Risk Assessment Group

MONKEYPOX MULTI-COUNTRY OUTBREAK, 2022

Date of the signal	Date of the PRA	Signal provider	Experts consulted	Method
07/05/2022: first case UK (imported) **17/05/2022: cases in second country**	**17/05/2022**	UK/ECDC/ Portugal	Sabine Allard (UZ Brussel), Leïla Belkhir (UCL), Isabel Brosius (ITG), Bénédicte Delaere (CHU UCL Namur), Rémy Demeester (CHU Charleroi), Pierre-Louis Deudon (Collège de Médecine Générale), Achille Djiena (AVIQ), Veerle Doossche (Violett Antwerpen), Naïma Hammami (AZG), Oriane Lambricht (AVIQ), Amaryl Lecompte (Sciensano), Nicolas Ledent (COCOM), Agnes Libois (CHU-St Pierre), Kim Lothaire (AVIQ), Romain Mahieu (COCOM), Charlotte Martin (CHU-St Pierre), Quentin Mary (SSMG), Christelle Meuris (ULiège), Maud Mittler (Violett Antwerpen), Mark Sergeant (Sensoa), Lucie Seyler (UZ Brussel), Patrick Soentjens (ITG), Geert Top (AZG), Pierre Van Damme (UA), Bruno Van de Putte (AVIQ), Stefaan Van der Borght (FOD/SPF), Christophe Van Dijck (ITG), Marjan Van Esbroeck (ITG), Steven Van Gucht (Sciensano), Yves Van Laethem (CSS-HGR), Marc Van Ranst (UZ Leuven), Koen Vercauteren (ITG), Erika Vlieghe (UZ Antwerpen), Dirk Wildemeersch (AZG).	**E-mail** consultation 17/05/2022 **Meetings** 20/05/2022 24/05/2022 31/05/2022 08/06/2022 19/07/2022, 26/07/2022 & 29/07/2022
Date of update	**Closing date**			
20/05/2022 **24/05/2022** **31/05/2022** **08/06/2022** **29/07/2022**				

RAG persons of contact:
Tinne Lernout (Tinne.Lernout@sciensano.be)
Yves Lafort (Yves.Lafort@sciensano.be)
Valeska Laisnez (Valeska.Laisnez@sciensano.be)
rag@sciensano.be

Signal	Since 13 May 2022, cases of monkeypox have been reported in different countries worldwide, without travel link to endemic areas. Cases have mainly but not exclusively been identified amongst men who have sex with men (MSM).

UPDATE 29/07/2022

This advice was presented to the Risk Management Group on 29/07 and 01/08/2022. Some differences exist between the recommendations in this advice and the final decisions. Please see on the Sciensano website for the applicable guidelines.

Epidemiological situation

As of 25 July, a total of 393 confirmed cases have been identified in Belgium, of which 218 (55%) persons were living in Flanders, 133 (34%) in Brussels and 42 (11%) in Wallonia. All cases are adult men, aged between 20 and 71 years. For those with information available, the large majority of cases were infected through sexual contact (92%). Twenty one persons (6%) were hospitalised, of which 15 for treatment and 2 for isolation (unknown for 4 persons). Nine persons are health care workers, but exposure occurred in the private setting and not occupational. One case was reported as being a sex worker, but the question is not systematically asked and under reporting can be expected. Feedback from the field indicates that sex workers don't always seek care in case of a suspicion of monkeypox because of the potential income loss during 3 weeks of isolation.

In the WHO European Region[1], a total of 10,604 cases of monkeypox have been identified up to 19 July 2022, from 36 countries. The earliest date of symptom onset was reported as 03 April 2022. The majority of cases were between 31 and 40 years-old (42%) and male (99.5%). The majority of cases presented with a rash (94.5%) and systemic symptoms such as fever, fatigue, muscle pain, vomiting, diarrhoea, chills, sore throat or headache (65%). 256 cases were hospitalised (8.1%), of which 114 cases required clinical care. One case was admitted to ICU. No cases were reported to have died. Some (31) cases were reported to be health workers, however no occupational exposure has been reported.

