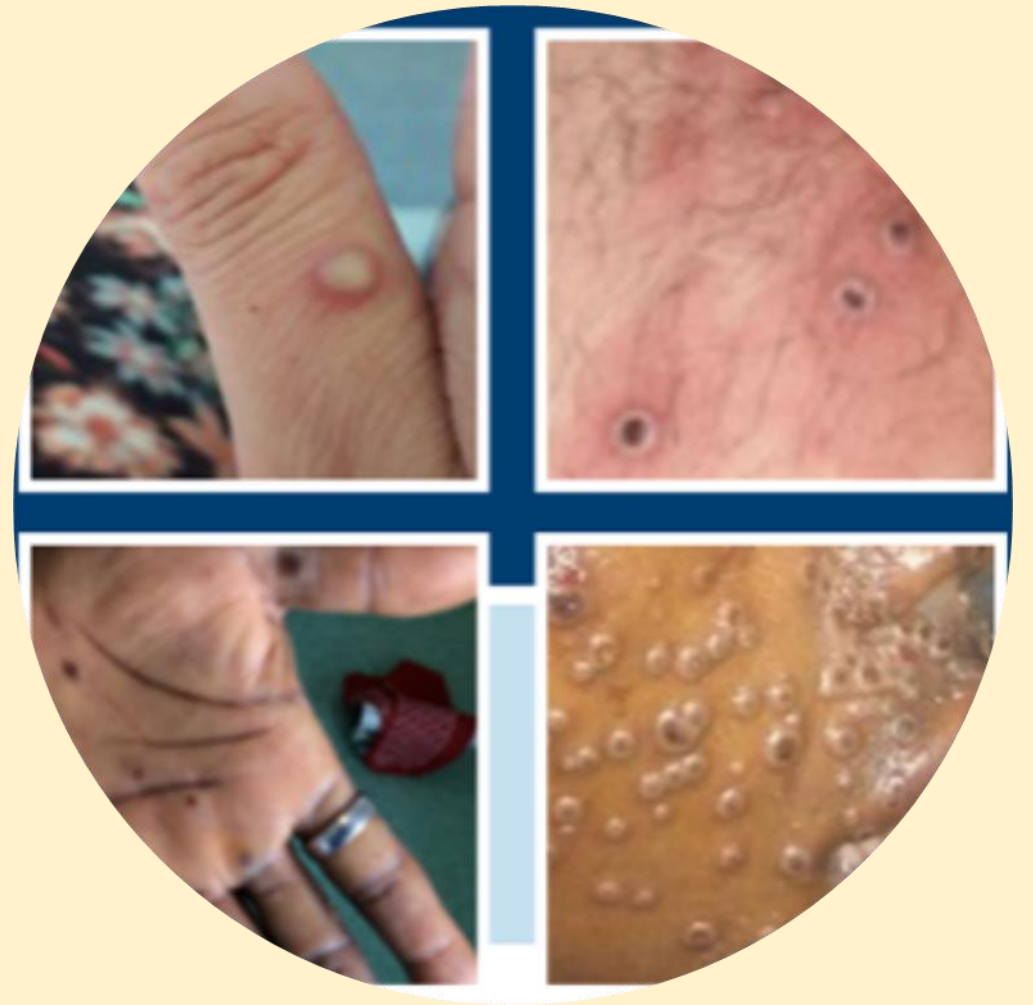


# Overview on Monkeypox Outbreak

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Baghdad*



# What is monkey pox?

Monkey pox is an illness caused by the monkey pox virus which is *a member of the Orthopoxvirus genus in the family Poxviridae.*

