THE PATHCARE NEWS

MONKEYPOX GUIDANCE FOR CLINICIANS

Introduction

With the identification of cases of monkeypox in various non-endemic countries since early May 2022, heightened vigilance is required in order to contain the spread of this virus. This document aims to provide guidance regarding sample submission to PathCare and should be read in conjunction with existing NICD documentation (Monkeypox preparedness – An update for Physicians, Accident & Emergency Practitioners and Laboratorians; Monkeypox Frequently Asked Questions; Guidance for the laboratory investigation of suspected cases of monkeypox in South Africa).

Epidemiology

Monkeypox virus is transmitted by contact with infected animals or humans, or other contaminated material. The virus can enter the body through broken skin, the respiratory tract or mucous membranes (eyes, mouth or nose). Person-to-person transmission occurs through close contact. The contagious period lasts through all stages of the rash, until all the scabs have fallen off.

Clinical presentation

A non-specific febrile prodrome is followed by the typical rash with lesions progressing through various stages from macules, to papules, to vesicles, to pustules, and eventually to crusts or scabs which dry and fall off after approximately 2-4 weeks. Lesions or ulcers can also occur on the mucous membranes such as the mouth, eyes and genital area. The lesions usually start on the head or face and progress to the trunk and limbs, with lesions also occurring on the soles of the feet and palms of the hands. Lymphadenopathy and lesions which progress through the same stages at the same time may help to differentiate monkeypox from chickenpox in which cropping occurs (ie lesions at different stages are present simultaneously). Other conditions which should be considered in the differential diagnosis include herpes simplex virus, varicella zoster virus, molluscum contagiosum virus, enterovirus, measles, scabies, Treponema pallidum (syphilis), bacterial skin infections, medication allergies, parapoxviruses (causing orf and related conditions) and chancroid.

Management

Treatment is supportive and the majority of cases are mild, however, recent estimates of the fatality rate is approximately 3-6%. In a health care setting, PPE when managing suspected or confirmed cases should include a gown (preferably disposable), gloves, eye protection (goggles or a face shield that covers the front and sides of the face), and N95 mask. The number of staff working with such patients should be limited where possible to minimize exposure. Patients should be nursed in a single-person room, ideally with the door closed and a dedicated bathroom. Movement outside of the room should be limited as far as medically feasible and if movement is necessary, the patient should wear a mask and cover any exposed lesions with a sheet or gown.

Laboratory testing for suspected cases

On presentation of a suspected case, the clinician should determine whether the signs and symptoms are compatible with monkeypox. Suspected cases should be discussed with the NICD hotline (0800 212 552) and PathCare Virologist on call (021 5963400) prior to submission of diagnostic samples to the laboratory. Clinical and epidemiological features will assist in determining the need for testing. Infection control procedures should be implemented to ensure that exposure of health care workers, other patients and close contacts are minimized.

Lesion fluid or material (may include vesicle/pustule skin, scab or crust, or biopsy) is required for all cases in which diagnostic testing is indicated. More than one lesion should be sampled, preferably from different locations on the body and/or from different looking lesions. These samples should be collected by the clinician and accompanied by a fully completed case investigation form for submission to the laboratory. Submission of a throat swab is optional and other optional samples (as outlined in the NICD document, Guidance for the laboratory investigation of suspected cases of monkeypox in South Africa) should be discussed with the NICD hotline prior to submission. Appropriate PPE should be used during sample collection including standard, contact and droplet precautions. A detailed description of how samples should be collected can be found in the NICD document, Monkeypox Frequently Asked Questions. Samples must be double or triple packaged and reach the laboratory without delay and be kept cold during transport.

References:

1. NICD. Guidance for the laboratory investigation of suspected cases of monkeypox in South Africa. May 2022.
2. NICD. MONKEYPOX PREPAREDNESS: An update for Physicians,ccident & Emergency Practitioners and Laboratorians. May 2022.
3. NICD. Monkeypox Frequently Asked Questions. November 2017.
4. WHO. Laboratory testing for the monkeypox virus. Interim guidance. 23 May 2022.
5. CDC. Monkeypox. https://www.cdc.gov/poxvirus/monkeypox/index.html

Prepared by: PathCare Laboratory Virologists

NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

Division of Public Health Surveillance and Response
and
Centre for Emerging Zoonotic and Parasitic Diseases
(NICD) 24-hour hotline number: 0800 212 552