Elements of discussion

- Both in Belgium as worldwide, the number of cases is increasing, but there is no exponential growth. The cases are still in majority adult men, infected through sexual relationships. Further spread of the outbreak can be expected, with a very high risk for persons having multiple sexual partners, including some MSM groups, since transmission seems to be very efficient through sexual contact. Spill over to the general population is possible, but the risk for this and even more for further ongoing transmission is estimated to be very low (based also on observations in endemic countries, where outbreaks die out after a few generations).
- The current approach for outbreak control is focussing on contact tracing and post-exposure vaccination (PEV) for all very-high-risk contacts (VHRC) within 4 days of the contact, to

[1] https://monkeypoxreport.ecdc.europa.eu/

prevent infection. In addition, very-high-risk contacts and high-risk contacts (HRC, including unprotected HCW) at risk of severe disease are offered vaccination up to 14 days after the contact, to prevent more severe presentations of the infection. In practice however, this approach is failing to control the outbreak, because 1°) the identification of risk contacts (especially the sexual partners, who are often anonymous) is difficult, with a low number of VHRC and HRC identified; 2°) in practice, the window of 4 days after exposure for the VHRC is too short, because of the time needed for diagnosis/testing, contact identification and visit of the contact person to a vaccination centre.

- In line with the position of ECDC, the RAG experts agree that the most efficient strategy to control the outbreak is pre-exposure or preventive vaccination (PrEV) of core transmitters and people at high risk of exposure (some MSM and transgender, male and trans sex workers, ...). In addition, people at risk of severe disease should still be offered PEP to limit severity.
- Mid-July, about 3,000 doses of Jynneos® vaccine have been distributed among 9 reference centres for HIV and STIs in Belgium. However, because of the limitations mentioned above, and the low number of VHRC and HRC at risk of severe disease (for which the window for vaccination is longer), the number of doses administered so far remains very low (n=87 over a period of 2 weeks, including only a few people that received 2 doses). While pending the delivery of more doses of vaccine in late autumn (allowing more extended PrEV), the available doses should be used in the most efficient way, with prioritization of preventive vaccination of individuals 1) at risk of severe disease; 2) being core transmitters (potentially infecting a lot of people) and 3) at substantially higher risk of exposure. The following target groups could be considered (with selection of 1 or 2 from the list depending on the expected number of people to vaccinated and the available vaccines):
    - Severely immunocompromised people with a high risk of exposure.
    - Male and transgender sex workers, who are potentially core transmitters and are exposed through their occupation (and not personal risk behaviour). They are concentrated in big cities. This target group would be easy to reach for a first vaccine, but the booster doses could be more difficult to follow-up, because they travel a lot within different cities in the country and other European countries.
    - GBMSM with multiple sexual partners and/or who participate to risk events or go to sex-on-premises venues (gay sauna, backrooms etc), who are therefore at high risk of exposure. To identify these individuals, the focus should not only be on HIV PrEP users, as some non-PrEP users and HIV positive persons also have multiple partners. This target group is also easy to reach for most of them, as they are followed up at HIV Reference Centres. Several possible criteria were discussed to identify those at higher risk, such as participation to a very high risk event the last 3 months, having unprotected sex with multiple partners, having chemsex, etc. However an objective criterion is needed (see further), which could be the diagnosis of at least 2 STIs (different episodes) during the past year (based on available laboratory results at the HRC).
    - GBMSM who plan to participate to sex cruises or mass international gay gatherings the coming months (to be objectified with a proof of travel plan ?) could be a specific subgroup to target, because of the very high risk of exposure and as potential core transmitters. The number of people to target here is however difficult to estimate,

and the individuals in this category will most certainly also be covered within the group above.

- Health care workers in HIV Reference Centres and laboratory staff handling samples of cases are theoretically also at higher risk of exposure to the virus. However, appropriate protection is possible through routinely recommended PPE (especially since they can expect being exposed). Also, so far, no occupational exposure in health care workers has been reported in Belgium, nor in the European Region. The number of people in this target group is estimated at ~ 100 persons in laboratories (10 persons per lab, currently ~10 labs performing PCR) and ~ 500 staff in HIV reference centres (~ 25 per centre). Of note is that not all the eligible staff will be accepting the vaccine. For other health care workers potentially being exposed to a possible MPX case (GPs, dermatologists, staff at an emergency ward), the risk is estimated to be very low and therefore vaccination is not recommended.
- ECDC also recommends to vaccinate staff members who work in sex-on- premises venues, if they are regularly exposed to items or surfaces likely to be contaminated with body fluids or skin cells. However, they are not retained as a priority group in this stage and they should take other preventive measures like adequate cleaning practices and wearing of PPE.