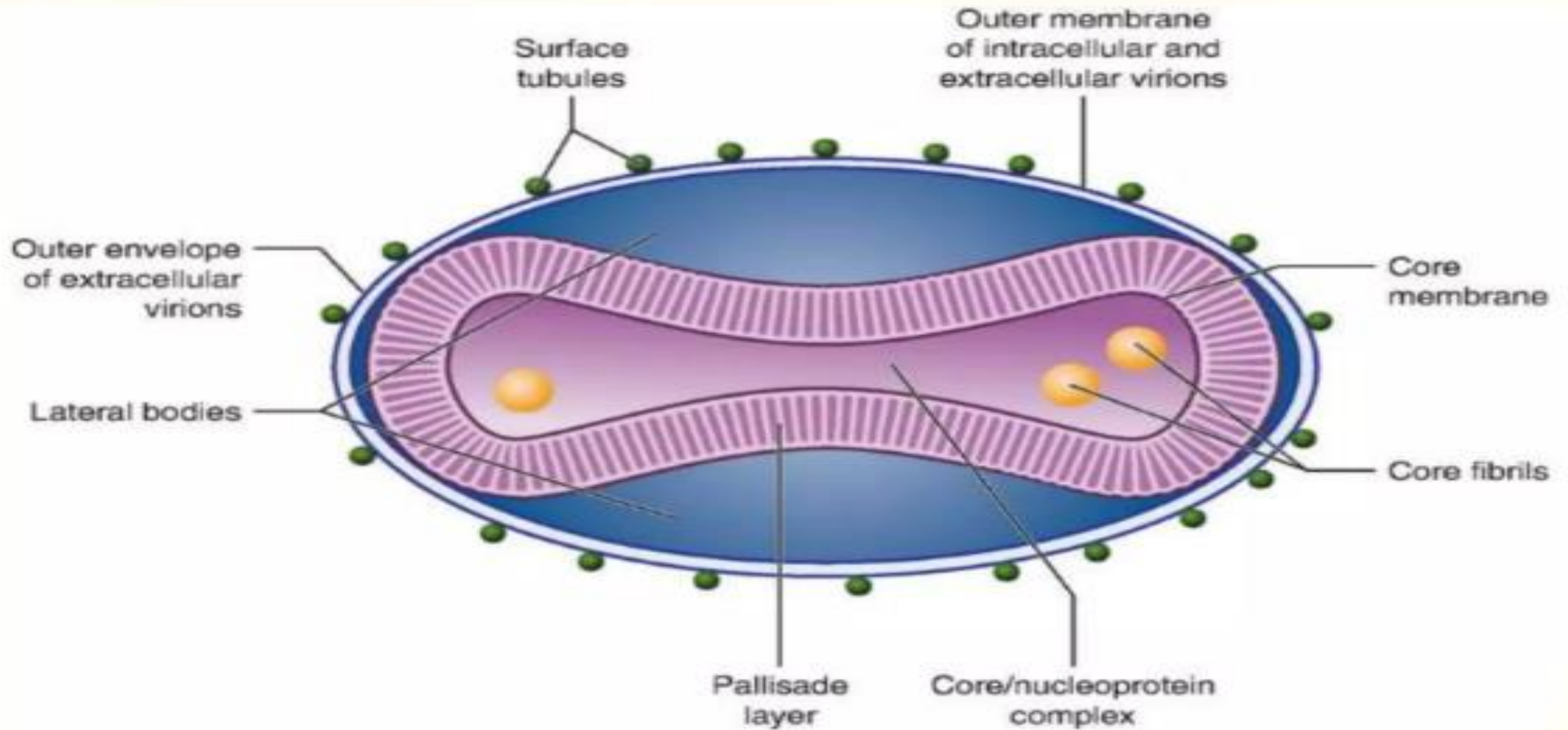
It is a viral zoonotic infection, meaning that it can spread from animals to humans. It can also spread from humans to other humans and from the environment to humans

The disease is called monkeypox because it was first identified in colonies of monkeys kept for research in 1958. It was only later detected in humans in 1970. Consultations with experts are ongoing around whether the disease will be renamed

## **Natural host of monkeypox virus**

Various animal species have been identified as susceptible to monkeypox virus. This includes rope squirrels, tree squirrels, Gambian pouched rats, dormice, non-human primates and other species.

# Structure



# OUTBREAKS:

- Human monkeypox was first identified in humans in 1970 in the Democratic Republic of the Congo ,later it has been reported in 11 African countries
- In 2003, the first monkeypox outbreak outside of Africa was in the USA (70 case)
- Since 2017, Nigeria has experienced a large outbreak, with over 500 suspected cases and over 200 confirmed cases and a case fatality ratio of approximately 3%. Cases continue to be reported until today.
- United Kingdom in September 2018, December 2019, May 2021 and May 2022
- Singapore in May 2019
- United States of America in July and November 2021
- In May 2022, multiple cases of monkeypox were identified in several non-endemic countries