21 May 2022

GUIDANCE FOR THE LABORATORY INVESTIGATION OF SUSPECTED CASES OF MONKEYPOX IN SOUTH AFRICA

STEP 1: REPORT THE SUSPECTED CASE TO THE NICD TO ALLOW A RISK ASSESSMENT TO BE CARRIED OUT AND GUIDE LABORATORY TESTING

- Contact the NICD Hotline ✆ **+27800 212 552**

STEP 2: COMPLETE THE CASE INVESTIGATION FORM

- Fully complete the case investigation form

STEP 3: SUBMIT SPECIMENS FOR SPECIALIZED LABORATORY INVESTIGATION

- The following specimens are used for the investigation:

Specimen type	Collection materials	Comments
Lesion fluid and or material: -vesicle/pustule skin or fluid Scab, crust	Dacron or polyester flocked swabs with VTM or dry swab	Required for all investigations
Throat swab	Dacron or polyester flocked swabs with VTM or dry swab	Optional
Rectal and or genital swabs (if lesions present)	Dacron or polyester flocked swabs with VTM or dry swab	Optional, on case by case basis and in consultation with NICD
Semen	Urine specimen jar	Optional, on case by case basis and in consultation with NICD
Plasma	EDTA collection tube (purple top)	Optional, on case by case basis and in consultation with NICD
Serum	Serum separator tubes or clotted blood	Optional, on case by case basis and in consultation with NICD

- The specimens should be packaged in accordance with the guidelines for the transport of dangerous biological goods (i.e. Category A shipments with triple packaging using absorbent material) and transported directly and urgently to:

  Centre for Emerging Zoonotic and Parasitic Diseases
  Special Viral Pathogens Laboratory
  National Institute for Communicable Diseases (NICD)
  National Health Laboratory Service (NHLS)
  No. 1 Modderfontein Rd
  Sandringham, 2131

- Ensure that completed case investigation form accompanies the specimens
- Samples should be kept cold during transport (cold packs are sufficient).

Laboratory contact details:
Dr Jacqueline Weyer jacquelinew@nicd.ac.za / 011 386 6376 / 082 903 9131
Dr Naazneen Moolla naazneenm@nicd.ac.za

NATIONAL INSTITUTE FOR COMMUNICABLE DISEASES
Division of the National Health Laboratory Service

23 May 2022

MONKEYPOX PREPAREDNESS

An update for Physicians, Accident & Emergency Practitioners and Laboratorians

Division of Public Health Surveillance and Response and
Centre for Emerging Zoonotic and Parasitic Diseases
(NICD) 24-hour hotline number: 0800 212 552

A multi-national outbreak of monkeypox has been reported in May 2022. The situation is quickly evolving with cases being recorded in several European countries, the United States of America, Canada and Australia. The outbreak is linked to international travel but community-based spread has also been noted. The source and linkage of cases are still under investigation.

Transmission

Monkeypox virus can be transmitted to a person upon contact with the virus from an animal, human, or materials contaminated with the virus. Person-to-person transmission of the virus is through close contact (i.e. prolonged face to face contact, kissing). Entry of the virus is through broken skin, respiratory tract, or the mucous membranes (eyes, nose, or mouth). In the current outbreak, cases of possible transmission through sexual contact have been noted, but are not confirmed. A person is contagious from the onset of the rash/lesions through the scab stage. Once all scabs have fallen off, a person is no longer contagious.

Signs and symptoms

The incubation period (time from infection to symptoms) for monkeypox is on average 7−14 days but can range from 5−21 days. Initial symptoms include fever, headache, muscle aches, backache, chills and exhaustion. Lymphadenopathy is also noted. Skin lesions (or rash) develops between 1-3 days following onset. The lesions are often encountered on the face, on the extremities including the soles of the feet and palms of the hands. Ulceration of the mouth and genitals may also be noted. The lesions progress through several stages before scabbing over and resolving. Notably, all lesions of the rash will progress through the same stage at the same time. The lesions are described as chicken-pox like.

A person is contagious from the onset of the rash/lesions through the scab stage. Once all scabs have fallen off, a person is no longer contagious. Case fatality rate is low (3-6% in more recent outbreaks).

Response to a suspected case:

1. Establish that the patient meets the signs and symptoms for suspected monkeypox.

Observe appropriate infection control procedures (i.e. isolation with universal precautions). **As soon as the decision is made to proceed on the basis of a presumptive diagnosis of monkeypox, measures should be applied to minimize exposure of HCWs, other patients and other close contacts.**

2. Clinical management is supportive and will vary from case to case, but typically cases are self-resolving.
3. Inform the NICD hotline (0800 212 552) and notify the local and provincial communicable disease control co-ordinator (CDCC) telephonically so that additional case finding and extensive contact tracing can be conducted.
4. Submit samples to NICD for laboratory testing.

