Advice for cruise ship operators for preparedness and response to an outbreak of COVID-19

Version 4

April 2021[.]

The revised version incorporates the following changes:

- Definitions of contacts and cases
- Diagnostic testing policy of crew and passengers
- Criteria for stopping a cruise due to a COVID-19 event
- Use of face masks

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Introduction

This advice was prepared after a request from the European Commission's Directorate-General for Health and Food Safety (DG SANTE). An ad-hoc working group was established with members from the EU HEALTHY GATEWAYS joint action consortium. Names and affiliations of the working group members who prepared this document are listed at the end of the document.

The working group produced the following advice considering current evidence, the temporary recommendations from the World Health Organization (WHO) (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance) and the technical reports of the European Centre for Disease Prevention and Control (ECDC) (https://www.ecdc.europa.eu/en/coronavirus/guidance-and-technical-reports) about COVID-19 (as of 9 April 2021).

This advice should be read in conjunction with: a) the EU HEALTHY GATEWAYS Advice for restarting cruise ship operations after lifting restrictive measures in response to the COVID-19 pandemic Version 2, available at: https://www.healthygateways.eu/Novel-coronavirus, b) the WHO Operational considerations for managing COVID-19 cases/outbreak on board ships, available at: https://www.who.int/publications/i/item/operational-considerations-for-managing-covid-19-cases-outbreak-on-board-ships[1], c) the ECDC-EMSA COVID-19: EU Guidance for Cruise Ship Operations. Guidance on the gradual and safe resumption of operations of cruise ships in the European Union in relation to the COVID-19 pandemic (Date: 27 July 2020) is available at: https://www.ecdc.europa.eu/en/publications-data/COVID-19-cruise-ship-guidance[2], and d) "Tool for contingency plan development and assessment for ports" produced by EU HEALTHY GATEWAYS[3].

Certain aspects of response measures, including defining and managing contacts will depend on the risk assessment conducted by the competent authorities and whether one case or a cluster of cases have been identified, or an outbreak with on-going transmission on board occurs.

1. Minimizing the risk for introduction of COVID-19 onto the ship

Measures for minimizing the risk for introduction of COVID-19 onto the ship have been described in the EU HEALTHY GATEWAYS Advice for restarting cruise ship operations after lifting restrictive measures in response to the COVID-19 pandemic Version 2, available at: https://www.healthygateways.eu/Novel-coronavirus

2. Education and raising passenger and crew awareness

2.1. Isolation plan for COVID-19

An isolation plan (as part of the cruise ship contingency plan/outbreak management plan) should be developed and be available on board, covering the following: definitions of a possible case and/or a confirmed case of COVID-19 and close contacts; the isolation plan describing the location(s) where possible or confirmed cases should be temporarily and individually isolated until disembarkation; the communication plan between departments about the isolation measures implementation; hygiene rules for the isolation room including use of personal protective

equipment (PPE), cleaning and disinfection procedures, waste management, room service and laundry. Staff on board should have adequate knowledge to implement the isolation plan.

2.2. Quarantine plan for COVID-19

A quarantine plan (as part of the cruise ship contingency plan/outbreak management plan) should be developed and be available on board, covering the following: definitions of a possible case and/or a confirmed case of COVID-19 and close contacts; plan describing the location(s) where close contacts should be temporarily and individually quarantined until disembarkation; health monitoring of close contacts; diagnostic testing procedures; communication plan between departments about the quarantine measures implementation; hygiene rules for quarantine rooms including use of personal protective equipment (PPE), cleaning and disinfection procedures, waste management, room service and laundry; and Passenger/Crew Locator Forms (PLFs) data management. Staff on board should have adequate knowledge to implement the quarantine plan.

2.3. Raising crew awareness for detection of cases on board

Healthcare staff on board should be informed and updated about the outbreak of COVID-19, including any new evidence and guidance available for health care staff.

Cruise lines should provide guidance to crew regarding the recognition of COVID-19 signs and symptoms. Further details regarding training of crew can be found in the EU HEALTHY GATEWAYS Advice for restarting cruise ship operations after lifting restrictive measures in response to the COVID-19 pandemic Version 2, available at: https://www.healthygateways.eu/Novel-coronavirus.

