19e ÉDITION

ACP VIH

ACTUALITÉS et leurs CONSÉQUENCES PRATIQUES dans le VIH

Laho Business Center
Paris

29 NOVEMBRE 2022

Avec le soutien institutionnel de

ViiV Healthcare

Sous la caution scientifique de

AGENCE CCC

freepik

Actualités sur les IST

Monkeypox

Pr Jacques REYNES

Actualités IST-Monkeypox

Pr Jacques REYNES

j-reynes@chu-montpellier.fr

. Service de Maladies infectieuses et tropicales,

CHU Montpellier

. Unité Mixte Internationale «TransVIHMI » (UMI IRD233, INSERM U1175, Université Montpellier)

Recherches translationnelles sur l'infection à VIH et les Maladies infectieuses

Reynes Nov 2022

Déclaration de potentiels liens d'intérêts :

Jacques REYNES

Consultant, ou membre d'un conseil scientifique, ou intervenant dans un symposium, ou ayant bénéficié d'un soutien pour un déplacement d'un laboratoire pharmaceutique:

Gilead, Janssen, Moderna, MSD, Pfizer,

Theratechnologies, ViiV Healthcare

Investigateur principal d'un essai de l'industrie pharmaceutique

Gilead, GSK- ViiV Healthcare, MSD

Parts sociales ou actions dans un laboratoire pharmaceutique:

Aucune

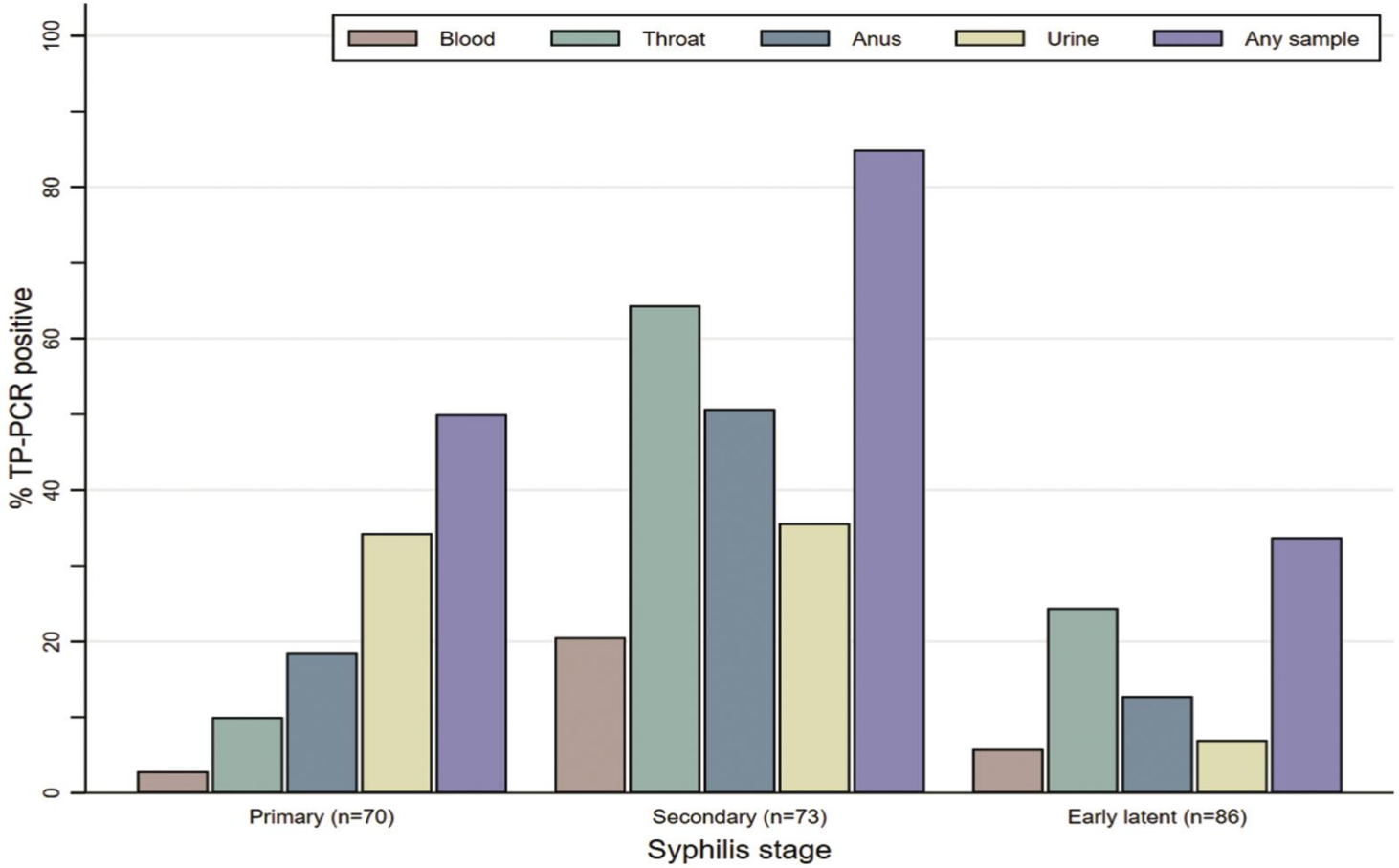
Clinical Infectious Diseases

MAJOR ARTICLE

Detection of *Treponema pallidum* DNA During Early Syphilis Stages in Peripheral Blood, Oropharynx, Ano-Rectum and Urine as a Proxy for Transmissibility

S. A. Nieuwenburg,[1,a] H. C. A. Zondag,[1,a] S.M. Bruisten,[1,2] V. W. Jongen,[1] M. F. Schim van der Loeff,[1,2,3] A. P. van Dam,[1,4,b] and H. J. C. de Vries[1,2,5,b]

Figure 2. TP-DNA detection in peripheral blood, throat and anal swabs, and urine in MSM with early syphilis, by stage, Amsterdam, The Netherlands, November 2018—December 2019. Abbreviations: MSM, men who have sex with men; TP-DNA, *Treponema pallidum* DNA; TP-PCR, *Treponema pallidum* polymerase chain reaction.



Clinical Infectious Diseases

MAJOR ARTICLE

Detection of *Treponema pallidum* DNA During Early Syphilis Stages in Peripheral Blood, Oropharynx, Ano-Rectum and Urine as a Proxy for Transmissibility

S. A. Nieuwenburg,[1,a] H. C. A. Zondag,[1,a] S.M. Bruisten,[1,2] V. W. Jongen,[1] M. F. Schim van der Loeff,[1,2,3] A. P. van Dam,[1,4,b] and H. J. C. de Vries[1,2,5,b]

Table 3. Urine, Anal and Pharyngeal TP-DNA Positivity in the Presence or Absence of Ulcers in MSM with Early Syphilis, Amsterdam, The Netherlands, November 2018 to December 2019

	Penile Ulcer Present		Penile Ulcer Absent	
	TP-DNA positive		TP-DNA positive	
	N	n (%)	N	n (%)
Urine				
Primary syphilis	41	16 (39%)	29	8 (28%)
Secondary syphilis	5	4 (80%)	68	22 (33%)
Early latent syphilis	0	0 (0%)	86	6 (7%)
	Anal Ulcer Present		Anal Ulcer Absent	
	TP-DNA positive		TP-DNA positive	
	N	n (%)	N	n (%)
Anus				
Primary syphilis	10	6 (60%)	60	7 (12%)
Secondary syphilis	5	5 (100%)	68	32 (47%)
Early latent syphilis	1	0 (0%)	85	11 (13%)
	Pharyngeal Ulcer Present		Pharyngeal Ulcer Absent	
	TP-DNA positive		TP-DNA positive	
	N	n (%)	N	n (%)
Pharyngeal				
Primary syphilis	1	1 (100%)	69	6 (9%)
Secondary syphilis	2	1 (50%)	71	46 (65%)
Early latent syphilis	2	1 (50%)	84	20 (24%)

Variole du singe (orthopoxvirose simienne)

Poxvirus pathogènes pour l'être humain *

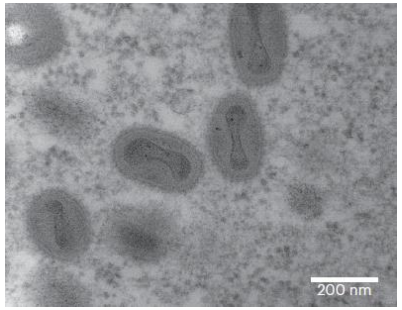
Famille : *Poxviridae*

***Genres**:*

- *Orthopoxvirus*
  - Virus de la variole VARV
  - Virus monkeypox MPXV
  - Virus cowpox CPXV
- *Parapoxvirus* (virus de l'Orf ORFV)
- *Molluscipoxvirus* (virus du molluscum contagiosum MOCV)
- *Yatapoxvirus* (virus tanapox TANV)

Génome: ADN bicaténaire linéaire

Taille 300-350 x 200-270 nm

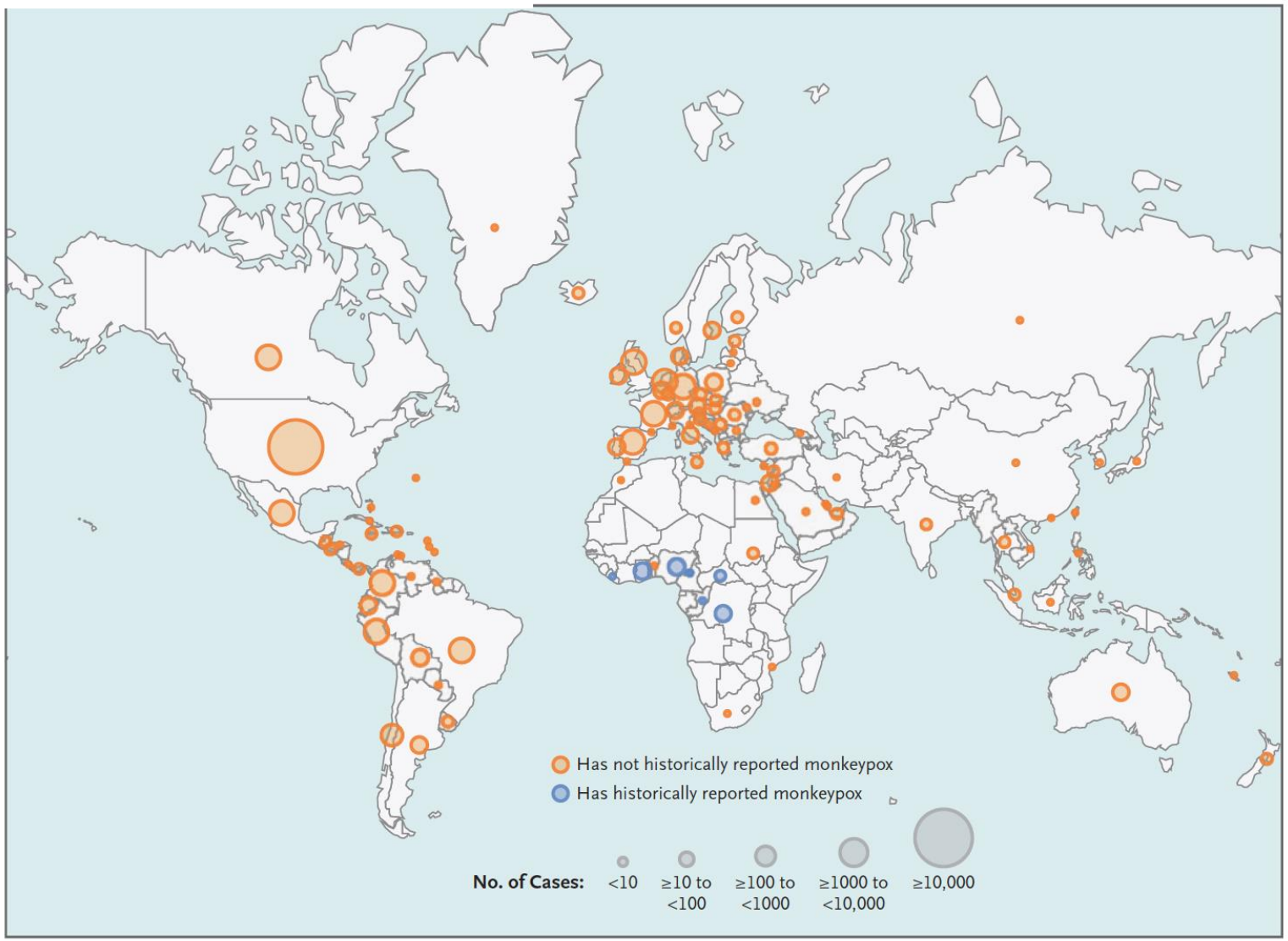


*Chapitre *Poxviridae (*O. Ferraris, A. Ferrier-Rambert; C Peyrefitte). Traité de Virologie Médicale SFM 2ème édition (2019)

Monkeypox — A Sobering Sentinel for Pandemic Preparedness and Sexual Health System Capacity

This article was published on November 2, 2022, at NEJM.org.

