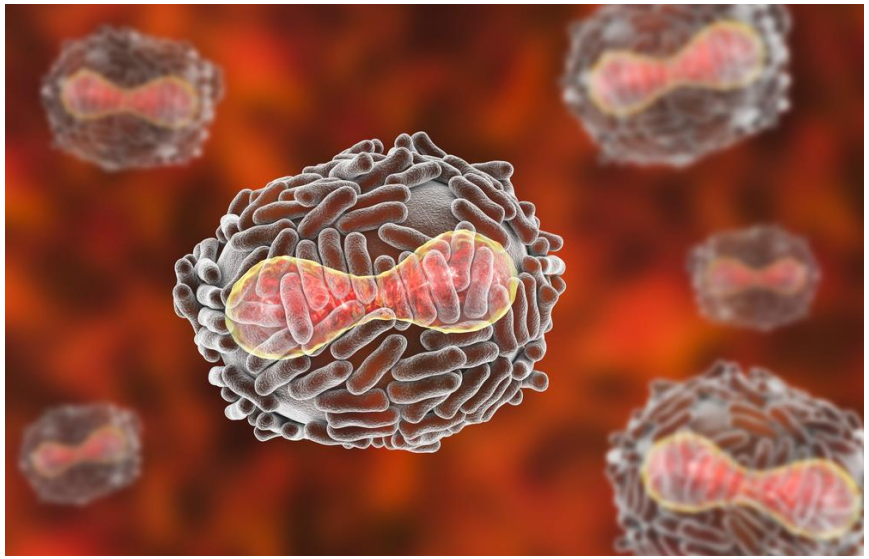
GÜLHANE TIP FAKÜLTESİ

10. TÜRKİYE EKMÜD BİLİMSEL KONGRESİ ULUSLARARASI

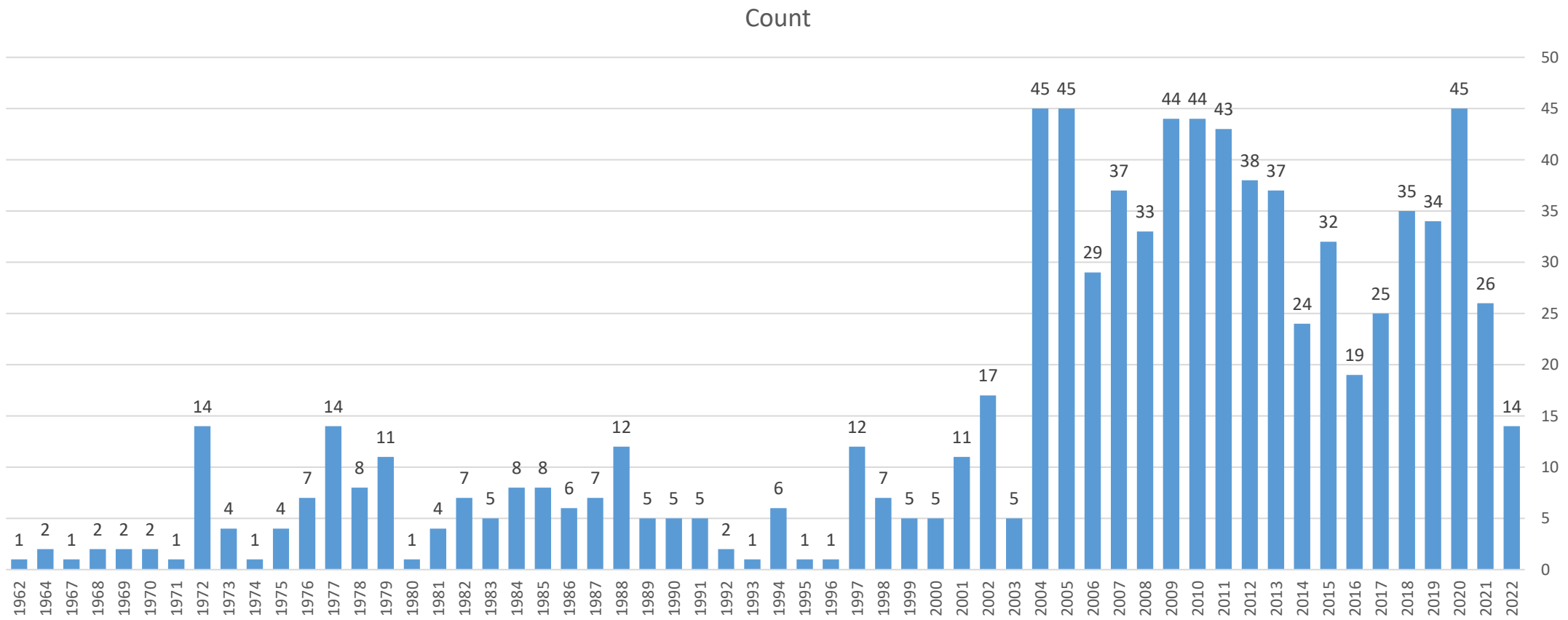
25-29 MAYIS 2022

SUSESİ KONGRE MERKEZİ, ANTALYA

Sıcak Gelişme (Son Salgın Tehdidi) Maymun Çiçeği



Dr. Cemal Bulut



866 yayın mevcut

- 1958 yılında Afrikadan Danimarkaya getirilen maymunlarda tespit edilmiş.
- Asıl rezervuar kemirgenler
- İlk insan vakası 1970 yılında 9 yaşında bir kız çocuğunda Demokratik Kongo Cumhuriyetinde görülmüş.
- Günümüzde 10 Afrika ülkesinde endemik: DRC, Kongo, Kamerun, Orta Afrikan Cumhuriyeti, Nigerya, Fildişi sahili, Liberya, Sierra Leone, Gabon ve Güney Sudan

TABLE 1. *Classification of the poxvirus group*[a]

Subgroup	Infections in nature	
	Man	Animals
I. Variola-vaccinia viruses		
Variola major (smallpox)	+	Monkeys (?)
Variola minor (alastrim)	+	
Vaccinia	+	Calves, sheep
Cowpox	+	Cattle
Monkeypox	+	Monkeys
Ectromelia (mousepox)	–	Mice
Rabbitpox	–	Rabbits
Buffalopox	–	Buffalo
II. Orf-like viruses		
Bovine papular stomatitis	–	Cattle
Contagious pustular dermatitis (orf)	+	Sheep
Milker's nodules	+	Cattle
III. Avian poxviruses		
Canarypox	–	Canary
Fowlpox	–	Chickens
Pigeonpox	–	Pigeons
Turkeypox	–	Turkeys
IV. Myxoma-fibroma viruses		
Rabbit myxoma	–	Rabbits
Rabbit fibroma	–	Rabbits
Squirrel fibroma	–	Squirrels
Hare fibroma	–	Hares
V. Unclassified poxviruses		
Molluscom contagiosum	+	
Yaba tumor virus	–	Monkeys
Goatpox	–	Goats
Sheeppox	–	Sheep
Swinepox	–	Swine
Entomopox (insect viruses)		
Horsepox	+	Horses
Camelpox	+	Camels
Tanapox	+	

Fig. 1. Map of Africa showing countries reporting human Monkeypox cases (1971–2019).

Infectious Disease Clinics of North America 2019, 33 (4): 1027-1043

Poxvirüsler 8 alt türe ayrılır:

- *Orthopoxvirus,*
- *Parapoxvirus,*
- *Avipoxvirus,*
- *Capripoxvirus,*
- *Leporipoxvirus,*
- *Suipoxvirus,*
- *Molluscipoxvirus,*
- *Yatapoxvirus.*

Sadece *Orthopoxvirus, Parapoxvirus, Molluscipoxvirus,* ve *Yatapoxvirusler* insanlarda enfeksiyona neden olurlar

TAXONOMY

Group I: dsDNA viruses

Family: *Poxviridae*

Subfamily: *Chordopoxvirinae*

Genus: ***Orthopoxvirus***

SPECIES

Vaccinia virus

Camelpox virus

Cowpox virus

Ectromelia virus

Monkeypox virus

Raccoonpox virus

Skunkpox virus

Taterapox virus

Variola virus

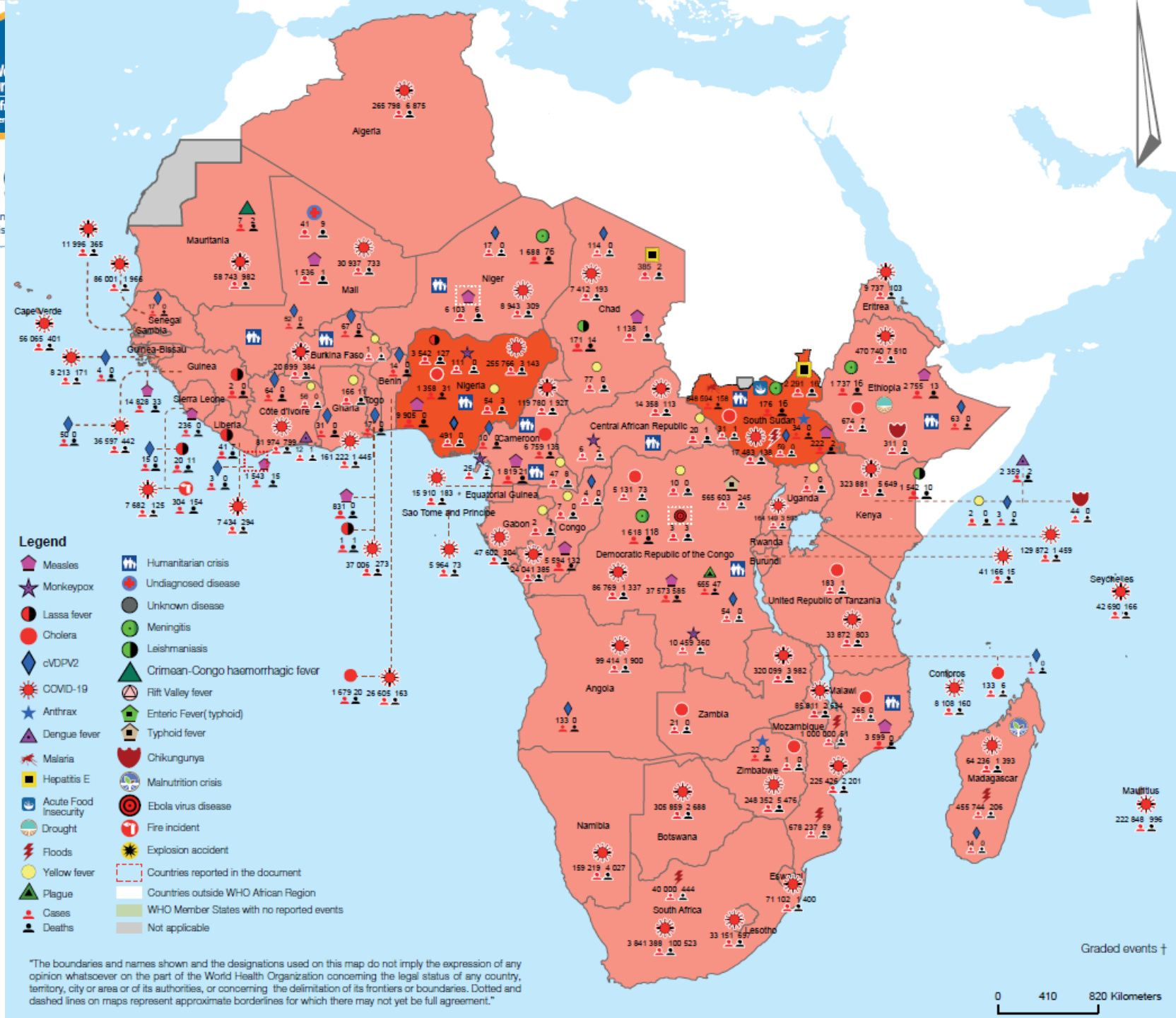
Volepox virus

- Afrikada görülen klinik form çiçek hastalığının klasik veya modifiye bir formuna benzer
- En önemli fark belirgin LAP varlığı:
  - submandibular,
  - servikal
  - sublingual
- Çoğu vaka aşılanmamış çocuklar
- Komplikasyon % 40
  - Bakteriyel cilt infeksiyonları (%16), solunum (%12) ve gastrointestinal (%5) sorunlar ve keratit (%3,8).

WEEKLY BULLETIN ON OUTBREAKS AND OTHER EMERGENCIES

Week 19: 2 – 8 May 2022
Data as reported by: 17:00; 8 May 2022

0	153	134	1
New event	Ongoing events	Outbreaks	Human cris



"The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate borderlines for which there may not yet be full agreement."

Emerg Infect Dis. 2007 Aug;13(8):1150-7. doi: 10.3201/eid1308.061365.

Occupational risks during a monkeypox outbreak, Wisconsin, 2003

Donita R Croft [1], Mark J Sotir, Carl J Williams, James J Kazmierczak, Mark V Wegner, Darren Rausch, Mary Beth Graham, Seth L Foldy, Mat Wolters, Inger K Damon, Kevin L Karem, Jeffrey P Davis

Affiliations + expand

PMID: 17953084 PMCID: PMC2828073 DOI: 10.3201/eid1308.061365

Free PMC article

Abstract

We determined factors associated with occupational transmission in Wisconsin during the 2003 outbreak of prairie dog--associated monkeypox virus infections. Our investigation included active contact surveillance, exposure-related interviews, and a veterinary facility cohort study. We identified 19 confirmed, 5 probable, and 3 suspected cases. Rash, headache, sweats, and fever were reported by > 80% of patients. Occupationally transmitted infections occurred in 12 veterinary staff, 2 pet store employees, and 2 animal distributors. The following were associated with illness: working directly with animal care (p = 0.002), being involved in prairie dog examination, caring for an animal within 6 feet of an ill prairie dog (p = 0.03), feeding an ill prairie dog (p = 0.002), and using an antihistamine (p =

N Engl J Med. 2004 Jan 22;350(4):342-50. doi: 10.1056/NEJMoa032299.

