared with any other patients until cleaning has occurred.
- IPC team will direct requirements for room cleaning, equipment cleaning and linen handling. Note: bed linen and towels may be contaminated. This is not usually an important route of transmission for most infections, but is for MPX.
- Isolation precautions must remain in place until all skin lesions have fully healed (skin lesions crusted, crusts fallen off and new skin formed underneath). This may take 3-4 weeks. If being discharged, Public Health must be notified and patient provided with information on how to isolate safely at home. If not possible to isolate at home, discuss with Public Health.
- Note any obstetric care provided during infectious period (including community based care) must follow infection control precautions.

Clinical management:

- MPX is usually a self-limiting infection.
- Tecovirimat (T-POX) is an antiviral, which comes in IV and PO formulations.
    - Access to Tecovirimat is via Section 29. Please liaise with local Infectious Diseases team.
    - There is no human pregnancy data. No fetal toxic effect observed in animal studies. Before this 2022 outbreak, no data on efficacy in humans for MPX known. Efficacy is still being evaluated.
    - Decision to treat (once the drug is available) should be a shared decision after a risk-benefit discussion with the patient, balancing uncertainty of effect and limited data on safety with potential risk for more severe illness or adverse pregnancy outcomes with MPX. Recommend consultation with maternal-fetal specialist and infectious diseases physician.
- Cidofovir is an antiviral with activity against DNA viruses.
    - Limited availability in NZ. No data on effectiveness in MPX, but used in smallpox infection previously. Animal studies have shown associated teratogenicity but may consider use after first trimester if severe infection and benefits thought to outweigh risk.
- Other treatments are not available in NZ.

Vaccination:

- NZ will be receiving JYNNEOS, a live, non-replicating vaccine against MPX and smallpox. There is limited evidence in pregnant women, but animal studies show no evidence of harm to the developing fetus. Non-replicating, so safe to use in breastfeeding as not excreted in breastmilk.
- Vaccine eligibility presently being determined by PHARMAC and advisory groups, but could potentially be used for prevention in high risk groups or as post-exposure prophylaxis. Discuss with ID team.

Antenatal monitoring with suspected or confirmed MPX:

- It is unknown when or how often vertical transmission occurs.
- Given the potential for transplacental infection and risk of stillbirth, a pragmatic approach is recommended:
    - CTG monitoring during acute infection (note – cleaning of equipment).
    - Follow up monthly growth scans after the infectious period is over.
- Delivery:
    - Timing is based on standard obstetric indications.
    - If active genital lesions at expected time of delivery, consider caesarean section to reduce exposure risk for baby, however, additional benefit not clear considering antenatal transmission may have occurred.

Postnatal management:

- There are huge benefits with skin to skin contact in the immediate newborn period. However, the risk of the newborn acquiring severe MPX via direct contact is significant enough to recommend avoidance of contact until the infectious period is over. This has already been reported in one neonate in 2022 outbreak requiring several months of NICU level care.
- CDC recommends avoid rooming in with baby, but if the patient choses to have contact with the baby the following precautions should be employed:
    - No direct skin-to-skin contact.
    - The baby should be fully clothed or swaddled during the contact period and after the contact has occurred the clothing/blanket should be removed and replaced.
    - Gloves and a fresh gown should be worn by the patient at all times.
    - Used linen should be removed from the area.
    - The patient should wear a well-fitting mask during the visit.
- Uninfected newborn should be isolated from other newborns.
- If a mother has active MPX, breastfeeding should be delayed until criteria for discontinuing isolation have been met. Alternatives should be considered e.g. donor milk, formula.
- If a mother is isolated from their newborn, please consider their maternal mental health and employ support and stress management resources.

Exposure management:

- Pregnant women who are contacts of cases will be followed up and provided with advice from Regional Public Health.
- If any queries, contact RPH or ID team.

This Recommendation of Practice was created by Dr Jaynaya Marlow with input from members of Wāhi Rua NZMFM Network, and from Infectious Diseases Physician Dr Michelle Balm, Wellington Regional Hospital, Te Whatu Ora. Endorsed in December 2022.

The most up to date version of this Recommendation of Practice can be found on Healthpoint Wāhi Rua: New Zealand Maternal Fetal Medicine Network (NZMFM) webpages: https://www.healthpoint.co.nz/public/wahi-rua-new-zealand-maternal-fetal-medicine/

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