Other target groups might be considered for preventive vaccination in a later stage, once more vaccines will be available (Autumn). If the focus lies on HIV+ and PrEP users, we might miss possible core transmitters groups, but they will also be the most difficult to identify and vaccinate unless there is a real commitment to prevention and outreaching in the communities, e.g. dark rooms…

- Within the MSM community (and beyond), there is already an important demand for vaccination. Because of the limited availability, using objective criteria to identify the persons that are eligible for vaccination is recommended. Although prioritizing vaccination of people who choose to engage in more at-risk activities/behaviour (and thus delaying vaccination for those who take less risks), is rational from mitigation point of view, it might be source of ethical debate. It is important to take this into account in the communication on choices made, and highlight that by attempting to vaccinate core transmitters, we serve a public health goal of striving for the biggest possible impact on transmission, with thus also indirect risk-reduction for non-vaccinated persons.
- The vaccination schedule for Jynneos® consists of 2 doses administered with an interval of 28 days. Several countries adopt a single dose strategy for PEV or delay the administration of the second dose with several months (while pending deliveries in Autumn). The NITAG/SHC has been requested to give an advice on the delay of the second dose for PEV (advice expected mid-August), and will also be requested to give an advice on delay for PrEV. However scientific evidence on this is currently scarce.
- Research at the Institute of Tropical Medicine identified three asymptomatic cases with a positive anorectal monkeypox PCR, out of 224 persons with gonorrhoea/chlamydia screening done in May 2022[2]. Although a positive PCR doesn't equal transmissibility, transmission of the virus to close contacts in the absence of symptoms (pre-symptomatic or asymptomatic infections) cannot be excluded. As a precautionary measure, and in absence

[2] https://www.medrxiv.org/content/10.1101/2022.07.04.22277226v1

of scientific evidence on the time period that should be considered for pre-symptomatic transmission, a period of 2 days before onset of symptoms (or a positive PCR test) is proposed to consider contagiousness and start contact tracing.

- In July, cases of MPX were also identified among screened persons for STI, for which the diagnosis was missed due to atypical symptoms such as only proctitis or only 1 skin/anogenital lesion, or delayed because of confusion of the lesions with other skin/anogenital lesions, such as herpes. More awareness should therefore be raised among risk populations and physicians (GPs, dermatologists, urologists, emergency ward physicians…).
- Fast case identification is key in controlling the outbreak, to allow isolation of the case and initiate contact tracing. Preliminary modelling results from the Institute of Tropical Medicine and the UHasselt also indicates that identification of cases is key to reduce the number of people affected and the duration of the outbreak. This warrants sufficient test capacity, including during weekends. Development of rapid diagnostic tests would also be useful. Currently, about 10 laboratories are performing PCR tests. However, there is no mechanism yet on financing of the tests.
- In response to a previous recommendation of the RAG, a multilateral agreement was signed in July between the Belgian competent authorities stating that infectious substances containing monkeypox virus (except for cultures) may be carried under UN3373 or UN3291, as appropriate, instead of UN2814, see also here.
- Contact tracing is putting a high workload on the regional health authorities, with little success (difficult to obtain cooperation, risk contacts are often anonymous, late notifications etc).
- There is also a very high burden on additional tasks in all HIV Reference Centres. Human and material resources (PPE) as well as separate capacities are committed to this at the expense of the routine Reference Centres activities.
- Feedback from centres taking care of possible MPX cases indicates that there is not yet enough information available on the disease and the risk in the MSM community. Some smaller awareness campaigns have been set up, but at local level. It is unfortunate that, in absence of a national coordination, work is duplicated. HIV Reference Centres also receive a lot of calls from GPs. A reminder could be sent to them with the link on where to find the information.

