



وزارت بهداشت، درمان و آموزش پزشکی

معاونت بهداشت

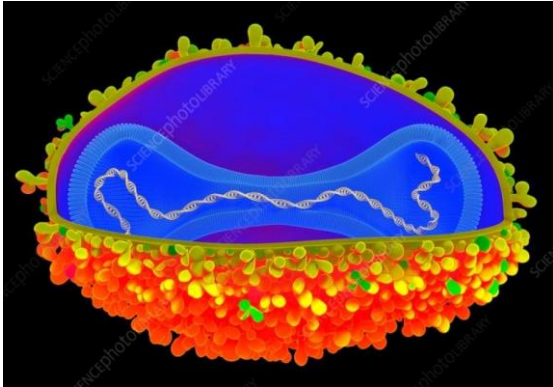
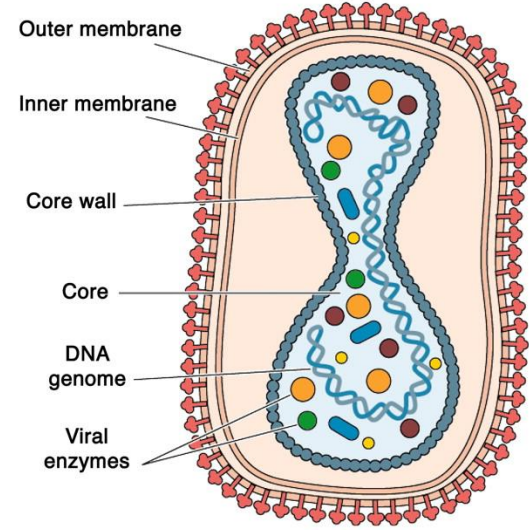
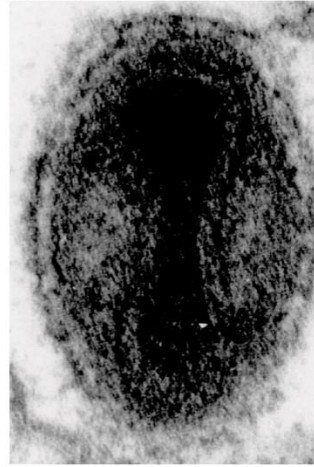
دفتر آموزش و ارتقای سلامت