Crew should be reminded of the procedures to be followed when a passenger or a crew member on board has tested positive for SARS-CoV-2 and/or displays signs and symptoms indicative of COVID-19 (for example, to inform their designated supervisor/manager or medical staff, and perform duties based on instructions from their supervisor depending on their position etc.). Crew should also be reminded about the procedures to be followed during an outbreak of other respiratory illnesses, such as using the Influenza Like Illness (ILI) outbreak management plan, which should be available on board the ship[4].

Information about immediate reporting of relevant symptoms to supervisors and the medical team, for both themselves and other crew or passengers should be provided to all crew.

Measures for raising crew awareness for detection of COVID-19 cases on board have been described in the EU HEALTHY GATEWAYS Advice for restarting cruise ship operations after lifting restrictive measures in response to the COVID-19 pandemic Version 2, available at: https://www.healthygateways.eu/Novel-coronavirus

2.4. Personal hygiene measures

Cruise lines should continue to provide guidance and periodic/regular training of their crews, related to reducing the general risk of COVID-19:

- 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 after contact with environmental surfaces they may have contaminated, before wearing and after removing face masks and other 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
- Respiratory etiquette during coughing and sneezing, by using disposable tissues or clothing.
- Appropriate waste disposal.
- PPE use and proper use and storage/disposal of face masks, including information and training on any strategies used to improve fit of face masks.
- Limiting interaction and maintaining physical distance as far as practicable (at least 1.5 metres or otherwise as per national/local health authority requirements of the home port or the port of call).

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.

Adequate supplies of sample medium (sterile viral transport media and sterile swabs to collect nasopharyngeal and nasal specimens), packaging and testing equipment (for routine testing or for testing in response to a COVID-19 case) should be available. Rapid antigen diagnostic tests (RADTs) used should be listed in the document "Common list of COVID-19 rapid antigen tests, including those of which their test results are mutually recognised, and a common standardised set of data to be included in COVID-19 test result certificates", https://ec.europa.eu/health/sites/health/files/preparedness_response/docs/covid-19_rat_common-list_en.pdf[5]).

Further information from ECDC about rapid antigen diagnostic tests can be found at: https://www.ecdc.europa.eu/en/publications-data/options-use-rapid-antigen-tests-covid-19-eueea-and-uk[6] and for self-tests at: https://www.ecdc.europa.eu/en/publications-data/considerations-use-self-tests-covid-19-eueea[7].

Adequate supplies of disinfectants and hand hygiene supplies, tissues and no-touch bins for waste disposal should also be carried on board[4].

Adequate supplies of PPE should be carried on board including: medical face masks and respirators (e.g. FFP2 or FFP3, or equivalent standard), eye protection (goggles or face shields), gloves, long-sleeved impermeable gowns, and single use plastic aprons.

Further details about PPE and supplies specific to COVID-19 can be found at the EU HEALTHY GATEWAYS Advice for restarting cruise ship operations after lifting restrictive measures in response

to the COVID-19 pandemic Version 2, available at: https://www.healthygateways.eu/Novel-coronavirus

4. Management of a possible case

A flow diagram for the management of a possible case and contacts, as well as the procedures of free pratique from the time of identification of a possible case, until the ship will be allowed to depart can be downloaded from the following link:

https://www.healthygateways.eu/Portals/0/plcdocs/Flow_chart_Ships_26_4_2021.pdf

4.1. Definition of a possible case of COVID-19

According to ECDC, the definition of a possible case requiring diagnostic testing is as follows[8]: Any person with at least one of the following symptoms: cough, fever, shortness of breath, sudden onset of anosmia, ageusia or dysgeusia. Additional less specific symptoms may include headache, chills, muscle pain, fatigue, vomiting and/or diarrhoea.

4.2. Definition of a confirmed case of COVID-19

A confirmed case is any traveller tested positive by rapid antigen diagnostic test (listed in the document "Common list of COVID-19 rapid antigen tests, including those of which their test results are mutually recognised, and a common standardised set of data to be included in COVID-19 test result certificates")[5] or by RT-PCR test or by other Nucleic Acid Amplification Test (NAAT), listed in the FDA list with the in Vitro Diagnostics EUAs - Molecular Diagnostic Tests for SARS-CoV-2 and authorised for screening (testing asymptomatic individuals without known exposure) and can be used at home or otherwise as specified in the authorization list for certified laboratories or health care settings: https://www.fda.gov/medical-devices/coronavirus-disease-2019-covid-19-emergency-use-authorizations-medical-devices/in-vitro-diagnostics-euas-molecular-diagnostic-tests-sars-cov-2#individual-molecular. If a possible case (see definition in paragraph 4.1) has tested negative with the rapid antigen diagnostic test, then the traveller should be additionally tested by RT-PCR.