Matthew R. Golden, M.D., M.P.H., and Judith N. Wasserheit, M.D., M.P.H.



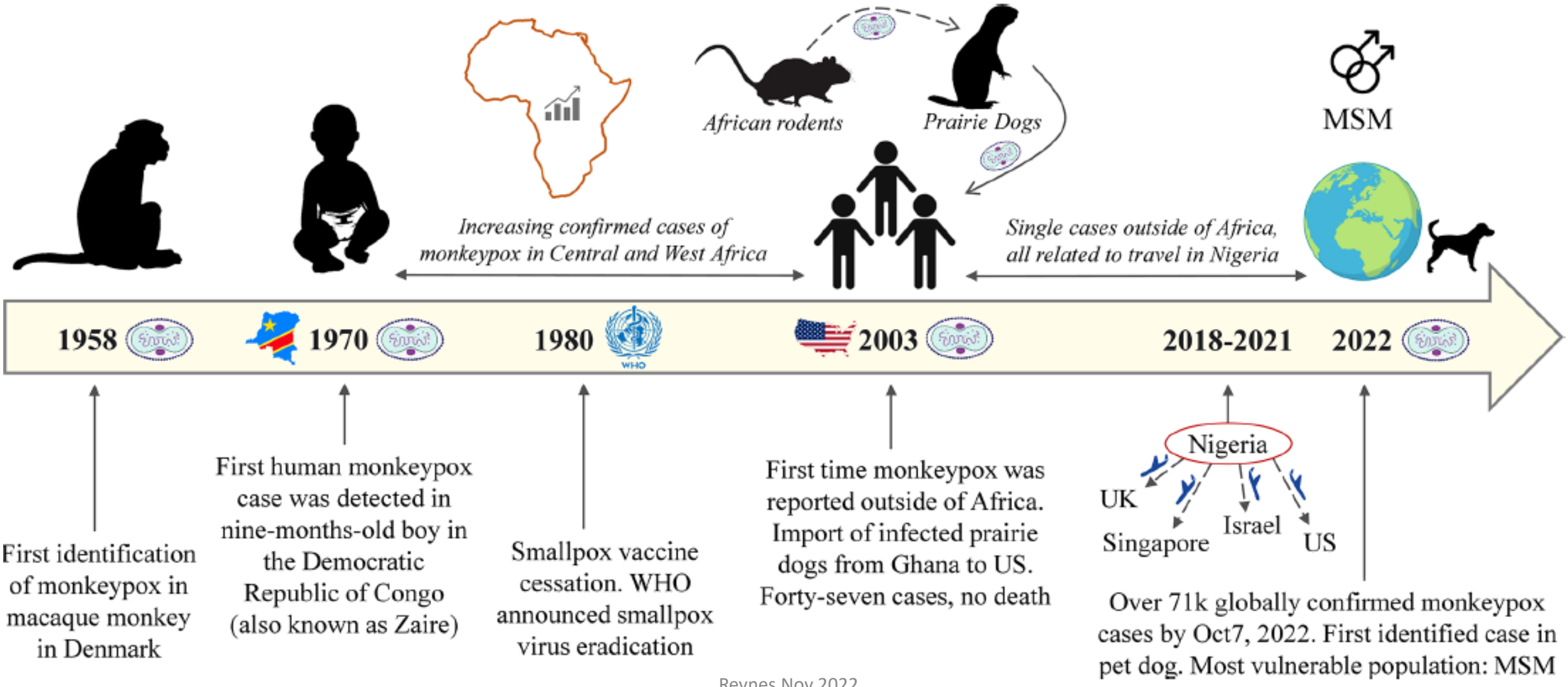
Distribution of Monkeypox Cases by Country in the 2022 Pandemic.

From the Centers for Disease Control and Prevention.[1] Data are as of October 17, 2022. The size of the circles reflects the relative number of cases in each country.

Rennes Nov 2022

Timeline of MPXV from the first identification until the current outbreak.

frontiers | Frontiers in Immunology
Papukashvili et al. PUBLISHED 27 October 2022
DOI 10.3389/fimmu.2022.1050309



Reynes Nov 2022

The NEW ENGLAND JOURNAL of MEDICINE

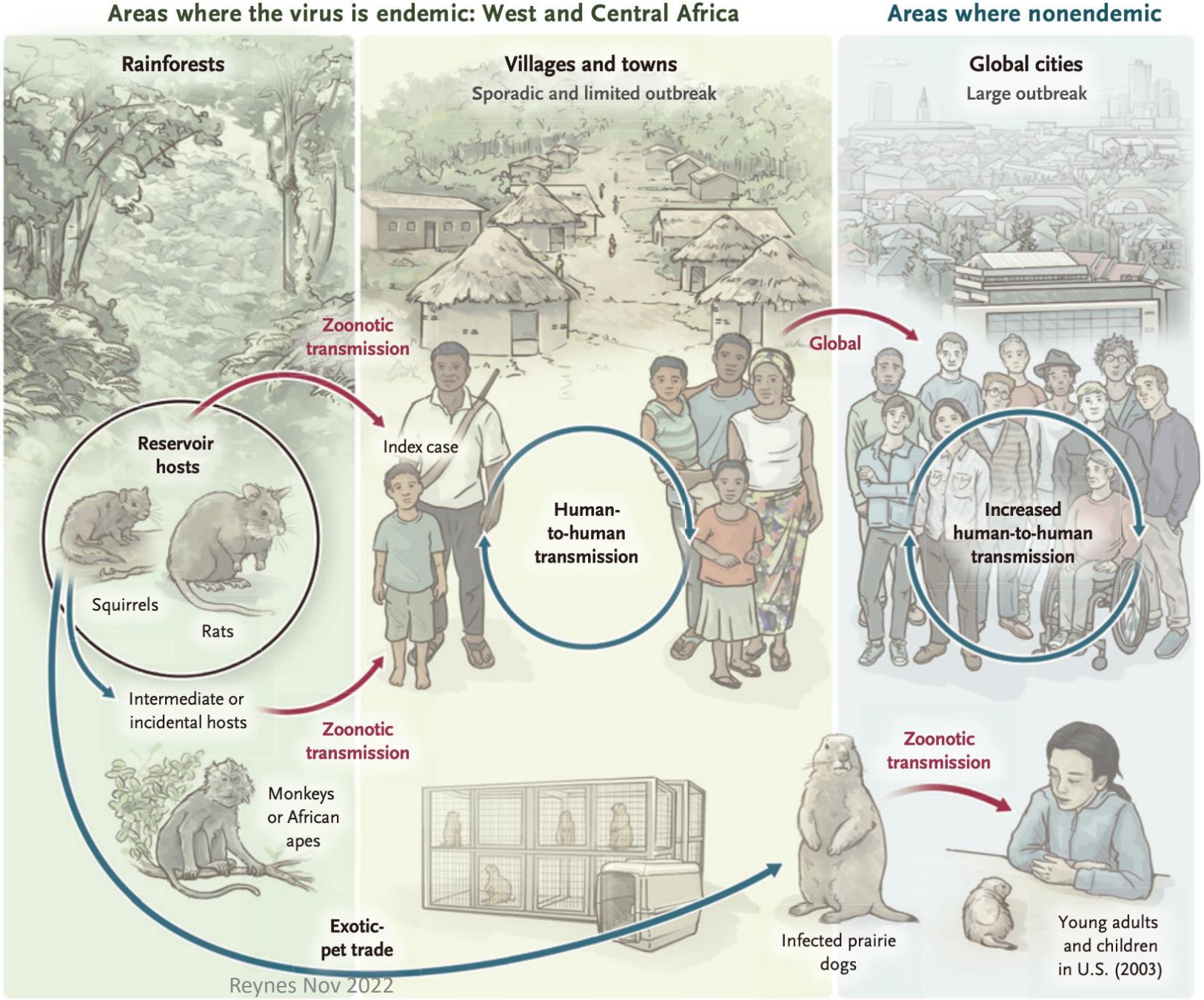
REVIEW ARTICLE

C. Corey Hardin, M.D., Ph.D., *Editor*

Monkeypox

Antoine Gessain, M.D., Emmanuel Nakoune, Ph.D., and Yazdan Yazdanpanah, M.D.

This article was published on October 26, 2022, at NEJM.org.



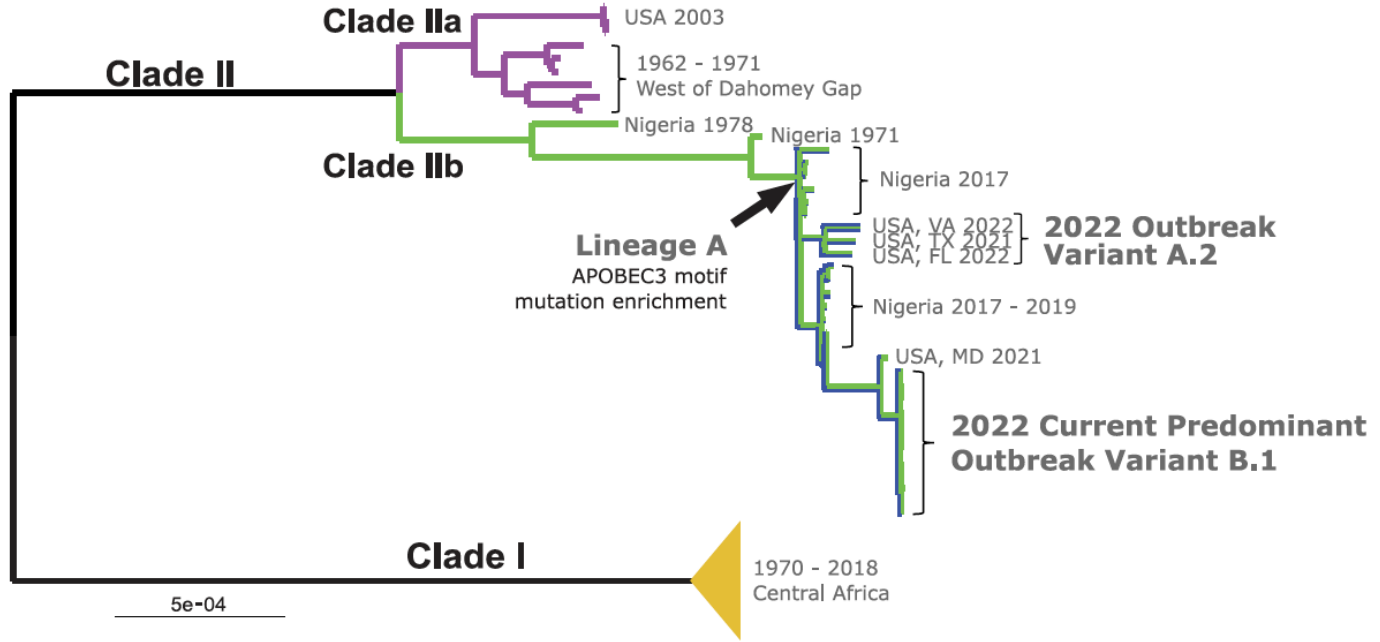
Gigante *et al.*, *Science* **378**, 560–565 (2022) 4 November 2022

MONKEYPOX

Multiple lineages of monkeypox virus detected in the United States, 2021–2022

Crystal M. Gigante[1], Bette Korber[2], Matthew H. Seabolt[1,3], Kimberly Wilkins[1], Whitni Davidson[1], Agam K. Rao[1], Hui Zhao[1], Todd G. Smith[1], Christine M. Hughes[1], Faisal Minhaj[1], Michelle A. Waltenburg[1], James Theiler[4], Sandra Smole[5], Glen R. Gallagher[5], David Blythe[6], Robert Myers[6], Joann Schulte[7], Joey Stringer[7], Philip Lee[8], Rafael M. Mendoza[9], LaToya A. Griffin-Thomas[10], Jenny Crain[11], Jade Murray[12], Annette Atkinson[12], Anthony H. Gonzalez[1] June Nash[13], Dhwani Batra[1], Inger Damon[1], Jennifer McQuiston[1], Christina L. Hutson[1], Andrea M. McCollum[1], Yu Li[1]*

[1]National Center for Emerging and Zoonotic Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, GA, USA. [2]T-6: Theoretical Biology and Biophysics, Los Alamos National Laboratory, Los Alamos, New Mexico, USA; New Mexico Consortium, Los Alamos, NM, USA.



