Interim guidance from the working group of the European Union Joint Action HEALTHY GATEWAYS for:

CRUISE SHIP OPERATORS FOR PREPAREDNESS AND RESPONSE TO THE MULTI-COUNTRY OUTBREAK OF MONKEYPOX

VERSION 1

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Introduction

This interim advice was prepared by a working group established from experts of the European Union (EU) Joint Action HEALTHY GATEWAYS (Grant Agreement Nr. 801493) consortium. Names and affiliations of the working group members who prepared this advice are listed at the end of the document.

The working group produced the following advice considering current evidence, temporary recommendations, interim guidance and advice issued by the World Health Organization (WHO) (https://www.who.int/emergencies/situations/monkeypox-oubreak-2022) [1-7], technical reports and guidance from the European Centre for Disease Prevention and Control (ECDC) (https://www.ecdc.europa.eu/en/monkeypox) [8-14], as well as interim advice and tools issued jointly by ECDC and the WHO Regional Office for Europe (WHO Europe) [15-18] (as of 8 September 2022).

Furthermore, this advice has been prepared considering the available evidence about monkeypox virus (MPXV) human-to-human transmission via: close contact with infectious skin/mucocutaneous lesions; respiratory droplets; fomites (contact with contaminated surfaces or materials such as linens, clothing, eating utensils, etc.); sexual contact; placenta from mother to fetus or close contact during/after birth. Animal-to-human transmission can also occur via direct contact with infected animals or by consuming meat/other products of an infected animal. During the current multi-country outbreak, transmission has been reported via close contact, including during sexual activity. Most cases are reported among men who have sex with men (MSM). However, the current outbreak is not only experienced within specific population groups, any individual can be at risk for monkeypox infection if they come into close contact with an infected person or contaminated objects.

On 23 July 2022, the WHO declared the multi-country monkeypox outbreak a Public Health Emergency of International Concern (PHEIC) and published temporary recommendations for four different groups of countries.

1. **Group 2 countries:** Specific measures for international travel to be applied among countries with recently imported cases and/or countries with human-to-human transmission (also among certain population or at-risk groups) include [1]:

   " - Any individual:
   - *With signs and symptoms compatible with monkeypox virus infection; or being considered a suspect, probable, or confirmed case of monkeypox by jurisdictional health authorities; or*
   - *Who has been identified as a contact of a monkeypox case and, therefore, is subject to health monitoring,*

   should avoid undertaking any travel, including international, until they are determined as no longer constituting a public health risk. Exemptions include any individual who need to undertake travel to seek urgent medical care or flee from life-threatening situations, such as conflict or natural disasters; and contacts for whom pre-departure arrangements to ensure the continuity of health monitoring are agreed upon by sub-national health authorities concerned, or, in the case of international travel, by national health authorities;
   - *Cross-border workers, who are identified as contacts of a monkeypox case, and, hence, under health monitoring, can continue their routine daily activities provided that health monitoring is duly coordinated by the jurisdictional health authorities from both/all sides of the border.*

- *Establish operational channels between health authorities, transportation authorities, and conveyances and points of entry operators to:*
  - *Facilitate international contact tracing in relation to individuals who have developed signs and symptoms compatible with monkeypox virus infection during travel or upon return;*
  - *Provide communication materials at points of entry on signs and symptoms consistent with monkeypox; infection prevention and control; and on how to seek medical care at the place of destination"*

Further general and targeted measures regarding international travel are discouraged by WHO in the temporary recommendations.

Other temporary recommendations issued by WHO for Group 2 countries include [1]: i) implementing a coordinated response to stop human-to-human transmission focusing on at-risk groups and protecting vulnerable groups; ii) engaging and protecting communities via awareness raising, collaborating with organizers of gatherings and representatives of affected groups, and targeted risk communication; iii) surveillance and public health measures including enhancing surveillance, reporting to WHO, strengthening laboratory and genomic sequencing capacities, isolating cases during the infectious period and advising on mitigation of onward transmission; follow-up of contacts for 21 days via health monitoring, targeted use of vaccines for post-exposure prophylaxis among contacts and pre-exposure prophylaxis among individuals at-risk of exposure; iv) clinical management and infection prevention and control; v) medical countermeasures research.

2. **Group 1 countries:** Among groups of countries without a history of human MPX or without a case detected for more than 21 days, temporary recommendations to be applied include [1]: i) activating/establishing health and multi-sectoral cooperation; ii) measures to prevent discrimination/stigmatization of specific persons or groups; iii) establishing/enhancing surveillance; iv) enhancing capacity for detection via raising awareness and training of those associated with healthcare; v) raising awareness regarding transmission, personal protective measures, preventive measures, monkeypox signs and symptoms; vi) engaging key groups to promote evidence-based information; vii) targeted risk communication for specific settings; viii) immediate reporting to WHO of probable/confirmed cases; ix) application of actions for preparedness if a suspected, probable, or confirmed case is detected.

3. **Group 3 and Group 4 countries:** Additional temporary recommendations were issued related to countries with known or suspected zoonotic transmission of MPX (**Group 3**) and countries with capacities for manufacturing medical countermeasures (**Group 4**).

Cruise ships can be characterized as semi-closed environments and settings for the gathering of international travellers from different countries, where high levels of interaction may occur over extended periods (e.g., 7 days). Cruise travel offers passengers diverse experiences on board, with travellers commonly participating in social activities during a voyage. Certain social settings and activities may facilitate close contact between travellers, and in some cases high-risk activities. Settings such a nightclubs, bars, indoor and outdoor parties where increased alcohol consumption may take place could increase risky activities. These characteristics may facilitate the transmission of MPXV on board if

measures are not in place, as well as onward transmission when travellers return to their countries of origin.

