Changing epidemiology of mpox

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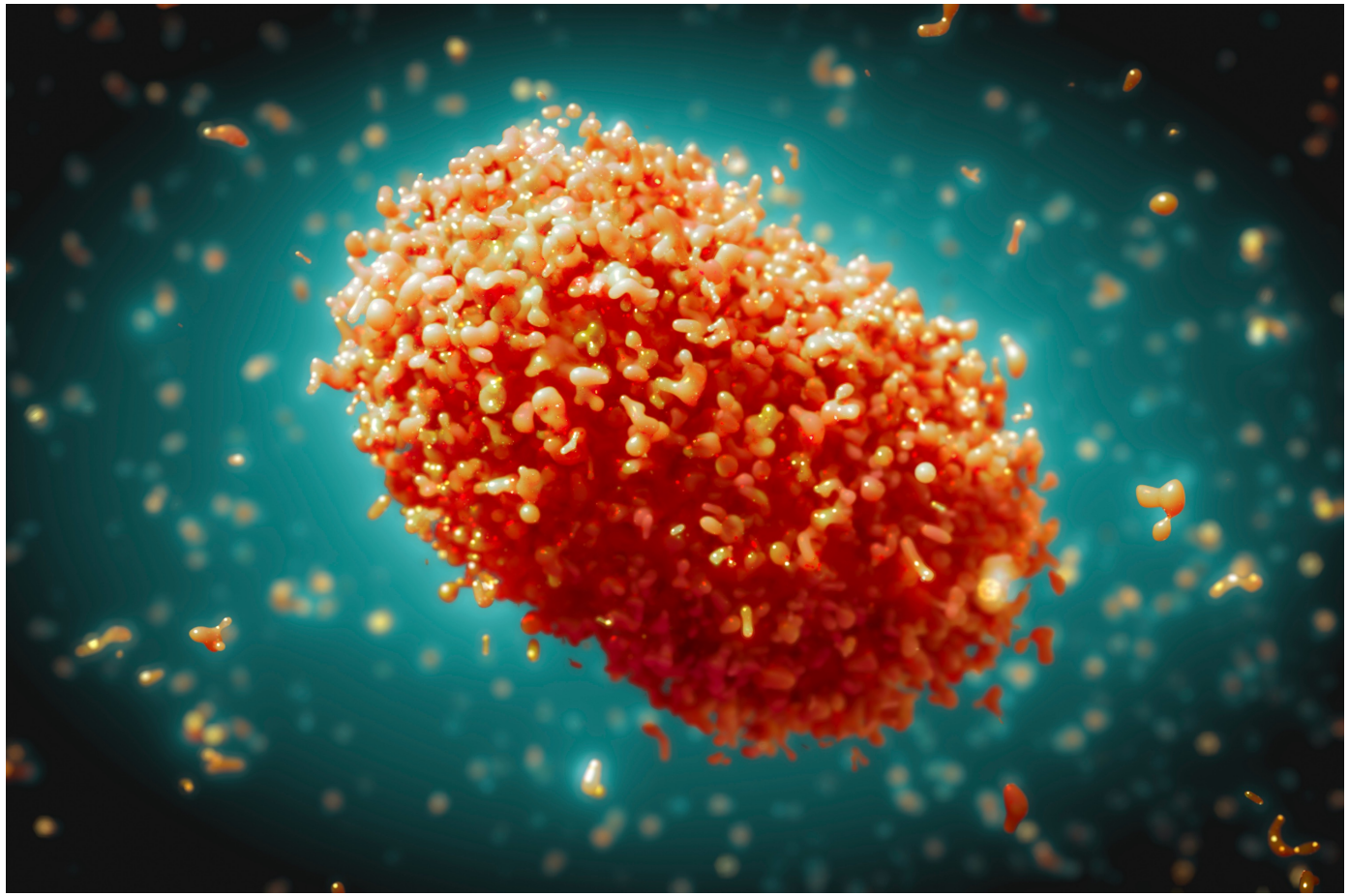
WHO Incident Management Team
WHO global mpox outbreak response