# 2022 Mpox Outbreak Global Map

Data as of 05 Jan 2023 5:30 PM EDT

View:  CASES  DEATHS

[< 2022 U.S. Mpox Outbreak](#)

## Confirmed Cases

**84,318**

Total Cases

**83,127**

in locations that have not historically reported mpox

**1,191**

in locations that have historically reported mpox

## Confirmed Deaths

**74**

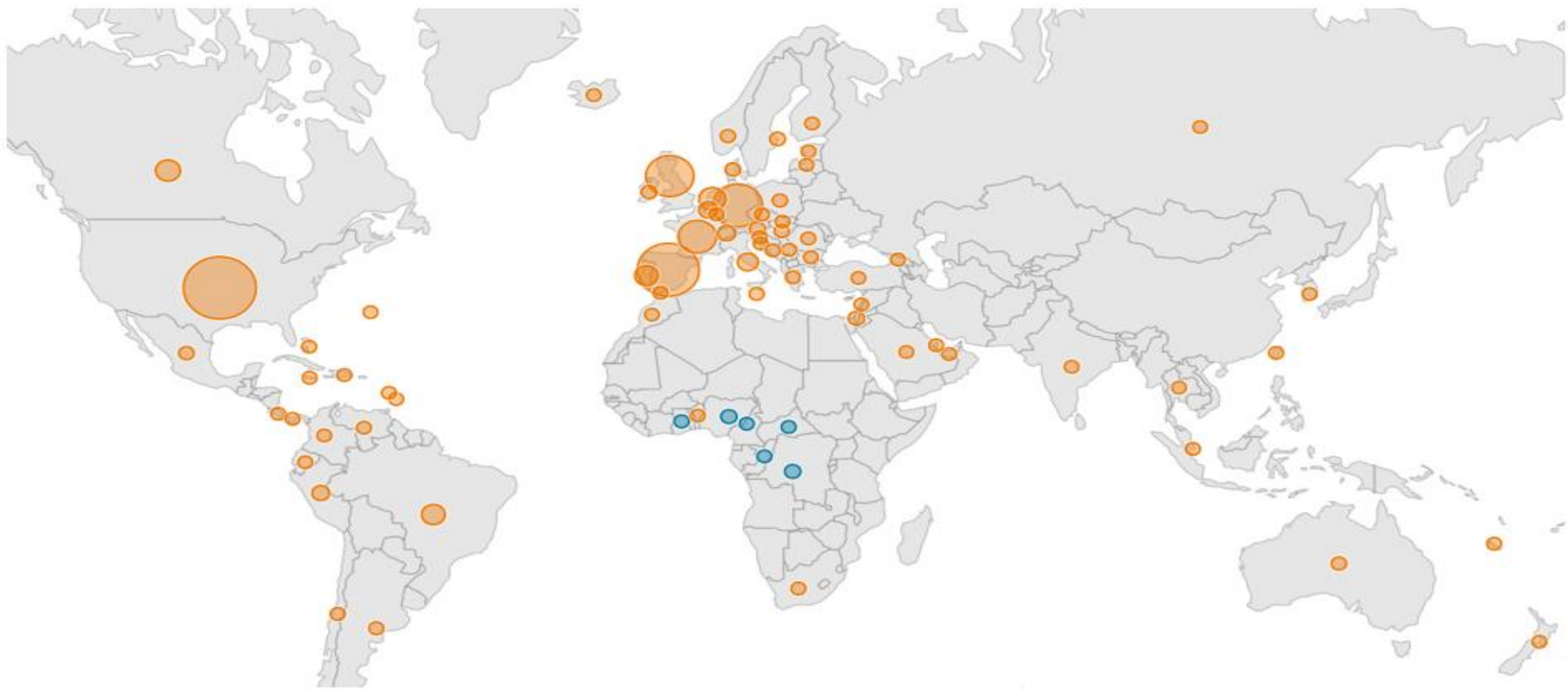
Total Deaths

**60**

in locations that have not historically reported mpox

**14**

in locations that have historically reported mpox



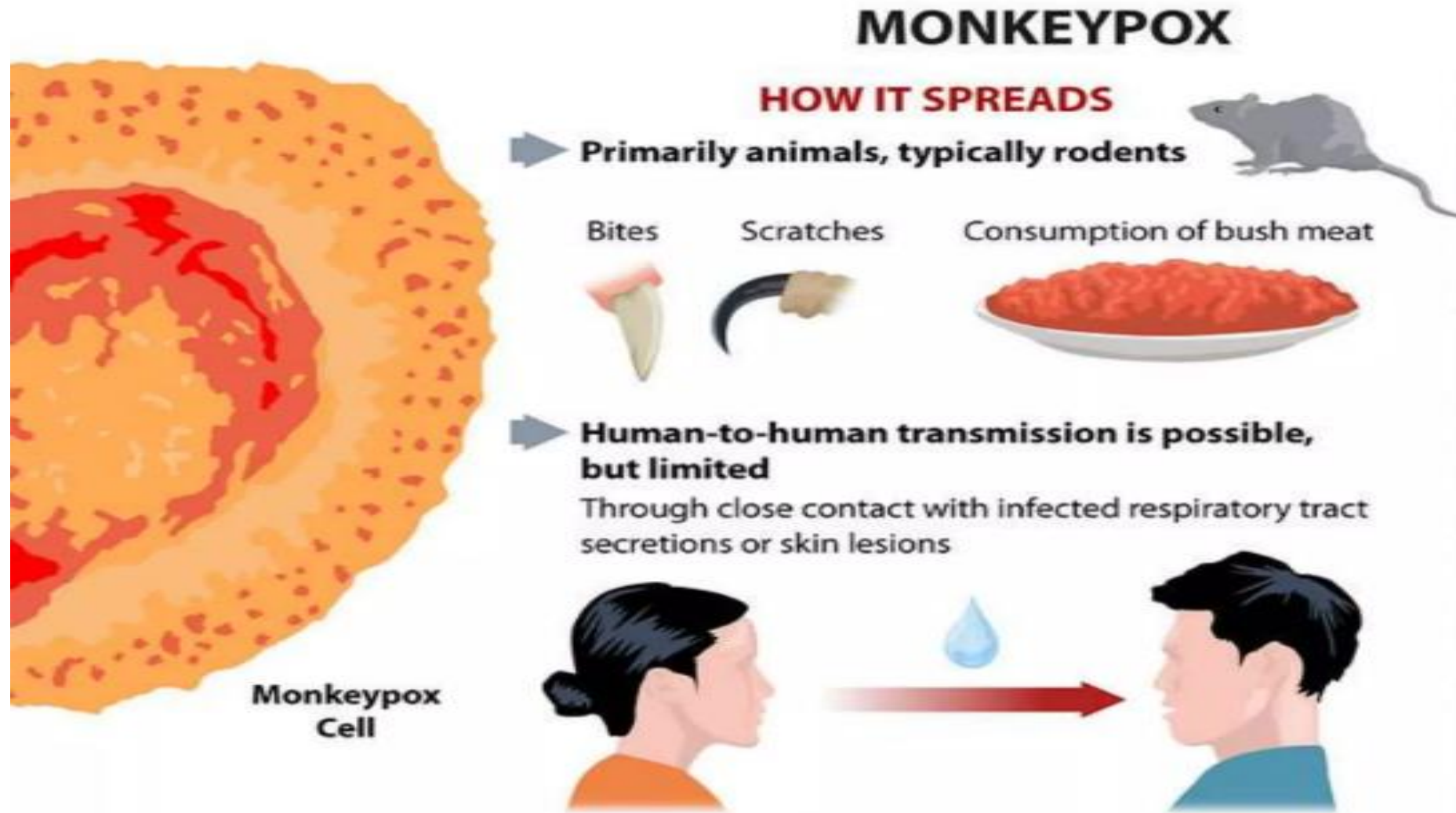
● Has not historically reported monkeypox

● Has historically reported monkeypox

# Mode of transmission:

- Animal-to-human (zoonotic) transmission can occur from direct contact with the blood, bodily fluids, or cutaneous or mucosal lesions of infected animals
- Generally people who have sign and symptoms are considered infectious until all of their sores have crusted over, the scabs have fallen off and a new layer of skin has formed underneath, and all the sores on the eyes and in the body (in the mouth, throat, eyes, vagina and anus) have healed too.
- from person-to-person through close contact with someone who has a monkeypox rash(face-to-face , skin-to-skin )
- Environments: (clothing, bedding, towels, objects, electronics and surfaces)
- The virus can also spread during pregnancy to the fetus, during or after birth through skin-to-skin contact, or from a parent with monkeypox to an infant or child during close contact