Monkeypox is a viral zoonotic disease endemic in Central and West Africa. In May 2022, dozens of non-endemic countries reported hundreds of monkeypox cases, most with no epidemiological link to Africa. We identified two lineages of monkeypox virus (MPXV) among two 2021 and seven 2022 US monkeypox cases: the major 2022 outbreak variant called B.1 and a minor contemporaneously sampled variant called A.2. Analyses of mutations among these two variants revealed an extreme preference for GA-to-AA mutations indicative of human APOBEC3 cytosine deaminase activity among Clade IIb MPXV (previously West African, Nigeria) sampled since 2017. Such mutations were not enriched within other MPXV clades. These findings suggest that APOBEC3 editing may be a recurrent and a dominant driver of MPXV evolution within the current outbreak. Reynes Nov 2022

Viral loads in clinical samples of men with monkeypox virus infection: a French case series

Romain Palich, Sonia Burrel, Gentiane Monsel, Agathe Nouchi, Alexandre Bleibtreu, Sophie Seang, Vincent Bérot, Cécile Brin, Ariane Gavaud, Yara Wakim, Nagisa Godefroy, Antoine Fayçal, Yanis Tamzali, Thomas Grunemwald, Michel Ohayon, Eve Todesco, Valentin Leducq, Stéphane Marot, Vincent Calvez, Anne-Geneviève Marcelin, Valérie Pourcher

Lancet Infect Dis 2022

Published Online
September 29, 2022

We found a high proportion of MPXV-positive oral and anal swabs (71–77%), a lower proportion of positive blood and urine samples (22–31%), and just over half of positive semen samples at diagnosis. MPXV viral loads were high from skin and anus, intermediate in throat and semen, and low in blood and urine. Viral clearance appeared to be relatively rapid, with most samples being MPXV-negative within 14 days.

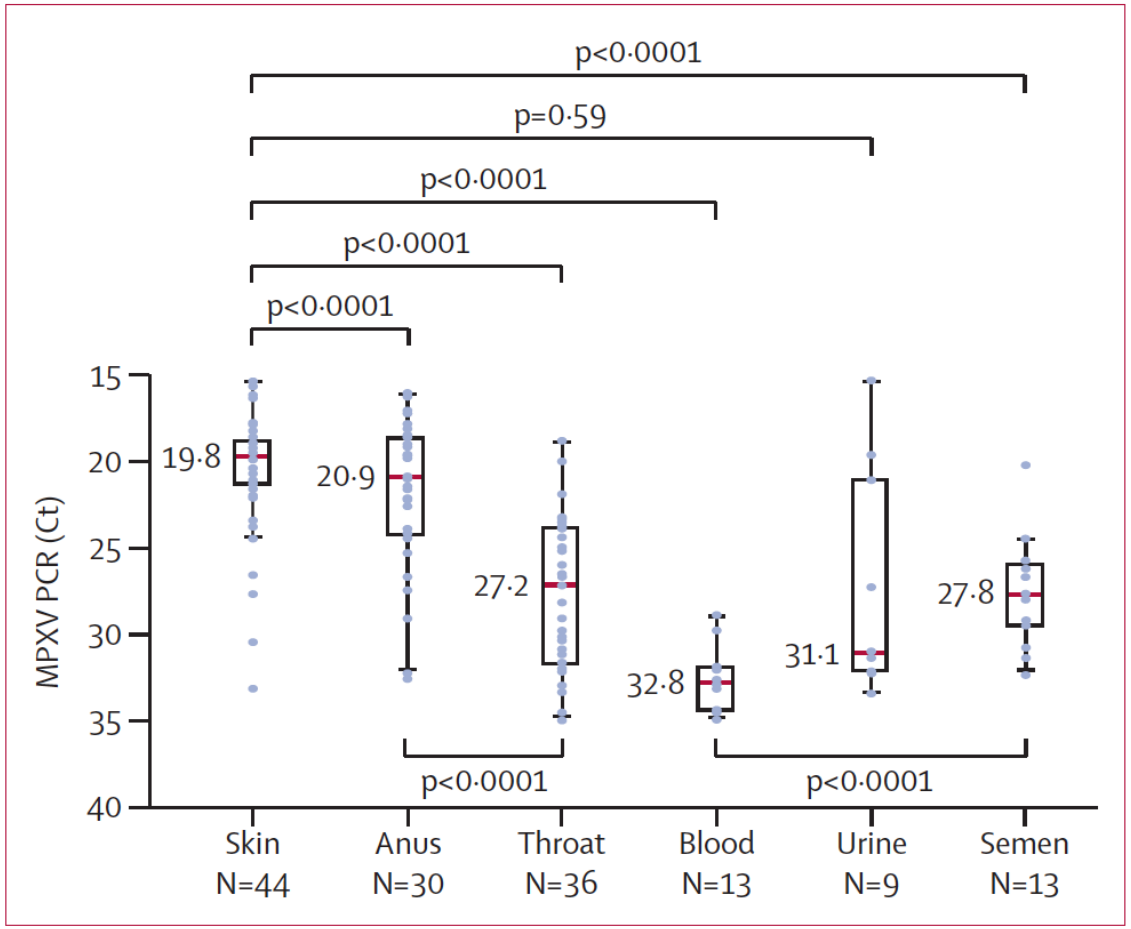


Figure 2: **MPXV viral loads given as cycle thresholds, according to sampled sites**

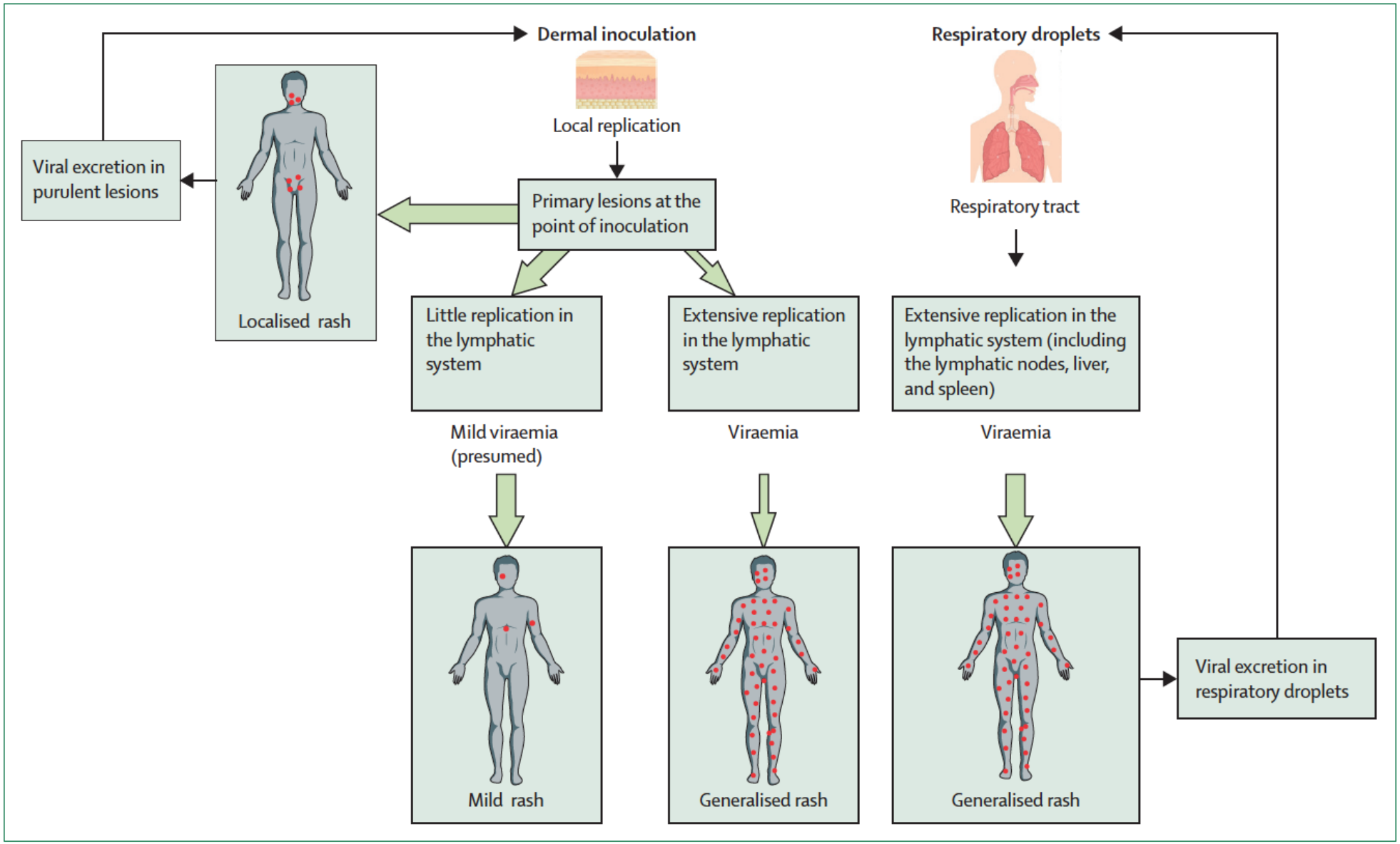


Figure 1: **Proposed mechanism for the spread of the monkeypox virus throughout the body and its relation to the transmission route**

Oriol Mitjà, Dimie Ogoina, Boghuma K Titanji, Cristina Galvan, Jean-Jacques Muyembe, Michael Marks, Chloe M Orkin

Reynes Nov 2022

www.thelancet.com **Published online November 17, 2022**

This article was published at Annals.org on 16 August 2022.

VM Ferré et al. (Bichat-Claude Bernard)

Annals of Internal Medicine

OBSERVATIONS: BRIEF RESEARCH REPORTS

Detection of Monkeypox Virus in Anorectal Swabs From Asymptomatic Men Who Have Sex With Men in a Sexually Transmitted Infection Screening Program in Paris, France

13 sujets/200 (6,5%) asymptomatiques MPXV+ :

- 8 VIH+ avec CV indétectable et CD4 > 500/mm^3 (sauf 1 ayant 123 CD4/mm^3)
- Tous recontactés : restant asymptomatiques sauf 2 (éruption anale pour un et pharyngite fébrile pour autre)

Table. Screening for Sexually Transmitted Infections and MPXV Infection in 706 MSM Visiting the Sexual Health Clinic Between 5 June and 11 July 2022

Variable	MSM With No Symptoms of MPXV Infection	MSM With Symptoms Suggesting MPXV Infection
Total number of MSM visiting between 5 June and 11 July 2022	323	383
C trachomatis infections detected on anal swab, *n/N (%)*	32/323 (9.9)	Not tested
N gonorrhoeae infections detected on anal swab, *n/N (%)*	24/323 (7.4)	Not tested
C trachomatis and *N gonorrhoeae* co-infection detected on anal swab, *n/N (%)*	8/323 (2.5)	Not tested
C trachomatis infections detected on first-void urine sample or urethral swab, *n/N (%)*	6/323 (1.9)	Not tested
N gonorrhoeae infections detected on first-void urine sample or urethral swab, *n/N (%)*	3/323 (0.9)	Not tested
C trachomatis and *N gonorrhoeae* co-infection detected on first-void urine sample or urethral swab, *n/N (%)*	1/323 (0.3)	Not tested
MPXV-positive test result, *n/N (%)*	13/200* (6.5)	271/383 (71)

C trachomatis = *Chlamydia trachomatis*; MPXV = monkeypox virus; MSM = men who have sex with men; *N gonorrhoeae* = *Neisseria gonorrhoeae*.
* All 200 of the asymptomatic participants who were tested for MPXV were negative for both *C trachomatis* and *N gonorrhoeae* on anal swab.

Retrospective detection of asymptomatic monkeypox virus infections among male sexual health clinic attendees in Belgium

Irith De Baetselier[1,9] ✉, Christophe Van Dijck[1,2,9] ✉, Chris Kenyon[1,3], Jasmine Coppens[1], Johan Michiels[4], Tessa de Block[1], Hilde Smet[1], Sandra Coppens[4], Fien Vanroye[1], Joachim Jakob Bugert[5], Philipp Girl[5], Sabine Zange[5], Laurens Liesenborghs[1], Isabel Brosius[1], Johan van Griensven[1], Philippe Selhorst[4], Eric Florence[1], Dorien Van den Bossche[1], Kevin K. Ariën[4], Antonio Mauro Rezende[1,6], Koen Vercauteren[1,6,10] ✉, Marjan Van Esbroeck[1,10] ✉ and for the ITM Monkeypox study group*

men attending a Belgian sexual health clinic in May 2022. We retrospectively screened 224 samples collected for gonorrhea and chlamydia testing using an MPXV PCR assay and identified MPXV-DNA-positive samples from four men. At the time of sampling, one man had a painful rash, and three men had reported no symptoms. Upon clinical examination 21–37 days later, these three men were free of clinical signs, and they reported not having experienced any symptoms. Serology confirmed MPXV exposure in all three men, and MPXV was cultured from two cases. These findings show that certain cases of monkeypox remain undiagnosed and suggest that testing and quarantining of individuals reporting symptoms may not suffice to contain the outbreak.