4.3. Definition of a contact of a possible or a confirmed case of COVID-19

It is advised that contact tracing activities begin immediately after a possible/confirmed case is identified on board, without waiting for the laboratory results and to avoid travel delays.
Technologies to facilitate contact tracing could be used such as wearable bracelets, analysis of ship's CCTV, use of mobile contact tracing applications and analysis of passenger key card usage, provided that this is in compliance with the relevant legislation for personal data protection and with the consent of travellers.
All persons on board should be assessed for their exposure and classified as close contacts (high-risk exposure) or casual contacts (low-risk exposure). Two different definitions of contacts should be used depending on the number of cases identified on board.

A contact of a COVID-19 case is any person who had contact with a COVID-19 case within a timeframe ranging from 48 hours before the onset of symptoms of the case to 10 days after the onset of symptoms. If the case had no symptoms, a contact person is defined as someone who had contact with the case in the period from 48 hours before the date their sample which led to confirmation was taken, to 10 days after the sample was taken.

A: If a single or more cases sharing the same cabin have been identified on board, then the following definitions of contacts should be applied:

High-risk exposure (close) contact

- A person who has stayed in the same cabin with a COVID-19 case;
- A person who had direct contact with infectious secretions of a COVID-19 case (e.g. being coughed on).
- A crew member who entered the cabin of a case while they were inside the cabin, without wearing appropriate PPE. For example, a crew member who cleaned the cabin of a case or who delivered food to the cabin.
- A person who has had face-to -face contact (on-board or on-shore) within 1.5 metres for more than 15 minutes or who was in a closed environment for more than 15 minutes with a case. For passengers this could include, but is not limited to, participating in common activities, attending a class or sharing the same social space such as at a restaurant. This also includes contact with intimate partners. For crew this may include working in the same area as a case or socialising with a case (including fellow crew members), waiting on a table where a case was dining or leading a social activity where the case was participating.
- Healthcare workers or other persons providing direct care for a case without wearing appropriate PPE.

Low-risk exposure (casual) contact

- Risk assessment of individual cases and their contacts will be conducted by the public health authorities and the ship to define the low-risk exposure (casual) contacts. Any data available from contact tracing technologies will also be considered.

B. If three or more confirmed cases who are staying in two or more different cabins and who are not travelling together (excluding the cases identified the day of embarkation): Risk assessment of individual cases and their contacts will be conducted by the public health authorities and the ship as part of contact tracing. Risk assessments could identify additional contacts who are not under the categories listed in part “A” of the definition. Any data available from contact tracing technologies will also be considered. Local/national regulations, definitions and procedures could also apply as part of the contact tracing.

Suggested criteria to be considered in decision making about ending the cruise (as a health measure in response to a COVID-19 event) are included in paragraph 7.

4.4. Precautions in all areas of the ship

All crew members and passengers should be informed and requested to practice proper respiratory etiquette and frequent hand hygiene. In addition, crew members and passengers should be requested to practice physical distancing as far as practicable (at least 1.5 metres or otherwise as per national/local health authority requirements of the home port or the port of call). It should be noted that any use of face masks is compulsory indoors and complementary to these personal protective measures. Currently, due to the lack of evidence whether individuals vaccinated or recovered from COVID-19 can be infectious, vaccinated travellers or travellers who have recovered from COVID-19 should not be excluded from the testing policy and from non-pharmaceutical measures.

Cruise ships are semi-closed environments with common areas that may allow extended periods of close contact between people. Therefore, it is suggested that crew members and passengers use medical face masks (and that strategies to improve fit[†] are considered). Respirators (e.g. FFP2 standard) could also be considered for use by crew members and passengers, if respirators are available for use by the public and if sufficient supplies of respirators are available for use in healthcare settings.
Given limited availability of respirators, their use should be prioritized considering:

- Setting and job position: prioritized for health care workers, medical personnel or those providing direct care to a possible or confirmed COVID-19 case, especially if aerosol-generating procedures are performed.
- Vulnerability of wearer: use of respirators if available for use by the public could be prioritized for crew members and passengers belonging to high-risk groups for severe COVID-19 complications or those that have not been vaccinated against SARS-CoV-2.