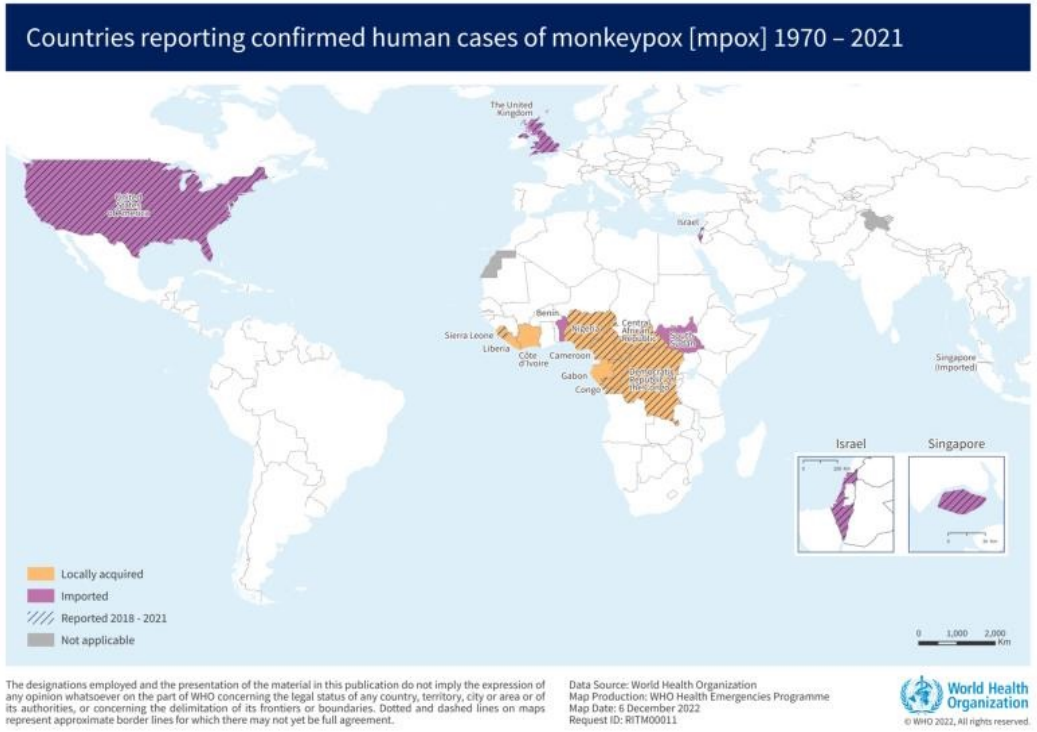
Monkeypox virus, illustration. Credit: MAURIZIO DE ANGELIS/SCIENCE PHOTO LIBRARY