Differential Diagnosis:

Other rash illnesses, some commonly found, include chickenpox, measles, bacterial skin infections, syphilis, molluscum contagiosum and drug-related rashes. Lymphadenopathy in the prodromal phase of illness distinguishes monkeypox from chickenpox.

Sample collection and testing for monkeypox:

1. See laboratory guidance on submission of samples for monkeypox testing. Please refer to NICD website.

For more information, visit the NICD website, monkeypox webpage

Monkeypox Frequently Asked Questions

1. What is Monkeypox?

Monkeypox is caused by infection with monkeypox virus, a member of the genus *Orthopoxvirus* in the family *Poxviridae*. The *Orthopoxvirus* genus also includes variola virus (the cause of smallpox) and vaccinia virus (used in the smallpox vaccine).

2. Where does Monkeypox occur?

Monkeypox was first discovered in 1958 in Denmark when two outbreaks of a pox-like disease occurred in colonies of monkeys kept for research, hence the name 'monkeypox.' The first human case of monkeypox was recorded in 1970 in the Democratic Republic of Congo. Monkeypox is endemic in central and western Africa. The only time monkeypox infections in humans were documented outside of Africa was in 2003 when it occurred in the United States, and was associated with the exotic pet trade.

3. How is Monkeypox transmitted?

Monkeypox virus can be transmitted to a person upon contact with the virus from an animal, human, or materials contaminated with the virus. Entry of the virus is through broken skin, respiratory tract, or the mucous membranes (eyes, nose, or mouth). The monkeypox virus may be spread from handling infected bush meat, an animal bite or scratch, body fluids, contaminated objects, or close contact with an infected person. In Africa, monkeypox infection has been found in many animal species: rope squirrels, tree squirrels, Gambian rats, striped mice, dormice and primates. Certain species of rodents are suspected of being the main disease carrier (reservoir host) of monkeypox, although this has not been proven yet.

4. What are the signs and symptoms of Monkeypox?

The incubation period (time from infection to symptoms) for monkeypox is on average 7−14 days but can range from 5−21 days. In humans, the symptoms of monkeypox are similar to but milder than the symptoms of smallpox. Initial symptoms include fever, headache, muscle aches, backache, chills and exhaustion (prodomal period). The main difference between symptoms of smallpox and monkeypox is that monkeypox causes lymph nodes to swell (lymphadenopathy) while smallpox does not. Lymph nodes may swell in the neck, armpits or groin and may occur on both sides of the body or just one. Following the prodromal phase

(within 1-3 days), lesions will develop in the mouth and on the body. The lesions progresses through several stages before scabbing over and resolving**.**

5. When is Monkeypox infected person contagious?

A person is contagious from the onset of the rash/lesions through the scab stage. Once all scabs have fallen off, a person is no longer contagious.

6. How is Monkeypox diagnosed and what type of specimens are required?

The NICD currently offers PCR testing and electron microscopy for the investigation of acute suspected monkeypox cases. Monkrypox has two disease phases and different specimens can be collected in each phase. During the **prodromal phase** specimens to be collected include tonsillar tissue swab, nasopharyngeal swab, acute serum and whole blood. Specimens to be collected during the rash/lesion phase includes lesion biopsy, fluid, scab or crust, acute serum and whole blood. More than one lesion should be sampled, preferably from different locations on the body and/or from different looking lesions. Below are some instructions on how to collect specimens.

Nasopharyngeal or tonsillar tissue collection:

- Swab the nasopharynx or posterior tonsillar tissue with a sterile dry swab.
- Break off end of applicator into a plastic screw cap container or place entire swab in a sterile container. **DO NOT ADD ANY VIRAL TRANSPORT MEDIA**.

Lesion biopsy collection:

- Sanitize lesion with an alcohol wipe, allow to dry.
- Use appropriate sterile technique and skin sanitation.
- Biopsy lesions with 3.5 or 4 mm biopsy punch (2.5 mm for pediatrics).
- Place biopsy specimen in a plastic screw cap container. **DO NOT ADD ANY VIRAL TRANSPORT MEDIA**

Lesion fluid collection:

- Sanitize lesion with an alcohol wipe, allow to dry.
- Use a disposable scalpel (or a sterile 26 Gauge needle) to open, and remove, the top of the vesicle or pustule (do not send the scalpel or needle). Retain lesion roof for testing.
- Scrape the base of the vesicle or pustule with a sterile swab.
- Break off end of applicator into a plastic screw cap container or place entire swab in a sterile container. **DO NOT ADD ANY VIRAL TRANSPORT MEDIA**.