Recommendations

1) Risk Assessment

The risk evaluation for human to human transmission remains unchanged: there is a very high risk of transmission in people having multiple sex partners, including some MSM groups, and a very low risk for the broader general population.

2) Testing

- In the context of the increasing number of cases, sampling of possible cases should not be restricted anymore to HIV reference centers or (tertiary) hospitals with an Infectious Disease service. It remains useful to provide a list of hospitals where sampling/testing can be done.

This list can be regularly updated on the website of Sciensano, based on information provided by the regional health authorities and on request of hospitals themselves.

- Sampling should also be extended to GPs, and tools for training on MPX clinical presentation and sampling should be prepared.
- Since timely identification of cases is key for allowing PEV, upscaling testing capacity (e.g. during the weekend) should be considered. The availability of rapid diagnostic testing would be an asset.
- All staff involved in the clinical examination of possible cases, sampling and handling of samples, should use appropriate PPE (FFP2, gloves, gown, eye protection/shield).
- With increased number of tests and increasing number of laboratories performing PCR, a mechanism for financing should be put in place, for all services and instances involved in the monkeypox outbreak.

3) Measures for (asymptomatic) cases

- While pending more scientific evidence on potential transmission through pre-symptomatic and asymptomatic persons, by precautionary measure:
    - the time period considered for contact tracing around an index patient is extended to 2 days before the start of the symptoms;
    - the same measures apply to persons with a positive PCR test (on any sample) but no symptoms, i.e isolation for a period of 21 days, starting from the day of the sampling/testing, and initiation of contact tracing starting (considering from 2 days before the positive sample/test).

4) Contact tracing

- Although contact tracing represent an important workload for the regional health authorities as well as for the services involved in the identification of cases, it remains an important component of the outbreak control.

5) Vaccination

- Although increasing the interval for the second dose if vaccine, both for PEV as for PrEV until Autumn (which would allow vaccination of twice as much persons), in absence of a NITAG advice, the current recommendations are based on a 2-dose schedule with 28 days interval, and thus available doses for 1,600 persons.
- The priority is to reserve vaccines for post-exposure vaccination of the very-high-risk contacts within 4 days (or potentially longer, depending on the advice of the NITAG) after exposure, as well as for the VHTC and HRC at risk of severe disease. A stock of at least 500 doses should be kept for this purpose
- In addition, vaccination should be offered as PrEV to persons at high risk of infection (identified through the HIV Reference Centres and health centres for sex workers), with a risk factor for severe disease (severely immunocompromised). The number of persons in this category is estimated to be very low (max 30).
- While pending more doses in Autumn, preventive vaccination should target:
    1) male and transgender sex workers;
    2) GBMSM at high risk of exposure, identified through HIV Reference Centres: PrEP users and HIV-positive persons with at least 2 different STIs episodes during the past year.

Vaccination of both groups can start in parallel, since it will take time to reach them and compliance will not be 100%.

- Access to vaccination should be extended to at least all the 12 HIV Reference Centres, and possibly set up through outreach campaigns for MSM sex workers (if operationally possible).
- Registration of the vaccines administered in the existing tools should be made mandatory and a centralised national database would be recommended (to allow follow-up and research).

6) Communication

- Efforts to increase awareness among groups at risk should be enhanced (ongoing) and a national coordination of the communication is needed, to avoid duplication of work at local/regional level.
- Communication to risk populations should emphasize on 1) the importance of identification of risk contacts as an outbreak control measure, and 2) the importance of adherence of contacts to minimal measures such as sexual abstinence, even for vaccinated persons, since vaccination (whether pre- or post-exposure) does not provide 100% protection.
- To answer all the questions of patients, an information contact (green phone line) should be set up. For health professionals, a reminder could be sent to them with the link on where to find the information, and a link to the Monkeypox webpage of Sciensano should be made available on their homepage.