Only if medical face masks or respirators are unavailable, non-medical “community” masks with multiple layers of tightly woven, breathable fabric could be used (could consider using in conjunction with strategies to improve the mask’s fit).

In accordance with the prioritization above, face masks should be used by all crew members at all times on board when exiting/outside of individual cabins (exceptions include during eating and drinking, in which case physical distancing should still be practiced). This should also apply to crew members who are off duty and outside of cabins, as well as shore-based personnel (e.g. maritime pilots, port workers, medical personnel etc.) boarding the ship.

Face masks should be used by passengers at all times in all areas on board when exiting/outside of their cabins (exceptions include during eating or drinking, in which case physical distancing should still be practiced).

Face masks should be used at all times during embarkation, disembarkation, when entering or at the terminal station and during shore-based activities/excursions.

[†] Strategies to improve mask fit include using masks with nose wires, using mask fitters/braces, using a knotting/tucking technique, or double masking: wearing a second mask on top of a first mask to create a “double mask” (wear a medical procedure mask underneath a cloth mask.) (Centers for Disease Control and Prevention. Improve the Fit and Filtration of Your Mask to Reduce the Spread of COVID-19. 6 April 2021. https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/mask-fit-and-filtration.html#double-mask)

An overview of recommended PPE for crew and passengers on board cruise ships (in the context of lifting restrictive measures in response to the COVID-19 pandemic) can be found here: https://www.healthygateways.eu/Novel-coronavirus

Crew members on board should be trained on the proper use of face masks and other PPE. Passengers could also be informed about procedures and best practices for wearing (donning), removing (doffing), management and safe disposal or storage of face masks. More detailed resources can be found from:

- **ECDC**
  - Online micro learning activities on non-pharmaceutical countermeasures in relation to COVID-19: https://www.ecdc.europa.eu/en/news-events/online-micro-learning-activities-on-COVID-19
  - Videos on how to wear single use and reusable face masks: https://www.ecdc.europa.eu/en/covid-19/prevention-and-control/protect-yourself
  - Guidance for wearing and removing PPE in healthcare settings for the care of patients with suspected or confirmed COVID-19: https://www.ecdc.europa.eu/en/publications-data/guidance-wearing-and-removing-personal-protective-equipment-healthcare-settings
- **WHO**
  - Online course for healthcare workers *"COVID-19: How to put on and remove personal protective equipment (PPE)*": https://openwho.org/courses/IPC-PPE-EN?locale=en
  - Advice for the public on when and how to use masks: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/when-and-how-to-use-masks
  - Rational use of personal protective equipment for COVID-19 and considerations during severe shortages. Interim guidance. 23 December 2020 https://www.who.int/publications/i/item/rational-use-of-personal-protective-equipment-for-coronavirus-disease-(covid-19)-and-considerations-during-severe-shortages

4.5. Precautions at the ship medical facility

All patients should be asked to practice respiratory etiquette, covering their nose and mouth with a tissue when coughing or sneezing, immediately disposing of used tissues in a no-touch waste bin followed by meticulous hand hygiene or sneezing and coughing in the elbow if no tissue is available. Thorough hand washing should take place after any contact with respiratory secretions[9].

ECDC and WHO advise that a possible case should be provided and wear a medical face mask as soon as he/she is identified and be isolated in a separate room with the door closed, ideally in an isolation room if available. If a medical face mask cannot be tolerated, the possible case should practice strict respiratory etiquette and hand hygiene as described above and avoid contact with all other persons, except care givers or medical staff.

Contact with patients in isolation should be restricted to only those necessary. Any person entering the room should apply standard precautions, contact precautions, droplet precautions and airborne precautions[2,10,11]. If not enough respirators are available (e.g. for airborne precautions) which should be prioritized for aerosol-generating procedures, droplet precautions should be applied (e.g. use of a medical face mask). In this specific case, the limitations and risks connected to its use should be assessed on a case-by-case basis.