World Health Organization

HEALTH EMERGENCIES programme

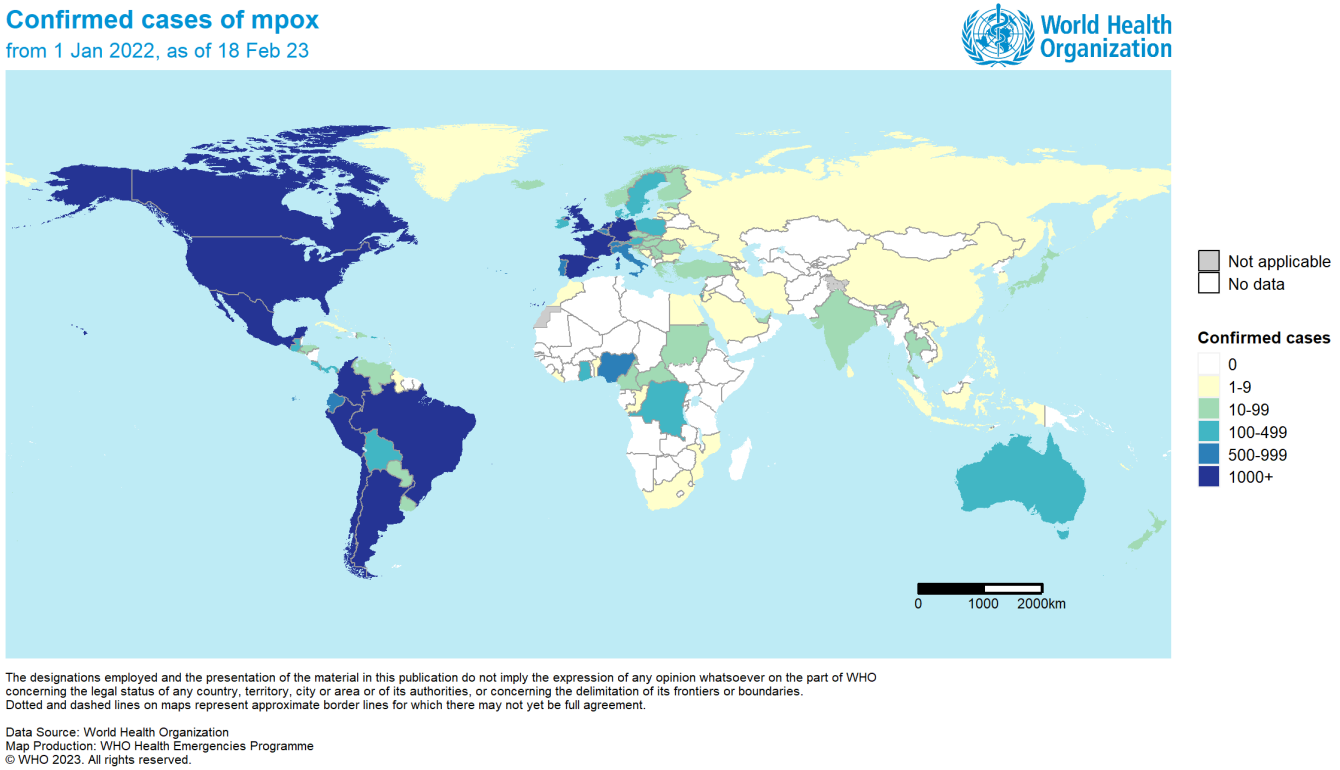
Geographical spread

1970 - 2021



Source: https://apps.who.int/iris/bitstream/handle/10665/365629/WER9803-eng-fre.pdf

2022-23 outbreak



Source: https://worldhealthorg.shinyapps.io/mpx_global/

Transmission dynamics

	1970 - 2021	2022-23 outbreak
Most affected groups	• Children and young adults with gradually increasing mean age	• Primarily adult men who have sex with men (MSM) (as well as other groups)
Epidemiology	• Sporadic cases and outbreaks	• Sustained community transmission
Transmission	• Contact with infected animals; short chains of human-to-human transmission (up to 9 serial infections documented)	• Almost exclusively human-to-human transmission, through large amplifying events and community spread
Dissemination	• Mainly infections related to hunting with household spread or travel	• Mostly sexual contact through MSM sexual networks

Clinical manifestation

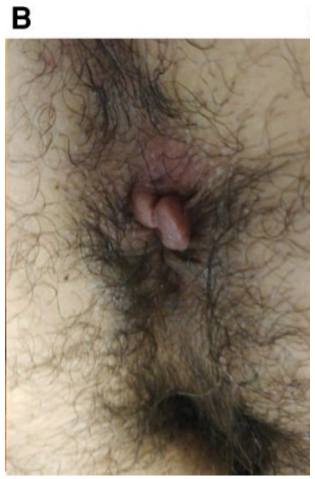
1970 - 2021

- Initial prodromal phase with temperature, headache, fatigue, and lymphadenopathy
- Lesions in centrifugal distribution, primarily on face, trunk, arms, and legs, palms, soles
- Stages of lesions: macules, papules, vesicles, and finally, pustules
- Genital and mucosal lesions well documented

Source: https://www.nejm.org/doi/full/10.1056/NEJMra2208860

2022-23 outbreak

- Some cases do not have a prodromal phase
- There are cases with few or no lesions
- Some cases present with anorectal mucosal lesions
- More genital and anal lesions than previously observed
- New clinical manifestations include parotitis, balanitis, urinary retention, proctitis ...