The detection of monkeypox in humans in the Western Hemisphere

Kurt D Reed [1], John W Melski, Mary Beth Graham, Russell L Regnery, Mark J Sotir, Mark V Wegner, James J Kazmierczak, Erik J Stratman, Yu Li, Janet A Fairley, Geoffrey R Swain, Victoria A Olson, Elizabeth K Sargent, Sue C Kehl, Michael A Frace, Richard Kline, Seth L Foldy, Jeffrey P Davis, Inger K Damon

Affiliations + expand

PMID: 14736926 DOI: 10.1056/NEJMoa032299

Review > Lancet Infect Dis. 2004 Jan;4(1):15-25. doi: 10.1016/s1473-3099(03)00856-9.

Human monkeypox: an emerging zoonosis

Daniel B Di Giulio [1], Paul B Eckburg

Affiliations + expand

PMID: 14720564 DOI: 10.1016/s1473-3099(03)00856-9

Review > Future Microbiol. 2007 Feb;2(1):17-34. doi: 10.2217/17460913.2.1.17.

Human monkeypox: an emerging zoonotic disease

Scott Parker [1], Anthony Nuara, R Mark L Buller, Denise A Schultz

Affiliations + expand

PMID: 17661673 DOI: 10.2217/17460913.2.1.17

Abstract

Zoonotic monkeypox virus is maintained in a large number of rodent and, to a lesser extent, nonhuman primate species in West and central Africa. Although monkeypox virus was discovered in 1958, the prototypic human cases were not witnessed until the early 1970s. Before this time, it is assumed that infections were masked by smallpox, which was then widely endemic. Nevertheless, since the 1970s, reported monkeypox virus infections of humans have escalated, as have outbreaks with reported human-to-human transmission. This increase is likely due to numerous factors, such as enhanced surveillance efforts, environmental degradation and human urbanization of areas where

Review > Front Public Health. 2018 Sep 4;6:241. doi: 10.3389/fpubh.2018.00241.

eCollection 2018.

Emergence of Monkeypox as the Most Important Orthopoxvirus Infection in Humans

Nikola Sklenovská [1], Marc Van Ranst [1]

Affiliations + expand

PMID: 30234087 PMCID: PMC6131633 DOI: 10.3389/fpubh.2018.00241

Free PMC article

MMWR Morb Mortal Wkly Rep. 2018 Mar 16;67(10):306-310. doi: 10.15585/mmwr.mm6710a5.

Emergence of Monkeypox - West and Central Africa, 1970–2017

Kara N Durski, Andrea M McCollum, Yoshinori Nakazawa, Brett W Petersen, Mary G Reynolds, Sylvie Briand, Mamoudou Harouna Djingarey, Victoria Olson, Inger K Damon, Asheena Khalakdina

PMID: 29543790 PMCID: PMC5857192 DOI: 10.15585/mmwr.mm6710a5

Free PMC article

PLOS | NEGLECTED TROPICAL DISEASES

RESEARCH ARTICLE

Sounding the alarm: Defining thresholds to trigger a public health response to monkeypox

Sarah Anne J. Guagliardo[1,2]*, Mary G. Reynolds[2], Joelle Kabamba[3], Beata Nguete[4], Robert Shongo Lushima[5], Okito E. Wemakoy[4], Andrea M. McCollum[2]

Guagliardo SAJ, et al. (2018) Sounding the alarm: Defining thresholds to trigger a public health response to monkeypox. PLoS Negl Trop Dis 12(12): e0007034

PLOS NEGLECTED TROPICAL DISEASES

RESEARCH ARTICLE

The changing epidemiology of human monkeypox—A potential threat? A systematic review

Eveline M. Bunge[1], Bernard Hoet[2]*, Liddy Chen[3], Florian Lienert[2], Heinz Weidenthaler[4], Lorraine R. Baer[5], Robert Steffen[6,7]

Bunge EM, Hoet B, Chen L, Lienert F, Weidenthaler H, Baer LR, et al. (2022) The changing epidemiology of human monkeypox—A potential threat? A systematic review. PLoS Negl Trop Dis 16(2): e0010141.

İngiltere:

- 7 mayıs ilk vaka
- 14 mayıs iki vaka, aynı evde yaşıyorlar, seyahat öyküsü yok, ilk vaka ile temas yok
- 16 mayıs 4 vaka, MSM, ilk vakalarla temas yok

Portekiz

- 18 mayıs 5 kesin, 20 şüpheli vaka, genç, erkek
- 19 Mayıs 2022: 38 doğrulanmış vaka. 26'sı AB bölgesindeki ülkeler: Belçika (2), Fransa (1), İtalya (1), Portekiz (14), İspanya (7), İsveç (1). İngiltere (9), ABD (1), Kanada (2)

24 mayıs

- 131 doğrulanmış 106 şüpheli vaka

Monkeypox: 36 more cases detected in UK - as virus could become endemic in Europe, health officials warn

At least 85 confirmed cases have been identified in eight EU count
France, Germany, Italy, Netherlands, Portugal, Spain and Sweden - b
May.

Tuesday 24 May 2022 08:19, UK

Another 36 monkeypox cases have been detected in the U.
total to 56.

Monkeypox: 14 new cases detected in England as UK total now reaches 71

More than 130 cases of the virus have been reported around the world, with one expert describing the unprecedented outbreak in Europe as "a random event" that might have been spread by sexual transmission at two raves in Spain and Belgium.

Tuesday 24 May 2022 19:08, UK

The United Arab Emirates (UAE) has became the first Gulf state to record a case of monkeypox.

The Czech Republic and Slovenia also reported their first cases on Tuesday, joining 18 other countries to detect the virus outside its usual Africa base.

World Health Organization

Disease Outbreak News

21 May 2022 | Multi-country monkeypox outbreak in non-endemic countries

Disease Outbreak News

19 May 2022 | Influenza A(H1N1) - Germany

Disease Outbreak News

18 May 2022 | Monkeypox - United Kingdom of Great Britain and Northern Ireland

Disease Outbreak News

17 May 2022 | Middle East respiratory syndrome coronavirus - Oman

Disease Outbreak News

16 May 2022 | Cholera - Cameroon

Disease Outbreak News

16 May 2022 | Monkeypox - United Kingdom of Great Britain and Northern Ireland

World Health Organization

Disease outbreak news

21 May 2022 | Multi-country monkeypox outbreak in non-endemic countries

18 May 2022 | Monkeypox - United Kingdom of Great Britain and Northern Ireland

16 May 2022 | Monkeypox - United Kingdom of Great Britain and Northern Ireland

25 November 2021 | Monkeypox - United States of America

8 July 2021 | Monkeypox - United Kingdom of Great Britain and Northern Ireland

27 July 2021 | Monkeypox - United States of America

World Health Organization

Monkeypox - United States of America

27 July 2021

On 17 July 2021, the IHR National Focal Point of the United States of America (USA) notified PAHO/WHO of an imported case of human monkeypox in Dallas, Texas, USA. The case-patient travelled from the USA to Lagos State, Nigeria on 25 June and also stayed in Ibadan, Oyo State, from 29 June to 3 July. He developed self-reported fever, vomiting and mild cough on 30 June, and a painful genital rash on 7 July. The case-patient returned to the USA, departing Lagos on 8 July and arriving on 9 July. He developed a facial rash on the next day. On 13 July, the patient attended a local hospital; fever was documented, and he was immediately placed under isolation.

Sample of a skin lesion was taken, and on 14 July, an Orthopoxvirus was confirmed by reverse transcriptase polymerase chain reaction (RT-PCR) by Dallas County. On 15 July, the patient's skin samples tested positive for the West African clade of monkeypoxvirus via RT-PCR conducted at the US Centers for Disease Control and Prevention (US CDC) Poxvirus and Rabies Branch Laboratory. The patient is currently hospitalized.

Monkeypox - United States of America

World Health Organization

25 November 2021

On 16 November 2021, the IHR National Focal Point of the United States of America (USA) notified PAHO/WHO of an imported case of human monkeypox in Maryland, USA. The patient is an adult, resident of the USA, with recent travel history to Nigeria.

The individual was in Lagos, Nigeria when they developed a rash. On 6 November, they travelled from Lagos, Nigeria to Istanbul, Turkey and, on 7 November, from Istanbul to Washington, D.C, USA. The patient has not been vaccinated against smallpox in the past and is currently in isolation in Maryland.

Samples of skin lesions were positive on 13 November by real-time polymerase chain reaction (RT-PCR) assays for orthopoxvirus-generic and non-variola orthopoxvirus at the Maryland laboratory of the Laboratory Response Network (LRN). On 16 November, the USA Centers for Disease Control and Prevention (US CDC) confirmed the diagnosis on the same two lesion specimens by PCR assays for monkeypox, and also, specifically for the West African clade of monkeypox, the strain that re-emerged in Nigeria since 2017.

At this time, while the patient had remained in Lagos throughout the stay in Nigeria, the source of infection for this case is unknown.

This is the second time that an imported human monkeypox case has been detected in a traveler to the

Monkeypox - United Kingdom of Great Britain and Northern Ireland

World Health Organization

11 June 2021

On 25 May 2021, the United Kingdom of Great Britain and Northern Ireland notified the WHO of one laboratory-confirmed case of monkeypox. The patient arrived in the United Kingdom on 8 May 2021. Prior to travel, the patient had lived and worked in Delta State, Nigeria.

On arrival in the United Kingdom, the patient remained in quarantine with family due to COVID-19 restrictions. On 10 May, the patient developed a rash, beginning on the face. The patient remained in self-isolation for a further ten days and sought medical care for relief of symptoms. The patient was admitted to a referral hospital on 23 May. Skin lesion samples were received at the Public Health England Rare and Imported Pathogens Laboratory on 24 May. The West African clade of monkeypox virus was confirmed by polymerase chain reaction (PCR) on 25 May.

On 29 May, a family member with whom the patient quarantined developed lesions clinically compatible with monkeypox and was immediately isolated in an appropriate facility. Monkeypox was confirmed on 31 May. Both patients are stable and recovering.

Monkeypox - United Kingdo
Great Britain and Northern Ireland

World Health Organization

8 July 2021

On 15 June 2021, a third case of monkeypox was confirmed in the United Kingdom of Great Britain and Northern Ireland (for more information on the first two cases, kindly see the WHO Disease Outbreak News (DON) published on 11 June 2021). The case developed a vesicular rash on 13 June 2021. Swabs of the lesions were received for diagnostic confirmation on 14 June and orthopoxvirus was confirmed by polymerase chain reaction (PCR) on 15 June 2021.

This case is a family member of the two cases diagnosed in the United Kingdom in May 2021. All three cases were admitted to a specialist infectious diseases unit. They have now fully recovered and been discharged from hospital.

Monkeypox - United Kingdom of Great Britain and Northern Ireland

World Health Organization

16 May 2022

Situation at a glance

On 7 May 2022, WHO was informed of a confirmed case of monkeypox in an individual who travelled from the United Kingdom to Nigeria and subsequently returned to the United Kingdom.

The case developed a rash on 29 April 2022 and arrived in the United Kingdom on 4 May, departing Nigeria on 3 May. Monkeypox was suspected and the case was immediately isolated. Monkeypox was suspected and the case was immediately isolated. As of 11 May, extensive contact tracing has been undertaken to identify exposed contacts in healthcare settings, the community and the international flight. These individuals are being followed up for 21 days from the date of last exposure with the case. None has reported compatible symptoms so far.

Monkeypox - United Kingdom of Great Britain and Northern Ireland

World Health Organization

18 May 2022

Situation at a glance

On 13 May 2022, WHO was notified of two laboratory confirmed cases and one probable case of monkeypox, from the same household, in the United Kingdom. On 15 May, four additional laboratory confirmed cases have been reported amongst Sexual Health Services attendees presenting with a vesicular rash illness in men who have sex with men (MSM).

As response measures, an incident team has been established to coordinate contact tracing efforts.

In contrast to sporadic cases with travel links to endemic countries (see Disease outbreak news on Monkeypox in t yet. Based on c Kingdom. The e of further cases In the United Kingdom, there have been eight previous cases of monkeypox reported: all importations were related to a travel history to or from Nigeria. In 2021, there were also two separate human monkeypox cases imported from Nigeria reported by the United States of America. During an outbreak of monkeypox in humans in 2003 in the United States of America, exposure was traced to contact with pet prairie dogs that had been co-housed with monkeypoxvirus-infected small mammals imported from Ghana.