Healthcare workers in contact with a possible/confirmed case of COVID-19 should wear PPE for contact, droplet and airborne transmission of pathogens: FFP2 or FFP3 respirator tested for fitting and eye protection (goggles or face shield), as well as a long-sleeved impermeable gown and gloves, if there is a possible risk of contact with body fluids or in areas where contamination is considered high[2,11-13]. If a sufficient supply of respirators is not available a medical face mask could be used, with respirators prioritized for aerosol-generating procedures. Strategies for extended use, decontamination or reuse of respirators could also be considered in cases of shortages. Disposable PPE and other soiled single-use items should be treated as potentially infectious material and properly disposed of in accordance with the relevant rules (e.g. in a biohazard bag or secured plastic bag labelled "biohazard"). Non single-use PPE should be decontaminated in accordance with the manufacturer's instructions.

4.6. Isolation of cases

Following preliminary medical examination, if the ship's medical officer determines that there is a possible/confirmed case of COVID-19 on board that meets the definition described in paragraphs 4.1 and 4.2, the patient should be isolated in an isolation ward, cabin, room or quarters and infection control measures should be continued until disembarkation and transfer of the patient to the hospital or an isolation facility (hotel etc.) ashore.

Contact with patients in isolation should be restricted to only those necessary. All persons entering the isolation room should apply standard precautions, contact precautions and airborne and droplet precautions as described in WHO guidance for infection control[14]. If a sufficient number of respirators are unavailable, the use of a medical face mask can be used (with respirators prioritized for aerosol-generating procedures). For any person entering the isolation area where a possible case is present, it is recommended to use a medical face mask and, if no direct assistance is provided to the patient and it is feasible to maintain a physical distance of at least 1.5 metres from the patient. Frequent and meticulous hand hygiene should also be practiced.

The medical facilities as well as the designated isolation and quarantine spaces should be connected to a separate Air Handling Unit (AHU). 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. The return air from the medical facilities and the isolation spaces should either be HEPA-filtered or exhausted to the outside.

However, if the illness does not meet the possible/confirmed case definition (paragraph 4.1) but the individual has respiratory symptoms, the individual should not be allowed to return to public areas of the ship or interact with the public, but should follow the standard procedure for isolation of individuals with Influenza Like Illness[4]. Detailed guidance is provided in the European Manual for

Hygiene Standards and Communicable Disease Surveillance on Passenger Ships, Part B, Guideline I: http://www.shipsan.eu/Home/EuropeanManual.aspx

4.7. Diagnostic testing of contacts

Early testing (rapid antigen diagnostic testing or RT-PCR[‡]) of all contacts (asymptomatic and symptomatic) to diagnose infections and enable any further contact tracing that may be necessary should be arranged.

Please refer to the laboratory testing for detection of COVID-19 cases section in the EU HEALTHY GATEWAYS Advice for restarting cruise ship operations after lifting restrictive measures in response to the COVID-19 pandemic Version 2, available at: https://www.healthygateways.eu/Novel-coronavirus

4.8. Reporting and notification

In accordance with the International Health Regulations (2005), the officer in charge of the ship must immediately inform the competent authority at the next port of call about any possible case of COVID-19[15].

For ships on 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.

According to ECDC-EMSA guidelines for reporting: "Ship calls at EU ports are a well-established process. Member States have National Single Windows for reporting formalities, including the Maritime Declaration of Health (MDH) ("free pratique"). The notification of ship calls at EU Ports is defined in Directive 2002/59/EU, as amended. In general, the pre-notification period is 24 hours before arrival. However, cruise ship companies are recommended to extend the pre-notification period due to current circumstances, to allow for better coordination with the port authorities. Similarly, the MDH is also required to be reported through the National Single Window prior to arriving in a port situated in an EU Member State as specified above, in accordance with EU law (Directive 2010/65/EU). It must be reported by the master or any other person duly authorised by the ship operator to the competent authority designated by that Member State. Any possible, probable or confirmed case of COVID-19 on board should be communicated without delay. It is recommended that Member States request the ship's master keep the MDH updated, and communicate the following information to the relevant authority four hours prior to the estimated arrival in each port of call: (a) Total number of persons on board (both crew and passengers); (b) Number of persons infected with COVID-19 (confirmed cases); (c) Number of persons considered as possible or probable cases of COVID-19. This information can be communicated through the updated MDH via radio/telephone in case of imminent arrival". Further guidelines about reporting

[‡] or by other Nucleic Acid Amplification Test (NAAT), listed in the FDA list with the in Vitro Diagnostics EUAs - Molecular Diagnostic Tests for SARS-CoV-2 and authorised for screening (testing asymptomatic individuals without known exposure) and can be used at home or otherwise as specified in the authorization list for certified laboratories or health care settings: https://www.fda.gov/medical-devices/coronavirus-disease-2019-covid-19-emergency-use-authorizations-medical-devices/in-vitro-diagnostics-euas-molecular-diagnostic-tests-sars-cov-2#individual-molecular.