Source: https://www.nejm.org/doi/full/10.1056/nejmoa2207323
https://www.nejm.org/doi/full/10.1056/NEJMicm2206893
https://academic.oup.com/cid/article-abstract/76/3/528/6692817

Disease severity

1970 - 2021

- Information based on studies from DRC, Nigeria, Congo and Central African Republic and the United States of America (2003)
- More severe in children, pregnant women, immunocompromised patients
- Complications:
  - corneal ulceration and vision loss
  - bacterial infections, sepsis, encephalitis
  - depigmentation
- Case fatality ratio (CRF):
  - historically < 1% for Clade II
  - 6% of confirmed cases in Nigeria since 2017 due to deaths in patients with untreated HIV
  - Up to 11%; 10% of suspected cases Clade I

2022-23 outbreak

- Information from many countries, mainly in Europe and the Americas
- Most cases present with less severe illness
- More severe disease in children, elderly and immunocompromised patients
- Complications:
  - Meningoencephalitis
  - Extensive necrotizing lesions
  - Multi-organ involvement
- Case fatality ratio (CRF):
  - ~0.1% globally
  - ~3% in Africa (Clades I and II together)

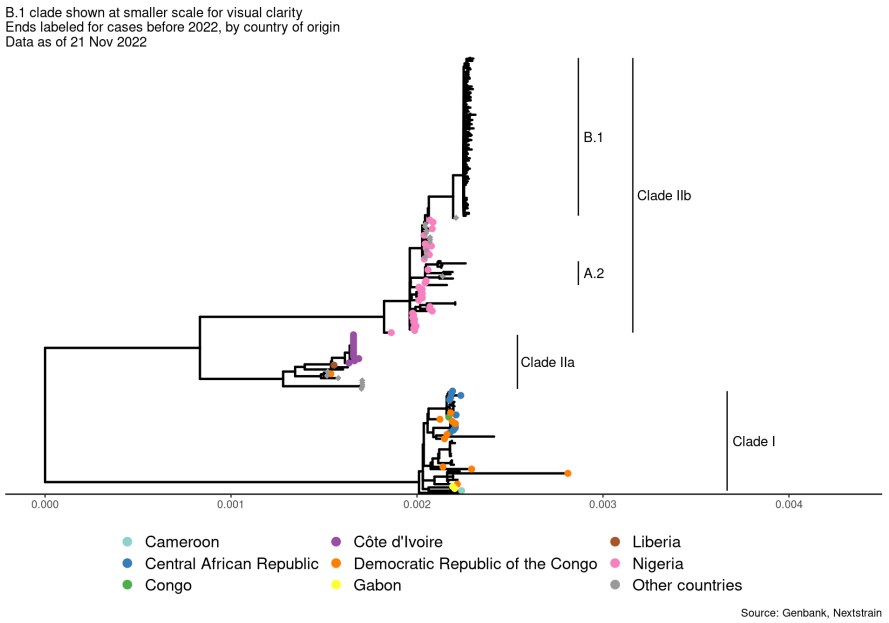
Potential confounders: Surveillance, healthcare capacity and access

Genomic spread

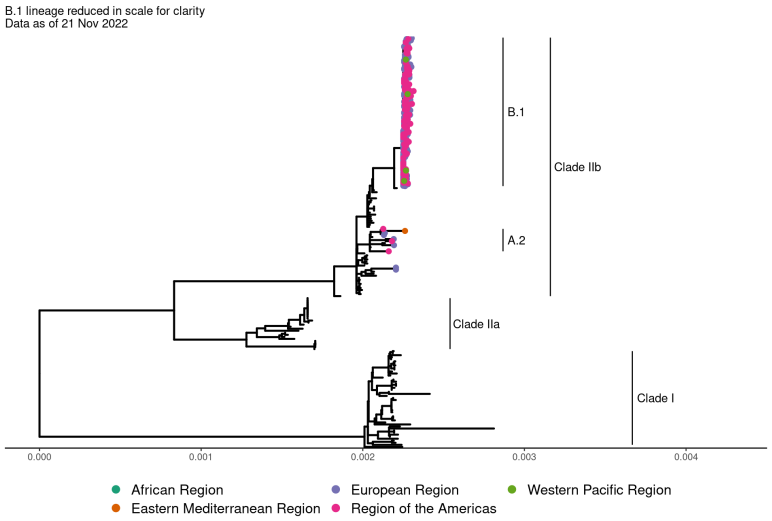
Monkeypox virus (MPXV)