Cruise ship travellers can also participate in shore-side activities characterized as land-based social gatherings (e.g. beach parties, nightclubs, festivals) during shore-based excursions at ports of call. These shore-side social activities and settings may also facilitate close contact between travellers and increase high-risk activities.

In certain cruise ships on themed voyages, it is anticipated that frequent intimate close contact and sexual activity with multiple individuals and/or anonymous partners can occur. These can include for example, party cruises, erotic cruises, LGBTQIA+ cruises etc. These types of cruises could present a particularly high-risk for facilitating transmission of MPXV. Based on the latest ECDC risk assessment, "*the likelihood of [monkeypox] spreading further in networks of people with multiple sexual partners in the EU/EEA is considered high and the likelihood of spreading among the broader population is assessed as very low……The overall risk is therefore assessed as moderate for people having multiple sexual partners (including some groups of MSM) and low for the broader population"* [11]. Considering that transmission during sexual contact appears to be facilitating the current outbreak, it is anticipated that MPX cases may occur on board cruise ships, including those on themed cruises/voyages characterized by frequent intimate close contact. Cases of MPX have been reported on board a cruise ship, with cases being reported through the EU Common Ship Sanitation Database [19].

This advice presents in **Section 1** options for prevention, protective and control measures in the context of the current MPX PHEIC specifically for cruise ships on themed cruises/voyages characterized by high levels of intimate close contact. The advice additionally presents in **Section 2** considerations for general cruise ship travel in the context of the current MPX outbreak, if it is assessed that an increased risk from monkeypox introduction or transmission will occur onboard.

As cruise operations in Europe resumed with the lifting of restrictive measures implemented in response to COVID-19 (e.g., physical distancing, crowd control) and in the current MPX PHEIC context, a case by case assessment of MPX-associated risks could be conducted, with the possibility of enhancing measures implemented on board based on the risk, or possibly postponing if risk control measures cannot be implemented.

1. Themed cruises/voyages where frequent intimate close contact with multiple partners is anticipated

In the current MPX PHEIC, travellers on board themed cruises/voyages may be at a higher risk of exposure compared to the general cruising population. Specific and targeted risk communication will be important to inform travellers about at-risk behavior, preventive, protective and mitigation measures. As themed cruises/voyages may offer sex-on-premises venues, targeted protective measures in addition to measures for contact tracing, cleaning and disinfection should be applied.

Cruise lines are advised to ensure implementation of the below measures in chartered or non-chartered cruises. It will be important to facilitate risk management measures during the MPX PHEIC.

1.1. Minimizing the risk for introduction of monkeypox onto the ship

Health information and advice should be provided throughout the travellers' journey (before, during and after the themed cruise/voyage). Cruise lines, travel companies and travel agencies could provide relevant pre-travel and general preventive information about mitigating public health risks on board to their passengers (including risk of MPX infection). During the current PHEIC, cases have been primarily identified in non-endemic countries where populations may not be familiar with the virus. In this context, cruise lines, travel companies and agencies specialized in organising themed cruises/voyages could provide specific MPX-related information on their booking webpages, apps and social media accounts regarding the virus, how it is transmitted, symptoms, the associated health risks especially for vulnerable groups and those at high-risk of exposure, high-risk activities on board and shoreside, and the importance of preventive measures.

Companies and travel agencies should inform travellers that they may be refused boarding as per the company's exclusion policy if they have MPX compatible symptoms, are a MPX confirmed case or have been exposed to a confirmed case. The ticketing process should include information regarding the latest health and safety considerations, including those posed by MPX. During the ticketing process, passengers should be informed about eligibility requirements.

Before boarding and at the terminal, information about the disease should be provided to passengers and crew (via verbal communications, audio announcements, signage, leaflets, electronic posters, banners etc.). Materials shared should be simple using everyday language and pictographs. These materials could be made available in the national language, English and where needed, additional languages based on common language profiles of passengers. Relevant information could also be shared directly with passengers via email, text message, website, social media channels, apps or other communication means.

Information and advice provided to travellers before boarding could include [20]:

- signs and symptoms compatible with MPX[1] (it should be noted some people have no general symptoms of the disease);
- general personal protective measures (frequent and meticulous hand hygiene, respiratory etiquette);
- recommendations to avoid travel if MPX compatible symptoms develop or if they are a suspect/probable/confirmed case or a close contact of a case;
- special considerations to lower the risk for groups at high-risk of exposure;
- avoiding close physical contact, including intimate and sexual contact with individuals who display MPX compatible symptoms (e.g. skin lesions) or are suspect/probable/confirmed cases;
- balanced communication regarding condom use, clearly informing that condoms do not protect against MPXV transmission since close skin contact occurs during sexual activity, but can reduce the risk of sexually transmitted infections (STIs);

[1]Human monkeypox often begins with a combination of the following symptoms: fever, headache, chills, exhaustion, asthenia, lymph node swelling, back pain, and muscle aches. Commonly, within three days after onset of these prodrome symptoms, a centrifugal maculopapular rash starts from the site of primary infection and rapidly spreads to other parts of the body. Palms and soles are involved in cases of the disseminated rash, which is a characteristic of the disease. The lesions progress, usually within 12 days, simultaneously from the stage of macules to papules, vesicles, pustules, crusts, and scabs, before falling off. (*ECDC. Factsheet for health professionals on monkeypox. Last updated 14 June 2022. https://www.ecdc.europa.eu/en/all-topics-z/monkeypox/factsheet-health-professionals*).

- avoiding contact with objects and materials potentially contaminated by an infectious person (e.g. clothing, linen, glasses, eating utensils etc.); bedding should not be fluffed to avoid releasing viral particles into the air;
- disinfection of toilet seats before and after use in shared bathrooms;
- what to do in case MPX compatible symptoms develop to prevent further transmission and to access healthcare;
- during travel, especially in areas with a history of monkeypox, avoid coming into contact or eating wild animals.