World Health Organization

Multi-country monkeypox outbreak in non-endemic countries

21 May 2022

Outbreak at glance

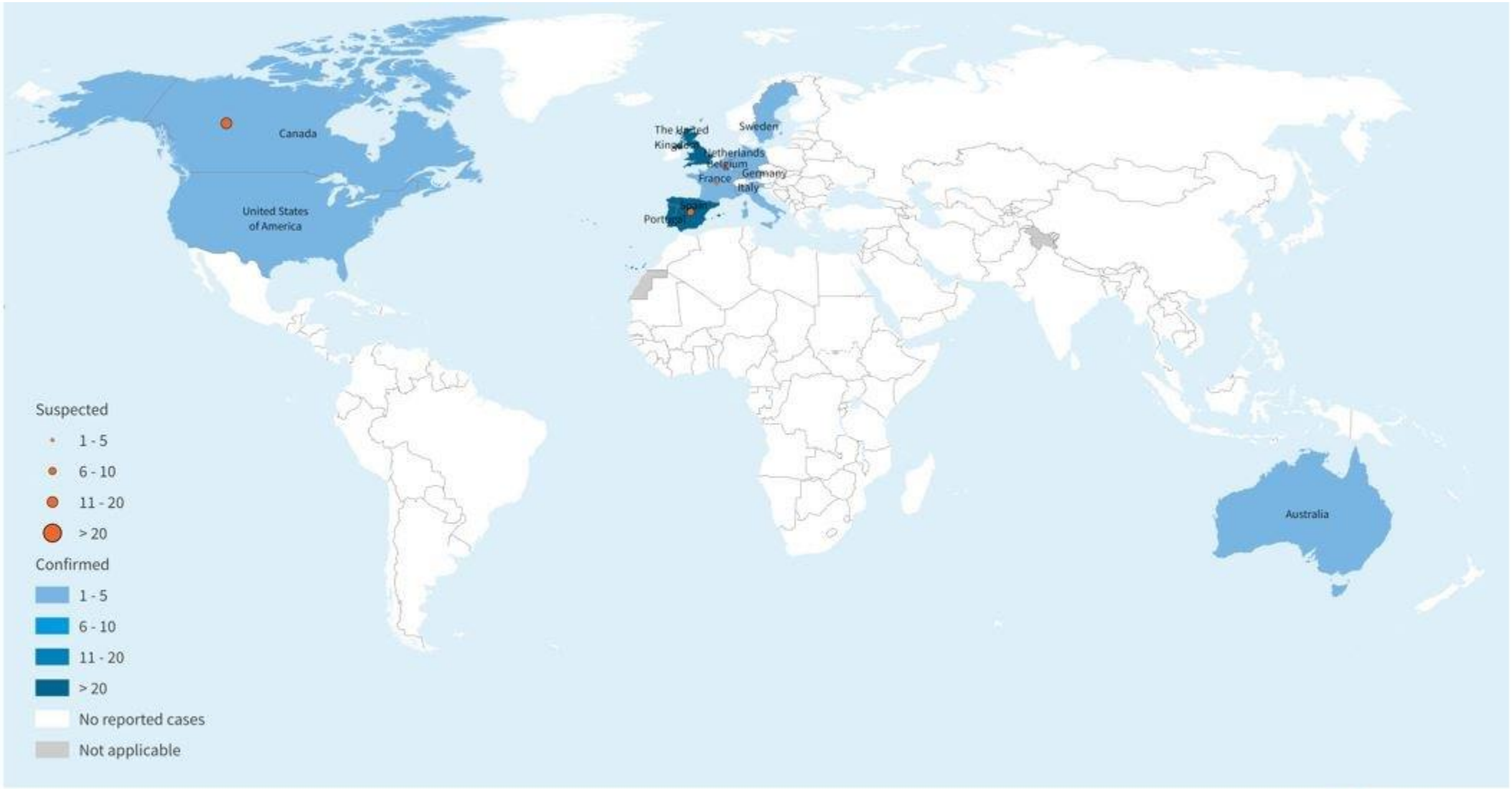
Since 13 May 2022, cases of monkeypox have been reported to WHO from 12 Member States that are not endemic for monkeypox virus, across three WHO regions. Epidemiological investigations are ongoing, however, reported cases thus far have no established travel links to endemic areas. Based on currently available information, cases have mainly but not exclusively been identified amongst men who have sex with men (MSM) seeking care in primary care and sexual health clinics.

The objective of this Disease Outbreak News is to raise awareness, inform readiness and response efforts, and provide technical guidance for immediate recommended actions.

Table 1. Cases of monkeypox in non-endemic countries reported to WHO between 13 to 21 May 2022 as at 13:00

Country	Confirmed	Suspected
Australia	1-5	-
Belgium	1-5	1-5
Canada	1-5	11-20
France	1-5	1-5
Germany	1-5	-
Italy	1-5	-
Netherlands	1-5	-
Portugal	21-30	-
Spain	21-30	6-10
Sweden	1-5	-
United Kingdom	21-30	-
United States of America	1-5	-
Total	**92**	**28**

Figure 1. Geographical distribution of confirmed and suspected cases of monkeypox in non-endemic between 13 to 21 May 2022, as at 13:00.



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Data Source: World Health Organization
Map Production: WHO Health Emergencies Programme
Map Date: 21 May 2022

World Health Organization

Table 2. Cases of monkeypox in endemic countries between 15 December 2021 to 1 May 2022

Country	Time period	Cumulative cases	Cumulative deaths
Cameroon	15 December 2021 to 22 February 2022	25	<5
Central African Republic	4 March to 10 April 2022	6	<5
Democratic Republic of the Congo	1 January to 1 May 2022	1238	57
Nigeria	1 January 2022 to 30 April 2022	46	0

Epidemiological update: Monkeypox outbreak

Epidemiological update

20 May 2022

- two cases have been confirmed in Belgium
- one case has been confirmed in France
- one case has been confirmed in Italy, with 2 suspected cases identified
- 14 cases have been confirmed in Portugal, with an additional 20 suspected cases identified all in the Lisbon & Tagus River region
- seven cases have been confirmed in Spain, with 23 suspect cases identified
- one case has been confirmed in Sweden
- nine cases have been confirmed in the United Kingdom
- two cases have been confirmed in Canada, with an additional 17 suspected cases identified
- one confirmed and one probable case in the US
- one confirmed case in Australia

- The majority of cases have been in young men, many self-identifying as men who have sex with men (MSM), and none with recent travel history to areas where the disease is endemic.
- Most cases presented with lesions on the genitalia or peri-genital area, indicating that transmission likely occurs during close physical contact during sexual activities.
- This is the first time that chains of transmission are reported in Europe without known epidemiological links to West or Central Africa, where this disease is endemic.
- These are also the first cases worldwide reported among MSM.

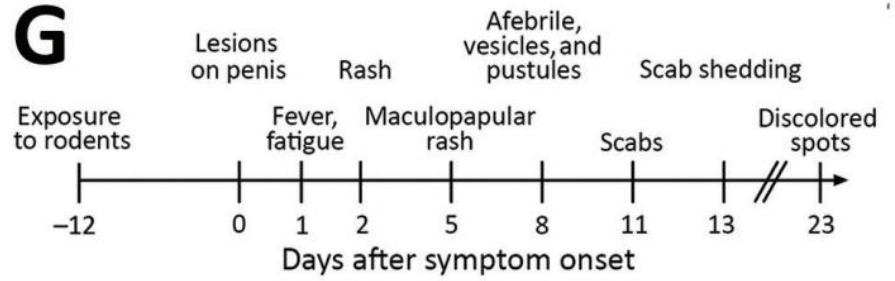
Zaman çizelgesi

- May 7, 2022 - The U.K. Health Security Agency confirmed individuals had been diagnosed with monkeypox in England.
- May 16, 2022 - The UKHSA announced it had detected four additional cases of monkeypox, 3 in London and one linked case in the northeast of England. These latest cases mean that there are currently seven confirmed monkeypox cases in the U.K., diagnosed in early May 2022.
- May 18, 2022 - Health authorities in Spain issued a media alert regarding a possible outbreak of monkeypox after (23) men showed symptoms. A spokesperson for Madrid's regional health department said that the National Microbiology Centre is working to determine a final diagnosis.
- May 18, 2022 - The media reported Portugal's Health Ministry confirmed five monkeypox cases, and it is studying more than 20 suspicious cases in the Lisbon region.
- May 18, 2022 - The UK Health Security Agency (UKHSA) announced that it detected two additional monkeypox cases in London and one in the South East of England. Since May 6, 2022, there are now 9 cases in England.
- May 18, 2022 - The Massachusetts Department of Public Health confirmed a man was hospitalized with the monkeypox after traveling to Canada.
- May 18, 2022 - The WHO confirmed monkeypox vaccinations (MVA-BN, Jynneos) are offered to higher-risk contacts in England.
- May 19, 2022 - Bavarian Nordic A/S announced it secured a contract with an undisclosed buyer to supply its EU-approved IMVANEX® (Jynneos) smallpox/monkeypox vaccine.
- May 19, 2022 - Dr. Mylène Drouin with Monreal's health department said there are 15 suspected cases on the island of Montreal, one on the South Shore and another north of Laval.
- May 19, 2022 - The French health ministry reported one suspected case of the monkeypox virus was detected in the Paris/Ile-de-France region.
- May 19, 2022 - The ECDC reported that most monkeypox cases are young men, many self-identifying as MSM, and none with recent travel history to areas where the disease is endemic. No deaths have been reported so far, and only two cases have been admitted to the hospital for reasons other than isolation.
- May 20, 2022 - The U.S. CDC issued CDCHAN-00466 confirming the initial monkeypox case in Massachusetts.
- May 20, 2022 - Sky News reported Australia had confirmed two monkeypox cases. NSW Health confirmed a recently returned traveler from Europe has the monkeypox virus and issued a Public Health Alert.
- May 21, 2022 - Switerzland Public Health Switzerland reported its first case of monkeypox in canton Bern.
- May 22, 2022 - Belgium becomes the first country to announce compulsory monkeypox quarantine. Anyone testing positive must isolate for three weeks.
- May 23, 2022 - Study: Multi-country outbreak of Monkeypox virus: genetic divergence and first signs of microevolution. The researchers released 9 additional genome sequences of the Monkeypox virus causing a multi-country outbreak. These sequences were obtained from clinical specimens collected from nine patients on May 15 and 17, 2022. The multi-country outbreak most likely has a single origin, with all sequenced viruses released so far* tightly clustering together.
- May 23, 2022 - The ECDC reported monkeypox cases should remain isolated until their rash heals completely, avoiding contact with immunosuppressed persons. Abstaining from sexual activity and close physical contact is also advised until the rash heals. Most cases can remain at home with supportive care. And close contacts of MPX cases should self-monitor for the development of symptoms up to 21 days from the last exposure to a case.
- May 24, 2022 - The UK Health Security Agency detected (14) additional cases of monkeypox in England. Since May 7, 2022, the updated total number of UK patients is 70. Additionally, doses of the Imvanex / Jynneos vaccines have been issued in England.

- 2018 de sadece importe vakalar vardı oysa

İsrail

- 38 y, E,
- Döküntü ve ateş
- Nijeryadan dönmüş
- Peniste lezyon, inguinal lap
- Yüzünden başlayan döküntü
- Trombositopeni, KCFT yüksek,
- Tanı: elektron microskopi, PCR immunofluorescence assay, doku kültürü ve ELISA
- 5 ev 11 sağlık çalışanı teması



Singapur

- 38y, E,
- Nijeryadan dönmüş,
- Ateş, üşüme, miyalji
- Yüzünde başlayıp yayılan döküntü
- Tüm vücutta, el ve ayak tabanı ve penis
- Servikal ve inguinal lap

Figure 1. Dermatologic features of monkeypox in a 38-year-old man, Singapore, 2019. A) Pustular lesions on the hand at the start of hospitalization. B, C) Resolving lesions with shedding of scabs of the hands (B) and feet (C) toward end of hospitalization (day 17). D, E) Crusting of right fourth finger lesion (D) and lesions at varying stages (vesicles and scabbing) on the left chest (E) on day 15 of hospitalization.

İngiltere

Vaka 1

- Nijeryalı askeri personel, E
- Ateş LAP, kasıklarda döküntü
- 3 gün sonra yaygın döküntü

Vaka 2

- Nijeryadan tatilden dönen erkek hasta
- 3 gün sonra ateş LAP, skrotal şişlik, makulopapüler kaşıntılı lezyon
- Yüzünden başlayıp avuç içine yayılan sonra pustuler hale gelmiş.

2003 salgını

- In July 2003, there were 71 cases of monkeypox reported to the Centers for Disease Control and Prevention.
- The cases came from several states: Wisconsin had 39 cases; Indiana, 16; Illinois, 12; Missouri, 2; Kansas, 1; and Ohio, 1.

TABLE. Number and percentage of 20 laboratory-confirmed monkeypox cases, by selected characteristics — United States, 2003

Characteristic	No.	(%)
State		
Illinois	5	(25)
Indiana	6	(30)
Wisconsin	9	(45)
Age (yrs)		
6–18	7	(35)
19–48	13	(65)
Sex		
Female	8	(40)
Male	12	(60)
Clinical features		
Rash*	19	(95)
Fever	17	(85)
Respiratory symptoms†	16	(80)
Lymphadenopathy	11	(55)
Hospitalized	12	(60)
Smallpox vaccination status§	2	(15)

* For one case, rash could not be confirmed.
† Includes at least one of the following symptoms: cough, shortness of breath, sore throat, and nasal congestion.
§ Data on previous history of smallpox vaccination was available for 13 (65%) of the 20 laboratory-confirmed cases.

Panel 2. CDC interim case definition for human cases of monkeypox (July 2, 2003)

Human monkeypox case classification

Suspect case—meets one of the epidemiological criteria and has fever or unexplained rash and two or more other signs or symptoms with onset of first sign or symptom ≤21 days after last exposure.

Probable case—meets one of the epidemiological criteria and has fever and vesicular-pustular rash with onset of first sign or symptom ≤21 days after last exposure.

Confirmed case—meets one of the laboratory criteria.

Clinical criteria

Rash (macular, popular, vesicular, or pustular; generalised or localised; discrete or confluent).

Fever (subjective or measured ≥37·4°C).

Other signs and symptoms (chills, sweats, headache, backache, lymphadenopathy, sore throat, cough, and/or shortness of breath.