Monkey Pox

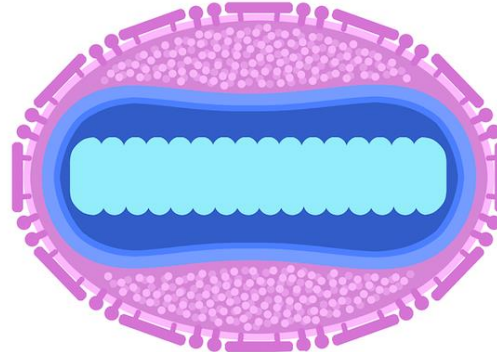
enveloped

Monkeypox virus is an enveloped double-stranded DNA virus

A

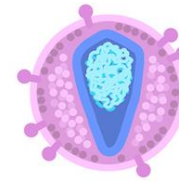


D

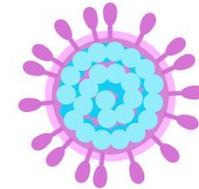


50 nanometers

Monkeypox Virus



HIV



SARS-CoV-2

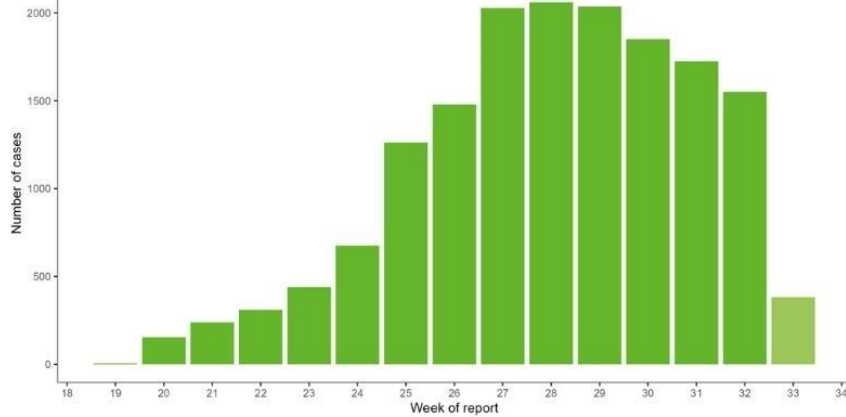


Poliovirus



Monkeypox cases in the EU/EEA, Western Balkans and Turkey since 9 May 2022

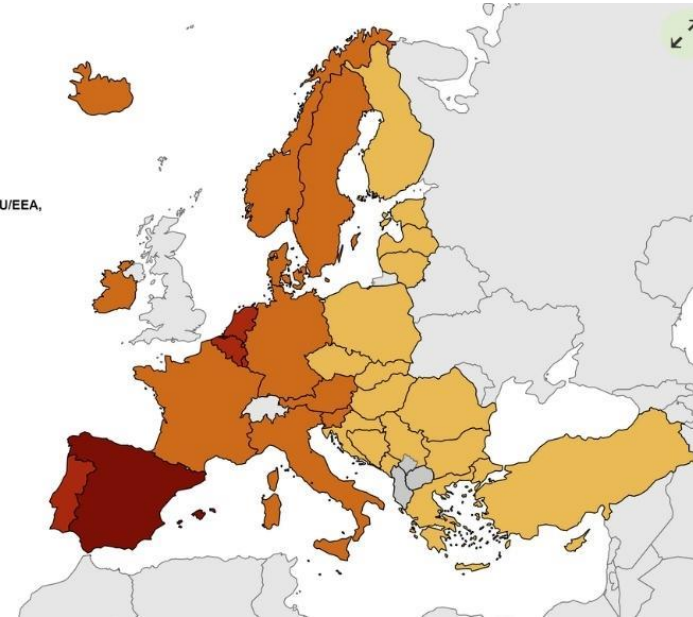
by reporting week



Geographical distribution of confirmed monkeypox cases per 1 000 000 population in the EU/EEA, Western Balkans and Turkey, as of 18 Aug 2022

- ≥100 case per 1 000 000
- 50 - 99 cases per 1 000 000
- 10 - 49 cases per 1 000 000
- < 10 cases per 1 000 000
- No reported cases
- Not included

- Countries not visible in the main map extent
- Malta
- Liechtenstein



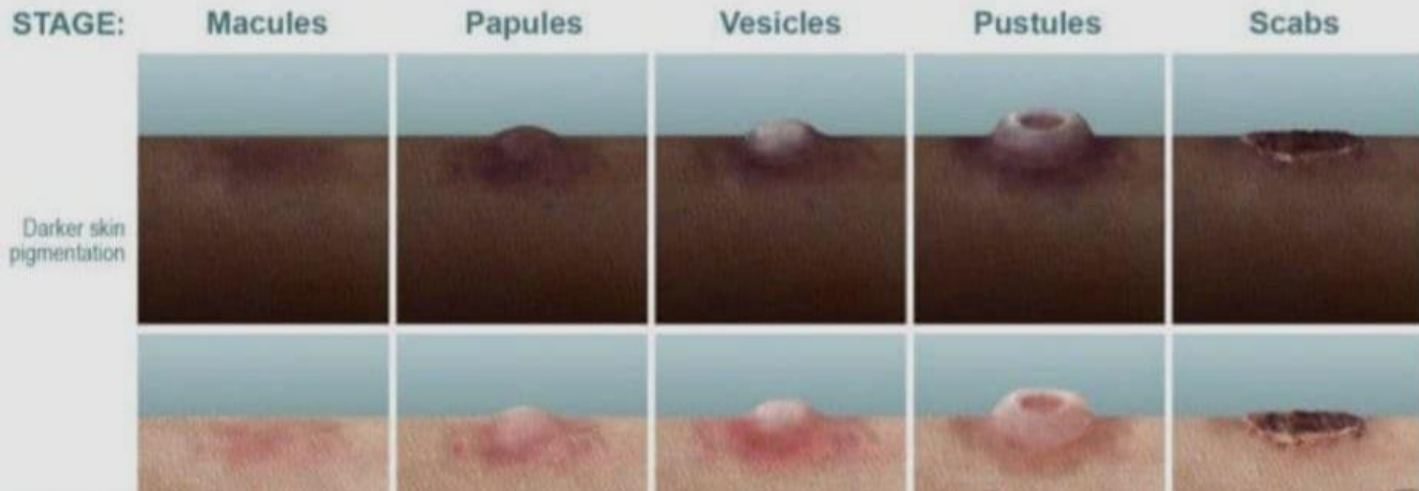
Spain (5 792), Germany (3 242), France (2 749), Netherlands (1 090), Portugal (770), Italy (689), Belgium (624), Austria (218), Denmark (158), Sweden (141), Ireland (113), Poland (107), Norway (74), Hungary (62), Greece (50), Luxembourg (45), Slovenia (43), Czechia (39), Romania (34), Malta (31), Croatia (22), Finland (22), Iceland (12), Estonia (9), Slovakia (9), Lithuania (5), Bulgaria (4), Cyprus (4) and Latvia (4). Two deaths have been reported by Spain in July 2022



Incubation period 5_21

Contagious 2_4 weeks

Figure 3 - Stages of skin presentation



transmission route

Monkeypox virus (MPXV) is predominantly transmitted through direct contact with body fluids or lesion material, prolonged face-to-face contact, or fomites (e.g. contaminated linens).