- Clade I → only in African countries, animals and humans
- Clade II
  - Lineage IIa in animals and humans
  - Lineage IIb only in humans, driver of 2022-23 outbreak
    - First identified in Nigeria in 2017

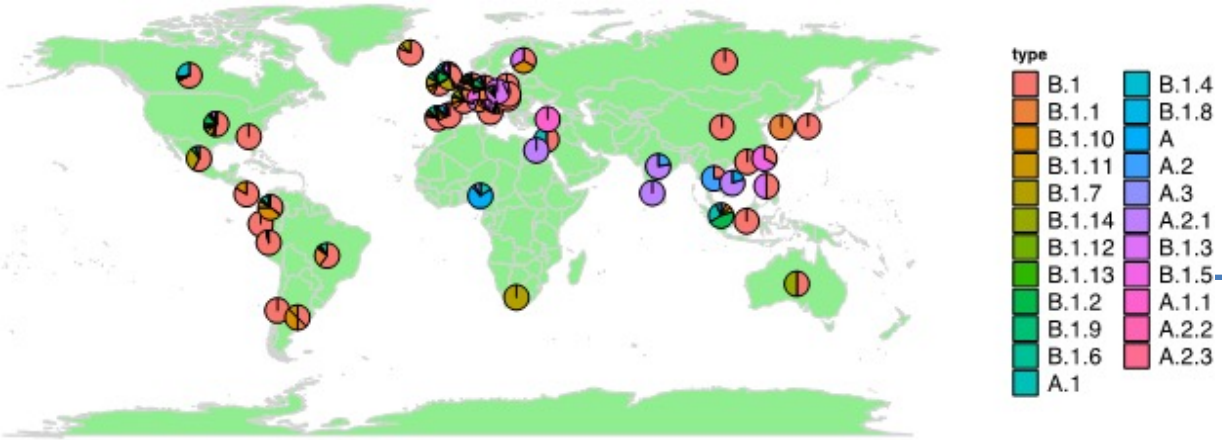
1970 - 2021



2022-23 outbreak



Clade IIb distribution 2022



WHO 4th IHR Emergency Committee for mpox

- **4th IHR EC** meeting **9 February 2023**
- Concerns expressed about Central America, Africa, hard to reach and marginalized populations and access to diagnostics and vaccines
- Continue engagement with regions, countries, and other partners
- Strategic direction endorsed
- Recommended the Public Health emergency of International Concern be maintained for 3 months
- Countries to plan a smooth transition to mpox elimination or control actions

World Health Organization

Mpox (monkeypox) IHR Emergency Committee (who.int)

Strategic directions endorsed by EC

Maintain surveillance	Integrate with HIV & STI programmes	Strengthen capacity	Implement research	Enhance access
Maintain epidemiological surveillance, consider making mpox infection nationally notifiable and continue to share confirmed and probable mpox case reports with WHO to support elimination where feasible	Integrate mpox surveillance, detection, prevention, care and research into innovative primary health care, sexual health, HIV and STI prevention and control programmes and services.	Strengthen capacity in resource-limited settings where mpox continues to occur, including for One Health and animal health	Implement a strategic research agenda to ensure ongoing evidence generation	Enhance access to diagnostics, vaccines and therapeutics through allocation mechanisms and technology transfer to advance global health equity, including for ethnic and racial minorities and those in the global south.

Countries to develop elimination or control plans according to national context