at arrival and departure can be found in EMSA-ECDC COVID-19: EU Guidance for Cruise Ship Operations. Guidance on the gradual and safe resumption of operations of cruise ships in the European Union in relation to the COVID-19 pandemic (Date: 27 July 2020)[2] https://www.ecdc.europa.eu/en/publications-data/COVID-19-cruise-ship-guidance

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 possible/confirmed case to determine if the necessary capacity for transportation, isolation, laboratory diagnosis and care of the possible or confirmed case/cluster of cases of COVID-19 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 possible case/cluster of cases of COVID-19. The ship should proceed to the contingency port or the home port. "Home port" is the port where cruise ship passengers embark to start the cruise and disembark the cruise ship at the end of the cruise. The home port should fulfil the criteria of a contingency port. Each ship should have at least one contingency port as part of a 7 nights' itinerary. The home port should always be the contingency port, but additional contingency ports could be defined. "Contingency port" is the port for which interoperability of the ship's contingency plan and the port's contingency plan has been ensured, and agreed that any potential COVID-19 outbreak on board this cruise ship will be managed at this port, including complete evacuation of the cruise ship if needed and isolation/quarantine of cases/contacts. "Transit port" is the port of call which is an intermediate stop for a cruise ship on its sailing itinerary, where passengers will get on or off the ship for excursions. It is important that all arrangements are agreed in advance and conducted as quickly as is feasible to minimise the stay of symptomatic possible case/cases on board the ship.

5. Management of contacts

Each passenger and crew member should provide contact details (using the Passenger Locator Form) and complete a health screening questionnaire before entering the ship. The passenger or crew member that meets the definition of a possible/confirmed case should provide information about the places that he/she visited and about his/her contacts, including the period from two days before the onset of symptoms on board the ship or ashore. This information will be used to identify the contacts.

5.1. Management of the close contacts

All travellers that fulfill the definition of a "close contact" should be listed with their contact details and information regarding the places where they will be staying for the following 14 days, and should be quarantined according to the national law. All close contacts should remain on board the ship in designated single cabins or at a facility ashore (in case the ship has docked at the home port and if feasible), in accordance with instructions received by the competent authorities, until the laboratory results for the possible case are available. Children should be quarantined in the cabin with one of their parents and similar consideration should be given to supporting those with special needs. The designated cabins should be located near the ship's medical facility for ease of

accessibility by crew, and if possible have windows that open outside to promote appropriate air exchange.

All close contacts should be quarantined ashore and not allowed to travel internationally, unless this has been arranged in accordance with the WHO advice for repatriation. Crew members may remain on board in quarantine if single occupancy balcony cabins are available, in a designated quarantine area that has limited access where precautionary measures can be closely monitored and controlled. Moreover, for situations where disembarkation of passengers and quarantine ashore are not feasible (e.g. due to lack of quarantine facilities ashore, visa issues), close contacts may remain in the ship's quarantine facilities on board (separated and individually quarantined for the required period of time), provided strict control measures are implemented and cabins have access to natural light (window or balcony) and required services.

Control measures should include checks to ensure those in quarantine remain in their cabin at all times, that no cabin visitors are allowed, and that strict infection control procedures are followed for the provision of food and other services. Records of the quarantine measures taken and control measures for enforcement of quarantine should be maintained and available to authorities during inspections.

ECDC guidance on contact tracing and public health management of persons, including healthcare workers, who have had contact with COVID-19 cases in the European Union can be found at: https://www.ecdc.europa.eu/en/covid-19-contact-tracing-public-health-management[16].

Considerations for quarantine measures are given in the WHO travel advice[14]: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/travel-advice. The above quarantine measures are all subject to requirements of the local/national competent health authorities.

Close contacts of possible cases should be managed as if the case was confirmed until the final test result is available. Close contacts should quarantine in an on-shore facility. Until this is arranged, contacts should remain in their cabin with the door closed and provided with food and other essentials, while ensuring the safety of crew providing these services. Passengers could also be provided with cleaning materials to clean the cabin, rather than cleaning being carried out by crew. Cabins where contacts are quarantined should have en suite bathrooms. If two or more people share a cabin and only one of them is a close contact, the contact person should be relocated to a single occupancy cabin. If two or more people who are identified as contacts share a cabin and one develops symptoms, they should then be managed as a possible case and their contact persons should be subsequently housed in separate cabins. All contacts on a cruise ship should be requested to complete passenger locator forms with their contact details and the locations where they will be staying for the following 14 days[16]. Low-risk contacts should be managed in accordance with requirements of the country at the contingency port.