Table 1 | Patient and sample characteristics

Case	Time point	Sample type	Symptoms	MPXV PCR on leftover DNA extract (Ct value)	MPXV PCR on original sample (Ct value)
1	Day 0	Pooled sample[a]	None reported	Positive (27.63)	Anorectal swab: positive (26.69); oropharyngeal swab: negative
	Day 37	Anorectal swab	None reported	NA	Negative
2	Day 0	Anorectal swab	None reported	Positive (22.25)	Positive (20.05)
	Day 21	Anorectal swab	None reported	NA	Negative
3	Day 0	Anorectal swab	None reported	Positive (19.19)	Positive (17.16)
	Day 24	Anorectal swab	None reported	NA	Negative
4	Day 0	Anorectal swab	Painful vesicular perianal rash	Positive (29.06)	Positive (27.38)

NATURE MEDICINE | VOL 28 | NOVEMBER 2022 | 2288–2292 | Reynes Nov 2022

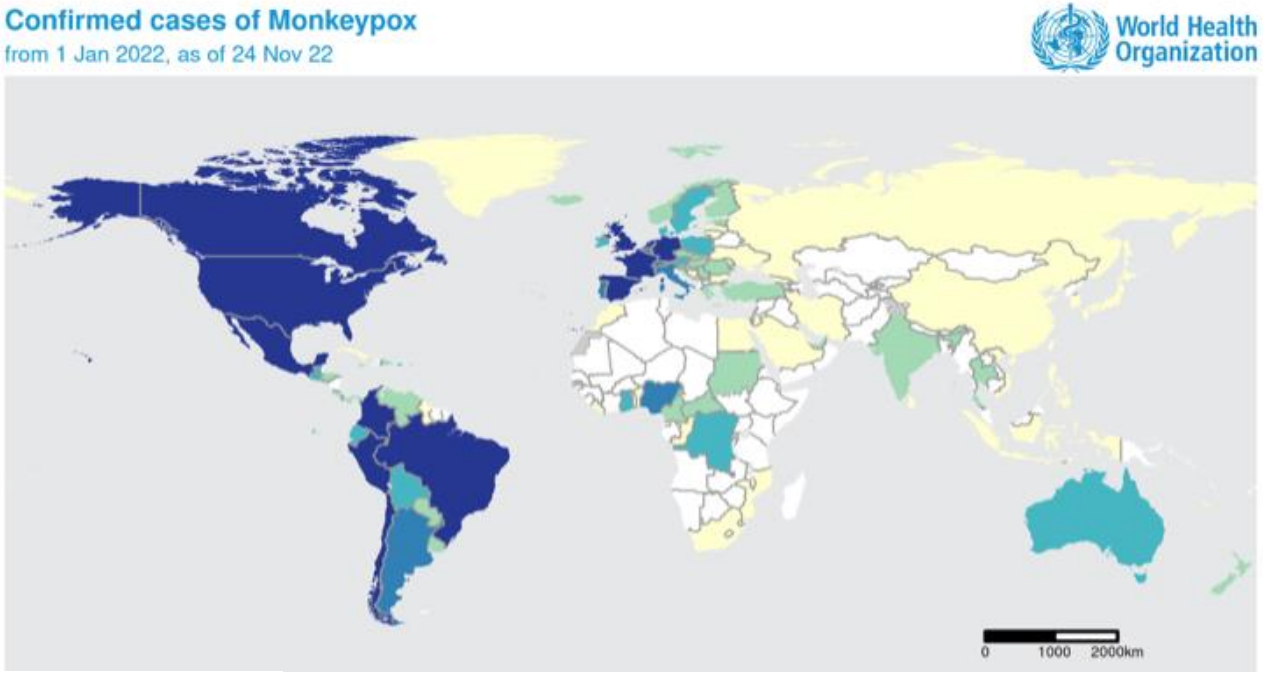
2022 Monkeypox Outbreak: Global Trends

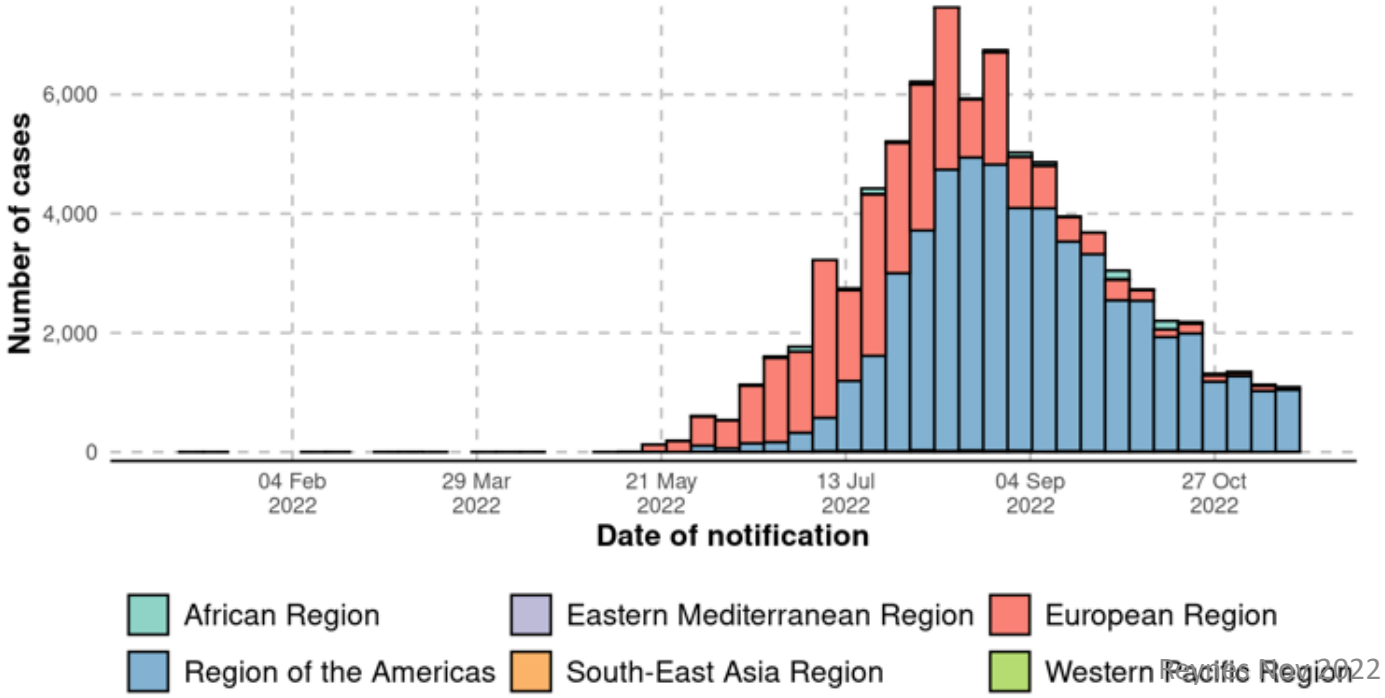
World Health Organization

Produced on 25 November 2022

Key Figures

81,095	55	110
Confirmed cases	Deaths	Countries reporting cases





Situation mondiale au 24 nov 2022

Cas de variole du singe : point de situation au 1er novembre 2022

Figure 1. Cas confirmés biologiquement de variole du singe (n=4 075 cas) par région de résidence (ou par région de signalement lorsque la région de résidence est inconnue), France, mai-novembre 2022 (données au 01/11/2022 – 12h00)

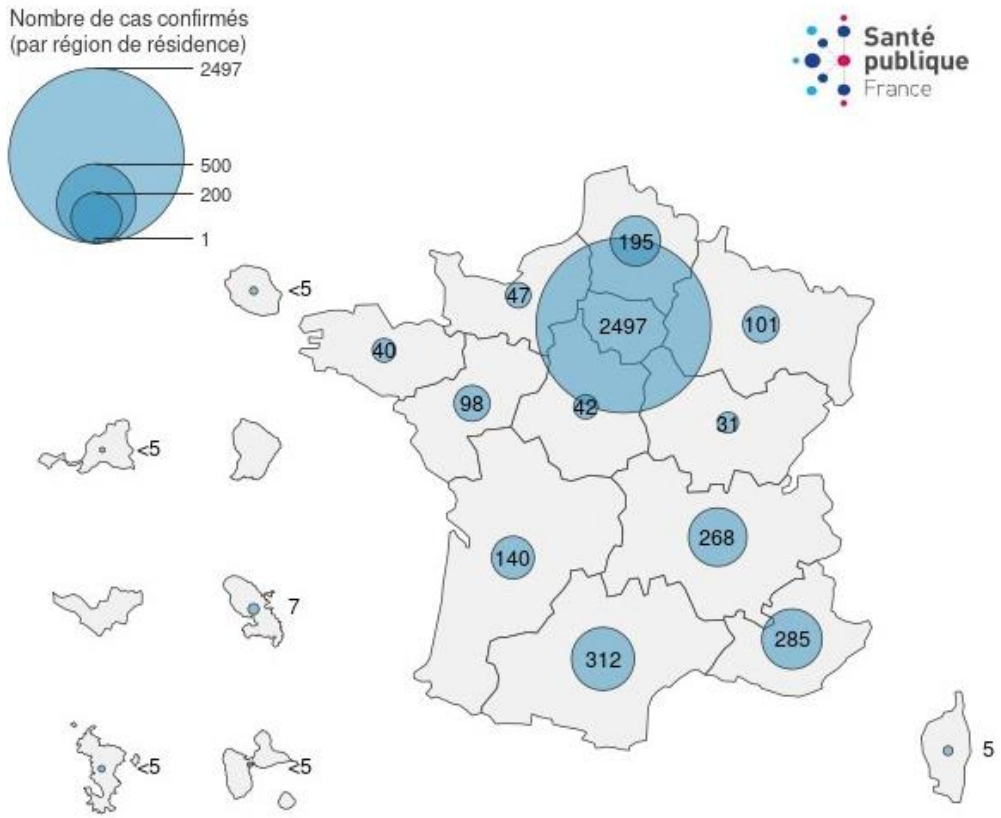
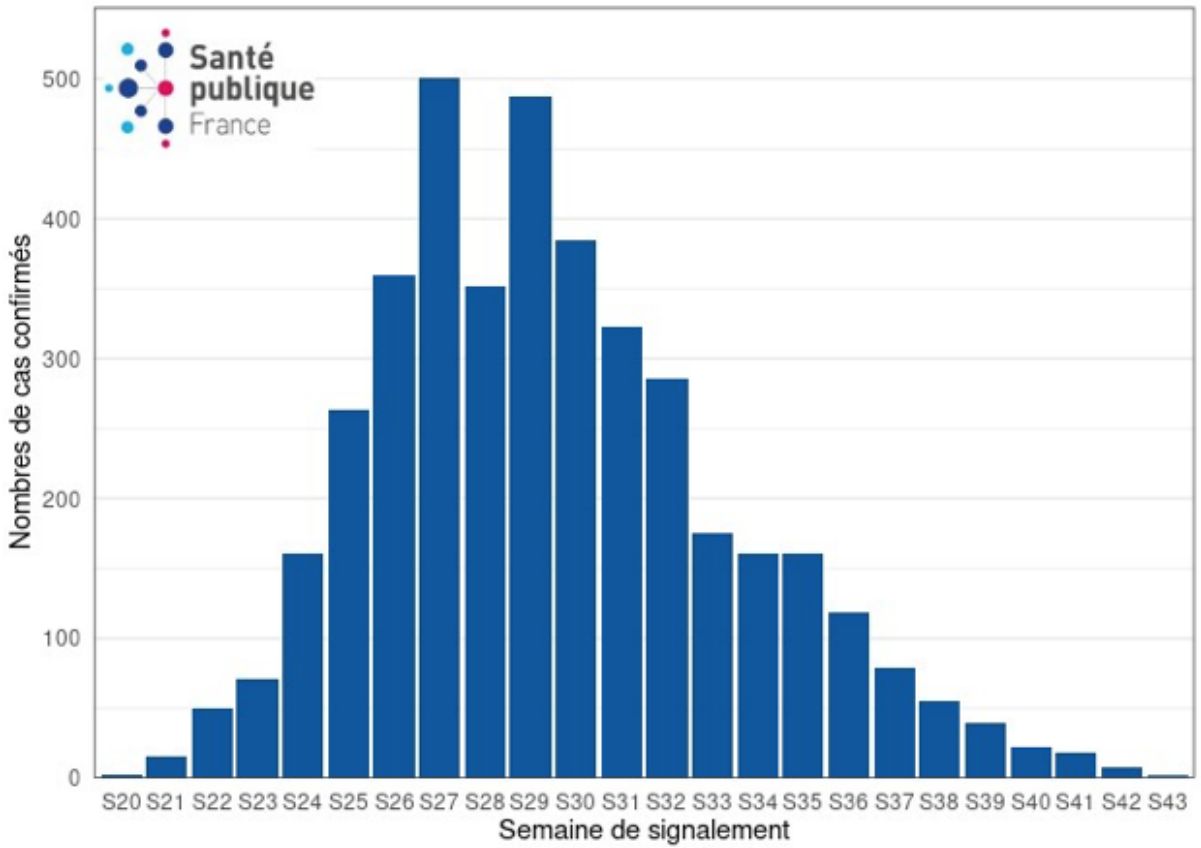


Figure 3. Cas confirmés biologiquement de variole du singe (n= 4 094 cas) par semaine de signalement, France, mai-novembre 2022 (données au 01/11/2022 – 12h00).