ECDC/WHO Europe developed a toolkit of resources for public health authorities and event organizers planning mass gatherings in the current context [15]. This toolkit includes technical guidance, training and resources that can be adapted to the cruise ship setting such as posters, script announcements and social media messages. A mobile web tool with an interactive dashboard providing information on MPX has also been developed.

- The toolkit is available here: https://www.ecdc.europa.eu/en/publications-data/monkeypox-outbreak-resource-toolkit-event-organisers
- The mobile friendly web tool can be found here: https://experience.arcgis.com/experience/d50083aa269f4308bf0c6662998701b9?org=WHO

Additional guidance supporting risk communication activities during the current PHEIC which could be applicable to the cruise ship setting is available from ECDC/WHO Europe as well as WHO:

- *Risk communication and community engagement approaches during the monkeypox outbreak in Europe* (available here: https://www.ecdc.europa.eu/en/publications-data/risk-communication-and-community-engagement-monkeypox-outbreak or here: https://www.who.int/europe/publications/m/item/risk-communication-and-community-engagement-approaches-during-the-monkeypox-outbreak-in-europe--2022)
- *Risk communication and community engagement (RCCE) for monkeypox outbreaks: Interim guidance* (available here: https://www.who.int/publications/i/item/WHO-MPX-RCCE-2022.1)

1.2. Educating and raising passenger and crew awareness

1.2.1. Isolation plan for monkeypox

An isolation plan should be developed, covering the following: definitions of a suspect/probable or confirmed case of MPX and close contacts; describing the location(s) where suspect/probable or confirmed cases should be temporarily and individually isolated until disembarkation; the communication plan between departments about implementation of isolation measures; hygiene rules for the isolation areas including use of PPE, cleaning and disinfection procedures, waste management, room service and laundry. Crew on board should have adequate knowledge to implement the isolation plan.

1.2.2. Raising crew awareness for case detection on board

Medical staff on board should be informed and updated about the MPX outbreak, including new evidence and guidance. Basic counselling could be offered to travellers on board if needed, with medical staff addressing travellers confidentially.

Cruise line operators should provide information to their crew regarding the recognition of MPX symptoms, as well as information regarding the virus, transmission and groups at-risk for exposure. Crew

on themed cruises/voyages should be informed and able to provide passengers information regarding protective and preventive measures implemented on board, how and where to seek medical care if MPX compatible symptoms develop. Each crew member should be trained in their role and responsibilities to implement measures as per the ship's contingency plan/outbreak management plan. Cruise line operators should also provide general training and instructions to crew regarding hand hygiene, respiratory etiquette, use of other PPE, the importance of ventilation, and protocols for cleaning, disinfection and infectious waste management, including housekeeping for ill travellers. Knowledge related to monkeypox should be checked among crew members after training.

Crew should also be instructed that if they develop MPX symptoms, they should not come to work. If symptoms develop while working, the crew member should immediately self-isolate, and inform their designated supervisor/manager and medical staff. Information about immediate reporting of relevant symptoms to supervisors and the medical team, for both themselves and other crew members or passengers, should be provided to the whole crew. The cruise ship operator should also reassure their crew that those who report symptoms and are unable to work will continue to be paid.

Crew members who visit or stay in local areas at various destinations should be informed in a timely manner about any national or local preventive measures or laws established by local or national public health authorities regarding monkeypox.

1.2.3. Personal protective measures for themed cruises/voyages

Cruise lines should provide advice to passengers and crew on general measures related to reducing the risk of public health risks on board (including COVID-19, monkeypox and other infectious diseases):

- hand washing techniques (use of soap and water, rubbing hands for at least 20 seconds, or how to use an alcohol-based hand-rub solution etc.);
- when hand washing is essential (e.g. after assisting an ill traveller or contact with environmental surfaces that may be contaminated, before wearing and after removing PPE etc.). It should be noted that the use of gloves does not replace hand hygiene;
- when hand rubbing with an alcohol-based hand-rub solution containing at least 60% ethanol or 70% isopropanol can replace hand washing in the absence of any visible dirt or grease;
- respiratory etiquette during coughing and sneezing, by using disposable tissues or clothing;
- appropriate waste disposal;
- proper PPE use and storage/disposal, including information on when use is necessary;
- frequently touched surfaces such as bedside tables, smartphones or tablets should be cleaned carefully and at least once a day;
- information posters and products for self-cleaning prior to and after use should be set in all public bathrooms/toilet facilities on board.

In addition to the above, specific messaging on themed cruises/voyages should provide information to promote safe sexual practices. This can include:

- travellers could be at higher risk of monkeypox infection and other risks (e.g. STIs) if engaging in several sexual encounters, engaging with multiple sexual partners as well as partners who may be anonymous;
- use of condoms to help prevent the risk of STIs, noting that condom use cannot limit the risk of MPX infection since skin-to-skin contacts still occurs during sexual activity.

Travellers should also be informed during and after the themed cruise/voyage about the measures to take if they develop monkeypox compatible symptoms (e.g. seeking medical care, self-isolating and avoiding close contact including sexual activity with others for the full isolation period, facilitating the contact tracing process by providing details of close and sexual contacts etc.).

1.2.4. Information and communication to crew and passengers

In case of an outbreak among travellers, information should be provided regularly to passengers and crew members via signage, leaflets, electronic posters, banners, dating app alerts/blasts etc. during the voyage. Audio announcements can also be made, modifying event host talking points provided in the ECDC/WHO Europe toolkit [15].