Epidemiological criteria

Exposure (includes living in a household, petting or handling, or visiting a pet holding facility such as a pet store, veterinary clinic) to an exotic or wild mammalian pet (including prairie dogs, Gambian giant rats, and rope squirrels, among others to be considered on a case-by-case basis) obtained on or after April 15, 2003, with clinical signs of illness (eg conjunctivitis, respiratory symptoms, and/or rash).

Exposure (as above) to an exotic or wild mammalian pet (as above) with or without clinical signs of illness that has been in contact with a case of monkeypox in either a mammalian pet (living in a household, or originating from the same pet holding facility as another animal with monkeypox) or a human being.

Exposure (skin-to-skin or face-to-face contact) to a suspected, probable, or confirmed human case.

Laboratory criteria

Isolation of MPV in culture.

Demonstration of MPV DNA by PCR testing in a clinical sample.

Demonstration of virus morphology consistent with an orthopoxvirus by electron microscopy in the absence of exposure to another orthopoxvirus.

Demonstration of presence of orthopoxvirus in tissue by immunohistochemical testing methods in the absence of exposure to another orthopoxvirus.

Exclusion criteria

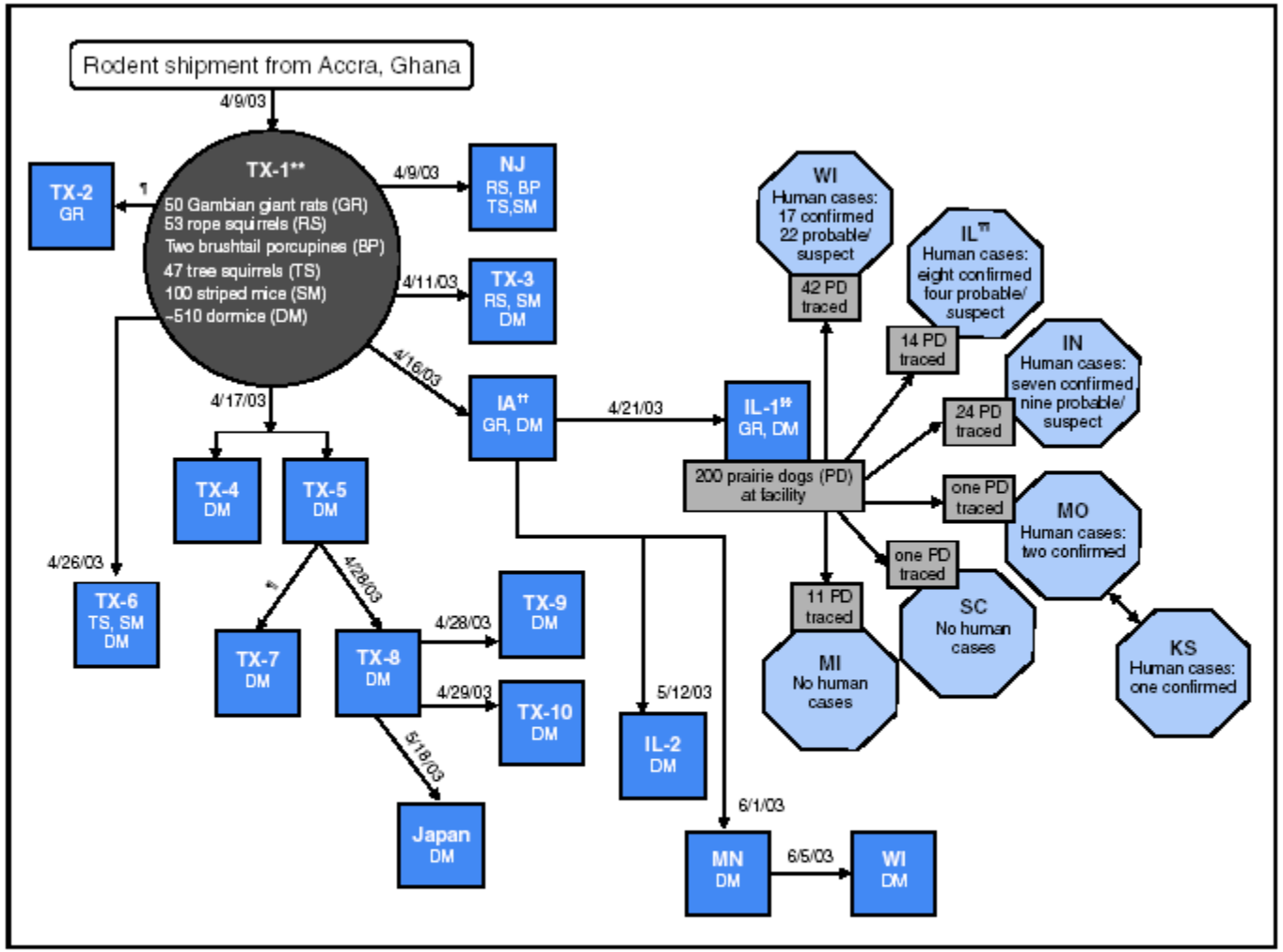
An alternative diagnosis fully explains the illness;

or the case was reported on the basis of primary or secondary exposure to an exotic or wild mammalian pet or a person subsequently found not to have monkeypox, provided other possible epidemiological exposure criteria are not present;

or a patient without a rash does not develop a rash within 10 days of onset of clinical symptoms consistent with monkeypox (if possible, obtain convalescent-phase serum sample from these patients);

or the patient is found to be negative for non-variola generic orthopoxvirus by PCR testing of a well-sampled rash lesion by the approved Laboratory Response Network protocol.

FIGURE 2. Movement of imported African rodents to animal distributors and distribution of prairie dogs from an animal distributor associated with human cases of monkeypox — 11 states*, 2003†§



* Illinois (IL), Indiana (IN), Iowa (IA), Kansas (KS), Michigan (MI), Minnesota (MN), Missouri (MO), New Jersey (NJ), South Carolina (SC), Texas (TX), and Wisconsin (WI). Japan is included among sites having received shipment of rodents implicated in this outbreak.
† As of July 8, 2003.
§ Does not include one probable human case from Ohio; investigation is ongoing.
¶ Date of shipment unknown.
** Identified as distributor C in *MMWR* 2003;52:561–4.
†† Identified as distributor D in *MMWR* 2003;52:561–4.
§§ Identified as distributor B in *MMWR* 2003;52:561–4.
¶¶ Includes two persons who were employees at IL-1.

TABLE 1. Number and percentage of laboratory-confirmed monkeypox cases, by selected characteristics — United States, 2003

Characteristic	No.	(%*)
State		
Illinois	8	(23)
Indiana	7	(20)
Kansas	1	(3)
Missouri	2	(6)
Wisconsin	17	(49)
Age group (yrs)		
6–18	11	(31)
19–51	24	(69)
Sex		
Female	18	(51)
Male	17	(49)
Possible sources of monkeypox exposure		
Prairie dog(s)	14	(40)
Prairie dog(s) and human case(s)	14	(40)
Premises housing prairie dogs	6	(17)
Premises housing prairie dog(s) and human case	1	(3)
Clinical features		
Rash†	34	(97)
Fever	29	(85)
Respiratory symptoms§	27	(77)
Lymphadenopathy	24	(69)
Hospitalized¶	16	(46)
Previous smallpox vaccination**	8	(33)

* Totals might not add to 100 because of rounding.
† Excludes one patient who had a single atypical, plaque-like skin lesion and no further lesions.
§ One or more of the following symptoms: cough, sore throat, shortness of breath, and nasal congestion.
¶ Some persons were hospitalized for isolation precautions and not because of severe illness.
** Information was available for 25 (71%) of the laboratory-confirmed cases.

Table 1. Clinical and epidemiological characteristics of DRC (1981–1986) and USA (2003) monkeypox cases by age

Analysis restricted to only those DRC cases within the same age range as USA cases, aged 6–48 years.

Characteristic	All					⩾18 years					<18 years				
	DRC (*n*=127)		USA (*n*=37)		RR (95 % CI)	DRC (*n*=21)		USA (*n*=29)		RR (95 % CI)	DRC (*n*=106)		USA (*n*=8)		RR (95 % CI)
	n	%	*n*	%		*n*	%	*n*	%		*n*	%	*n*	%	
Case fatality rate	3	2·4	0	0·0		0	0·0	0	0·0		3	2·7	0	0·0	
Cases due to secondary transmission	40	31·5	0	0·0		14	66·7	0	0·0		26	24·5	0	0·0	
No. of lesions															
<100	39	33·3	24	88·9	Referent*	11	61·1	20	95·2	Referent	28	28·3	4	66·7	Referent
⩾100	78	66·7	3	11·1	6·0 (2·0–17·6)	7	38·9	1	4·8	8·2 (1·1–60·2)	71	71·7	2	33·3	2·2 (0·69–6·7)
Unknown	10	–	10	–		3	–	8	–		7	–	2	–	
Hospitalized	51	40·2	14	37·8	1·1 (0·7–1·7)	3	14·3	10	34·5	0·41 (0·13–1·3)	48	45·3	4	50·0	0·9 (0·44–1·9)
Severely ill†	37	29·1	1	2·7	10·8 (1·5–75·9)	3	14·3	0	0·0	Undefined	34	32·1	1	12·5	2·6 (0·4–16·4)

A tale of two clades: monkeypox viruses
Journal of General Virology (2005), 86, 2661–2672

Table 2. Clinical and epidemiological characteristics of DRC (1981–1986) and USA (2003) monkeypox cases, aged 6–48 years, by vaccination status

Characteristic	Unvaccinated					Vaccinated				
	DRC* ($n=80$)		USA ($n=26$)		RR (95% CI)	DRC ($n=44$)		USA ($n=10$)		RR (95% CI)
	n	%	*n*	%		*n*	%	*n*	%	
Case fatality rate	2	2·5	0	0·0		1	2·3	0	0·0	
Cases due to secondary transmission	20	25	0	0·0		19	43·2	0	0·0	
No. of lesions										
<100	20	26·3	20	87·0	Referent	18	47·4	4	100	Referent
⩾100	56	73·7	3	13·0	5·6 (1·9–16·4)	20	52·6	0	0·0	Undefined
Unknown	4	–	3	–		6	–	6	–	
Hospitalized	34	57·5	10	38·5	1·1 (0·64–1·9)	15	34·1	4	2·5	0·85 (0·36–2·0)
Severely ill†	26	32·5	1	3·8	8·5 (1·2–59·2)	9	0	0		Undefined

*No DRC cases older than 14 years were unvaccinated.

†The mean age of unvaccinated DRC cases with severe disease was 7·4 years, range 6–14 years. The single severely ill USA case was <18 years of age.