Background information

1. International recommendations with regards to monkeypox vaccination, as of 26 July

Agency	Post-exposure	Pre-exposure	Date	Reference
WHO	For contacts of cases, post-exposure prophylaxis is recommended with an appropriate second- or third-generation vaccine	Pre-exposure prophylaxis is recommended for: • health workers at risk • laboratory personnel working with OPXV • clinical laboratory staff performing diagnostic testing • others who may be at risk as per national policy	June 14	Vaccines and immunization for monkeypox: Interim guidance, 14 June 2022 (who.int)
ECDC	Effective for outbreak control in settings with effective contact tracing and high vaccine uptake levels The priority target groups are: • close contacts of cases (e.g. sexual partners, household contacts, HCWs and individuals with other prolonged physical or high-risk contact) • among these, contacts with a high risk of developing severe disease like children, pregnant women and immunocompromised individuals, should be prioritized	Most efficient vaccination strategy to control the outbreak, in particular when there is less effective contact tracing Prioritization of individuals at substantially higher risk of exposure can be considered: • MSM based on a risk assessment according to certain criteria and behaviors • staff members who work in sex on premises venues, if they are regularly exposed to items or surfaces likely to be contaminated with body fluids or skin cells • professionals in healthcare or laboratory settings and outbreak response team members, based on risk assessment	July 8	Monkeypox multi-country outbreak - first update (europa.eu)
CDC	'It is important that states and other jurisdictions identify contacts of confirmed or probable monkeypox cases to offer vaccine for PEP' Expanded PEP is also possible: includes people with certain risk factors of having been recently exposed, even if they have not had documented exposure	'people whose jobs may expose them to orthopoxviruses, such as monkeypox, get vaccinated with either ACAM2000 or JYNNEOS to protect them if they are exposed to an orthopoxvirus': • Clinical laboratory personnel who perform testing • Research laboratory workers who directly handle cultures or animals contaminated or infected	June 30 (PEV)/ June 2 (PrEV)	Considerations for Monkeypox Vaccination | Monkeypox | Poxvirus | CDC Monkeypox and Smallpox Vaccine Guidance | Monkeypox | Poxvirus | CDC

		• Certain healthcare and public health response team members designated by public health authorities to be vaccinated for preparedness purpose		

Guidelines in a number of selected countries

Country	Post-exposure	Pre-exposure	Date	Reference
Netherlands	All high- and intermediate-risk contacts (as per definition of contacts)	MSM and transgender people receiving HIV-PrEP, on ART, or known to be at high risk for STI (for example sex workers) (estimated at +/- 32.000 people)	July 8	Risico-inschatting contacten en maatregelen | LCI richtlijnen (rivm.nl) adviesbrief-mpx-prep-vaccinatie-6-juli-2022.pdf
France	All adult contacts at risk of having been exposed (as per definition of contacts)	Only if sufficient vaccine supply; Otherwise PEP of contacts has priority Populations at very high risk of exposure, in particular: • MSM and transgender people reporting multiple sexual partners (about 250.000 people); • people in prostitution; • professionals working in in sexually oriented venues People with a very high risk of occupational exposure to Monkeypox (only on individual basis if the risk is very high)	May 20 (PEV)/ July 7 (PrEV)	Haute Autorité de Santé - Avis n°2022.0034/SESPEV du 20 mai 2022 du collège de la Haute Autorité de santé relatif à la vaccination contre Monkeypox (has-sante.fr) Haute Autorité de Santé - Monkeypox : une vaccination préventive proposée aux personnes les plus à risque d'exposition (has-sante.fr)
Germany	• After close physical contact via non-intact skin or mucous membranes or with prolonged unprotected face-to-face contact <1m • After contact without adequate personal protective equipment • For personnel in laboratories with accidental unprotected contact with laboratory samples containing non-inactivated monkeypox material	Only if sufficient vaccine supply; Otherwise PEP of contacts has priority • MSM with changing partners; • Personnel in special laboratories with targeted activities with infectious laboratory samples containing orthopox material, after individual risk assessment by safety officers	June 9	RKI - Recommendations of the STIKO - Press release of the STIKO on the monkeypox vaccination recommendation