Any materials shared should be simple using everyday language and pictographs. Materials should be available in the national language, English and where needed, additional languages based on the common language profiles of passengers. Information and advice can target specific groups more vulnerable to developing severe outcomes (e.g. immunocompromised individuals, pregnant women, children under 12 and elderly above 60) and groups at higher risk of exposure (e.g. MSM). This can include:

- information on monkeypox virus and transmission;
- targeted advice for vulnerable groups: raising awareness about being at increased risk for severe disease; advice on avoiding close contact with suspect/probable or confirmed MPX cases and potentially contaminated objects/materials; preventive and personal measures that can be practiced; advising that vulnerable groups (e.g. immunosuppressed or pregnant individuals) should be excluded from providing care to suspect/probable or confirmed MPX cases;
- targeted advice for groups at high-risk of exposure: raising awareness about being at increased risk for exposure; avoiding close contact with suspect/probable or confirmed MPX cases and potentially contaminated objects/materials; preventive and personal measures that can be practiced to minimize risk of exposure such as limiting the number of sexual partners and using condoms (emphasizing that condom use may not prevent MPXV transmission, but it can reduce risk for both MPXV and STIs);
- preventive and protective measures that can be implemented as described in **Section 1.2.3** and among others, vaccination;
- how and where to access appropriate health services during and after the themed cruise/voyage, including where to seek medical advice if at a port of call;
- actions to take in case MPX compatible symptoms develop, including seeking advice from medical staff on board;
- the importance of reporting any monkeypox compatible symptoms to medical staff on board (ideally ship doctor) during the themed cruise/voyage, informing that confidentiality will be maintained;
- the importance of reporting any monkeypox compatible symptoms to local health authorities after the themed cruise/voyage, including clinics for sexually transmitted infections (STIs);
- procedure if identified as a close contact of MPX case;
- avoiding contact with pets if symptomatic.

It could be considered to continue sharing information and advice with (regarding the importance of reporting any symptoms compatible with MPX and seeking medical care, getting tested, identifying

contacts etc.) for at least four to six weeks after the cruise voyage has ended (e.g. via websites, social media, email etc.)

Any information provided should be available to all travellers of themed cruises/voyages. It could be considered to provide targeted information to specific groups who may be at higher risk of exposure (e.g. MSM or persons engaging in sexual activity with multiple partners) depending on the specific theme of the cruise voyage.

Any health messaging, information and advice should promote language that is not discriminatory or stigmatizing to any individuals or particular groups. Considerations for using appropriate language when communicating about monkeypox can be found in guidance published by the WHO [2].

It could also be considered for cruise lines to collaborate with community organizations (such as civil society organizations) of at-risk groups to support the sharing of information with travellers regarding protective measures related to sexual practices. Further information on engaging community organizations for this purpose can be found in the ECDC/WHO Europe Resource toolkit for event organizers [15].

Any information, messaging or advice provided to travellers should be factual and evidence-based. Templates for health messaging (including posters, leaflets, script announcements, social media messages, images of monkeypox rash etc.) have been developed by ECDC/WHO EURO and are available for adaption/translation in the Resource toolkit for event organizers [15] (available here: https://www.ecdc.europa.eu/en/publications-data/monkeypox-outbreak-resource-toolkit-event-organisers).

1.3. Supplies and equipment

Adequate medical supplies and equipment should be available on board to respond to a case or an outbreak as described in the WHO (2007) recommended medicines and equipment by the International Medical Guide for Ships 3rd edition [21].

Adequate supplies of disinfectants and hand hygiene supplies, tissues and no-touch bins for waste disposal should also be carried on board [22]. Adequate supplies of PPE should be carried on board in the event that suspect/probable or confirmed cases are detected, including: medical face masks and respirators (e.g. filtering facepiece (FFP) 2 or 3, or equivalent standard), eye protection (goggles or face shields), gloves, long-sleeved impermeable gowns, and single use plastic aprons.

1.4. Record keeping in medical log

Records should be kept about the following:

- any person on board who has visited the medical facility and meets the definition of a suspect/probable/confirmed case of monkeypox described in **Section 1.6.1 and 1.6.2**, the isolation and hygiene measures taken at the isolation place;
- any person meeting the definition of a close contact described in **Section 1.6.3** and the results of monitoring their health;
- contact details of close contacts who will disembark, and the locations where they will be staying in the following 21 days (completed PLFs or other means of data recording); requirements under

the General Data Protection Legislation (GDPR) must be followed for any personal data collected from individuals, in hard copy or electronically;

- results of active surveillance;
- results of diagnostic testing;
- details about isolation (place, when started, names of persons who entered the room and provided care, control measures).

1.5. Active surveillance

Case finding among passengers and crew should be initiated after a suspect/probable or confirmed case has been identified by the ship's medical staff in order to detect any new suspect cases. Case finding should include directly contacting crew, asking about current and recent illness, and checking if any person meets the criteria of a possible/confirmed case. Findings should be recorded.

1.6. Management of suspect/probable case

1.6.1. Definition of a suspect/probable case of monkeypox

In accordance with ECDC which for the purposes of surveillance applies the monkeypox case definition published by WHO [23], the definition of a suspected and probable case is as follows [3]:

Suspected case:

i) A person who is a contact of a probable or confirmed monkeypox case in the 21 days before the onset of signs or symptoms, and who presents with any of the following: acute onset of fever (>38.5°C), headache, myalgia (muscle pain/body aches), back pain, profound weakness or fatigue.

OR

ii) A person presenting since 01 January 2022 with an unexplained acute skin rash, mucosal lesions or lymphadenopathy (swollen lymph nodes). The skin rash may include single or multiple lesions in the ano-genital region or elsewhere on the body. Mucosal lesions may include single or multiple oral, conjunctival, urethral, penile, vaginal, or ano-rectal lesions. Ano-rectal lesions can also manifest as ano-rectal inflammation (proctitis), pain and/or bleeding.