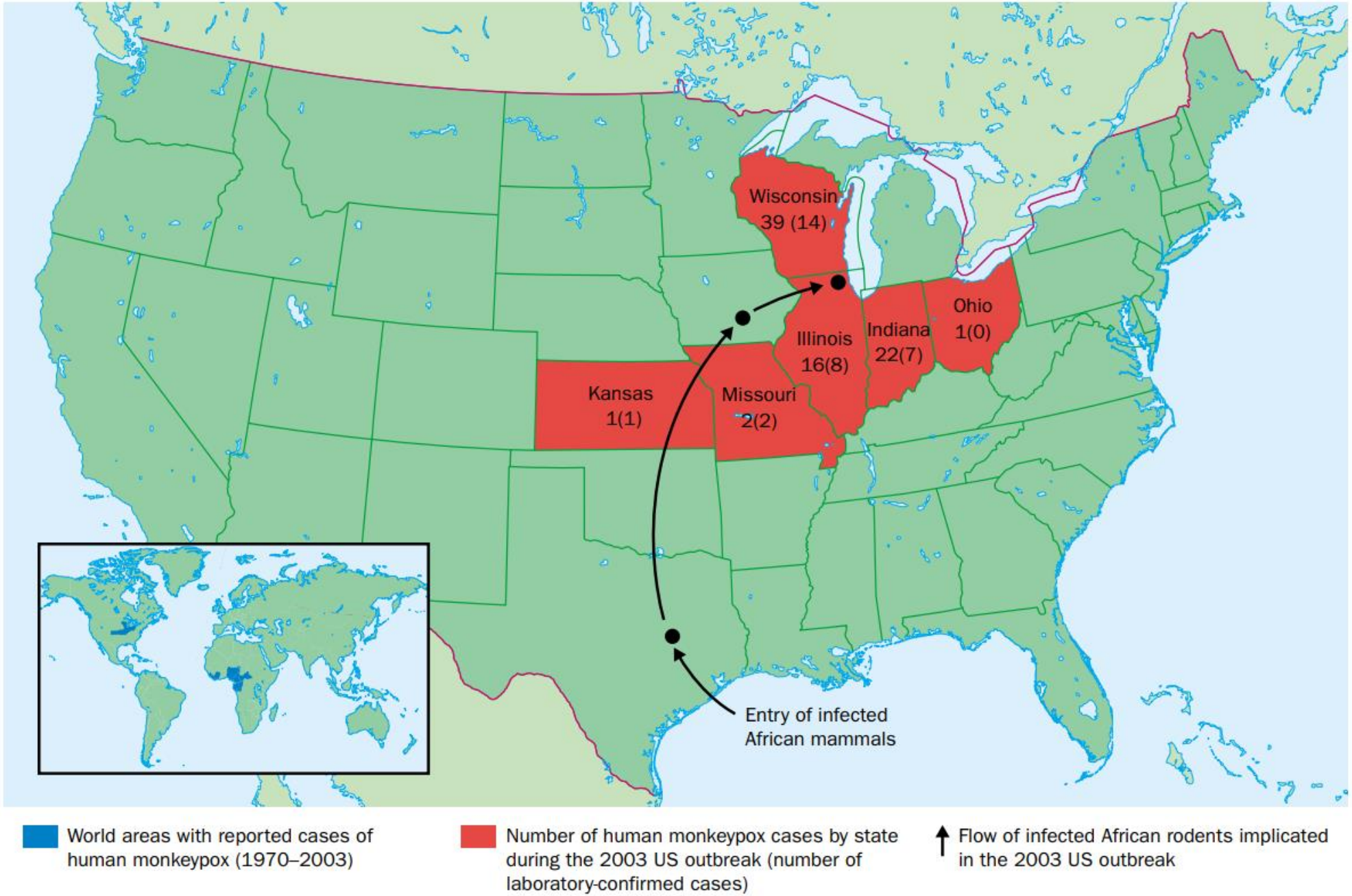
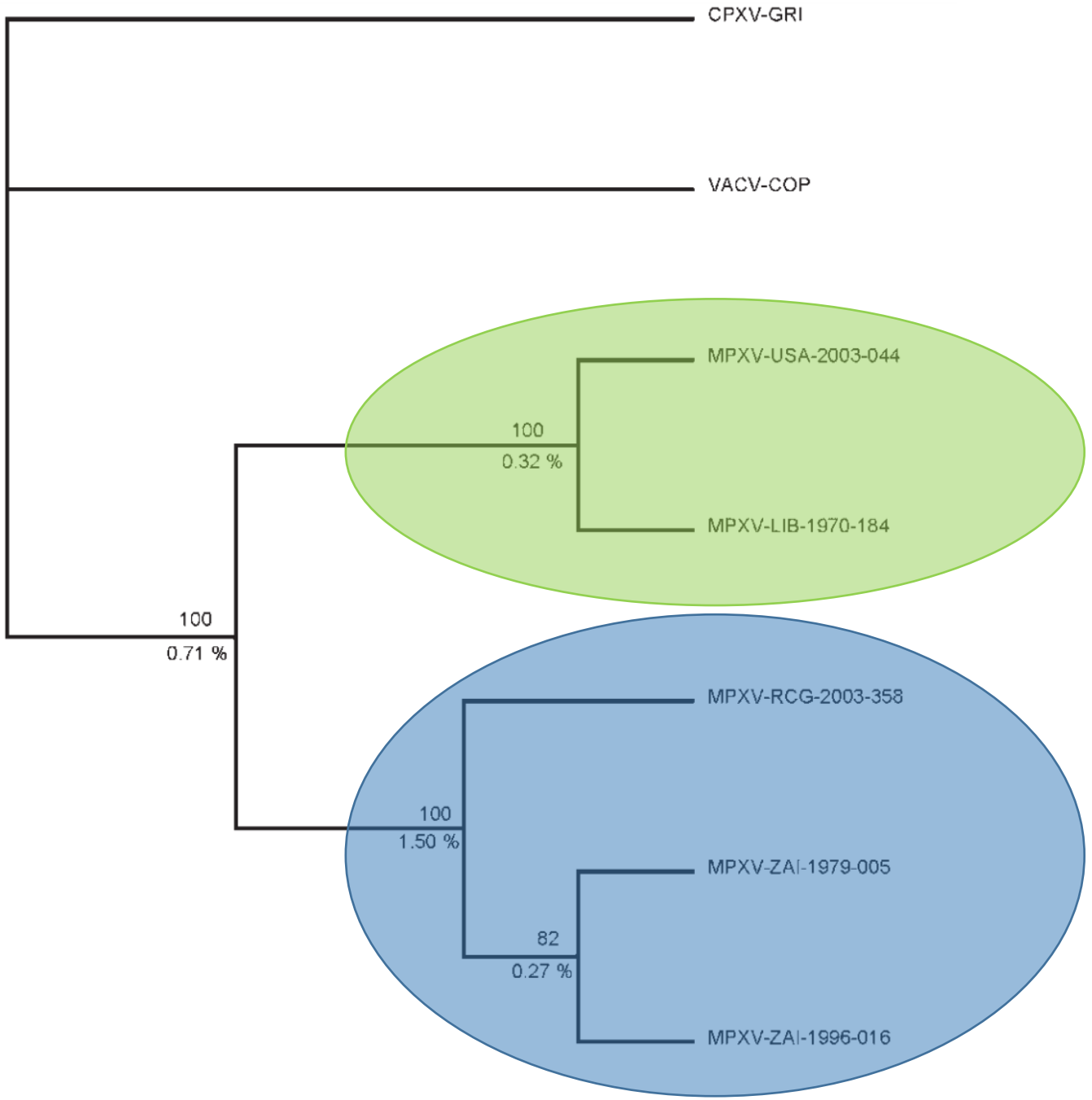


Figure 5: Geographical distribution of human monkeypox.

A tale of two clades: monkeypox viruses

Journal of General Virology (2005), 86, 2661–2672



JOURNAL OF
GENERAL VIROLOGY

viruses

MDPI

Review

Monkeypox Virus in Nigeria: Infection Biology, Epidemiology, and Evolution

Emmanuel Alakunle [1], Ugo Moens [2], Godwin Nchinda [3,4] and Malachy Ifeanyi Okeke [1,*]

- 2017 de 1978 den 39 yıl sonra ilk salgın
- 192 olası, 68 doğrulanmış vaka
- 14 farklı bölge
- Kaynak bilinmiyor
- Batı afrika tipi

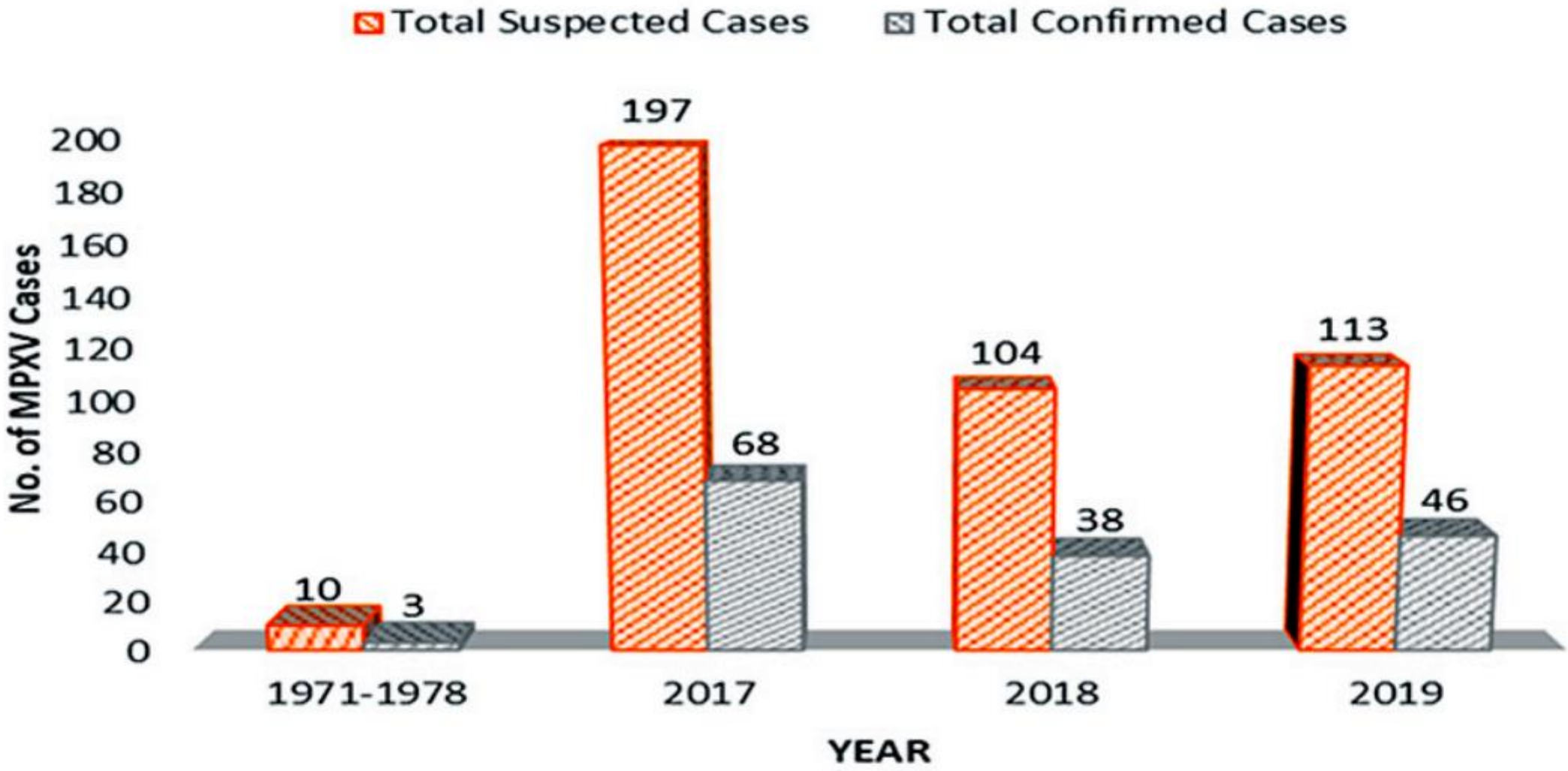
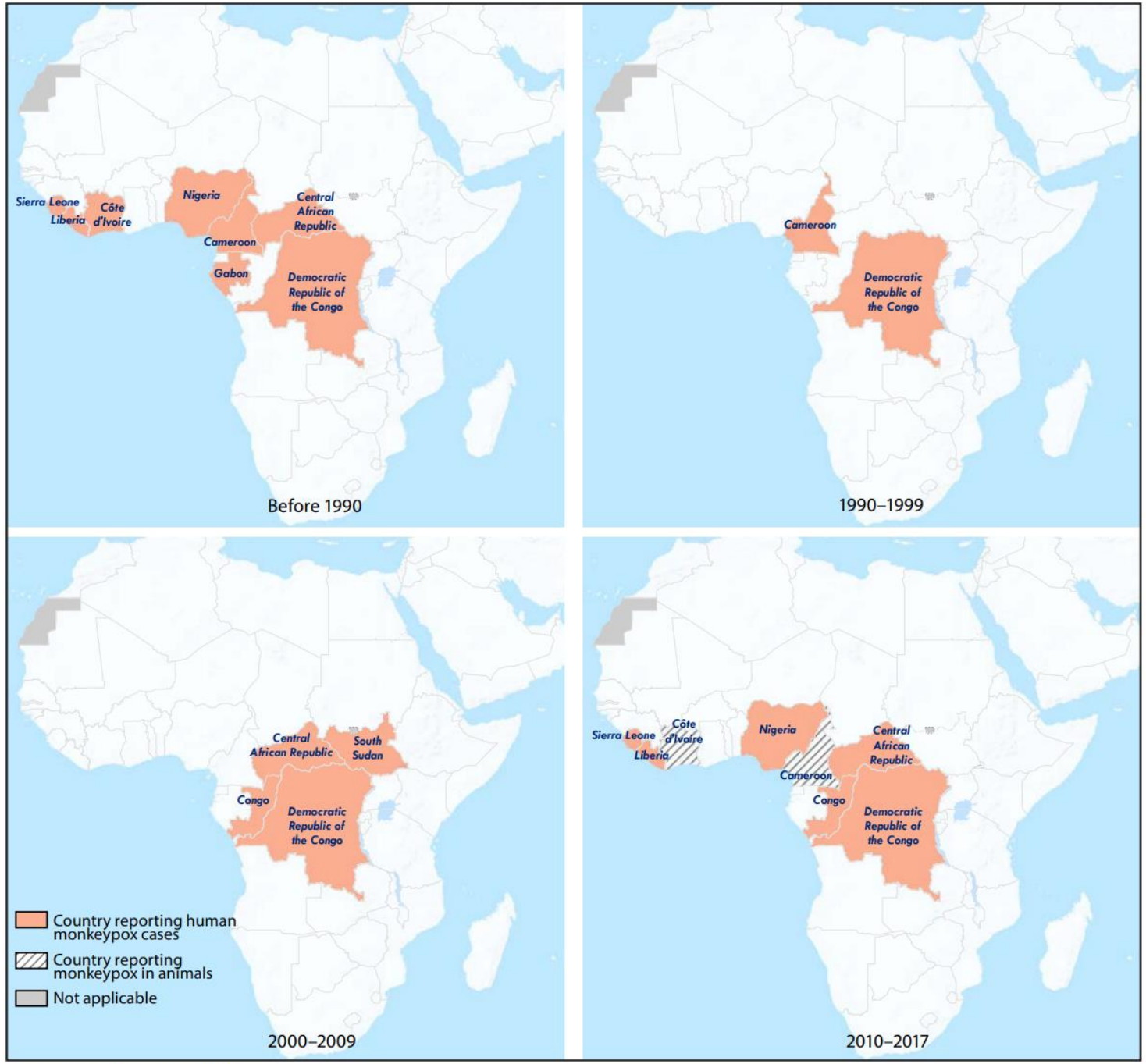

Total Suspected Cases
Total Confirmed Cases
No. of MPXV Cases
200
180
160
140
120
100
80
60
40
20
0
10
3
197
68
104
38
113
46
1971-1978
2017
2018
2019
YEAR

TABLE. Reported cases of monkeypox in humans and animals, by country — Africa,* 1970–2018

Country	Year	Location	No. of cases†	No. of deaths
Cameroon§	1979	Mfou District	1	0
	1989	Nkoteng	1	0
Central African Republic	1984	Sangha Administrative Region	6	0
	2001	—	4	—
	2010	—	2	0
	2015	Mbomou Prefecture, Bakouma and Bangassou subprefectures	12	3
	2016	Haute-Kotto Health District, Yalinga	11	1
	2017	Mbaiki Health District	2	0
	2017	Ouango Health Districts	6	0
Côte d'Ivoire¶	1971	Abengourou	1	0
	1981	—	1	—
Democratic Republic of the Congo	1970–2017	Multiple provinces	>1,000/year**	—
Gabon	1987	Region between Lambarene and N'Djole	5	2
Liberia	1970	Grand Geddah	4	0
	2017	Rivercess and Maryland counties	2	0
Nigeria	1971	Aba State	2	0
	1978	Oyo State	1	0
	2017–2018	Multiple states	89††	6††
Republic of the Congo	2003	Likouala Region	11	1
	2009	Likouala Region	2	0
	2017	Likouala Region	88	6
Sierra Leone	1970	Aguebu	1	0
	2014	Bo	1	1
	2017	Pujehan District	1	0
Sudan§§,¶¶	2005	Unity State	19	0

FIGURE. Countries reporting monkeypox cases in humans and animals — West and Central Africa, 1970–2017*



* Current as of February 25, 2018.