Les données de la dernière semaine (en bleu clair) ne sont pas totalement consolidées. Le creux de déclaration observé en semaine 28 (du 11 au 17 juillet) peut s'expliquer par le jour férié du 14 juillet.

	2022 outbreak	Previous outbreaks
Population features		
Mean age	37–41 years	26–32 years
Smallpox vaccination in childhood	11–18%	20%
Incubation period	6–7 days	12 days
Sex		
Male	97–100%	53–78%
Female	0–3%	22–47%
Systemic features		
Systemic symptoms	Fever (54–72%), fatigue or myalgia (24–81%), and headache (25–53%)	Fever (45–90%), fatigue or myalgia (73–85%), and headache (48–79%)
Lymphadenopathy	55–87%, localised in the lymph catchment area of lesions	57–87%, localised or generalised
Systemic symptoms start after rash	38–52%	15–66%
Clinical features of the rash		
More than 10 lesions	22–36%	100%
More than 20 lesions	12%	46%
More than 100 lesions	0–4%	20–42%
Progression	Lesions present at different stages simultaneously; not all lesions progressed from one phase to another in order	Progression from one phase to another occurs in order
Distribution	Commonly localised to 1–3 body regions	Commonly disseminated to >3 body regions
Localisation	Genitalia (55–61%), perianal (34–44%), oropharyngeal (14–43%), trunk (25–57%), arms and legs (50–60%), face (20–39%), and palms or soles (0–10%)	Genitalia (67–68%), perianal (not reported), oropharyngeal (38%), trunk (80–93%), arms and legs (81–91%), face (96–98%), palms (28–55%), and soles (10–64%)
Outcome		
Complications	Rectal pain (14–36%), sore throat (17–36%), difficulty swallowing related to tonsillar or pharyngeal ulcer (5–14%), penile oedema (8–16%), proctitis (11–25%), secondary bacterial infection (3–4%), and conjunctivitis (1%)	Secondary bacterial infection of skin lesions (19%), bronchopneumonia (12%), sepsis (1%), encephalitis (0·4%), keratitis (0·4%), and retropharyngeal abscess (0·4%)
Hospital admission	1–13%	26%
Risk factors for severe disease	Unknown	Age (younger ages are more at risk), living with HIV and not being on antiretroviral therapy
Fatality rate	<0·1%	Clade 1 had 1–12%, clade 2 had <0·1%
Sexual health		
Living with HIV	36–67%	ND
Concomitant STI	16–76%	ND
History of STI in past 12 months	54–55%	ND

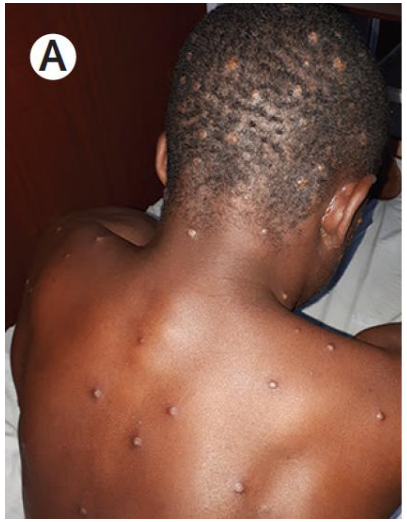
Data were retrieved from published cohorts including 30 or more patients with monkeypox.[12–14,23,32–35,38] ND=no data. STI=sexually transmitted infections.

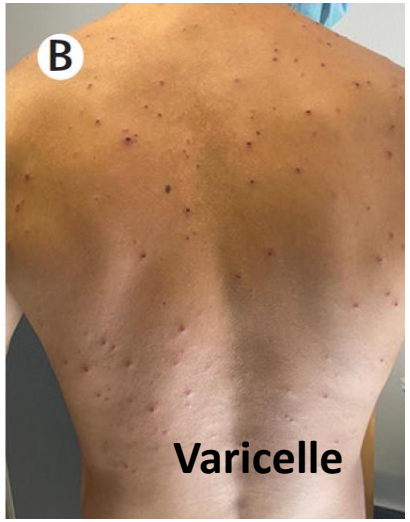
Table: **Comparison of the clinical presentation in the 2022 outbreak with previous outbreaks**

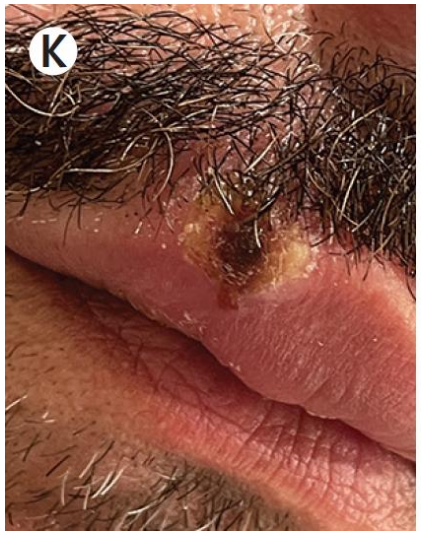
www.thelancet.com **Published online November 17, 2022**

Oriol Mitjà, Dimie Ogoina, Boghuma K Titanji, Cristina Galvan, Jean-Jacques Muyembe, Michael Marks, Chloe M Orkin

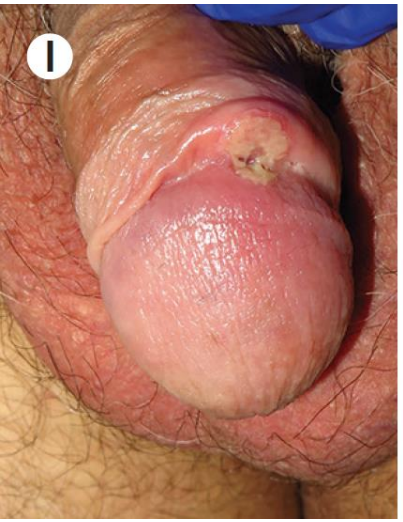
Reynes Nov 2022

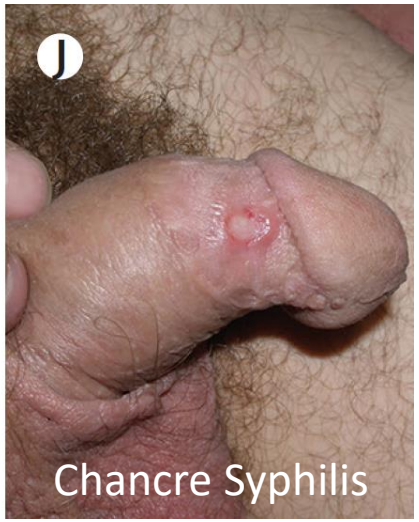


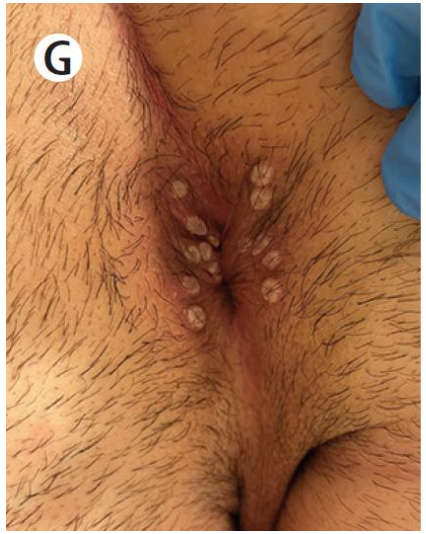


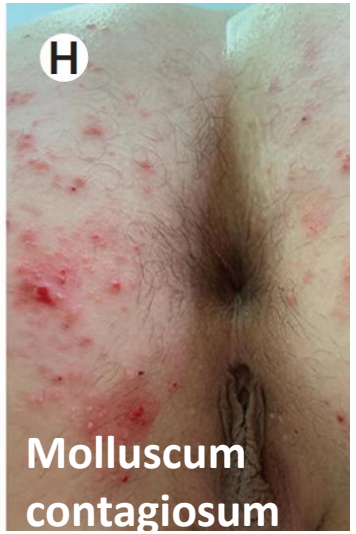


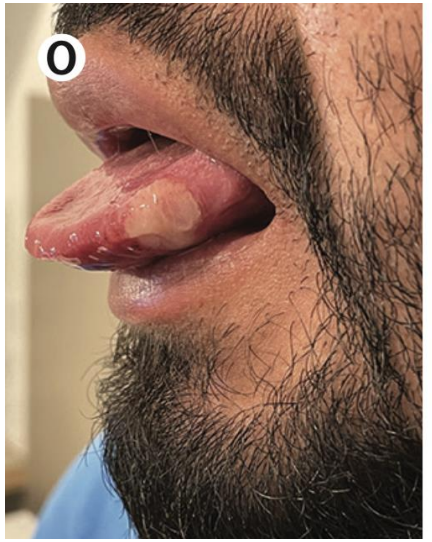
Différentes lésions et Diagnostic différentiel

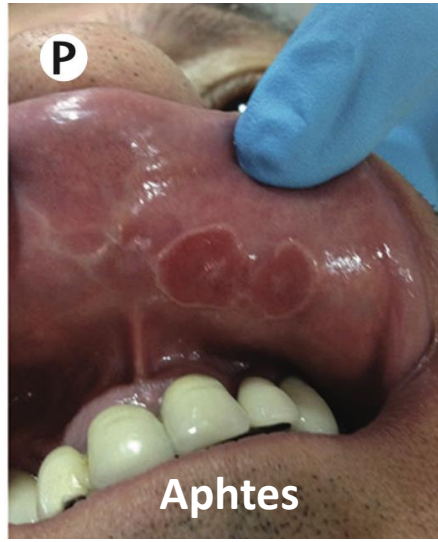












Oriol Mitjà, Dimie Ogoina, Boghuma K Titanji, Cristina Galvan, Jean-Jacques Muyembe, Michael Marks, Chloe M Orkin www.thelancet.com **Published online November 17, 2022**

Severe Monkeypox in Hospitalized Patients — United States, August 10–October 10, 2022

Maureen J. Miller, MD[1,*]; Shama Cash-Goldwasser, MD[1,2,3,*]; Grace E. Marx, MD[1]; Caroline A. Schrodt, MD[1]; Anne Kimball, MD[1]; Kia Padgett, MPH[1]; Rebecca S. Noe, MPH[1]; David W. McCormick, MD[1,2]; Joshua M. Wong, MD[1,2]; Sarah M. Labuda, MD[1]; Brian F. Borah, MD[1,2,4]; Isaac Zulu, MD[1];

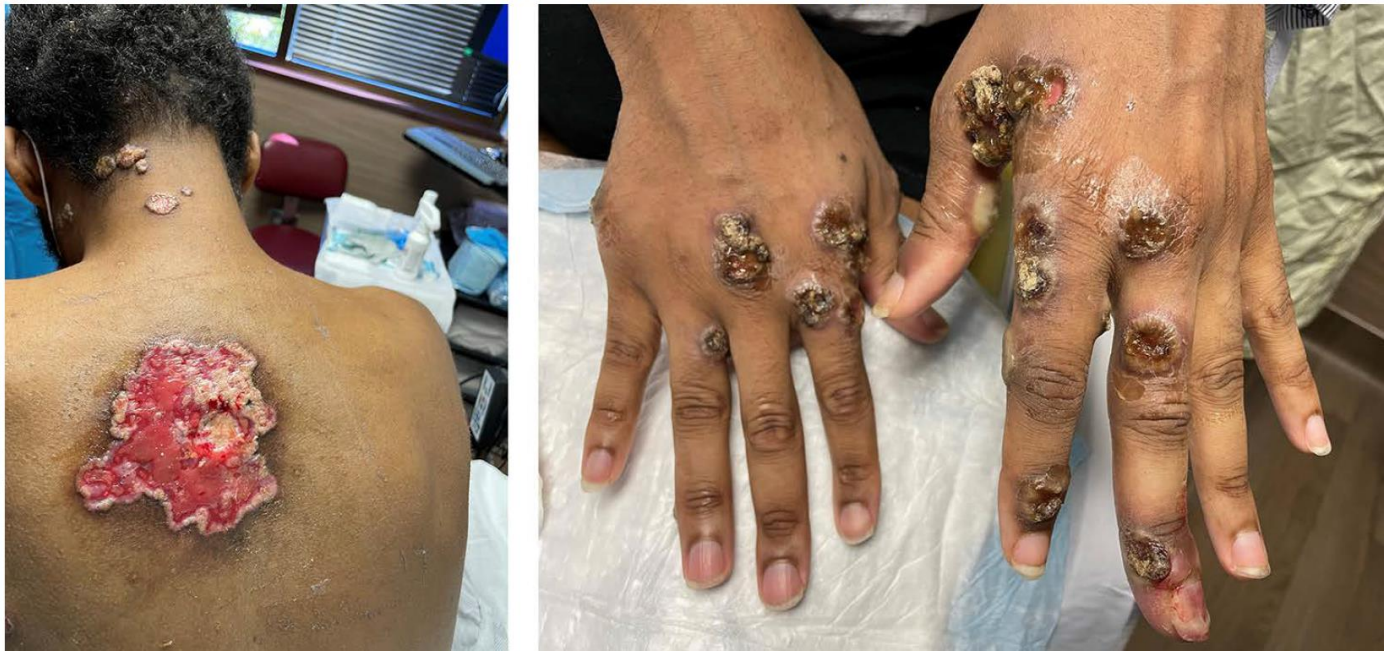
TABLE 1. Characteristics of hospitalized patients with severe manifestations of monkeypox* for whom CDC provided clinical consultation (N = 57) — United States, August 10–October 10, 2022