uncertainty

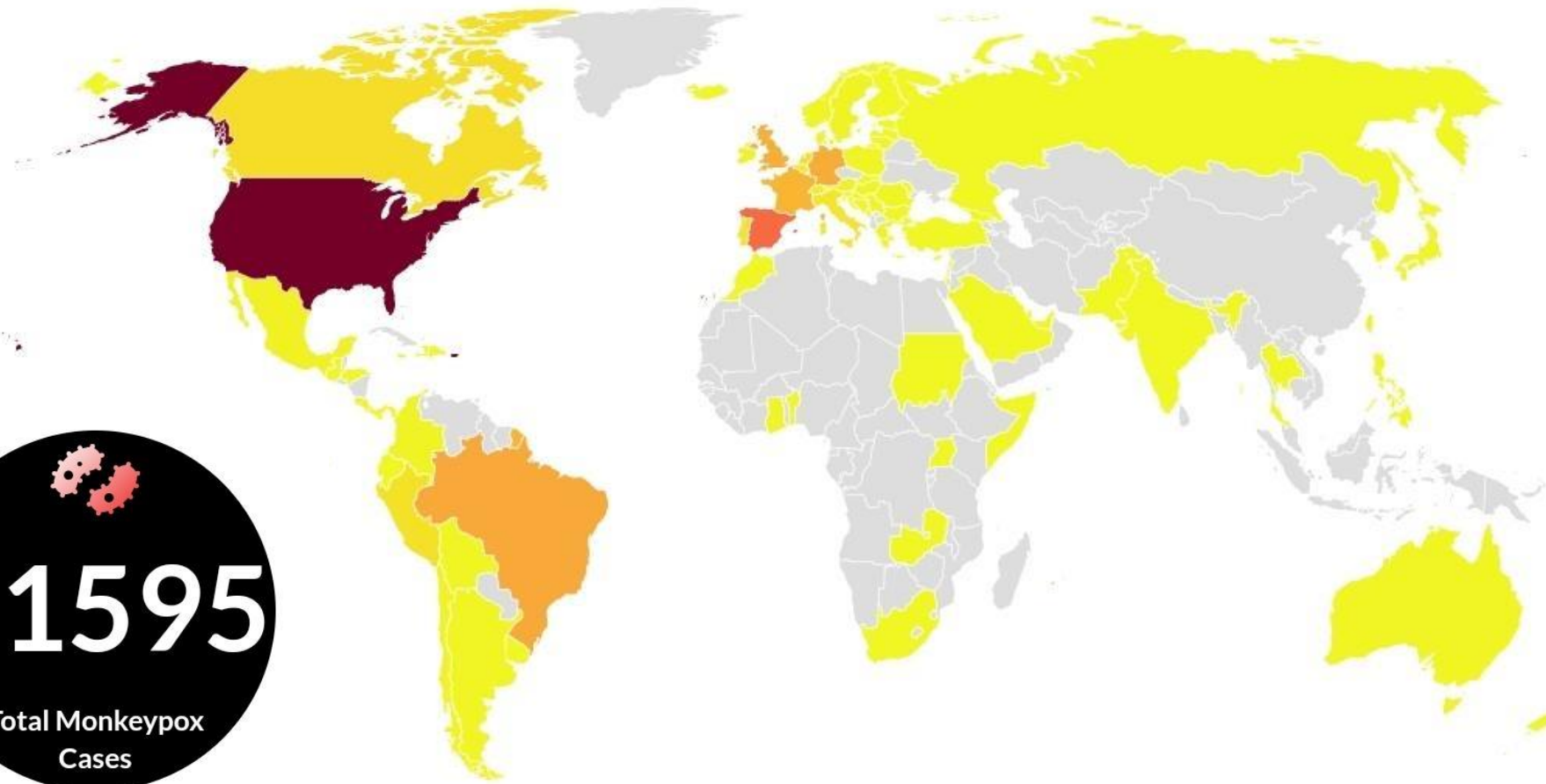
There is still uncertainty about the role played by respiratory droplets and aerosols, and the risk to healthcare workers and during travel through this transmission route