AND

for which the following common causes of acute rash or skin lesions do not fully explain the clinical picture: varicella zoster, herpes zoster, measles, herpes simplex, bacterial skin infections, disseminated gonococcus infection, primary or secondary syphilis, chancroid, lymphogranuloma venereum, granuloma inguinale, molluscum contagiosum, allergic reaction (e.g., to plants); and any other locally relevant common causes of papular or vesicular rash.

N.B. It is not necessary to obtain negative laboratory results for listed common causes of rash illness in order to classify a case as suspected. Further, if suspicion of monkeypox infection is high due to either history and/or clinical presentation or possible exposure to a case, the identification of an alternate pathogen which causes rash illness should not preclude testing for MPXV, as co-infections have been identified.

Probable case:

A person presenting with an unexplained acute skin rash, mucosal lesions or lymphadenopathy (swollen lymph nodes). The skin rash may include single or multiple lesions in the ano-genital region or elsewhere on the body. Mucosal lesions may include single or multiple oral, conjunctival, urethral, penile, vaginal,

or ano-rectal lesions. Ano-rectal lesions can also manifest as ano-rectal inflammation (proctitis), pain and/or bleeding.

AND

One or more of the following:

- has an epidemiological link[2] to a probable or confirmed case of monkeypox in the 21 days before symptom onset
- identifies as gay, bisexual or other man who has sex with men
- has had multiple and/or casual sexual partners in the 21 days before symptom onset
- has detectable levels of anti-orthopoxvirus (OPXV) IgM antibody[3] (during the period of 4 to 56 days after rash onset); or a four-fold rise in IgG antibody titer based on acute (up to day 5-7) and convalescent (day 21 onwards) samples; in the absence of a recent smallpox/monkeypox vaccination or other known exposure to OPXV
- has a positive test result for orthopoxviral infection (e.g. OPXV-specific PCR without MPXV-specific PCR or sequencing)[4]

1.6.2. Definition of a confirmed case of monkeypox

In accordance with ECDC which for the purposes of surveillance applies the monkeypox case definition published by WHO [23], the definition of a confirmed case is as follows [3]:

Confirmed case:

A person with laboratory confirmed monkeypox virus infection by detection of unique sequences of viral DNA by real-time polymerase chain reaction (PCR)[4] and/or sequencing.

Discarded case:

A suspected or probable case for which laboratory testing of lesion fluid, skin specimens or crusts by PCR and/or sequencing is negative for MPXV[4]. Conversely, a retrospectively detected probable case for which lesion testing can no longer be adequately performed (i.e., after the crusts fall off) and no other specimen is found PCR-positive, would remain classified as a probable case. A suspected or probable case should not be discarded based on a negative result from an oropharyngeal, anal or rectal swab.

[2] The person has been exposed to a probable or confirmed monkeypox case.

[3] Serology can be used for retrospective case classification for a probable case in specific circumstances such as when diagnostic testing through PCR of skin lesion specimens has not been possible, or in the context of research with standardized data collection. The primary diagnostic test for monkeypox diagnosis is PCR of skin lesion material or other specimen such as an oral or nasopharygeal swab as appropriate. Serology should not be used as a first line diagnostic test.

[4] PCR on a blood specimen may be unreliable and should also not be used alone as a first line diagnostic test. If blood PCR is negative and was the only test done, this is not sufficient to discard a case that otherwise meets the definition of a suspected for probable case. This applies regardless of whether the blood PCR was for OPXV or MPXV specific.

1.6.3. Definition of close contacts of a case of monkeypox

In accordance with ECDC and WHO, categories of close contacts can be defined as below [3,9]:

Type of contact	Description	Definition
Close contact	Sexual partner	• Persons having any type of sexual contact with the monkeypox case from the onset of their rash (and/or prodrome symptoms)
	Cabin mate of a monkeypox case	• Cabin mate of the monkeypox case • Person(s) sharing clothing, bedding, utensils, bathrooms etc. with the diagnosed case. • Caregivers of the monkeypox case, from the onset of their rash (and/or prodrome symptoms).
	Health professionals	• HCWs who came into contact with the monkeypox case (lesions or prolonged face-to-face contact (>3 hours and < 2m distance) without appropriate personal protective equipment (PPE). • HCWs who suffered a sharps injury or was exposed to monkeypox case body fluids or aerosol-generating procedure without PPE. • Laboratory staff suffering occupational accident with virus-containing sample (splash, sharps injury, aerosol exposure, etc.).
	Other prolonged physical or high-risk contact	• To be assessed on a case-by-case basis, but may include, among others, sitting adjacent (e.g. same row, two rows in front and two rows behind ill traveller/a confirmed case) during prolonged travel, e.g. 6 or more hours when physical contact with the case or with fomites may have occurred, or cabin crew serving the case (passengers or crew who wore PPE such as a face mask and not reporting physical contact with symptomatic case should not be considered contacts). sharing utensils or other equipment, or sharp injury linked to a monkeypox case occurring in a non-HCW. • If a death has occurred, anyone who has been in contact with the body or with their clothes or fomites, without appropriate PPE.

Adapted from source: *ECDC. Considerations for contact tracing during the monkeypox outbreak in Europe, 2022.* *https://www.ecdc.europa.eu/en/publications-data/considerations-contact-tracing-during-monkeypox-outbreak-europe-2022*

1.6.4. Precautions in all areas of the ship

All crew members and passengers should be requested to practice frequent and meticulous hand hygiene and respiratory etiquette as a routine measure to prevent and control public health risks onboard (including COVID-19 and MPX).