Country	Post-exposure	Pre-exposure	Date	Reference
United Kingdom	• All high and medium-risk contacts When supplies are limited, priority for: • health staff • contacts at higher risk of severe disease • contacts at high risk of ongoing exposure, for example GBMSM with multiple sexual partners	MSM at highest risk due to a large number of contacts (believed to be around 40,000) HCWs: • staff expected to provide care to monkeypox cases in high consequence infectious disease (HCID) units • staff in sexual health clinics designated to assess suspected cases • staff in additional hospitals outside HCID units designated to care for monkeypox patients • workers in laboratories where pox viruses are handled, and others who work in specialist and reference laboratories • staff regularly undertaking environmental decontamination around cases of monkeypox Only first dose, second dose when more vaccines have arrived	June 21	Monkeypox outbreak: vaccination strategy - GOV.UK (www.gov.uk) Recommendations for the use of pre and post exposure vaccination during a monkeypox incident (publishing.service.gov.uk)
Spain	High-risk contacts (as per definition of contacts)	Currently not recommended because of limited quantity	June 9	Propuesta_vacunacion_Monkeypox.pdf (sanidad.gob.es)
Denmark	Contacts with a moderate or high risk of infection after a concrete and individual health professional assessment by a specialist in infectious medicine	Not recommended yet	July 12	Guidelines for the management of monkeypox in Denmark - Danish Health Authority (sst.dk)

2. Measures for contacts (excluding low-risk contacts), as of 19 July

Agency/country	Type of contact	Definition	Measures	Post-exposure prophylactic vaccination
Belgium	High risk	• Household contacts • Sharing of clothing, bedding, kitchen utensils, etc. while having lesions • Unprofessional caregivers, while having lesions • Professional caregivers who were in close contact without PPE • Professional caregivers exposed to contagious materials (sharp injury, body fluids, aerosols) • Lab staff exposed to contagious specimen • Close and prolonged (>=3h) fellow passengers in bus, train or plane	• Self-monitoring for symptoms for a period of 21 days • Avoid close contact for 21 days, especially with young children, pregnant women and immuno-compromised persons • Avoid sexual contacts • Avoid contact with animals • Excluded from donations of blood, organs or bone marrow for at least 21 days	As long as availability is very limited: • HCW after a high-risk contact, with a risk of severe disease; • Very-high-risk contacts that are immunocompromised. Once availability improves (>=1250 doses): • all very-high-risk contacts • all high-risk contacts at risk of severe disease
	Very high risk	• Sexual partner • Prolonged skin-to-skin contact while having lesions	The above, plus: • Wearing of surgical mask when in contact with others • No contact with persons at risk (quarantine)	
WHO	High risk	Direct exposure of skin or mucous membranes to skin or respiratory secretions of a person with confirmed, probable or suspected MPX, their body fluids or potentially infectious material if not wearing appropriate PPE: • inhalation of droplets or dust from cleaning contaminated rooms • mucosal exposure due to splashes from body fluids	• Self-monitoring for symptoms for a period of 21 days • Twice daily measurement of temperature • Excluded from donations of blood, cells, tissue, organs, breast milk, or semen • Avoid physical contact with children, pregnant women, immunocompromised individuals and animals, including pets	Recommended for all high and medium-risk contacts

Agency/country	Type of contact	Definition	Measures	Post-exposure prophylactic vaccination
		• physical contact with a case, including direct contact during sexual activities • sharing a residence during the presumed incubation period • penetrating sharps injury from a contaminated device or through contaminated gloves	• Non-essential travel is discouraged • Possibly, exclude pre-school children from day care, nursery or other group settings • When developing signs or symptoms other than rash isolate for the next five days	
	Medium risk	• no direct contact but close proximity in the same room or indoor physical space as a symptomatic MPX patient, if not wearing appropriate PPE 'In the period beginning with the onset of the source case's first symptoms and ending when all scabs have fallen off'		
ECDC	No differentiation	• Sexual partner • Living in same household • Sharing clothing, bedding, utensils etc, while having a rash • Sharing the same closed workspace/office for long periods of time • Caregivers of MPX case, while symptomatic • Professional caregivers who were in close contact without PPE • Professional caregivers exposed to contagious materials (sharp injury, body fluids, aerosols) • Lab staff exposed to contagious specimen • Other prolonged physical or high-risk contact (on a case by	• Self-monitor for fever and MPX symptoms daily for 21 days • Avoid close physical contact, especially with young children, pregnant women and immunocompromised persons • Abstain from sex for 21 days • Avoid close direct contact with animals for 21 days • Careful hand hygiene and respiratory etiquette	The priority target groups are: • close contacts of cases (e.g. sexual partners, household contacts, HCWs and individuals with other prolonged physical or high-risk contact) • among these, contacts with a high risk of developing severe disease like children, pregnant women and immunocompromised individuals, should be prioritized