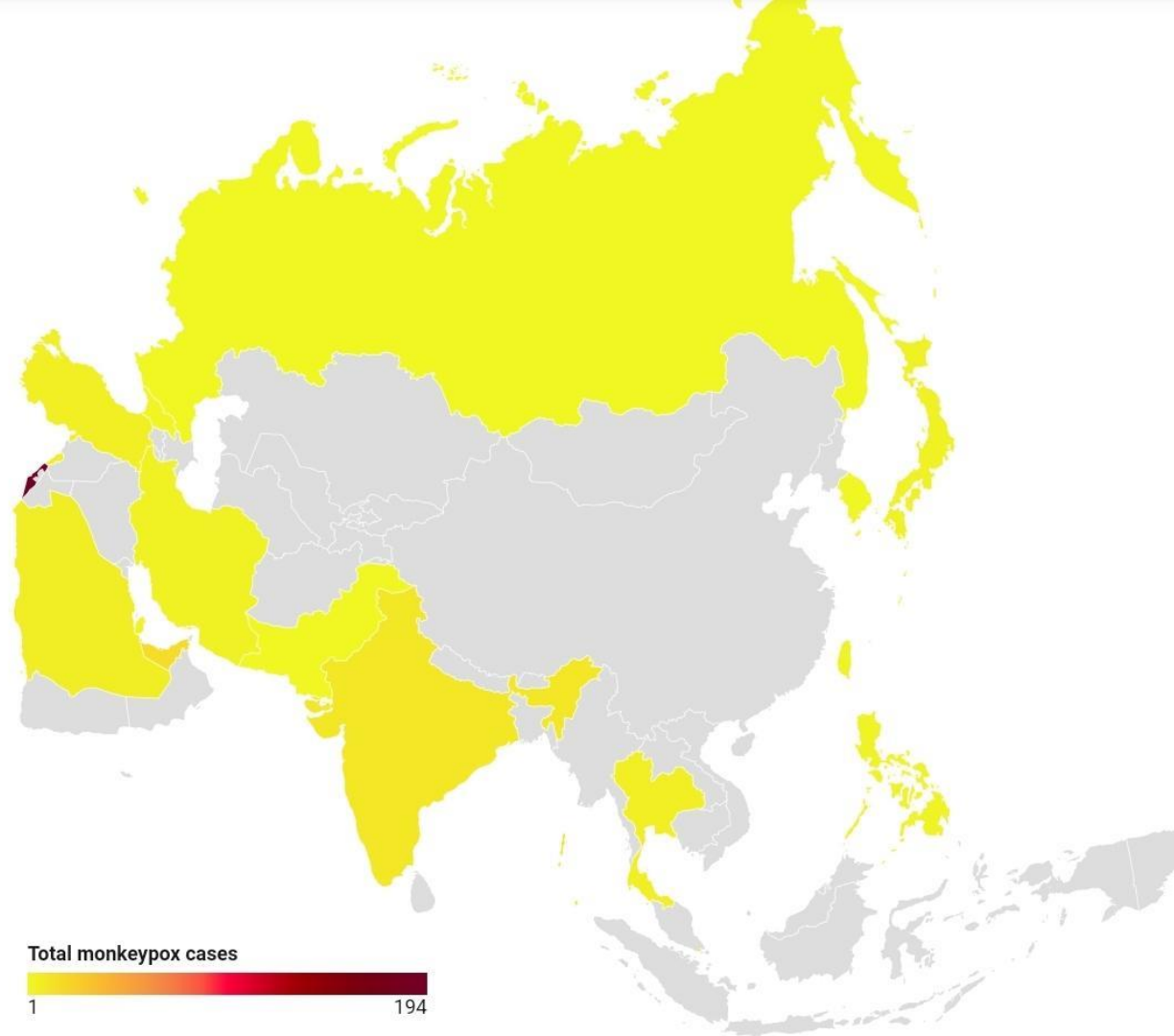
no cases have been reported to The European Surveillance System (TESSy) for which the likely mode of transmission was healthcare-associated or **occupational** exposure in a laboratory.