Hand washing facilities or stations with alcohol-based hand-rub solutions (containing at least 60% ethanol or 70% isopropanol) should be available at all entrances/gangways to the ship and in other areas such as crew/work areas, elevators, check-in areas, entertainment venues, casinos, bars and restaurants, saunas and any other public areas where close physical contact may occur. Prominent signage regarding hand hygiene information should be displayed throughout areas of the ship. Designated crew members may oversee the process and encourage compliance with hand hygiene requirements.

Regular cleaning and disinfection should take place in accordance with routine procedures and with an increased frequency for common public areas/facilities (shared bathroom/toilet facilities dining areas, entertainment venues, etc.) and for surfaces that are frequently touched by crew and passengers (e.g. handrails, elevator buttons) in accordance with guidance from ECDC and WHO Europe [17] and the European Manual for Hygiene Standards and Communicable Disease Surveillance on Passenger Ships.

1.6.5. Precautions at the ship medical facilities

Contact with patients in isolation should be restricted to only those necessary. Suspected, probable and confirmed MPX cases should be isolated in a well-ventilated separate room with the door closed and a specific toilet facility, ideally an isolation room [4,11,14]. Where varicella zoster virus cannot be excluded

or is suspected, precautions for airborne transmission should be implemented until a definite diagnosis can be made [14], (e.g., isolation in an airborne infection isolation room if available) [4]. Healthcare workers in contact with or attending to a suspected, probable or confirmed MPX case should wear appropriate PPE including gloves and FFP 2 respirator or medical face mask; a single-use gown/apron and eye protection (goggles or face shield) can also be used. Standard precautions should be applied at all times[14]. Patients should be requested to wear a medical face mask and if tolerable cover their lesions when not being examined.

Patients should be asked to wear a medical face mask and cover their lesions with long-sleeves and pants if tolerable when being transported (e.g. during disembarkation)[4,14]. Personnel transporting patients should wear appropriate PPE including FFP2 respirator, gloves, eye protection (goggle/face shield) and their uniform (if for example ambulance workers) or a water-resistant single-use gown [14]. All patients should be asked to practice respiratory etiquette and meticulous hand hygiene.

Proper wearing (donning) and removing (doffing) procedures for PPE should be followed, with healthcare workers adequately trained. Hand hygiene should be conducted before putting and taking off PPE and immediately after disposing of it. Disposable PPE and other soiled single-use items used during examination should be treated as potentially infectious material and properly disposed of in accordance with the relevant rules. Non-single-use PPE should be decontaminated in accordance with the manufacturer's instructions. Single use, dedicated healthcare equipment should be used [14]. If not single-use, healthcare equipment must be cleaned and disinfected in accordance with the manufacturer's instructions in between use for each patient; if equipment cannot be disinfected it should be disposed of [4,11,14].

1.6.6. Isolation

Following preliminary medical examination, if the ship's medical officer determines that there is a suspect/probable/confirmed case of monkeypox on board that meets the definition described in **Sections 1.6.1** and **1.6.2**, the patient should be isolated individually in an isolation ward, cabin, room or quarters and infection control measures should be continued until disembarkation. It is recommended that cases of MPX disembark as soon as possible wearing a medical face mask, covering their skin lesions and be transferred to a hospital or isolation facility ashore depending on their clinical condition and if they are at risk of severe disease. The patient should be isolated ashore until the test result is available. If negative, the patient can return to the ship provided that other infectious diseases have been excluded. If positive, patient should be isolated preferable ashore (hospital if medical condition requires so, at home or in a designated accommodation provided by the company). Competent authorities should be informed for follow-up. If it is not possible to isolate ashore, the patient could return to the ship if a risk assessment has been carried out by the competent authorities and if isolation conditions on board are appropriate. In this case, recommendations should be given.

Cases should be informed regarding measures to be applied during the isolation period [12], for example:

- period of isolation (for entire duration of infectiousness, e.g. until scabs from rash fall off and layer of skin formed over lesion);
- remaining in separate room (if isolated at home) for duration and not sharing household objects with others (clothing, linens, glasses, plates, utensils etc.);

- avoiding contact with vulnerable groups (immunocompromised persons, pregnant women, children) for duration of isolation;
- if temporarily leaving isolation (e.g. for medical reasons), informed to wear a medical mask and cover lesions with clothing;
- avoiding close physical contact including sexual activity for the complete duration of the isolation period, with the recommendation to consistently use condoms during sexual activities for 12 weeks following recovery. For further advice please consult WHO guidance at: https://www.who.int/emergencies/disease-outbreak-news/item/2022-DON392
- practicing frequent and meticulous hand hygiene and respiratory etiquette;
- avoiding contact with mammal pets;
- keeping skin lesions covered.

If technically possible and on large ships (ships with more than 100 passengers and crew), the medical facilities as well as the designated isolation and quarantine spaces should be connected to a separate Air Handling Unit (AHU). The return air from the medical facilities and the isolation spaces should either be HEPA-filtered or exhausted to the outside. If aerosol-generating procedures are performed in the medical facilities of the ship, then the area should be under negative pressure and achieve at least 10 air changes per hour.

1.6.7. Laboratory testing

Laboratory examination of clinical specimens for the persons who meet the definition of a suspected or probable case should be arranged in cooperation with the competent authorities at the port where suitable facilities exist. The competent authority will inform the medical staff about laboratory test results. The suspected/probable case should remain in isolation until results are available.

The Emerging Viral Diseases-Expert Laboratory Network (EVD-LabNet), a network of laboratories located in EU/EEA and EU candidate countries is providing support for response to the current MPX outbreak [24] (further information can be found here: https://www.ecdc.europa.eu/en/about-us/partnerships-and-networks/disease-and-laboratory-networks/evd-labnet). Furthermore, the EVD-LabNet Directory provides an overview of the EVD-LabNet laboratories, focal points and their areas of expertise (directory available here: https://qap.ecdc.europa.eu/public/extensions/EVD_LabNet/EVD_LabNet.html#main-tab).