Agency/country	Type of contact	Definition	Measures	Post-exposure prophylactic vaccination
		case basis), e.g. sitting adjacent to a confirmed case during prolonged travel, sharing utensils or other equipment, or sharps injury linked to an MPX case 'The infectious period should be considered as beginning with the appearance of prodromal symptoms and ending when the lesion scabs have fallen off and new skin has formed. If no prodromal symptoms are reported, as is frequently the case in this outbreak, one day before the onset of the rash may be used as the onset of the infectious period of MPX'		
CDC	Intermediate risk	• Being within 6 feet for 3 hours or more of an unmasked patient without wearing, at a minimum, a surgical mask • Activities resulting in contact between sleeves and other parts of an individual's clothing and the patient's skin lesions or bodily fluids, or their soiled linens or dressings while wearing gloves but not wearing a gown • Exposure that, at the discretion of public health authorities, was recategorized to this risk level because of unique circumstances	• Monitoring for symptoms for a period of 21 days – temperature measurement twice daily • Excluded from donations of blood, cells, tissue, breast milk, semen, or organs	Recommended for all contacts: 'It is important that states and other jurisdictions identify contacts of confirmed or probable monkeypox cases to offer vaccine for PEP' Expanded PEP is also possible: includes people with certain risk factors of having been recently exposed, even if they have not had documented exposure
	High risk	• Unprotected contact between a person's skin or mucous		

Agency/country	Type of contact	Definition	Measures	Post-exposure prophylactic vaccination
		membranes and the skin, lesions, or bodily fluids from a patient, or contaminated materials • Being inside the patient's room or within 6 feet of a patient during any procedures that may create aerosols from oral secretions, skin lesions, or resuspension of dried exudates, without wearing an N95 or equivalent respirator and eye protection • Exposure that, at the discretion of public health authorities, was recategorized to this risk level Start period not specified, but from the contact definition it is understood that it is mainly from onset of symptoms in the index		
Netherlands	Moderate risk	• Prolonged unprotected skin-to-skin contact with intact skin of exposed person with only hands/arms • Infected material in contact with intact skin of exposed person • Without MNM and splash goggles been in area with high risk of airborne virus spread • Prolonged intensive face-to-face contact (<1.5 meters > 2 hours cumulative) with index with systemic symptoms or cough, without MNM in work, social or private setting	• Refrain from intimate or intense skin-to-skin contact, including sexual contact • Avoid contact with domestic and mammalian animals. • Apply good hand, cough and sneeze hygiene • Do not donate blood. • Monitor symptoms and temperature daily	All Intermediate-risk contacts

Agency/country	Type of contact	Definition	Measures	Post-exposure prophylactic vaccination
		• Fellow traveler with travel time > 8 hours, <1.5 meters around index (1-2 chairs)		
	High risk	• Sexual contact or other intense skin-to-skin contact • Mucous membrane contact • Direct contact of lesions on damaged skin Start period not specified • Contaminated materials in contact with mucous membranes or damaged skin Start period not specified	<u>Community contacts</u> • Refrain from intimate or intense skin-to-skin contact, including sexual contact • Keep >1.5 meters distance from household members, and wear mask if not possible • Do not travel abroad • Do not use long-distance transport (plane, international train) • Avoid contact with pets and mammals • Apply good hand, cough and sneeze hygiene. • Do not donate blood. • Monitor symptoms and temperature daily <u>HCW</u> As for non-HCW, plus: • Check health before starting to work • Avoid contact with vulnerable patients	All high-risk contacts
France	No differentiation	• Unprotected direct physical contact with the injured skin or biological fluids of a probable or confirmed symptomatic case, including contact with shared objects • Unprotected contact within 2 meters for 3 hours (accumulated over 24 hours) with a probable or confirmed symptomatic case	• Self-monitoring for symptoms and temperature twice daily for a period of 21 days • Communication with ARS twice a week	All -risk contacts