the risk for healthcare-associated transmission is **low**



41595
Total Monkeypox
Cases





Total monkeypox cases

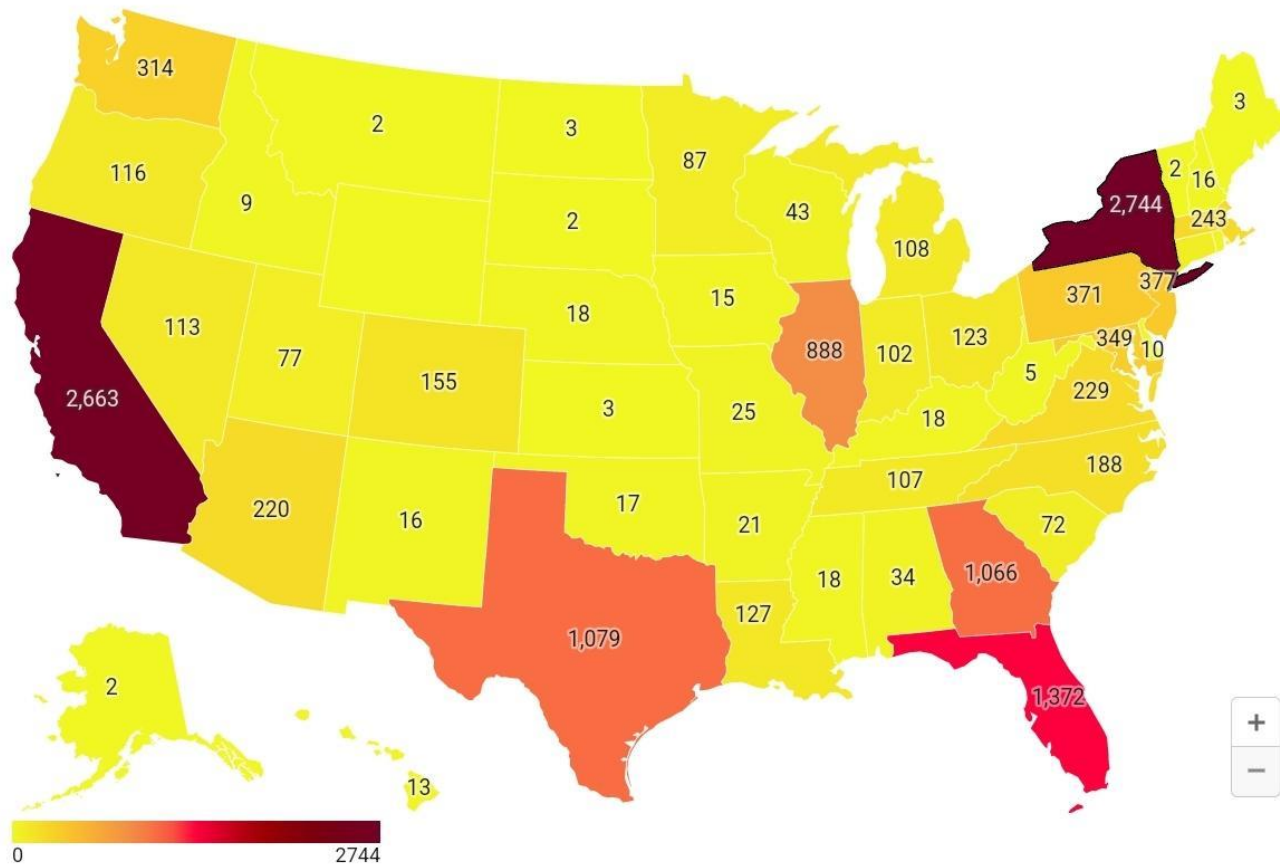
1

194

Monkeypox map and case count US States

Monkeypox US Map and case count

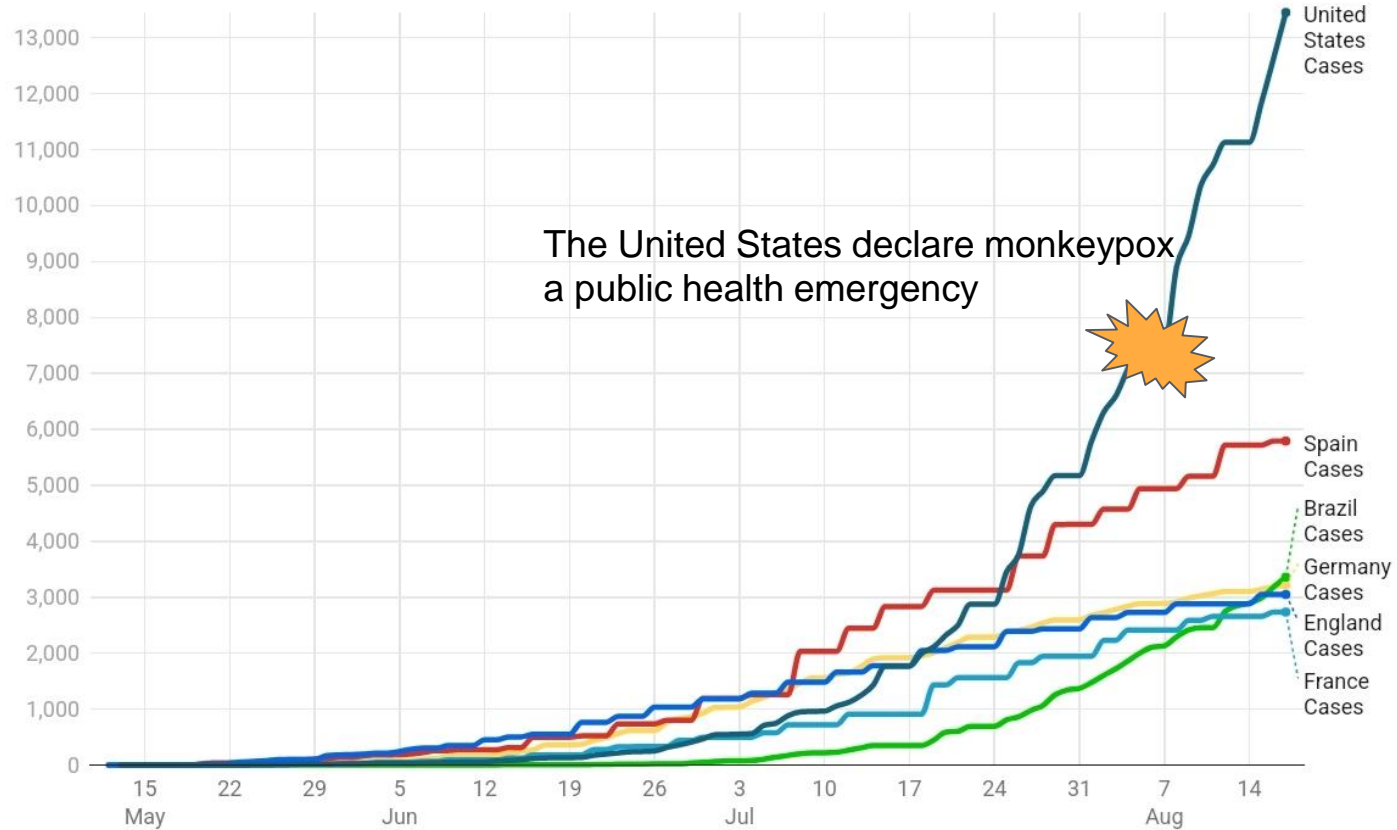
Monkeypox cases - Monkeypoxmeter.com



















Monkeypox Cases - Top 6 countries

Total Monkeypox cases count

Confirmed cases - Top 6 countries








	Country  for details	Total Cases	Deaths	Today	Cases/Million	Population	First case					
1	 United States of America	14,594			21  Ireland	113		44  Singapore	15	2.52	5,943,546	20, Jun
2	 Spain	5,792	2		22  Poland	104		45  Iceland	12	34.74	345,393	09, Jun
3	 Brazil	3,457	1	+206	23  Australia	90		46  India	10	1	1,406,631,776	14, Jul
4	 Germany	3,266		+24	24  Norway	76	+2	47  Slovakia	10	1.83	5,460,193	07, Jul
5	 United Kingdom	3,195			25  UK - Scotland	75		48  Estonia	9	6.81	1,321,910	28, Jun
6	 France	2,873			26  Argentina	72		49  Dominican Republic	6	0.54	11,056,370	06, Jul
7	 Canada	1,136			27  Puerto Rico	66		50  Gibraltar	6	178.19	33,671	01, Jun
8	 Netherlands	1,087			28  Hungary	62		51  Lebanon	6	0.90	6,684,849	20, Jun
9	 Peru	938	1		29  Greece	50		52  Saudi Arabia	6	0.17	35,844,909	14, Jul
10	 Portugal	770			30  Ghana	47	1	53  Uganda	6	0.12	48,432,863	
11	 Italy	690		+27	31  Luxembourg	45		54  Costa Rica	5	0.96	5,182,354	20, Jul
12	 Belgium	624			32  Slovenia	43		55  Lithuania	5	1.88	2,661,708	
13	 Switzerland	399			33  UK - Wales	43		56  Panama	5	1.12	4,446,964	05, Jul
14	 Mexico	252			34  Bermuda	38		57  South Africa	5	0.08	60,756,135	23, Jun