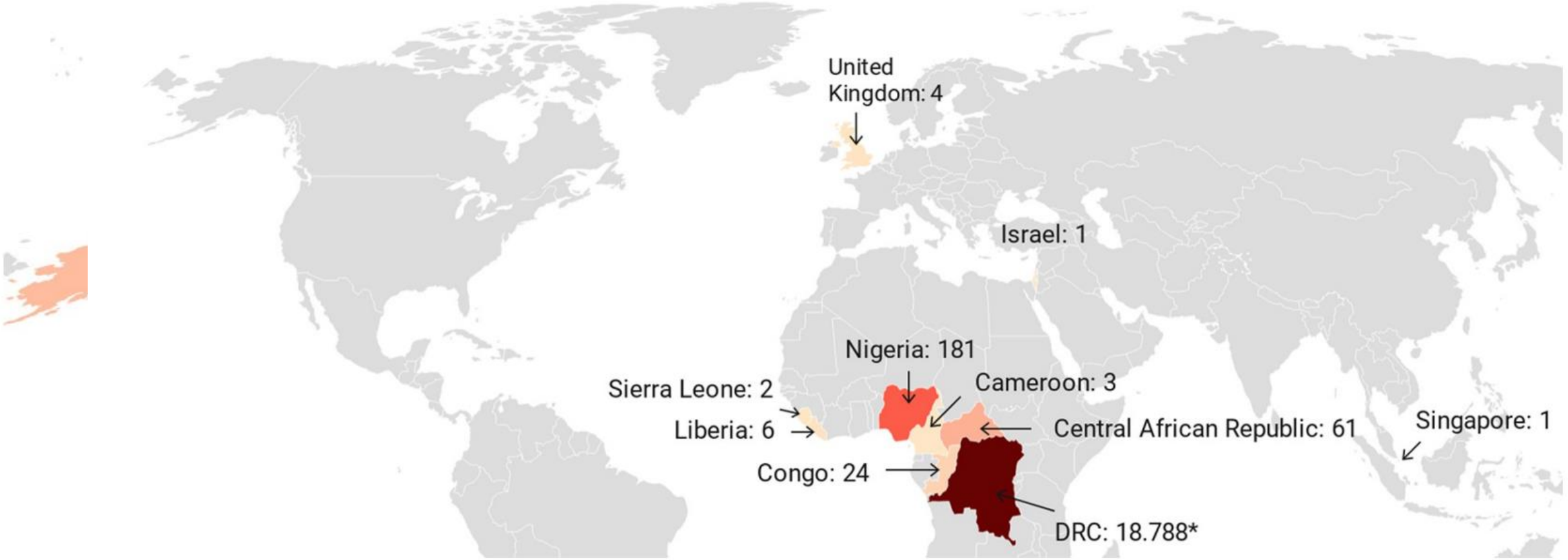


Fig 6. Number of confirmed, probable, and/or possible monkeypox cases between 2010–2019. [7,8,15,18,29,30,32,33,35,47–49,55–

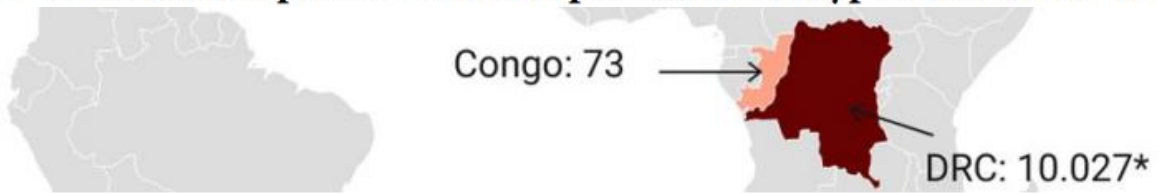


Fig 5. Number of confirmed, probable, and/or possible monkeypox cases between 2000–2009. [6,18,46,58,69] *

PLoS Negl Trop Dis 2022 16(2): e0010141. https://doi.org/10.1371/ journal.pntd.0010141

Yaş

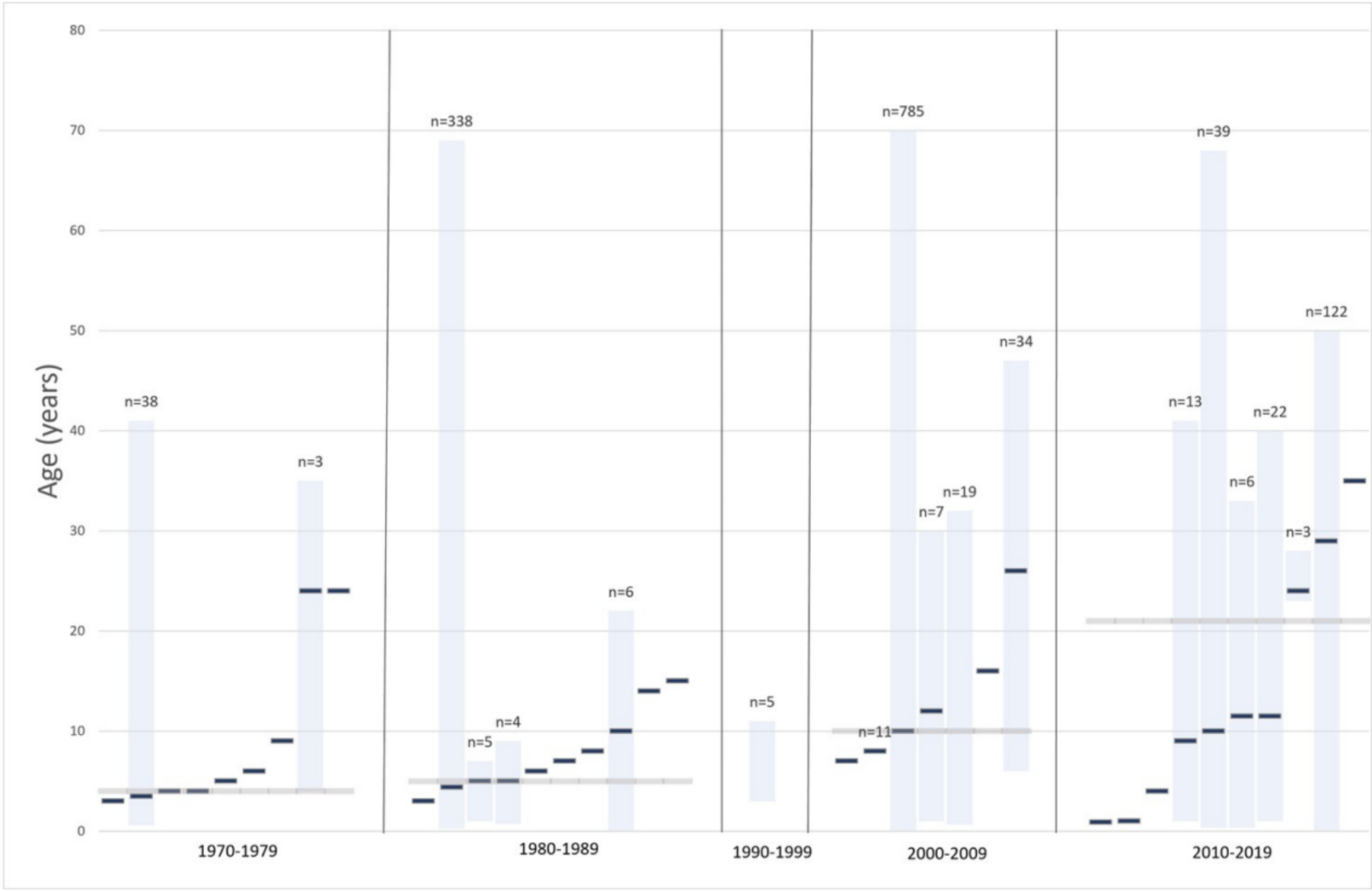


Fig 9. Median age and range of confirmed, probable and/or possible monkeypox cases in Africa per decade. Blue bars without range refer to the age of a single case. The grey horizontal line represents the weighted median. No data on median ages could be retrieved for the 1990s.

PLoS Negl Trop Dis 2022 16(2): e0010141. https://doi.org/10.1371/ journal.pntd.0010141

İnkübasyon periyodu

- Ortalama 7-14 gündür
- 5-21 gün arasında değişebilir

Prodrom

- Bulaştırıcılık başlar
- İlk belirtiler ateş başağrısı, halsizlik bazan boğaz ağrısı, öksürük ve lenfadenopati
- Lenfadenopati maymun çiçeğini çiçekten ayıran bir özelliktir
  - Tipik olarak ateş döküntüden 1-2 gün önce başlar, nadiren aynı anda başlayabilir
  - Lenf nodları submandibuler, servikal, axillary, inguinal yerleşimli ve bir veya birden fazla bölgede görülebilir

Ayırıcı özellikler

- Lezyonların düzgün sınırlı, derin yerleşimli göbeklenme eğiliminde olması
- Lezyonların bir vücut bölgesinde benzer boyut ve aynı gelişim evresinde olması
- Döküntüden önce ateş olması
- Lenfadenopati varlığı
- Dissemine döküntü centrifugal olması
- El ve ayak tabanında lezyon olması
- Lezyonların iyileşme döneminden önce ağrılı olması

Bulaş

- Zoonotik bulaş
- İnsandan insana bulaş
- Nozokomiyal bulaş
- Cinsel yolla bulaş

- İnsandan insana bulaş, sekonder atak hızı, CB tipinde WA tipne göre daha yüksek
- Ro: 0.6-1

Klinik

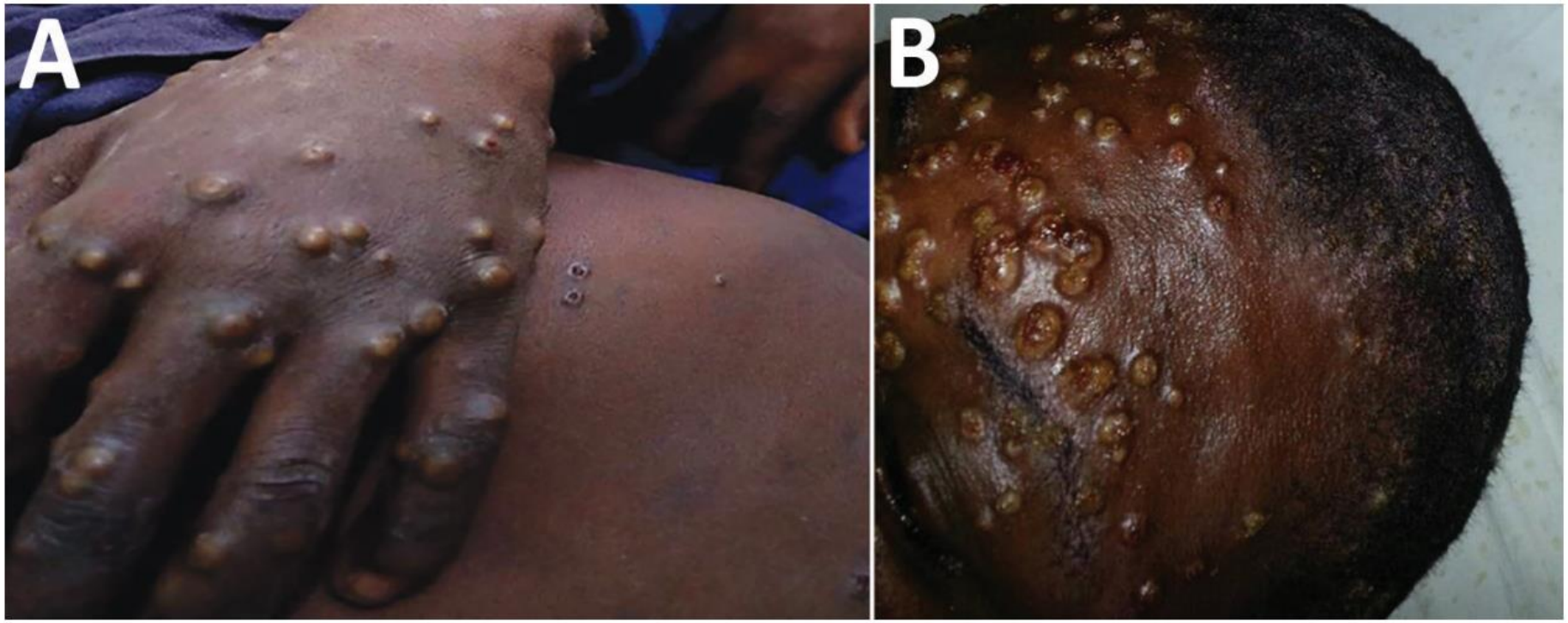


Figure. Papulopustular rash on hand (A) and face (B) of patient with monkeypox.