It is recommended that clinical specimens are collected ashore. If specimen collection is done on board, medical staff should be trained in appropriate sample collection as well as storage and transport of the samples. Guidance for specimen collection can be found in ***Annex 1*.**

1.6.8. Reporting and notification

In accordance with the International Health Regulations (IHR, 2005), the officer in charge of the ship must immediately inform the competent authority at the next port of call about cases of possible infectious disease and public health risks on board, including any suspected/probable/confirmed monkeypox case [25].

For ships on an international voyage, the Maritime Declaration of Health (MDH) should be completed and sent to the competent authority in accordance with the local/national requirements at the port of call.

The MDH should include all cases of monkeypox from the commencement of the voyage, even if these cases have disembarked in a previous port of the itinerary, or even if patients have recovered.

Ship operators must facilitate application of health measures and provide all relevant public health information requested by the competent authority at the port. The officer in charge of the ship should immediately alert the competent authority at the next port of call (and the cruise line head office) regarding the suspected/probable/confirmed case to determine if the necessary capacity for transportation, isolation, laboratory diagnosis and care of the suspected/probable or confirmed case/cluster of monkeypox is available at the port. The ship may be asked to proceed to another port in close proximity if this capacity is not available, or if warranted by the medical status of the suspected/probable or confirmed case/cluster of cases of monkeypox.

1.7. Management of close contacts

1.7.1. Preparedness for close contacts

A plan should be developed and available on board in the event that a suspected/probable or confirmed MPX case is detected for the purpose of contact identification and tracing, covering the following: definitions of a potential or confirmed case of MPX and close contacts; health monitoring of close contacts; Passenger/Crew Locator Forms (PLFs) data management (if PLF is used). Staff on board should have adequate knowledge to implement this plan, with medical personnel onboard able to instruct other crew members. Preparedness should cover aspects of respecting confidentiality and protecting privacy rights of passengers and crew. Current policies for case management including contact tracing for sexually transmitted diseases among seafarers, could be used in the preparedness plans.

The passenger or crew member that meets the definition of a suspected/probable or confirmed case should provide information about the places that he/she visited and about his/her contacts (as defined in **Section 1.6.3**), including the period from the start of prodromal symptoms (e.g. fever, headache, fatigue, myalgia) until scabs from rash have fallen of and new skin has grown [9]. In cases where no prodromal symptoms occurred information about contacts should be collected starting one day before the onset of rash[9]. This information will be used to identify contact persons. Privacy rights and confidentiality principles should be respected. Requirements under the General Data Protection Legislation (GDPR) must be followed for any personal data collected from individuals, in hard copy or electronically. Cases who are reluctant to provide sexual contact details should be encouraged to notify contacts directly.

1.7.2. Management of close contacts

Generally speaking, close contacts should disembark and not travel internationally for 21 days after the last contact with a confirmed case. Quarantine is not needed. Nevertheless, they can be allowed to stay on board if a risk assessment has been carried out by the competent authority. While they are on board, the following recommendations should be followed:

- apply frequent and meticulous hand hygiene and respiratory etiquette;
- self-monitor for symptoms such as fever, rash, swollen lymph nodes and inform their healthcare provider or the public health professionals responsible for monitoring;
- refrain from close intimate contact including sexual activities for 21 days from the last day of exposure to a case [9];

- avoid contact with vulnerable groups (e.g. immunocompromised individuals, pregnant women and children) for 21 days from the last day of exposure to a case;
- avoid close direct contact with animals for 21 days from the last day of exposure to a case;
- avoid non-essential travel.

Further guidance for contact tracing can be found from ECDC and WHO:

- *Considerations for contact tracing during the monkeypox outbreak in Europe* (available here: https://www.ecdc.europa.eu/en/publications-data/considerations-contact-tracing-during-monkeypox-outbreak-europe-2022)
- *Surveillance, case investigation and contact tracing for monkeypox: interim guidance* (available here: https://www.who.int/publications/i/item/WHO-MPX-Surveillance-2022.2)

On themed cruise voyages where multiple and frequent intimate physical contact is anticipated, it could be suggested that passengers record contact details of their sexual contacts (e.g. phone number, email, dating app username/handle) in order to facilitate contact tracing if a case is detected during or after the themed voyage. Considering that travellers may be hesitant to share information particularly about their sexual contacts, cases detected should be encouraged to directly inform their close and sexual contacts for this purpose. Information could be provided to cases about how to notify their contacts and what information to share with them.

Detailed considerations and options for contact tracing and partner notification are available from ECDC:

- *Considerations for contact tracing during the monkeypox outbreak in Europe, 2022* (available here: https://www.ecdc.europa.eu/en/news-events/ecdc-publishes-contact-tracing-guidance-current-monkeypox-outbreak)

1.7.3. Reporting information to the competent authorities about contacts

Both embarking and disembarking ports must be notified immediately of close contacts being on board and the measures taken.

1.8. Disembarkation

The suspected/probable/confirmed case should disembark in a controlled way to avoid any contact with other persons on board of the ship, and wear a well-fitted medical face mask and cover lesions (with long pants and sleeves). The personnel escorting the patient during disembarkation should use FFP2 or respirator or equivalent, eye protection (goggles or a face shield), water-resistant single use gown and gloves[14].