15	 Austria	217		+1	35  Czech Rep.	36		58  Thailand	5	0.07	70,078,203	21, Jul
16	 Israel	194			36  Romania	33		59  Turkey	5	0.06	85,561,976	30, Jun
17	 Chile	191			37  Malta	31		60  Andorra	4	51.64	77,463	02, Jul
18	 Denmark	163		+5	38  Serbia	31		61  Bulgaria	4	0.58	6,844,597	23, Jun
19	 Sweden	139			39  UK - Northern Ireland	27		62  Cyprus	4	3.27	1,223,387	02, Aug
20	 Colombia	129			40  Finland	22		63  Islamic Republic of Iran	4	0.05	86,022,837	
					41  Ecuador	21	1	64  Jamaica	4	1.34	2,985,094	06, Jul
					42  Croatia	17		65  Japan	4	0.03	125,584,838	25, Jul
					43  United Arab Emirates	16		66  Latvia	4	2.16	1,848,837	03, Jun
								67  New Zealand	4	0.82	4,898,203	09, Jul

68	 Benin	3	0.23	12,784,726	14, Jun
69	 Bosnia And Herzegovina	3	0.92	3,249,317	14, Jul
70	 Guatemala	3	0.16	18,584,039	
71	 Honduras	3	0.29	10,221,247	
72	 Monaco	3	0.75	4,013,171	
73	 Philippines	3	+1	112,508,994	
74	 Qatar	3	1.01	2,979,915	22, Jul
75	 Somalia	3	0.18	16,841,795	
76	 Sudan	3	0.07	45,992,020	
77	 Taiwan	3	0.13	23,888,595	24, Jun
78	 Uruguay	3	0.86	3,496,016	
79	 Georgia	2	0.50	3,968,738	15, Jun
80	 Greenland	2	35.10	56,973	
81	 Martinique	2	5.35	374,087	17, Jul
82	 Moldova	2	17.02	117,489	
83	 Barbados	1	3.47		
84	 Bermuda	1	15.78		
85	 Cayman Islands	1	14.87		
86	 Guadeloupe	1	2.50		
87	 Guadeloupe	1	0.09		
88	 Montenegro	1	0.30		
89	 Morocco	1	0.03		
90	 New Caledonia	1	3.43		
91	 Pakistan	1	0.00		
92	 Russia	1	0.01		
93	 Saint Martin	1	24.96		
94	 South Korea	1	0.02		
95	 Venezuela (Bolivarian Republic of)	1	0.03	29,266,991	12, Jun
96	Zambia	1	0.05	19,470,234	