Characteristic	No. (%)
Median age, yrs (range)	34 (20–61)
Sex	
Male	54 (94.7)
Race and ethnicity	
Black or African American, non-Hispanic	39 (68.4)
White, non-Hispanic	8 (14.0)
Hispanic or Latino	8 (14.0)
Asian, non-Hispanic	1 (1.8)
Multiple races, non-Hispanic	1 (1.8)
Experiencing homelessness†	13 (22.8)
Any immunocompromising condition§	51 (89.5)
HIV infection	47 (82.5)
History of solid organ transplantation	3 (5.3)
Hematologic malignancy (current chemotherapy)	2 (3.5)
Pregnant	3 (5.3)
Clinical manifestation¶	
Dermatologic	57 (100.0)
Mucosal**	39 (68.4)
Pulmonary	12 (21.1)
Ocular	12 (21.1)
Deep tissue (muscle or bone)	5 (8.8)
Neurologic	4 (7.0)
Monkeypox-directed therapy††	
Tecovirimat (oral)	53 (93.0)
Tecovirimat (intravenous)	37 (64.9)
VIGIV	29 (50.9)
Cidofovir††	13 (22.8)

TABLE 2. Laboratory and treatment characteristics of hospitalized patients with HIV infection and severe monkeypox* for whom CDC provided clinical consultation (N = 47) — United States, August 10–October 10, 2022

Characteristic (no. with information available)	No. (%)
HIV CD4, cells/mm^3 (43)	
<50	31 (72.1)
50–200	9 (20.9)
>200	3 (7.0)
HIV Treatment (47)	
On ART at the time of monkeypox diagnosis	4 (8.5)

FIGURE. Disseminated lesions on the back and hands of a patient* with severe monkeypox — United States, August 10–October 10, 2022



What is added by this report?

During August–October 2022, CDC provided clinical consultation for 57 hospitalized patients with severe manifestations of monkeypox, most of whom were Black men with AIDS. Delays were observed in initiation of monkeypox-directed therapies. Twelve patients died, and monkeypox was a cause of death or contributing factor in five patients to date, with several other deaths still under investigation.

What are the implications for public health practice?

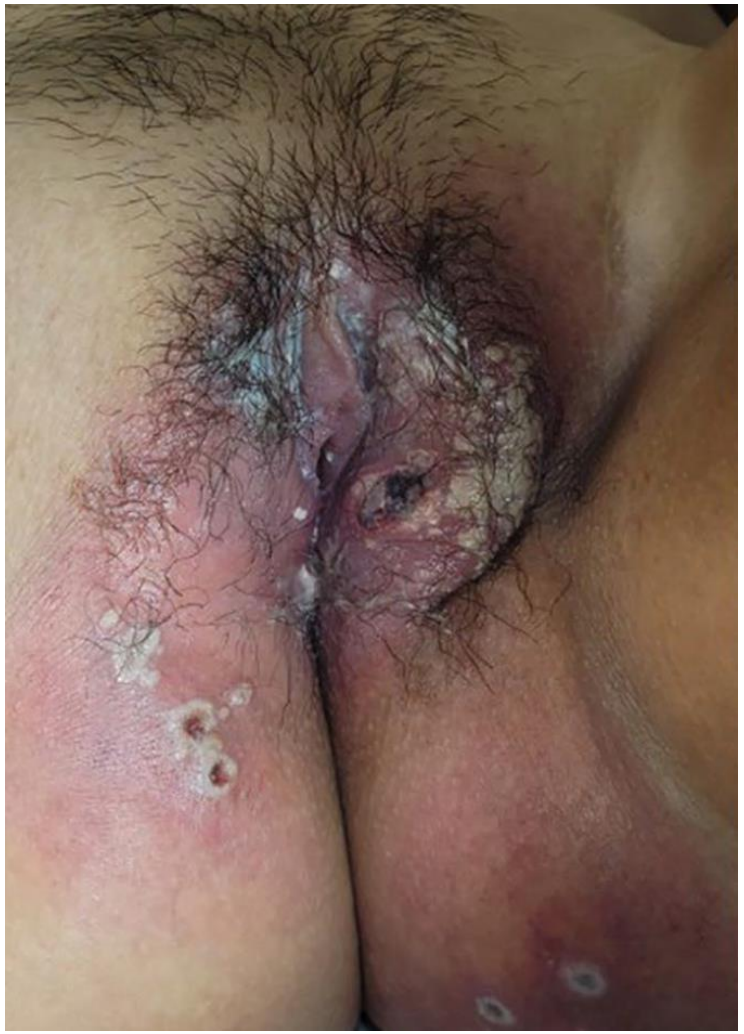
Clinicians should consider early treatment with available therapeutics for those at risk for severe monkeypox disease, particularly patients with AIDS. Engaging all persons with HIV in care remains a critical public health priority.

Volume 29, Number 1—January 2023 EMERGING INFECTIOUS DISEASES®

Research Letter

Monkeypox Virus Infection in 18-Year-Old Woman after Sexual Intercourse, France, S

Alexandre Vallée✉, Audrey Chatelain, Marie Carbonnel, Catherine Racowsky, Erwan Fourn, David Zucman, and Jean-Marc Ayoubi



Appendix Figure 2. Pustules in genital area of young woman with monkeypox virus infection after sexual intercourse, France, September 2022

www.thelancet.com Published online November 17, 2022

Human monkeypox virus infection in women and non-binary individuals during the 2022 outbreaks: a global case series

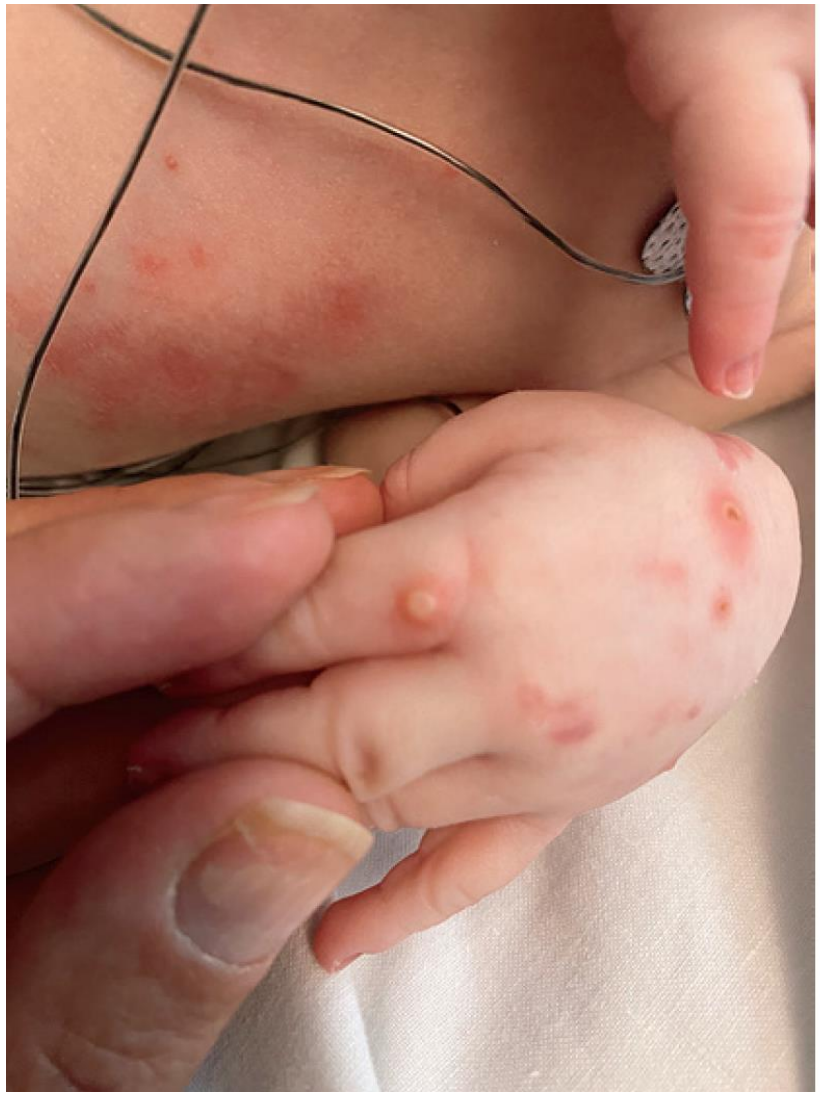
John P Thornhill, Romain Palich*, Jade Ghosn, Sharon Walmsley, Davide Moschese, Claudia P Cortes, Rafael Mello Galliez, Amy B Garlin, Silvia Nozza, Oriol Mitja, Asa E Radix, Jose Luis Blanco, Brenda Crabtree-Ramirez, Melanie Thompson, Lothar Wiese, Hubert Schulbin, Ariela Levcovich, Marco Falcone, Anna Lucchini, Elena Sendagorta, Carl-Johan Treutiger, Ruth Byrne, Katherine Coyne, Eric A Meyerowitz, Anna M Grahn, Ann-Brit Eg Hansen, Valerie Pourcher, Michelle DellaPiazza, Rachel Lee, Marcel Stoeckle, Aniruddha Hazra, Vanessa Apea, Emma Rubenstein, Joyce Jones, Aimee Wilkin, Anuradha Ganesan, Andrés F Henao-Martínez, Eric J Chow, Boghuma K Titanji, Jason E Zucker, Dimie Ogoina, Chloe M Orkin on behalf of the Share-Net writing group*

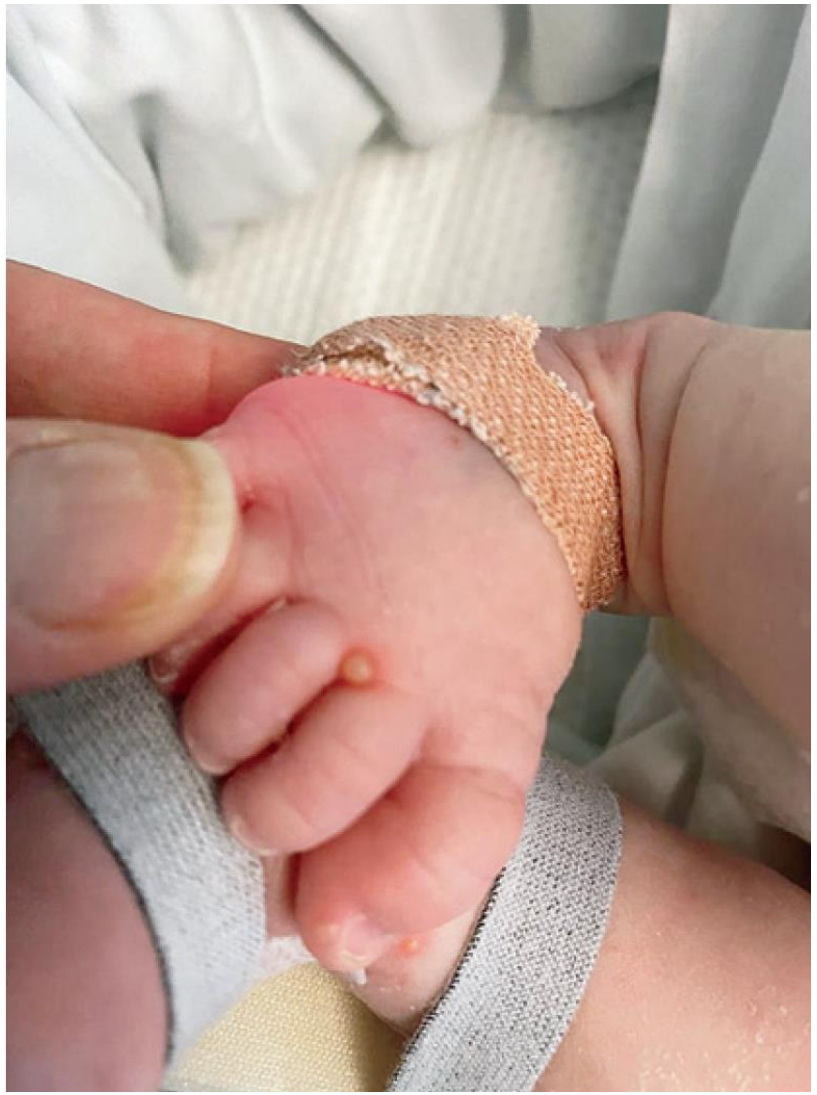
Genre	Femmes trans (assignées sexe mâle à la naissance)(n=62)	Femmes cis (n=69) et non-binaires (n=5)
Travailleurs du sexe	55%	1%
Partenaires multiples mâles	73%	12%
Partenaire mâle régulier	13%	59%
Nb de partenaires sexuels dans 3 derniers mois, médiane (IQR)	10 (2-50)	1 (1-2)
Sexe anal et oral	76%	1%
Sexe vaginal+/- oral	0	57%
Transmission suspectée - Contact sexuel - Domicile, Contact proche - Profession santé	 89% 0 0	 61% 18% 5%
VIH+, PreP	50% , 29%	8%, 1%
Nb de lésions, médiane (IQR)	10 (3-20)	10 (5-33)
Lésions péri-anales, vulvaires	76%, 2%	24%, 59%