Scab or crust collection:

- Sanitize skin with an alcohol wipe, allow to dry.
- Use a sterile needle to pick or dislodge scabs.
- Place scabs into a plastic screw cap container. DO NOT ADD ANY VIRAL TRANSPORT MEDIA

Serum and whole blood collection:

- For serum collection, collect blood in 1x SST tube
- Whole blood collected in 1x EDTA tube

7. How is Monkeypox treated?

Treatment is supportive, as with most viral infections. There are no specific treatments or vaccines available for monkeypox disease. Outbreaks can be controlled though infection prevention measures and contact tracing. Vaccination against smallpox has been proven to be 85% effective in preventing monkeypox in the past, however the vaccine is no longer available to the general public after it was discontinued following global smallpox eradication. Prior smallpox vaccination will likely result in a milder disease course.

8. How can Monkeypox be prevented?

Monkeypox can be prevented by avoid contact with animals that are sick or that have been found dead in areas where monkeypox occurs. Avoid contact with any materials, such as bedding, that has been in contact with a sick animal. Isolation and infection and prevention measures must be taken with suspected/confirmed patients. Practice good hand hygiene after contact with infected animals or humans. For example, washing your hands with soap and water or using an alcohol-based hand sanitizer.

9. Where can I find out more information

For Healthcare Workers:

- **Medical/clinical and laboratory related queries:**
    - Contact the NICD Hotline +27 82 883 9920 (for use by healthcare professionals only)

Guidelines and other useful resources are available on the NICD website: www.nicd.ac.za

Centers for Disease Control and Prevention, Atlanta, United States of America.

https://www.cdc.gov/poxvirus/monkeypox/index.html

World Health Organization. http://www.who.int/mediacentre/factsheets/fs161/en/

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CASE INVESTIGATION FORM: MONKEYPOX

PATIENT DETAILS

Surname: Name/s:		
Date of birth:	Age:	Sex: Male Female
Contact telephone number/s:	Occupation:	
Physical home address:		

ATTENDING HEALTHCARE WORKER AND HEALTHCARE FACILITY DETAILS

Name of clinician:	Contact number/s of clinician:	
Healthcare facility name:	Location of healthcare facility:	
Hospital number:	Date of admission (dd/mm/yyyy):	Ward:

RISK FACTORS/ EXPOSURE HISTORY – during the 21 days prior to onset of symptoms

Travelled to a country endemic for monkeypox*	Yes □	No □	Unknown □
Close contact with suspected or confirmed case of monkeypox**	Yes □	No □	Unknown □
History of international travel	Yes □	No □	Unknown □
None of the above	Yes □	No □	Unknown □

CLINICAL INFORMATION

A. Date of onset of illness (dd/mm/yyyy):

B. Clinical features (Tick appropriate box: yes, no, unknown)

Fever Yes □ No □ Unknown □
If yes, specify temperature_____°C

Lymphadenopathy Yes □ No □ Unknown □
Headache Yes □ No □ Unknown □
Muscle pain Yes □ No □ Unknown □
Fatigue Yes □ No □ Unknown □
Sore throat Yes □ No □ Unknown □
Nausea/vomiting Yes □ No □ Unknown □
Cough Yes □ No □ Unknown □
Chills/sweats Yes □ No □ Unknown □
Oral ulcers Yes □ No □ Unknown □
Light sensitivity Yes □ No □ Unknown □
Other, specify: _____

If female, pregnant Yes □ No □ Unknown □

Rash Yes □ No □ Unknown □
Date of onset of rash (dd/mm/yyyy):
_____

If yes, specify

Distribution of rash:

Face □ Legs □ Soles of the feet □
Trunk □ Arms □ Palms of hands □
Thorax □
Genitals □
All over body □

Type of rash:

Macular Yes □ No □
Maculopapular Yes □ No □
Vesicular Yes □ No □
Petechial Yes □ No □
Vasculitic Yes □ No □

PAST MEDICAL AND TRAVEL HISTORY

Underlying illness*** : Yes □ No □ Unknown □
If yes, give details:

Travel outside of South Africa in the 21 days prior to onset of illness? Yes □ No □ Unknown □ If yes, details:				
Country visited (indicate if travelling in transit through airport in another country)	Location/s visited within country:	Date of arrival (dd/mm/yyyy):	Date of departure (dd/mm/yyyy):	Activities at the location

Footnotes:

* Countries endemic for monkeypox:
Cameroon
Central African Republic
Congo
Democratic Republic of Congo
Gabon
Ghana
Ivory Coast
Liberia
Nigeria
Sierra Leone
South Sudan

**Initiate contact tracing in collaboration with your infection control practitioner and local communicable diseases control coordinator

*** Any immunosuppressing conditions, including active HIV disease