# Mode of transmission





# Risk group:

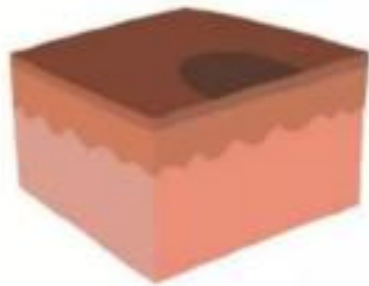
- People who live with or have close contact (including sexual contact) with someone who has monkeypox are most at risk or a known prior contact with a confirmed case in the 21 days before symptom onset
- Reported a travel history to West or Central Africa in the 21 days before symptom onset
- Gay, bisexual or other man who has sex with men, transgender people
- Health workers should follow IPC measures to protect themselves
- Newborn infants, young children and people with underlying immune deficiencies
- Eating inadequately cooked meat and other animal products of infected animals is a possible risk factor
- People living in or near forested areas may have indirect or low-level exposure to infected animals

# Monkey pox symptoms:

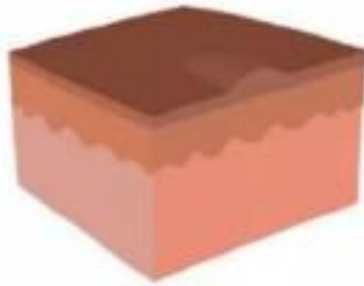


# Rash stage:

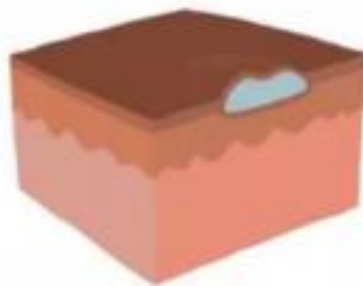
Macule



Papule



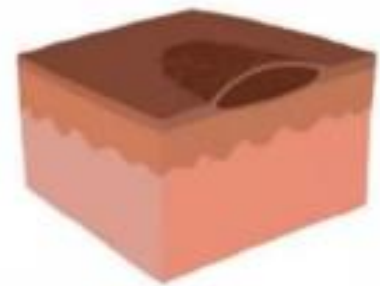
Vesicle



Pustule



Crust



# Comparison between most common rash diseases

	<b>MONKEYPOX</b>	<b>CHICKENPOX</b>	<b>SMALLPOX (ERADICATED)</b>
<b>Virus</b>	Monkeypox virus, orthopoxvirus family	Varicella-zoster virus	<del>Variola</del> virus, orthopoxvirus family
<b>Fever</b>	1–5 days before rash	1–2 days before rash	2–4 days before rash
<b>Rash appearance</b>	Often starts on the face then spreads to other parts of the body, including palms and soles. The rash eventually forms a scab that falls off.	Itchy, blister-like rash — first on the chest, back, and face, and then spreads over the entire body. Absent on palms and soles.	Starts as small red spots on the tongue and mouth. Rash then appears on the skin, starting on the face and spreads to arms and legs, and then palms and soles. The rash eventually forms a scab that falls off.
<b>Swollen lymph nodes</b>	Yes	No	No
<b>Time between catching it and symptoms</b>	5–21 days	10–21 days	7–19 days
<b>How long illness lasts</b>	2–4 weeks	4–7 days	Up to 5 weeks
<b>Death</b>	1–10% of cases, depends on strain	Rare	Up to 30% of cases, depends on type

# Monkey pox and other common rash illnesses:



Chickenpox rash



Smallpox rash

# Complications:

- Monkeypox is usually a self-limited disease with the symptoms lasting from 2 to 4 weeks.
- Severe cases occur more commonly among children and are related to the extent of virus exposure, patient health status and nature of complications.
- Underlying immune deficiencies may lead to worse outcomes.
- Although vaccination against smallpox was protective in the past, today persons younger than 40 to 50 years of age (depending on the country) may be more susceptible to monkeypox due to cessation of smallpox vaccination campaigns globally after eradication of the disease.
- Complications of monkeypox can include:  
Secondary infections, bronchopneumonia, sepsis, encephalitis, and infection of the cornea thereafter loss of vision. The extent to which asymptomatic infection may occur is unknown.
- The case fatality ratio of monkeypox has historically ranged from 0 to 11 % in the general population and has been higher among young children.