Reynes Nov 2022

Neonatal Monkeypox Virus Infection

Padmanabhan Ramnarayan, M.D.
Imperial College London
London, United Kingdom





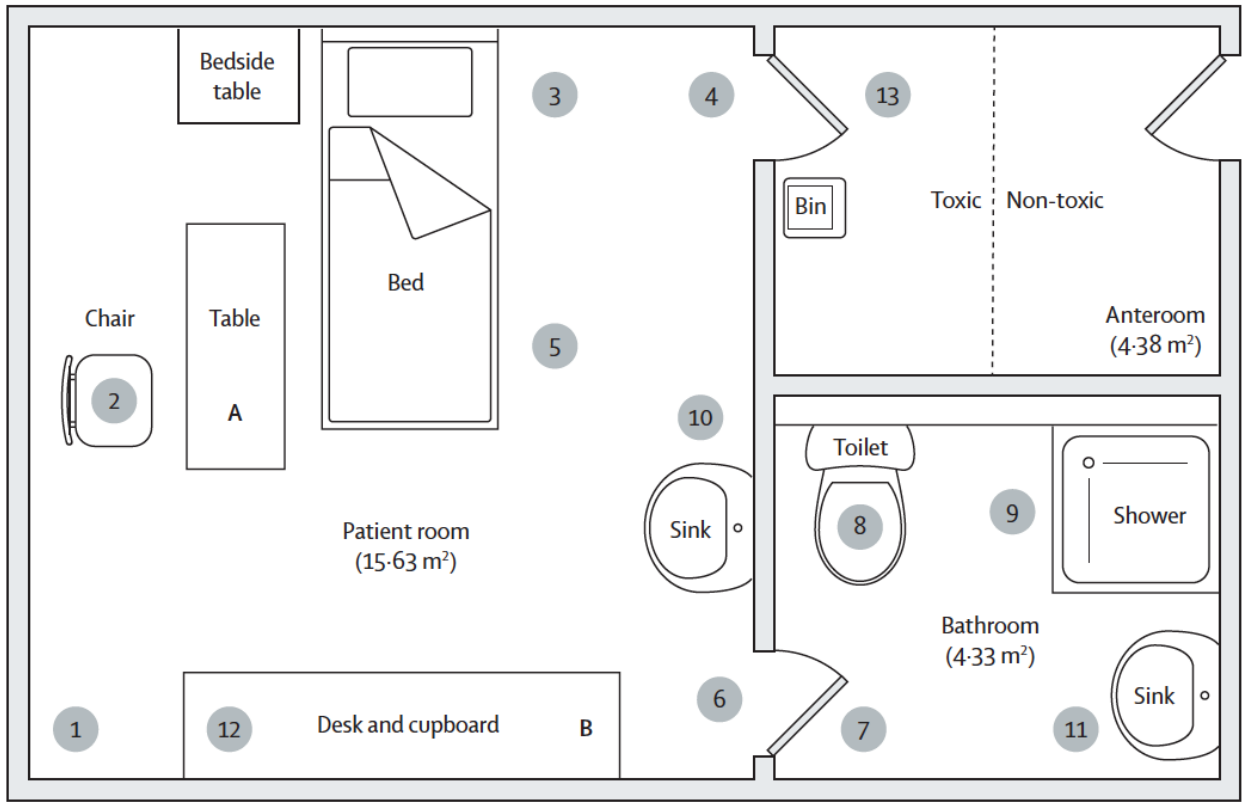
N ENGL J MED 387;17 NEJM.ORG OCTOBER 27, 2022

Air and surface sampling for monkeypox virus in a UK hospital: an observational study

Susan Gould, Barry Atkinson*, Okechukwu Onianwa, Antony Spencer, Jenna Furneaux, James Grieves, Caroline Taylor, Iain Milligan, Allan Bennett, Tom Fletcher, Jake Dunning, NHS England Airborne High Consequence Infectious Diseases Network†*

Lancet Microbe 2022

Published Online
October 7, 2022
https://doi.org/10.1016/S2666-5247(22)00257-9



	Area sampled	Ct values
1	Deposition area (window ledge)	28·8
2	Chair (arm rest)	29·9
3	Call button	27·5
4	Light switch	24·7
5	Observation machine	26·4
6	Air vent	26·4
7	Door handle	26·7
8	Toilet flush	28·7
9	Shower handle	28·8
10	Tap handle 1 (patient room)	32·4
11	Tap handle 2 (bathroom)	29·2
12	Television remote control	25·0
13	Anteroom floor	26·3
A1*	Air sample (<1 m), before bedding change	ND
A2*	Air sample (<1 m), during bedding change	32·7
B1*	Air sample (>1·5 m), before bedding change	36·2
B2*	Air sample (>1·5 m), during bedding change	35·8

Figure: **Plan of room A representing the sites of samples and Ct values**
*Air samples were collected over a period of 10 min at a rate of 50 L/min (500 L total). Ct=quantitative PCR crossing threshold value of monkeypox DNA detected.

Review

Efficacy of biocidal agents and disinfectants against the monkeypox virus and other orthopoxviruses

Journal of Hospital Infection 127 (2022) 101–110

G. Kampf*

University Medicine Greifswald, Greifswald, Germany

«Results from an in vitro study showed that cultured ortho-poxviruses may remain infectious at room temperature on galvanized steel and glass under laboratory conditions for 3 days (89-100% relative humidity) or up to 42 days (1-10% relative humidity) in the absence of organic load.

Variola virus in crusts obtained from a single smallpox patient with an initial viral load of approximately 2.2 x 10^8 could remain infectious in a sterile bottle at room temperature for up to 8 weeks at 85-90% relative air humidity.

Vaccinia viruses could be inactivated by at least 4 log10 in suspension tests and on artificially contaminated surfaces by 70% ethanol (1 min), 0.2% peracetic acid (10 min) and 1-10% of a probiotic cleaner (1 h), mostly shown with different types of organic load.

Hydrogen peroxide (14.4%) and iodine (0.04-1%) were effective in suspension tests, sodium hypochlorite (0.25-2.5%; 1 min), 2% glutaraldehyde (10 min) and 0.55% orthophthalaldehyde (5 min) were effective on artificially contaminated surfaces. »

nature microbiology

Brief Communication

https://doi.org/10.1038/s41564-022-01269-8

Tecovirimat is effective against human monkeypox virus in vitro at nanomolar concentrations

Received: 18 July 2022

Accepted: 13 October 2022

Published online: 07 November 2022

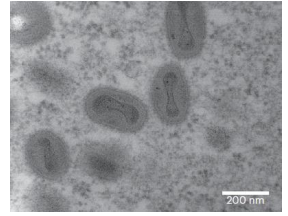
Check for updates

Gaëlle Frenois-Veyrat[1,2], Franck Gallardo[3], Olivier Gorgé[4], Elie Marcheteau[3], Olivier Ferraris[1,2], Artem Baidaliuk[5], Anne-Laure Favier[6], Cécile Enfroy[6], Xavier Holy[6], Jérémy Lourenco[7], Rhéa Khoury[8], Flora Nolent[4], Douglas W. Grosenbach[9], Dennis E. Hruby[9], Audrey Ferrier[1,2], Frédéric Iseni[1,11] ✉, Etienne Simon-Loriere[5,11] ✉ & Jean-Nicolas Tournier[1,10,11] ✉

The ongoing monkeypox virus (MPXV) outbreak is the largest ever recorded outside of Africa. We isolated and sequenced a virus from the first clinical MPXV case diagnosed in France (May 2022). We report that tecovirimat (ST-246), a US Food and Drug Administration approved drug, is efficacious against this isolate in vitro at nanomolar concentrations, whereas cidofovir is only effective at micromolar concentrations. Our results support the use of tecovirimat in ongoing human clinical trials.

Institut de Recherche Biomédicale des Armées, Brétigny-sur-Orge, France.

Reynes Nov 2022



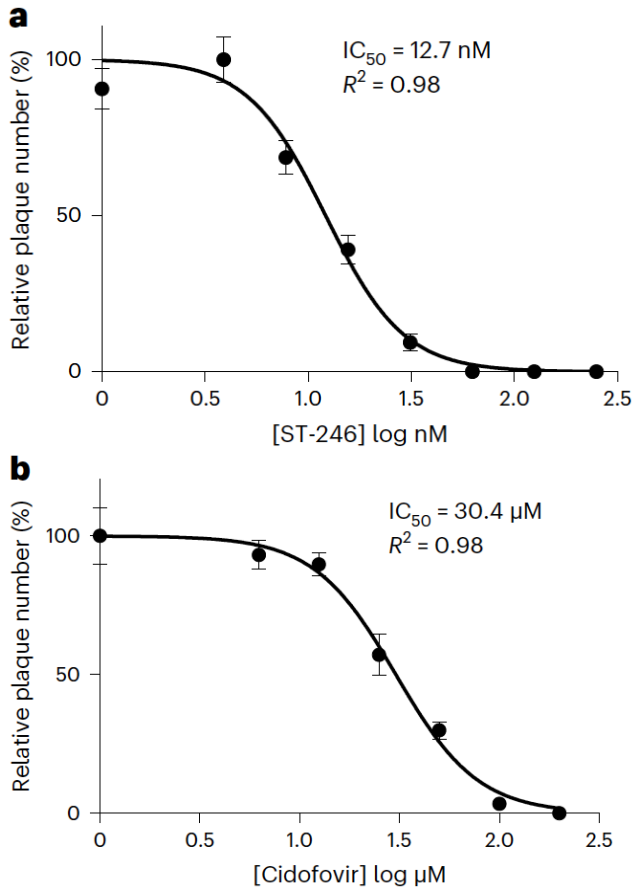


Fig. 2 | Tecorivimat and cidofovir potency against MPXV/France/IRBA2211i/2022 in vitro. a,**b**, ST-246 and cidofovir inhibit plaque formation of the MPXV MPXV/France/IRBA2211i/2022 isolate. Vero cells were infected with MPXV/France/IRBA2211i/2022 and treated with indicated concentrations of ST-246 (**a**) or Cidofovir (**b**) for 72 h. Lysis plaque inhibition is expressed in %

JOURNAL OF MEDICAL VIROLOGY

Antiviral				Studies on monkeypox		
Name (route of administration)	Approved for smallpox	Dosing for smallpox	Serious adverse effects	Author, year	Model (sample size)	Outcomes
Cidofovir (IV)	No	Not applicable	Nephrotoxicity, neutropenia, teratogenic/ carcinogenic	Stittelaar et al., 2006	Monkey (34)	Reduced mortality and skin lesions
				Huggins et al., 1998	Monkey	Reduced mortality and improved clinically and laboratory signs of disease
				Huggins et al., 2004	Monkey	Complete protection without any signs of disease
Brincidofovir (oral)	Yes	<10 kg: 6 mg/kg, 10–48 kg: 4 mg/kg, ≥48 kg: 200 mg once weekly for two doses	GI effects, hepatotoxicity	Hutson et al., 2021	Prairie dog (21)	Similar survival rate compared to the placebo
				Adler et al., 2022	Human (3)	All patients discontinued the drug due to increased liver enzymes
Tecovirimat (oral, IV)	Yes	Oral; 13–25 kg: 200 mg, 25–40 kg: 400 mg, 40–120 kg: 600 mg every 12 h for 14 days; ≥120 kg: 600 mg every 8 h for 14 days; IV; 3–35 kg: 6 mg/kg, 35–120 kg 200 mg every 12 h infused over 6 h for up to 14 days	Headache, injection site reactions	Berhanu et al., 2015	Monkey (32)	Improved survival rate and clinical signs
				Adler et al., 2022	Human (1)	Decreased duration of hospitalization

EUROPEAN MEDICINES AGENCY

Tecovirimat SIGA received a marketing authorisation valid throughout the EU on 06 January 2022.