Endemic countries Africa

Monkeypox cases and deaths from 01 January 2022

	Country	Confirmed	Suspected	▼ Total	Deaths
1	 Dem. Republic of the Congo	163	2,159	2,322	93
2	 Nigeria	157	413	570	4
3	 Republic of the Congo	3	58	61	3
4	 Cameroon	7	29	36	2
5	 Central African Republic	8	17	25	2

Study in Spain: 40% of Monkeypox Patients Suffer Complications Requiring Medical Treatment

almost half of the patients analyzed presented complications that required medical treatment, mainly to reduce the pain associated with proctitis (25 %), tonsillar ulceration (11%) and penile edema (8%).

- the researchers note that viral loads are “surprisingly” higher in swabs (the samples collected) from skin lesions compared to relatively low levels in pharyngeal swabs

wet cleaning

- disposable covers of the physical examination bed should be discarded carefully without shaking.
- The **examination bed** and any other room furniture that may have been contaminated with material from the rash should be carefully wiped, **first with detergent and water, followed by disinfectant with virucidal activity.**
 - No vacuuming or dry sweeping should be used; **wet cleaning** is recommended.
 - Single-use disposable cleaning equipment (e.g. disposable towels) is recommended.
 - If disposable cleaning equipment is unavailable, the cleaning material (cloths, sponges, etc.) should be placed in a disinfectant solution effective against viruses or 0.1% sodium hypochlorite.
- **Common areas** should be cleaned as per standard procedures using detergent products.
- **Toilets** should be cleaned and disinfected with particular care.

Can monkeypox virus survive on surfaces?

15 days or more

Porous materials, such as bedding and clothing, can harbor the virus for **longer periods** of time than non-porous surfaces, such as plastic, metal, and glass



1. **Toilets** and frequently touched surfaces should be cleaned and disinfected multiple times per day.
2. **Carpets, curtains**, and other soft furnishings can be **steam-cleaned**.
3. Utensils, plates, glasses, etc. should be washed in a dishwasher at a temperature of 60°C or higher.
4. Single-use disposable cleaning equipment (e.g. disposable towels) is recommended.
 - **Sodium chlorite**
 - **Hydrogen peroxide**
 - **Quaternary ammonium**
 - **Ethanol (Ethyl alcohol)**

Waste management : category A (UN3549)

Gauzes or other material **soaked** with lesion fluid or containing scabs from the MPX case should also be disposed of as infectious waste.

The United Nations' classification of waste classifies **clinical waste** from MPX patients as category A (UN3549) and does not distinguish between clades of the virus.



wastewater

Covid-19, monkeypox has been around the United States in the past and is a known quantity to researchers. It first infected a human in the 1970s.

The researchers have been collecting samples daily for the past 18 months as part of Stanford's Sewer Coronavirus Alert Network, or SCAN, the only group publishing data on monkeypox in the nation's wastewater.

They're also expanding their operations and launching monitoring for monkeypox in wastewater in a total of eight states, including Georgia, Michigan and Texas.

“The fact that we're detecting it in all these different locations suggests monkeypox is around, and we can't say how many people have monkeypox, but it's not confined to a small location in the Bay Area.”

Germany: two cases in young people from Stuttgart and Erfurt and a case from Pforzheim, for the first time, the case of a child.



Two monkeypox patients sharing a home said they disinfected surfaces, washed their hands several times a day and showered regularly.

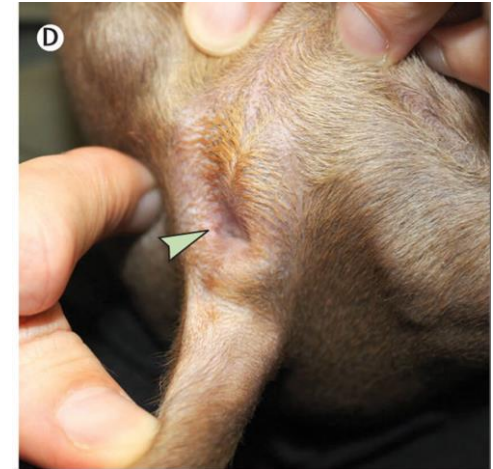
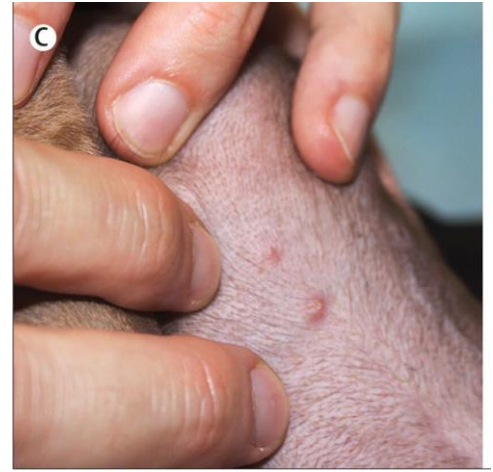
- Researchers still found the virus **on 70% of high-contact areas** 20 days after their symptoms began, including on couches, blankets, a coffee machine, computer mouse and light switch.
- no live virus was detected on any of the items or surfaces, suggesting the risk infections could spread is low

in order for infection via an object to occur, a number of things need to align: the virus needs to be **live, replicating**, infectious—and there needs to be enough of it transferred from the infected person to the surface, and then to your skin