FIG. 132.5 Monkeypox skin lesions.

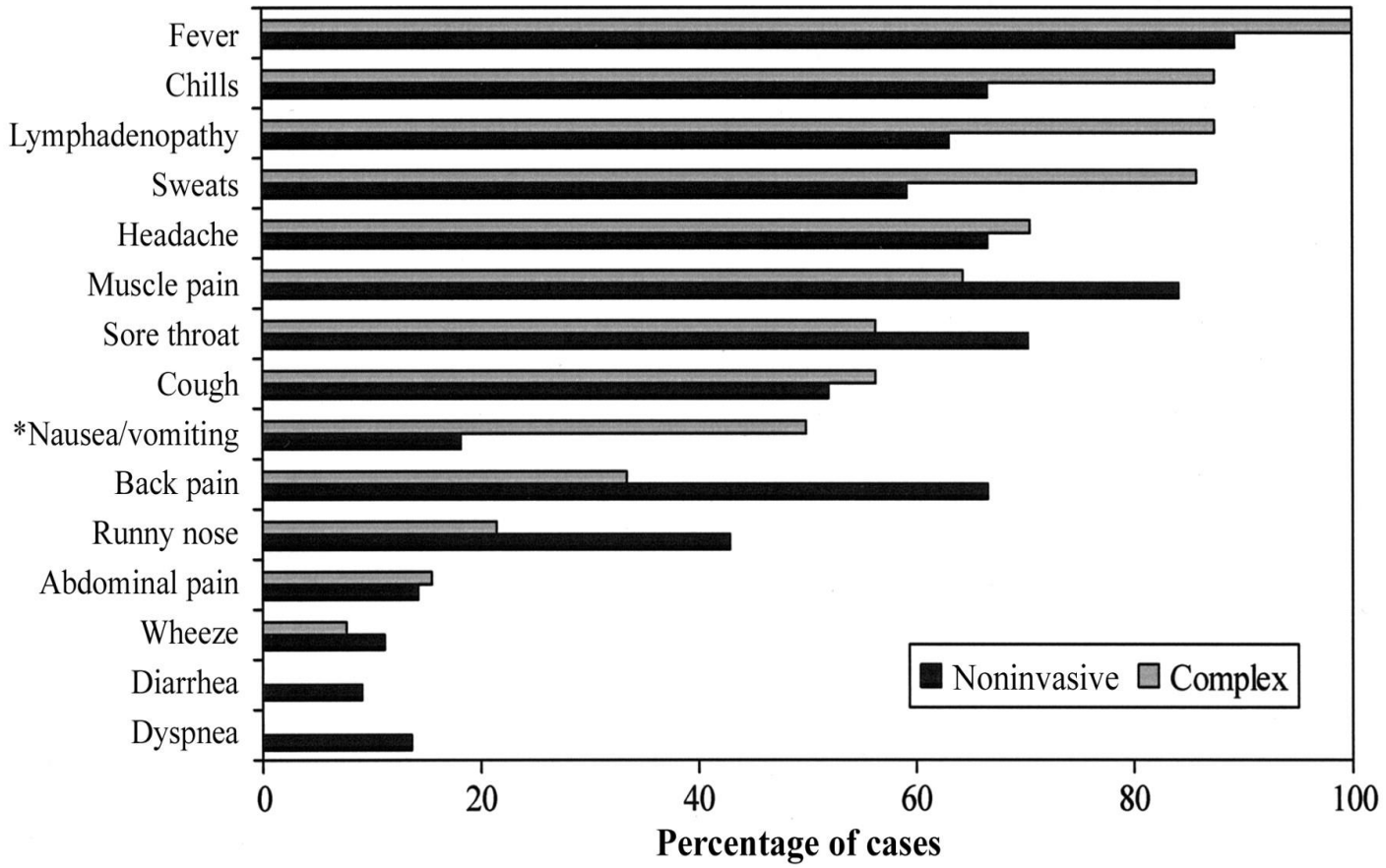
Table 1. Comparison of clinical features between human monkeypox, smallpox, and chickenpox* (modified from Breman and Henderson[24])

Disease characteristics	Monkeypox	Smallpox†	Chickenpox
History			
Recent contact with exotic animal	Yes	No	No
Recent exposure to patient with vesicular rash	Possible‡	Yes	Yes
Previous vaccination against smallpox	10–15%	Rare	Yes
Incubation period (days)	10–14	10–14	14–16
Prodromal phase (days)	1–3	2–4	0–2
Physical examination			
Prodromal fever and malaise	Yes	Yes	Yes (mild)
Lymphadenopathy	Yes	No	No
Distribution of skin lesions	Centrifugal (80%) or centripetal (5%)	Centrifugal	Centripetal
Depth of skin lesions	Superficial	Deep	Superficial
Evolution of skin lesions	Monomorphic (80%) or pleiomorphic (20%)	Monomorphic	Pleiomorphic
Desquamation (days after onset)	22–24	14–21	6–14
Lesions on palms and soles	Common	Common	Rare
Extracutaneous manifestations			
Secondary skin/soft-tissue infection	19%	Possible	Possible
Pneumonitis	12%	Possible	3–16%
Ocular complications	4–5%	5–9%	No
Encephalitis	<1%	<1%	<1%
Laboratory diagnosis			
DNA detection (eg, PCR)	MPV	Variola virus	VZV
Electron microscopy	Poxvirus particles	Poxvirus particles	Herpesvirus
Culture on chick chorioallantois	Characteristic pocks	Characteristic pocks	No growth
Serology	Orthopoxvirus and MPV antibodies	Orthopoxvirus and variola virus antibodies	Varicella antibodies

VZV=varicella zoster virus. *Other diseases that can be confused with these infections include generalised vaccinia, disseminated infection with herpes zoster or herpes simplex virus, drug eruptions, enterovirus infections, dermatitis herpetiformis, rickettsialpox, and molluscum contagiosum. †Smallpox in previously unvaccinated patients. ‡Highest risk among household contacts, with secondary attack rate of about 12%.


Yüksek ateş
Baş ağrısı
Kas ve sırt ağrısı
Şişmiş lenf nodülleri
Üşüme
Yorgunluk ve halsizlik
Maymun çiçeği lezyonları

Figure 1 Frequency of individual symptoms reported among monkeypox virus–infected persons exposed to the virus by ...



J Infect Dis, Volume 194, Issue 6, 15 September 2006, Pages 773–780, https://doi.org/10.1086/505880

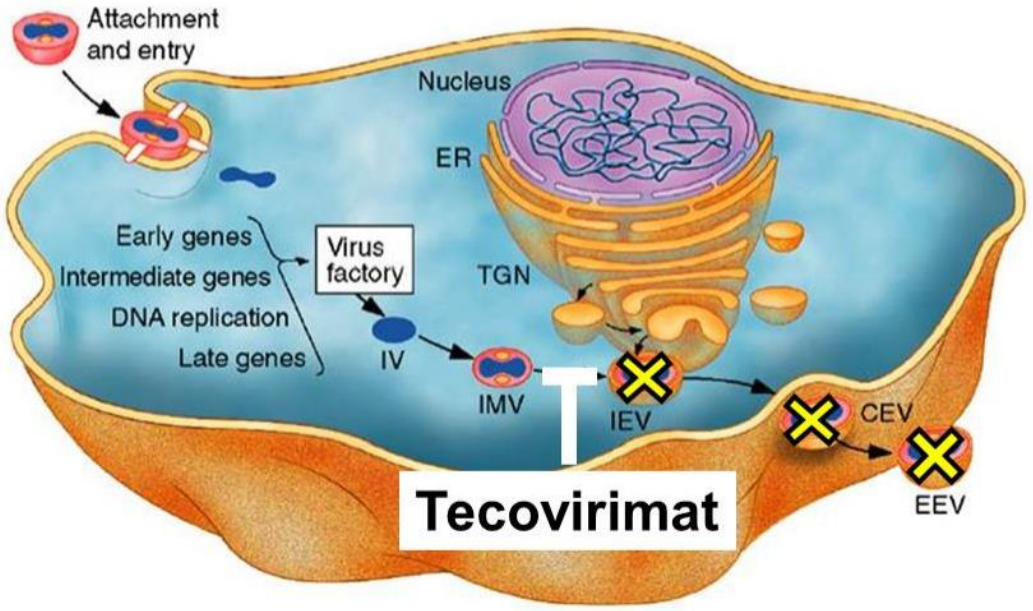
Tedavi

- Etkin bir tedavisi yok

Antiviral

- Cidofovir
- Brincidofovir
- Tecovirimat (ST-246)

Tecovirimat



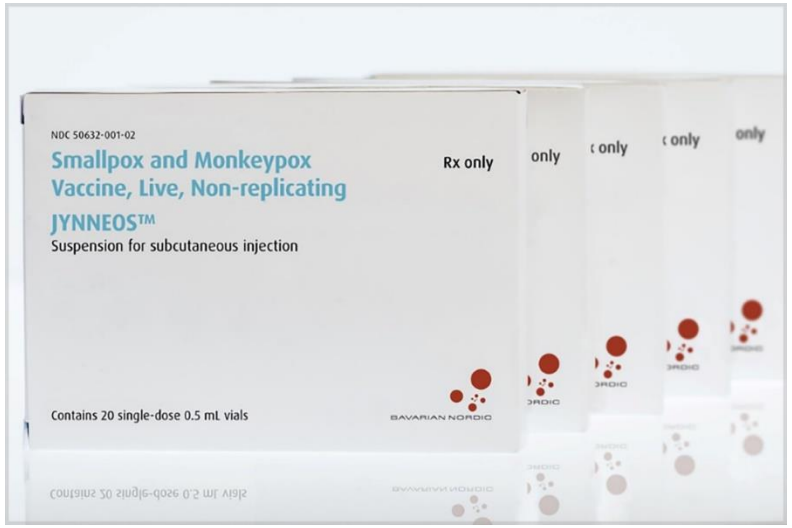
Ortopoxviruslerin VP37 proteinini inhibe ederek zarf oluşumuna engel olur.

Doz:

- 40 -120 kg: 600 mg PO BID, 14 gün
- ≥120 kg: 600 mg PO TID, 14 gün
- Yemeklerden yarın saat sonra

Oral formunda böbrek yada karaciğer yetmezliğinde doz ayarlaması gerekmez

İlaç etkileşimi yönünden dikkat



JYNNEOS® (MVA-BN) Smallpox (Monkeypox) Vaccine Description 2022

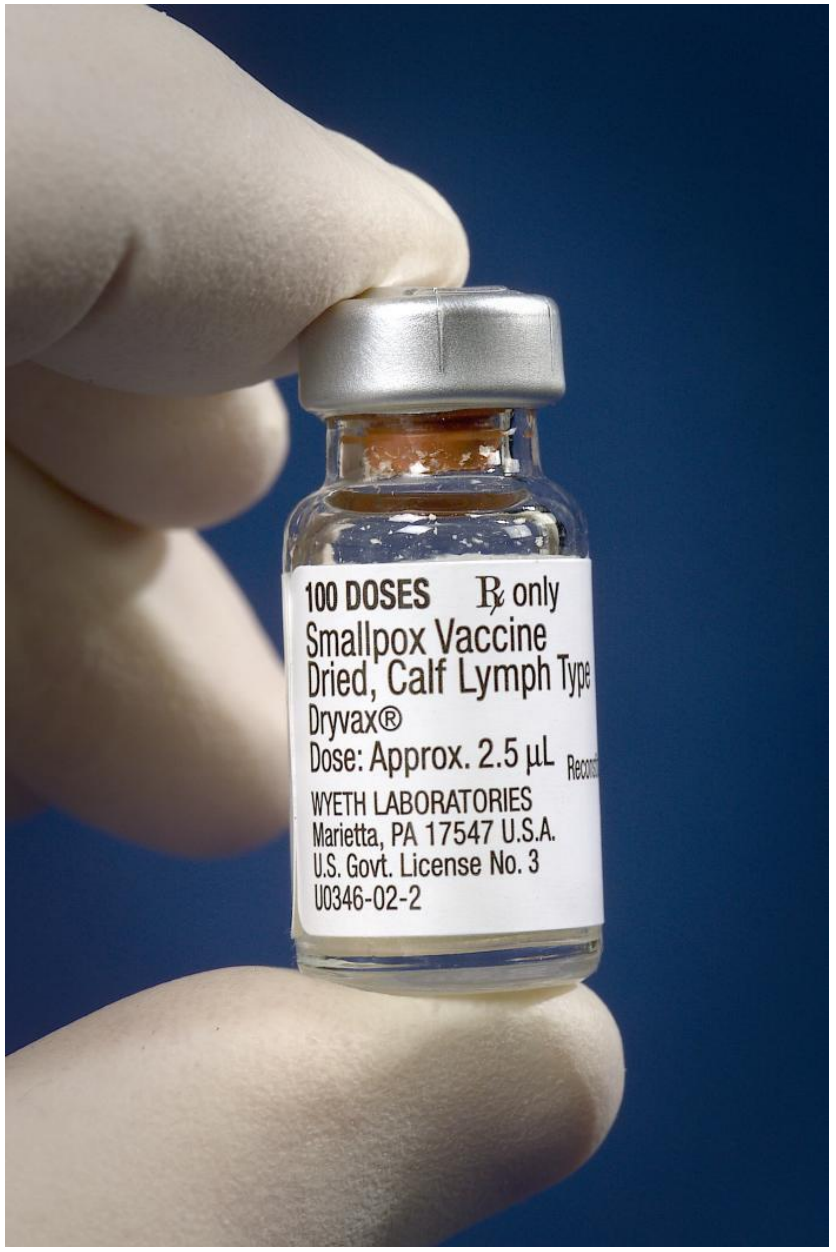
Bavarian Nordic JYNNEOS smallpox (Monkeypox) vaccine is based on a live, attenuated vaccinia virus (Modified Vaccinia Ankara, MVA-BN), incapable of replicating in the human body yet able to elicit a potent immune response. The MVA is cultured in Chicken Embryo Fibroblast cells and placed in a serum-free medium. It is purified and filtered from the cells using various methods, including benzonase digestion.