Agency/country	Type of contact	Definition	Measures	Post-exposure prophylactic vaccination
		'from the date of onset of symptoms in the index case'		
Germany	Intermediate risk	• Household contacts not classifying as high-risk • Contact of intact skin only with a symptomatic case, its body fluids or potentially infectious material/contaminated fomites • No direct contact, but stayed within 1 meter of a case	• Active surveillance, daily until 21 days after last contact. • Avoid contact with immunocompromised persons, pregnant women, and children under 12, if possible • Not go to work for 21 days if work involves contact with people at risk	• After close physical contact via non-intact skin or mucous membranes or with prolonged unprotected face-to-face contact <1m • After contact without adequate personal protective equipment • For personnel in laboratories with accidental unprotected contact with laboratory samples containing non-inactivated monkeypox material
	High risk	Direct exposure of non-intact skin or mucous membranes to a symptomatic confirmed case, its body fluids or potentially infectious material. This includes: • inhalation of respiratory droplets or dust during cleaning of contaminated rooms • contact during sexual acts • mucosal splash contact • needle prick or similar injury from contaminated materials • roommates of who have spent at least one night in the same home during the patient's infectious phase Start period not specified, but from the contact definition it is understood that it is from onset of symptoms in the index	• Quarantine at home until 21 days after last contact • Daily contact with public health department • Avoid contact with immunocompromised persons, pregnant women, and children under 12 years of age	
UK	Medium risk	• Intact skin-only contact with a symptomatic case, their body fluids or potentially infectious material or contaminated fomite • Passengers seated directly next to case on plane	• Passive monitoring • Provide information and number to contact • Avoid contact with immunosuppressed people, pregnant women and children where possible	• All high and medium-risk contacts When supplies are limited, priority for: • health staff • contacts at higher risk of severe disease

Agency/country	Type of contact	Definition	Measures	Post-exposure prophylactic vaccination
		• No direct contact but within one meter of symptomatic case without wearing appropriate PPE	• International travel is not advisable	• contacts at high risk of ongoing exposure, for example GBMSM with multiple sexual partners
	High risk	• Direct exposure of broken skin or mucous membranes to a confirmed, symptomatic case, their body fluids or potentially infectious material without wearing appropriate PPE • Penetrating sharps injury 'The infectious period is taken to be from the onset of prodromal symptoms until the complete resolution of symptoms.'	• Passive monitoring • Provide information and contact number • Self-isolation for 21 days, including exclusion from work • Avoid contact with immunosuppressed people, pregnant women, and children (school year 6 and under) where possible	

Sources:

WHO

Clinical management and infection prevention and control for monkeypox: Interim rapid response guidance, 10 June 2022 (who.int)

Surveillance, case investigation and contact tracing for Monkeypox: Interim guidance (who.int)

Vaccines and immunization for monkeypox: Interim guidance, 14 June 2022 (who.int)

ECDC

Monkeypox multi-country outbreak (europa.eu)

Considerations for contact tracing during the monkeypox outbreak in Europe, 2022 (europa.eu)

CDC

Information For Healthcare Professionals | Monkeypox | Poxvirus | CDC

UK

Principles for monkeypox control in the UK: 4 nations consensus statement - GOV.UK (www.gov.uk)

Monkeypox contact tracing guidance: classification of contacts and advice for vaccination and follow up (publishing.service.gov.uk)

Recommendations for the use of pre and post exposure vaccination during a monkeypox incident 6 June 2022 (publishing.service.gov.uk)

Monkeypox: case definitions - GOV.UK (www.gov.uk)

Netherlands

Monkeypox (apenpokken) | RIVM

Monkeypox (apenpokken) | LCI richtlijnen (rivm.nl)

Risico-inschatting contacten en maatregelen | LCI richtlijnen (rivm.nl)
France
Monkeypox | Santé publique France (santepubliquefrance.fr)
Haute Autorité de Santé - Monkeypox : vacciner les adultes et professionnels de santé après une exposition à la maladie (has-sante.fr)
Germany
RKI - Infectious diseases A-Z - Monkeypox