Study documents first human to dog monkeypox transmission in France

Twelve days after the onset of monkeypox symptoms, their male Italian greyhound, aged 4 years and with no previous medical disorders, tested positive for the virus.

The men, who are non-exclusive partners living in the same household, presented with anal skin ulcer **6** days after sex with other partners.



Vaccine options are limited

there are at least three existing vaccines,

1. But one is not recommended for widespread use: **ACAM2000**
→ "**investigational**" protocol; in rare cases it may cause **dangerous** side effects such as swelling of the heart.
2. Another option, developed in Japan→had significant production issues
3. Bavarian Nordic Company: the Imvanex vaccine often referred to as JYNNEOS and approved by FDA for monkeypox and smallpox→ 40 million doses of JYNNEOS annually→ (two-dose regimen)→max 100 million people



What is the monkeypox vaccine? How does it work?

In a small study, published in 1988, researchers estimated the smallpox vaccine offered about 85% protection against monkeypox.

- Now, the virus in this study was a **different variant** wasn't **spreading** primarily through **sexual** contact.

How well does the vaccine protect against a monkeypox infection?

- We don't know
- Some protection is better than no protection

What are the risks of monkeypox during pregnancy?

Monkeypox virus **can be transmitted** to the fetus during pregnancy or to the newborn by close contact during and after birth.

- spontaneous pregnancy **loss** and stillbirth. Preterm delivery and neonatal monkeypox infection.

Monkeypox Vaccine is **contraindicated** during pregnancy or for breastfeeding patients due to risks of fetal or neonatal infection and pregnancy loss.

- **JYNNEOS** is the vaccine that **can be considered** for pregnant patients at high risk for infection with monkeypox

It is not known if treatment with **tecovirimat** during pregnancy prevents congenital monkeypox? !

Cidofovir and Brincidofovir: teratogenicity

Can I continue to breastfeed?

- not breastfeed until **all of their lesions** are healed, the scabs have fallen off, and a fresh layer of skin has formed.
- The safety and efficacy of **JYNNEOS** has **not been evaluated** in people who are breastfeeding or in young children?!?!
- **JYNNEOS can be** used for people who are pregnant or breastfeeding
- **ACAM2000** is **contraindicated** in people who are pregnant or breastfeeding

درمان ضد ویروسی

Tecovirimat تکوو یریمات

سیدوفوویر

Vaccinia Immune
Globulin Intravenous

داروهای ضد ویروسی برای درمان بیماران مبتلا به آبله میمونی صرفاً در بیماران با شرایط زیر در نظر

گرفته می شود:

۱. افراد مبتلا به بیماری شدید مانند بیماری هموراژیک، ضایعات همزمان، سپسیس، آنسفالیت یا سایر

شرایطی که نیاز به بستری شدن دارند.

۲. افرادی که در معرض خطر ابتلا به فرم شدید بیماری می باشند:

- افراد مبتلا به نقص ایمنی
- جمعیت کودکان، به ویژه بیماران کمتر از ۸ سال
- زنان باردار یا شیرده
- افراد با یک یا چند عارضه (مانند عفونت پوستی باکتریایی ثانویه)، عفونت؛ گاستروانتریت همراه با حالت تهوع/استفراغ شدید، اسهال یا کم آبی بدن؛ برونکوپنومونی)

I've had monkeypox in the past. Can I catch it again?

Our understanding of how long immunity lasts following monkeypox infection is currently **limited**

condom

condoms alone may not prevent all exposures to monkeypox since the rash can occur on other parts of the body

Can Monkeypox cases donate blood?

Must not donate

If the donor has **recovered** from confirmed or suspected Monkeypox (MPX) infection and

It is at least **28 days since the diagnosis** of MPX was made, and

It is at least **14 days since recovery and the donor remains** well, and

It is at least **14 days since all skin lesions have healed**, and

It is more than **seven days since completing any antiviral** or antibiotic therapy, and

The donor has been discharged from all follow up (including public health surveillance)

Can Contacts with Monkeypox cases donate blood?

Must not donate

- If it is more than 21 days since last contact and,
- the donor has no symptoms of monkeypox and
- the donor has completed any isolation period, and
- the donor has been discharged from all follow-up