As soon as the suspected/probable/confirmed case has been removed from the cruise ship, the cabin/rooms where isolation was conducted should be thoroughly cleaned and disinfected. Cleaning personnel should wear appropriate PPE, including FFP2 masks or equivalent, eye protection (goggles or a face shield), water-resistant single use gown, single use gloves and footwear that can be decontaminated [11,14]. Heavy duty gloves could be considered based on risk assessment and safety issues for chemicals used. Cleaning personnel should be trained in the appropriate use of PPE and they should perform frequent hand hygiene.

1.9. Other health measures

After conducting an inspection and risk assessment in accordance with IHR (2005) Article 27, the port health authority will decide on health measures to be taken on board of the ship [25]. The authority may decide in consultation with the ship owner to end the cruise if health measures cannot be satisfactorily completed while travellers are on board or if an outbreak is occurring on board. Termination of the cruise should be considered on a case-by-case basis depending on the number of cases, the type of cruise (e.g. themed cruise/voyage with a large outbreak among passengers or when a large outbreak among crew members is occurring resulting in reduced availability of the essential staff to perform the necessary duties etc.). In the event that a cruise is terminated, as an additional health measure not specifically recommended by temporary recommendations published for the MPX PHEIC, State Parties should inform and report this measure in accordance with IHR (2005) Article 43.

Infectious waste should be disposed of in accordance with the port authorities' procedures.

1.10. Cleaning and disinfection

While case management is in progress on board of a cruise ship, a high level of cleaning, disinfection and waste management should be maintained as per the outbreak management plan available on the ship.

Medical facilities, cabins and quarters occupied by monkeypox patients and close contacts should be cleaned and disinfected in accordance with ECDC guidance, with waste (e.g. used dressings) from monkeypox cases on board handled as infectious [12,14,17]. Appropriate PPE should be used by cleaning personnel as described above in **Section 1.8**.

Laundry, food service utensils and waste from cabins of suspected/probable/confirmed cases and contacts should be handled as infectious, in accordance with the outbreak management plan provided on board for other infectious diseases (e.g. for norovirus gastroenteritis). Staff who will perform cleaning and disinfection should be trained in proper use of PPE. Cleaning of a cabin where a monkeypox case stayed should be carried out without producing aerosols and minimising the dust movement [12]. In addition to this, the procedures for cleaning and disinfection of a cabin where a case of Norovirus stayed should be applied in accordance with the European Manual for Hygiene Standards and Communicable Disease Surveillance on Passenger Ships.

It is recommended to use single-use disposable cleaning equipment (e.g. disposable towels). If this option is not available, cleaning materials (e.g. cloth, sponge) should be placed in a disinfectant solution effective against viruses, or 0.1% sodium hypochlorite. If neither option is possible, cleaning materials should be discarded [12].

It may be essential that the ship remains at the port for the time period required to perform a thorough cleaning and disinfection on board.

As themed cruises/voyages can have on board sex-on-premises locations, it is suggested that in addition to the cleaning and disinfection measures described above**,** special measures should be applied as advised by ECDC/ WHO Europe [17]:

- single-use (disposable) options for bedding/towels could be considered. If not possible, bedding and towels should be replaced following each use by a traveller;
- if not single-use, bedding and towels should be replaced without creating dust and washing via washing machine at a temperature of 60°C or more. Crew on board replacing used

bedding/towels should wear an FFP2 or FFP3 respirator or equivalent and gloves, performing meticulous hand hygiene after handling;

- other common objects which may be used (glasses, utensils etc.) should be washed in a dishwasher at a temperature of 60°C or more.

2. General cruise ship travel

For general cruise ship travel (voyages where frequent, intimate close contact including sexual activity is not anticipated), if a case of monkeypox is detected onboard among a passenger or crew member, the officer in charge must immediately inform the port competent authority. It is suggested that a risk assessment be carried out by the competent authorities. The following measures could be applied on board as described in **Section 1:**

- Measures for isolation and case management (**Section 1.6**)
- Measures of contact management (**Section 1.7**)
- Disembarkation of cases (**Section 1.8**)
- Cleaning and disinfection measures (**Section 1.10**)

Furthermore, health information and advice could be provided to travellers on board, with targeted information to specific groups who may be at higher risk of exposure or more vulnerable to severe illness (**Section 1.2.4**).

Annex 1: Guidance for specimen collection

Extracted from WHO interim advice for laboratory testing for the monkeypox virus [7].

More detailed guidance on safety procedures, specimen collection, shipment and storage can be found in the interim guidance here: https://www.who.int/publications/i/item/WHO-MPX-laboratory-2022.1

Specimen type	Collection materials	Storage temperature	Collection purpose
Skin lesion material, including: – swabs of lesion exudate – lesion roofs – lesion crusts	Dacron or polyester flocked swabs with VTM or dry swab	Refrigerate (2–8 °C) or freeze (-20 °C or lower) within 1 hour of collection; -20°C or lower after 7 days	Recommended for diagnosis
Oropharyngeal swab	Dacron or polyester flocked swabs with VTM or dry swab	See above	Recommended for diagnosis if feasible, in addition to skin lesion material
Rectal and or genital swabs	Dacron or polyester flocked swabs with VTM or dry swab	See above	To be considered for research (following ethics guidelines)
Urine	Sterile collection tube	See above	To be considered for research (following ethics guidelines)
Semen	Sterile collection tube	Room temperature for <1h (then -20 °C or lower)	To be considered for research (following ethics guidelines)
Whole blood	Sterile collection tube with EDTA	See above	To be considered for research (following ethics guidelines)
Serum	Serum-separating tubes	Refrigerate (2–8 °C) or freeze (-20 °C or lower) within 1 hour of collection; -20°C or lower after 7 days	To be considered for serology to aid diagnosis or research (following ethics guidelines)
Plasma	collection tube with EDTA	See above	To be considered for serology to aid diagnosis or research (following ethics guidelines)

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