Tecovirimat SIGA works by interfering with a protein called VP37 that is found on the surface of orthopoxviruses, including smallpox, monkeypox and cowpox. By interacting with this protein, the medicine prevents the viruses from reproducing normally, slowing down the spread of infection.

Tecovirimat SIGA is a medicine to treat smallpox, monkeypox and cowpox, three infections caused by viruses belonging to the same family (orthopoxviruses). It is also used to treat complications that can happen following vaccination against smallpox. Tecovirimat SIGA is used in adults and children weighing at least 13 kg.

ansm
Agence nationale de sécurité du médicament et des produits de santé

Note d'information et protocole d'utilisation pour les professionnels de santé concernant la vaccination contre le Monkeypox virus (26 mai 2022)
Mise à jour le 13/07/2022

Vaccins IMVANEX et JYNNEOS

Suite à l'apparition de ces cas d'infections à Monkeypox virus, la Haute Autorité de Santé (HAS) a été saisie afin de préciser la stratégie vaccinale à mettre en œuvre pour réduire la transmission interhumaine du virus. Dans son avis n° 2022.0034/SESPEV du 20 mai 2022[1], la HAS a recommandé la mise en œuvre d'une **stratégie vaccinale réactive en post-exposition** avec les vaccins antivarioliques de 3e génération Imvanex ou Jynneos de la firme Bavarian Nordic administré idéalement dans les 4 jours après le contact à risque et au maximum 14 jours plus tard avec un schéma à deux doses (ou trois doses chez les sujets immunodéprimés), espacées de 28 jours, pour les personnes adultes contacts à risque d'exposition au Monkeypox virus tels que définis par Santé publique France[2], incluant les professionnels de santé exposés sans mesure de protection individuelle.

HAS
HAUTE AUTORITÉ DE SANTÉ

8 juillet 2022

Proposer la vaccination aux personnes exposées du fait de leurs pratiques sexuelles ou de leur profession

Monkeypox : une vaccination préventive proposée aux personnes les plus à risque d'exposition

COMMUNIQUÉ DE PRESSE - Mis en ligne le 08 juil. 2022

Sur la base de ces éléments, en plus de la vaccination en post-exposition autour d'un cas confirmé, la HAS recommande de proposer la vaccination contre le *Monkeypox* en préexposition aux personnes les plus exposées au virus. Celles-ci sont priorisées comme suit :

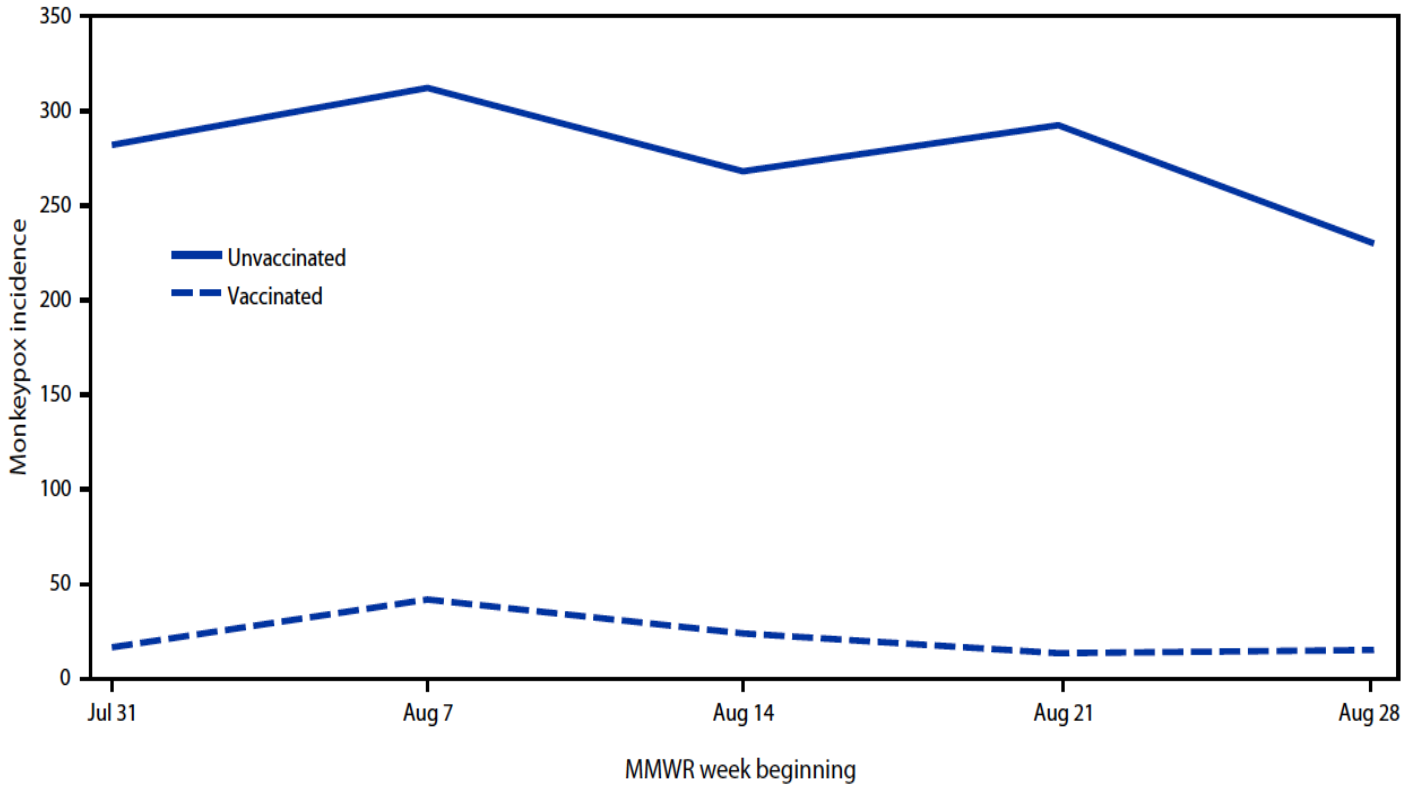
- Les hommes ayant des relations sexuelles avec des hommes (HSH) et les personnes trans rapportant des partenaires sexuels multiples ;
- Les personnes en situation de prostitution ;
- Les professionnels des lieux de consommation sexuelle, quel que soit le statut de ces lieux ;

La HAS ne recommande pas, à ce stade, la vaccination en préexposition des professionnels de santé prenant en charge les personnes malades, les mesures d'hygiène habituelles et le port d'équipement de protection individuelle rendant le risque de contamination très faible en pratique. Néanmoins, la HAS recommande que cette vaccination puisse être envisagée au cas par cas, selon l'exposition, l'existence de facteurs de risque individuels ou à leur demande.

Revue de Nov 2022

Incidence of Monkeypox Among Unvaccinated Persons Compared with Persons Receiving ≥1 JYNNEOS Vaccine Dose — 32 U.S. Jurisdictions, July 31–September 3, 2022

FIGURE. Weekly monkeypox incidence,* by first-dose vaccination status†,§ among males aged 18–49 years eligible for vaccination¶ — 32 U.S. jurisdictions**,†† July 31–September 3, 2022



What is already known about this topic?

Real-world monkeypox vaccine performance data are limited in the context of the ongoing monkeypox outbreak.

What is added by this report?

Across 32 U.S. jurisdictions, among males aged 18–49 years eligible for JYNNEOS vaccination, monkeypox incidence was 14 times as high among unvaccinated males compared with those who had received a first vaccine dose ≥14 days earlier.

What are the implications for public health practice?

These early findings suggest that a single JYNNEOS dose provides some protection against monkeypox infection. The degree and durability of such protection is unknown, and it is recommended that persons who are eligible for monkeypox vaccination receive the complete 2-dose series.

Reynes Nov 2022

This manuscript is a pre-print and has not yet been peer-reviewed

Effectiveness of one dose of MVA-BN smallpox vaccine against monkeypox in England using the case-coverage method

Marta Bertran[1], Nick Andrews[1], Chloe Davison[1] Bennet Dugbazah[1], Jacob Boateng[1], Rachel Lunt[1], Jo Hardstaff[2], Melanie Green[2], Paula Blomquist[2], Charlie Turner[2], Hamish Mohammed [3, 4] , Rebecca Cordery[1], Sema Mandal[1], Colin Campbell[1], Shamez N Ladhani[1,5], Mary Ramsay[1], Gayatri Amirthalingam[1], Jamie Lopez Bernal[1]

1 Immunisations and Vaccine Preventable Diseases Division, UK Health Security Agency

Findings

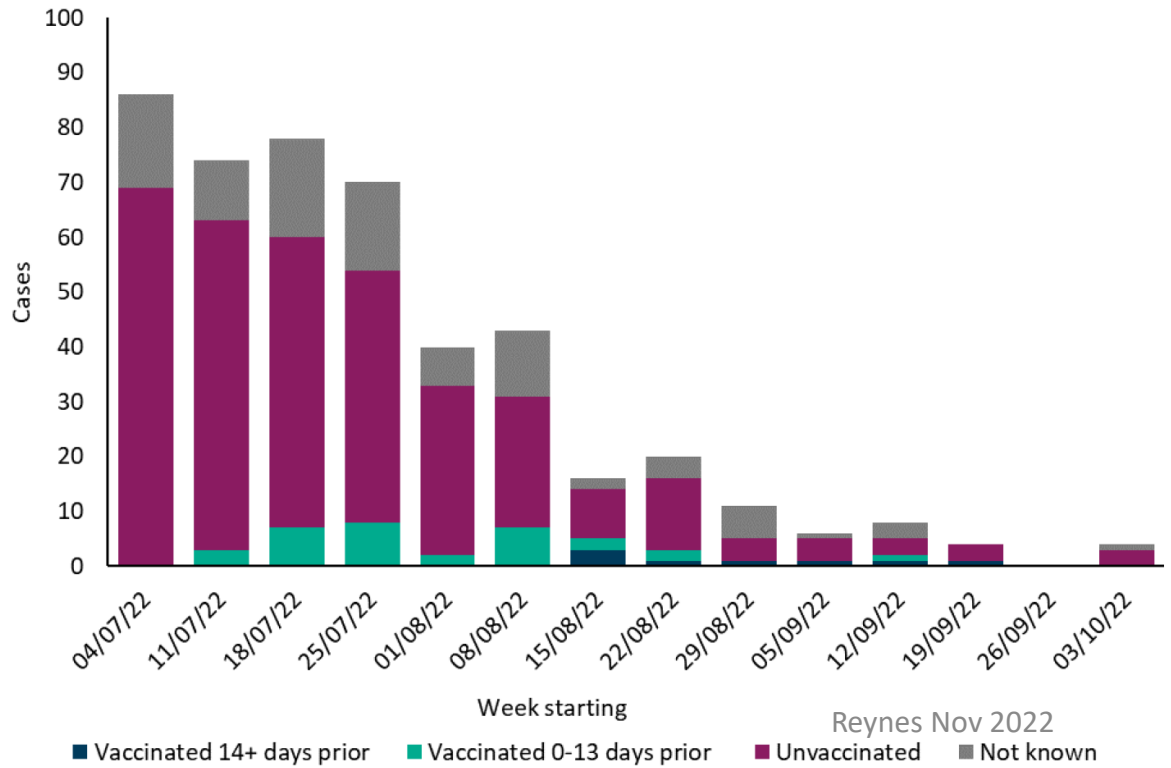
Vaccine uptake among eligible GBMSM increased steadily from July 2022, reaching 47% by 9 October 2022. Of the 363 confirmed cases, 8 occurred ≥14 days after vaccination, 32 within 0 to 13 days after vaccination, and the rest were unvaccinated.

The estimated vaccine effectiveness ≥14 days after a single dose was 78% (95% CI: 54%-89%), with a range of ±7% in sensitivity analyses. Vaccine effectiveness within 0 to 13-days after vaccination was -4% (95% CI: -50% to 29%).

Interpretation

A single MVA-BN dose was highly protective against monkeypox disease among high-risk GBMSM.

Figure 2. Number of monkeypox cases by week and vaccination status from 4 July 2022 (week 27) to 9 October 2022 (week 40)



Reynes Nov 2022

La vaccination préventive contre la variole du singe

Concernant le déploiement de la vaccination, à la date du 15 novembre 2022, 174 312 doses de vaccin de 3ème génération ont été livrées par l'Agence aux territoires.

Au 14 novembre 2022, le nombre total de doses administrées est de 135 621 (source : Ministère de la Santé et de la Prévention).

Depuis le 11 juillet 2022, en plus des personnes qui ont eu un contact à risque avec une personne malade, les personnes entrant dans les indications retenues par la HAS peuvent prendre rendez-vous pour se faire vacciner sur l'ensemble du territoire :

- Les hommes ayant des relations sexuelles avec des hommes rapportant des partenaires sexuels multiples.
- Les personnes trans rapportant des partenaires sexuels multiples.
- Les travailleurs-ses du sexe.
- Les professionnels exerçant dans les lieux de consommation sexuelle.