5.2. Reporting information to the competent authorities about contacts

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

6. Disembarkation

The possible/confirmed case should disembark in a controlled way to avoid any contact with other persons on board the ship, and wear a medical face mask if tolerated. Personnel escorting the patient during the medical evacuation should wear suitable PPE, including a fitted respirator (or if unavailable a medical face mask), eye protection (goggles or face shield) as well as a long-sleeved impermeable gown and gloves if there is a risk for contact with body fluids.

As soon as the possible/confirmed case has been removed from the cruise ship, the cabin or quarters where the possible/confirmed case was isolated and managed should be thoroughly cleaned and disinfected as described in paragraph 10, by staff trained to clean and disinfect cabins during gastroenteritis outbreaks[17,18]. Cleaning personnel should wear appropriate PPE, including a medical face mask, eye protection (goggles or face shield) based on risk assessment of splash from chemicals/organic matter, a long-sleeved impermeable gown and gloves (heavy duty gloves could be considered based on risk assessment and safety issues for chemicals used). Closed work shoes or boots could also be considered. Cleaning personnel should be trained in the appropriate use of PPE and perform frequent hand hygiene.

7. 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 the ship[15]. The authority may decide in consultation with the ship owner to end the cruise, in order to stop on-going spread of the disease on board. For example, a sign of possible on-going transmission on board could be the identification of three or more confirmed cases who are staying in two or more different cabins and who are not travelling together (excluding the cases identified through testing conducted the day of embarkation). Moreover, terminating the cruise may be considered if health measures, including contact tracing, cannot be satisfactorily completed while travellers are on board the ship.

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

The next cruise can start when thorough cleaning and disinfection has been satisfactorily completed. If on-going transmission occurred on board the ship among crew members, cruise lines are advised to explore the possibility of starting the next cruise with new crew working within the affected departments, if feasible.

8. Record keeping in the medical log

Records should be kept about the following:

a) Any person on board who has visited the medical facility and meets the definition of a possible/confirmed case of COVID-19 described in paragraph 4.1., the isolation and hygiene measures taken at the isolation place;

b) Any person meeting the definition of a close contact described in paragraph 4.2 and the results of monitoring of his/her health;
c) Contact details of casual contacts who will disembark, and the locations where they will be staying in the following 14 days (completed PLFs);
d) Results of active surveillance;
e) Results of diagnostic testing;
f) Details about isolation and quarantine (place, when started, names of persons who entered the room and provided care, control measures).

9. Active surveillance (case finding)

Case finding among passengers and crew should be initiated after a possible/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 passengers (e.g. passenger surveys) and crew, asking about current and recent illness, conducting laboratory diagnostic testing and checking if any person meets the criteria of a possible/confirmed case. Active surveillance activities should be conducted for 14 days after the COVID-19 confirmed case was identified. Findings should be recorded.

10. Cleaning and disinfection

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

Medical facilities, cabins and quarters occupied by COVID-19 patients and contacts should be cleaned and disinfected in accordance with ECDC guidance and EU HEALTHY GATEWAYS advice for cleaning and disinfection[17,18]. Appropriate PPE should be used by cleaning personnel as described above in Section 6.

Laundry, food service utensils and waste from cabins of possible cases and contacts should be handled as infectious, in accordance with the outbreak management plan provided on board for other infectious diseases (Norovirus gastroenteritis)[4]. Staff who will perform cleaning and disinfection should be trained to use PPE.

The air filters of the Air Handling Units that operate with air recirculation should be replaced by trained persons using proper PPE and treated as infectious waste. PPE for use by maintenance crew replacing air filters can include: fitting respirator (if unavailable consider use of a medical face mask assessing limitations and risks on a case-by-case basis), eye protection (goggles or face shield), a long-sleeved impermeable gown, disposable gloves (heavy duty gloves could be considered based on risk assessment and safety issues for chemicals used), and boots if needed based on a risk assessment. The air handling units should be cleaned and disinfected.

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

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