JYNNEOS® (IMVANEX®, Europe; IMVAMUNE®, Canada) was Approved in 2019 by the U.S. Food and Drug Administration (FDA) and by the European Medicines Agency EMEA/H/C/002596 in 2013 and is indicated for preventing smallpox and monkeypox disease in adults 18 years of age and older determined to be at high risk for smallpox or monkeypox infection. JYNNEOS is the only FDA-approved non-replicating smallpox and monkeypox vaccine for non-military use.

ACAM2000

Indication:

- Active immunization against smallpox disease for persons determined to be at high risk for smallpox infection.
- It consists of a live, infectious vaccinia virus that can be transmitted from the vaccine recipient to unvaccinated persons who have close contact with the inoculation site or exudate from the site.
- The vaccinia virus may cause side effects like rash, fever, and body aches.
- This older vaccine has proven to be effective in preventing smallpox over many years. Most U.S. military personnel are given ACAM2000 while in 'boot camp.'
- The good news is the SNS has more than 100 million doses of ACAM2000 in stock.



Aşı ne zaman

- Aşı en kısa sürede yapılmalı
- Öneri: ilk 4 gün
- 4-14 gün: hastalığa engel olmayabilir ama hafif geçirilmesini sağlayabilir

Are There Enough Monkeypox Vaccines for Everyone?

Fact checked by Robert Carlson, MD

Published May 24, 2022
Fact checked May 24, 2022

Jynneos Imvanex vaccine inventory is limited

by Gerd Altmann

Mortalite

Table 3. Pooled case fatality rate in confirmed, probable, and/or possible monkeypox cases.

Countries/Clade	Case Fatality Rate	95% CI[1]
All countries[2]	78/892 = 8.7%	7.0%– 10.8%
Central African clade[3]	68/640 = 10.6%	8.4%– 13.3%
West African clade[4]	9/247 = 3.6%	1.7%– 6.8%
West African clade, African countries only	9/195 = 4.6%	2.1%– 8.6%

PLoS Negl Trop Dis 2022 16(2): e0010141. https://doi.org/10.1371/ journal.pntd.0010141

Ayırıcı tanı

TABLE 132.1 Differential Diagnosis of Febrile Vesicular Pustular Rash Illnesses That May Be Confused With Smallpox

DISEASE	CLUES
Varicella	Most common in children younger than 10 years; children do not usually have a viral prodrome
Disseminated herpes zoster	Immunocompromised or elderly persons; rash looks like varicella, usually begins or erupts in dermatomal pattern
Impetigo *(Streptococcus pyogenes, Staphylococcus aureus)*	Honey-colored crusted plaques with bullae are classic but may begin as vesicles
Drug eruptions	Exposure to medications
Erythema multiforme minor	Target or bull's-eye lesions; often follows systemic viral infections such as herpes simplex virus; may include palms and soles
Erythema multiforme (including Stevens-Johnson syndrome)	Involves conjunctivae and mucous membranes
Enteroviral infections (especially hand-foot-and-mouth disease)	Seasonal—summer and fall
Disseminated herpes simplex virus	Similar to varicella
Scabies and insect bites	Pruritus; patient not febrile
Molluscum contagiosum	May disseminate in immunosuppressed individuals
Generalized vaccinia	History of vaccination with smallpox vaccine or contact with vaccinated individual
Monkeypox	Travel to endemic area; animal exposure

Modified from Centers for Disease Control and Prevention. Evaluating patients for smallpox: acute generalized vesicular or pustular rash illness protocol. https://www.cdc.gov/smallpox/clinicians/algorithm-protocol.html.

Tanı

- Lezyondan alınan örneklerde PCR
  - Vezikül sıvısı
  - Lezyon kazıntısı

› Am J Trop Med Hyg. 2017 Feb 8;96(2):405-410. doi: 10.42

Evaluation of the GeneXpert fo Diagnosis

Daniel Li [1], Kimberly Wilkins [1], Andrea M McCollum [1], Lyn
Beatrice Nguete [3], Toutou Likafi [3], Marcel Pie Balilo [3], Rob
Inger K Damon [1], Michael C L Vickery [6], Elisabeth Pukuta
Jean-Jacques Muyembe Tamfum [7], Emile Wemakoy Okitolo

Affiliations + expand

PMID: 27994107 PMCID: PMC5303045 DOI: 10.4269/ajtr

Free PMC article

Vaka tanımı

Şüpheli Vaka

- Endemik olmayan bir ülkede açıklanamayan akut döküntü

  VE

- Aşağıdaki belirti ve bulgulardan bir veya fazlası
  - Başağrısı
  - Ateş (>38.5^{o}C),
  - Lenfadenopati
  - Miyalji
  - Sırt ağrısı
  - Asteni

- Döküntüyü açıklayacak bir hastalığın bulunmaması: varicella zoster, herpes zoster, kızamık, Zika, dengue, chikungunya, herpes simplex, bakteriyel cilt enfeksiyonları, dissemine g*onococcus* enfeksiyonu, primer veya sekonder sifilis, şankrodi, lenfogranuloma venereum, granuloma inguinale, molluscum contagiosum, allerjik reaksiyonlar
- Maymunçiçeğinin endemik olduğu ülkeler: Benin, Kamerun, Orta Afrika Cumhuriyeti, Demokratik Kongo Cumhuriyeti, Gabon, Gana, Fildişi sahilleri, Liberya, Nigerya, Kongo Cumhuryeti ve Sierra Leone.

Olası vaka

- Şüpheli vaka tanımına uyan hasta

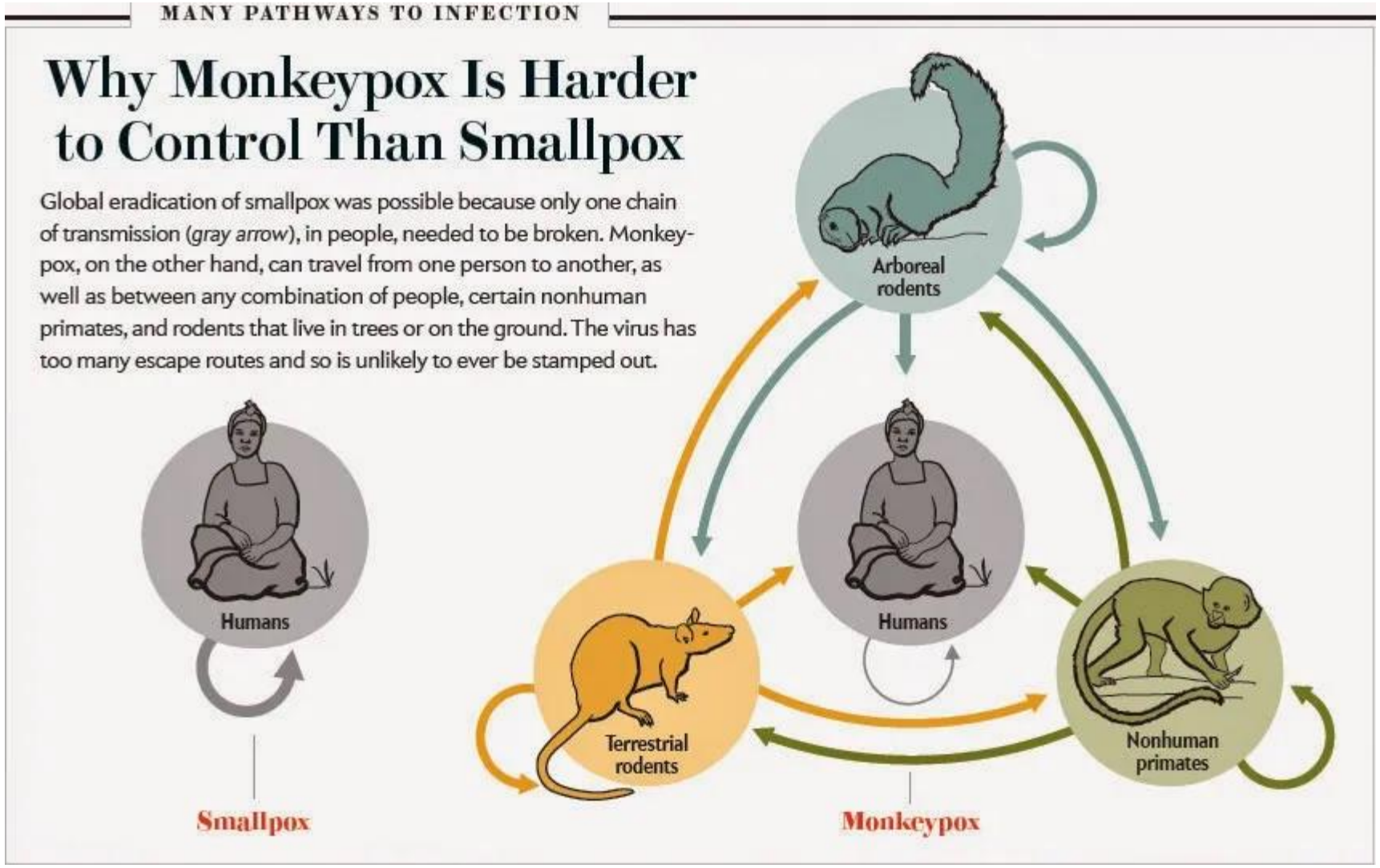
VE

- Aşağıdakilerden bir yada fazlası:
- Epidemioyojik öykü (yüz tüze temas); direkt cilt veya cilt lezyonları ile temas, cinsel temas; veya kontamine materyallerle (kıyafet, yatak vs) temas veya konfirme vaka ile şikayetlerin başlamasından 21 gün içinde temas
- Maymun çiçeği endemik bir ülkeye şikayetleri başlamadan 21 gün öncesine kadar seyahat öyküsü
- Şikayetlerin başlamasından 21 gün içinde multipl veya anonim cinsel partner
- Aşılanmamış ve ortopoxvirus teması olmaksızın bir *orthopoxvirus* serologik test

Konfirme vaka:

- Şüpheli veya olası bir vakanın lavoratuvar olarak doğrulanması (PCR veya sekanslama ile)

Korunma


MANY PATHWAYS TO INFECTION
Why Monkeypox Is Harder to Control Than Smallpox
Global eradication of smallpox was possible because only one chain of transmission (gray arrow), in people, needed to be broken. Monkeypox, on the other hand, can travel from one person to another, as well as between any combination of people, certain nonhuman primates, and rodents that live in trees or on the ground. The virus has too many escape routes and so is unlikely to ever be stamped out.
Humans
Smallpox
Arboreal rodents
Humans
Terrestrial rodents
Nonhuman primates
Monkeypox

Panel 1. Recommended research areas for future monkeypox investigation[13]

Epidemiological surveillance

Re-establish and strengthen human monkeypox surveillance systems (especially in western and central Africa), for rapid detection of suspect cases, rapid notification to national and WHO authorities, and rapid and comprehensive investigations.

Update human monkeypox case definitions.

Assess transmissibility of human monkeypox and re-explore mathematical modelling techniques.

Prospectively investigate test characteristics of orthopoxvirus and MPV-specific serological assays.

Study characteristics of monkeypox and other pox-like illnesses in HIV-infected patients in detail.

Assess the feasibility of and design ecological and natural history studies.

Design a population-based study to define the clinical, epidemiological, and ecological characteristics and laboratory diagnosis of human monkeypox in detail.

Evaluate, establish, and maintain national capability for serological and virological diagnosis.

Increase resources, training, and administrative and logistical support to ensure satisfactory surveillance and diagnostic capabilities.

Control and prevention

Expand laboratory screening for antiviral drugs against MPV and other orthopoxviruses.

Undertake preclinical and clinical trials of cidofovir for human monkeypox, especially in areas where the disease is endemic.

Clearly establish the risks of smallpox vaccination in areas where human monkeypox is endemic, especially among immunocompromised patients.

Increase training for and establish a reliable and rapid reporting system to local heath providers and regional health officials in endemic areas.

Provide local health providers and regional health officials with information on differential diagnosis, case management, notification and investigation procedures, and collection and shipment of clinical samples.

Laboratory issues

Establish a central laboratory in badly affected countries able to implement modern orthopoxvirus diagnostic assays.

WHO collaborating centres and other laboratories involved in orthopoxvirus research should continue to develop and evaluate diagnostic tests for both central laboratory and field use and continue molecular biological studies.

Increase capacity to carry out epidemiological investigations, collaborative research, and training of staff at WHO collaborating centres.

Obtain increased support for laboratory studies.

En önemli endişe

Enfeksiyonun kaynağı ve bulaş yolu

En önemli fark

Lenfadenopati varlığı ve insanlar arası bulaş kapasitesinin düşük olması

Monkeypox is a matter of concern: US President Joe Biden

Monkeypox outbreak: According to WHO, there are 92 confirmed cases of Monkeypox in the world right now spread across 12 countries.

- Teşekkürler