# Epidemiological and Clinical Features of Monkeypox Cases London, United Kingdom

- 54 individuals diagnosed with monkeypox who attended open-access sexual health clinics in London, UK:
  - All identified as MSM, median age of 41 years (IQR 34-45years) and 70% white
  - 24% living with HIV
  - 67% fatigue or lethargy, 57% fever, 55% had lymphadenopathy, 18% no prodromal symptoms
  - 100% skin lesions (94% anogenital, 89% multiple lesions, 72% with lesions affecting only 1-2 anatomical sites)
  - 25% had a concurrent STI
  - 11% required hospitalization due to localized cellulitis requiring antibiotic treatment and analgesia

## Epidemiological characteristics and clinical features of confirmed human Monkeypox virus cases in individuals attending a sexual health centre in London, United Kingdom.

Nicolò Girometta<sup>1</sup>, Ruth Byrne<sup>1</sup>, Margherita Bracchi<sup>2</sup>, Joseph Heskini<sup>1</sup>, Alan McOwan<sup>1</sup>, Victoria Tittle<sup>1</sup>, Keerti Gedela<sup>1</sup>, Christopher Scott<sup>1</sup>, Sheel Patel<sup>1</sup>, Jesal Gohil<sup>1</sup>, Diarmuid Nugent<sup>1</sup>, Tara Suchak<sup>1</sup>, Molly Dickinson<sup>1</sup>, Margaret Feeney<sup>1</sup>, Borja Mora-Peris<sup>1,2</sup>, Katrina Stegmann<sup>1</sup>, Gary Davies<sup>1</sup>, Luke Moore<sup>1,3,4</sup>, Nabeela Mughal<sup>1,3,4</sup>, David Asboe<sup>1</sup>, Maria Buffito<sup>1,4</sup>, Rachael Jones<sup>1</sup> and Gary Whitlock<sup>1</sup>

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Running title: UK Monkeypox autochthonous transmission

Keywords: Orthopox virus, vesicular rash, monkeypox virus

# Pregnancy

- Data on monkeypox infection in pregnancy are very limited
- There is a report of a probable, but non laboratory-confirmed, case of an infected pregnant woman (~24 weeks' gestation) who, 6 weeks later, delivered a premature infant that had a skin rash consistent with monkeypox disease who died 6 weeks later of malnutrition (USA 1988)
- In the Democratic Republic of Congo, an observational study of 222 symptomatic reported that three of four pregnant women experienced fetal demise, the fourth woman delivered a healthy baby at term. The pregnancy losses included two first trimester miscarriages; no testing of pregnancy tissue occurred. The third woman had moderately severe disease at 18 weeks' gestation and had an intrauterine fetal demise. virological, histological, and serological evidence suggested vertical transmission (2017)
- smallpox, is associated with an increased risk of maternal and perinatal morbidity and mortality, including fetal death, preterm birth, and miscarriage.



# Breast Feeding

- Close physical contact is a known risk factor for transmission.
- It is not currently known whether monkeypox is transmissible via breast milk
- Despite the well recognized benefits of breastfeeding, women with suspected or confirmed monkeypox should be advised **not to breastfeed** until they are known not to be infectious.
- Breast milk may be expressed to initiate and maintain supply until breastfeeding is considered safe. This milk is potentially infectious and should be disposed of following IPC waste disposal guidance. Where both mother and the neonate are infected, breastfeeding should be supported.
- Donor breast milk can be considered in place of formula feeding, until maternal breast milk is deemed safe. Asymptomatic contacts of a confirmed case of monkeypox should not donate breast milk until they are no longer considered potentially infected

# Children

- On 23 July 2022, the WHO declared this a world Public Health Emergency
- younger children had a higher mortality rate than adolescents and adults.
- risk is greatest in infants and the immunocompromised.
- monkeypox rash often demonstrates the 4 “Ps”; Pustules, Peripheral, P alms/soles, lymphadenopathy
- In USA 2003: The most critically ill patients in that outbreak were two young school-aged children with complications that included encephalopathy and retropharyngeal abscess
- to test for monkeypox in a child: Two viral swabs of skin lesions (vesicle) should be taken/Two viral throat swabs should be taken
- Child with suspected monkeypox may be well enough to return home ( isolation )
- vaccine is not licensed in children
- Management of baby if mother is confirmed positive (isolated, reunited if the baby get infected)



# Appendix A: Mpox (monkeypox) in Children & Young People - Quick Guide

Child or young person presenting with a vesicular and/or pustular rash and any epidemiological risk factors

Or

Any new unexplained rash or systemic symptoms in a known contact of confirmed Mpox (monkeypox)

## Epidemiological Risk Factors?

- Known contact with confirmed or suspected Mpox (monkeypox) case in last 21 days?
- Household adult male member with vesicular or pustular rash?
- Recent travel from West & Central Africa?
- Young person: male who has sex with males?

YES

### Plan

- Consider location – away from other patients is ideal, alternatively designated cubicle – consider referral to Sexual Health Centre if over 13 and relevant
- Wear correct PPE (minimum FRSM, gloves and apron; +/-eye protection & FFP3)

### History

- See question list in Guidance Part A

### Test

- Send viral swab for Mpox (monkeypox) PCR and additional tests for differential diagnosis
- Consider investigations for alternative diagnoses

### Requires admission?

- See Appendix C
- If unwell, admit to side room with own toilet facility
- PPE: FFP3, gown, gloves, eye protection
- Contact paediatric HCID network

### Safe for discharge?

- See Appendix B
- Check can isolate – provide written information, red flags and your contact details – see RCPCH guidance

NO

Unusual rash or other high clinical index of suspicion  
Step-wise testing recommended  
Send two swabs from lesion, one to be stored by virology pending initial results

If no alternative diagnosis, negative for other viruses, re-assess and discuss with paed ID  
Request stored swab is sent for Mpox (monkeypox) PCR

**RCPCH**  
Royal College of Paediatrics and Child Health  
*Leading the way in Children's Health*

Clinically consistent with alternate diagnosis, e.g. chicken pox or hand, foot & mouth disease with history of contact or known current circulation of virus

Routine clinical management, including providing red-flag advice

### Other tests to consider:

- Extended respiratory viral panel
- Swab lesion for VZV/HSV/enterovirus
- Throat swab and stool for enterovirus
- Syphilis serology and PCR in neonate

Ask family to take photos on a daily basis

For full guidance on Mpox (monkeypox) in children and young people, see

# Treatment

- Supportive care, such as medication for pain or fever (such as analgesics and antipyretics).
- Should stay hydrated, eat well, and get enough sleep
- People who are self-isolating should take care of their mental health
- Should avoid scratching their skin and take care of their rash by cleaning their hands before and after touching sores and keeping skin dry and uncovered if possible. The rash can be kept clean with sterilized water or antiseptic
- Saltwater rinses can be used for sores in the mouth, and warm baths with baking soda and Epsom salts can help with sores on the bod
- Antivirals, such as **tecovirimat**, may be recommended for people who are more likely to get severely ill, like individuals with weakened immune systems , infection( encephalitis, sepsis) pregnant , breast feeding women, children

# Monkey pox vaccine

Vaccines can be effective tools at protecting people against monkeypox illness or reducing the severity of illness (When properly administered before or within 14 days after exposure)

One vaccine licensed by the U.S. Food and Drug Administration (FDA) is available for preventing monkeypox infection –**JYNNEOS** (also known as Imvamune or Imvanex in other countries)

## Vaccination Criteria:

- People who have been in close physical contact with someone diagnosed with monkeypox in the last 14 days (PEP)
- Men who have sex with men, or transgender individuals, who report any of the following in the last 90 days:
  - Having multiple or anonymous sex partners
  - Being diagnosed with a sexually transmitted infection
  - Receiving HIV pre-exposure prophylaxis (Pr EP)
- Available for certain healthcare workers and public health response team members designated by public health authorities

# Infection prevention

- Raising awareness of people regarding the disease and measures to be taken to reduce exposure to infection
- Anyone who is identified to have monkeypox should isolate away from others until all scabs separate and a fresh layer of healthy skin has formed underneath. Decisions about discontinuation of isolation should be made in consultation with a medical provider.
- When handling dirty laundry from people with known or suspected monkeypox infection, staff, volunteers, or residents should wear a gown, gloves, eye protection, and a well-fitting mask or respirator
- Immunization for high risk group
- Protocols of management should be assigned and followed

THANK YOU

