



Co-funded by
the Health Programme
of the European Union

EU HEALTHY GATEWAYS JOINT ACTION
GRANT AGREEMENT NUMBER: 801493

PREPAREDNESS AND ACTION AT POINTS OF ENTRY
(PORTS, AIRPORTS, GROUND CROSSINGS)

GUIDELINES FOR INTER-COUNTRY COMMUNICATION & INFORMATION FLOW IN OUTBREAK INVESTIGATIONS ON SHIPS & PUBLIC HEALTH EVENT MANAGEMENT

Deliverable 9.4

PUBLIC VERSION – EXECUTIVE SUMMARY

Version Number 03

July 2021

Work Package 4: Sustainability

Work Package Leader: University Medical Center Hamburg-Eppendorf/ Institute for Occupational and Maritime Medicine, Germany

Work Package 7: Maritime transport

Work Package Leader: University of Thessaly, Greece

Work Package 9: Capacity Building – Training

Work Package Leader: RIVM, the Netherlands

The EU HEALTHY GATEWAYS Joint Action has received funding from the European Union, in the framework of the Third Health Programme (2014-2020).

The content of this document represents the views of the author only and is his/her sole responsibility; it cannot be considered to reflect the views of the European Commission and/or the Consumers, Health, Agriculture and Food Executive Agency (CHAFEA) or any other body of the European Union. The European Commission and the Agency do not accept any responsibility for use that may be made of the information it contains.



Co-funded by
the Health Programme
of the European Union

Suggested citation: Barbara Mouchtouri, Elina Kostara, Martin Dirksen-Fischer, Kristina Militzer, Jan Heidrich, Doret de Rooij, Corien Swan, Thijs Veenstra, Jorrit Kabel, Brigita Kairiene, Janusz Janiec, Leonidas Kourentis, LEMONIA Anagnostopoulou, Christos Hadjichristodoulou. EU HEALTHY GATEWAYS Guidelines for inter-country communication and information flow in outbreak investigations on ships and public health event management (Deliverable 9.4). March 2021. EU HEALTHY GATEWAYS joint action (Grant agreement Number – 801493); 2021. Available at: <https://www.healthygateways.eu/>

EXECUTIVE SUMMARY

1. Introduction

This is **Deliverable 9.4** titled “**Guidelines for inter-country communication and information flow in outbreak investigations on ships and public health event management (Public version)**” of the EU HEALTHY GATEWAYS joint action. The EU HEALTHY GATEWAYS joint action has received funding from the European Union, in the framework of the Third Health Programme (2014-2020) [1].

The public version of this document describes:

- *The roles and responsibilities of stakeholders involved in outbreak investigation on board ships.*
- *Suggestions for information flow, standardised information sharing and coordination of the response to public health events among the competent authorities in the European Union Member States (EUMS), the shipping companies, the ship officers and other stakeholders at a local and central level in countries as well as international level.*
- *Description of existing platforms for information sharing including the EU SHIPSAN information system (EUSIS) for communication at local level and Early Warning and Response System (EWRS) for communication at national level.*
- *Specific consideration about inter-country communication in regard to response measures, follow-up and decision for considering termination of a public health event.*

Methods used to produce the document included a review of best practices identified through surveys conducted in the framework of the joint action. In addition, a review of the literature including existing guidelines from the European Centre for Disease Prevention and Control (ECDC) and the World Health Organization (WHO) was done to ensure consistency with existing guidance and interoperability with guidelines produced in both the European and international context [2-16]. Moreover, this deliverable is based on materials produced under the EU SHIPSAN ACT joint action. Lessons learned from previous and current public health emergencies of international concern (PHEIC) and other outbreaks were also reviewed and incorporated in these guidelines.

A small-scale multi-sectorial table-top exercise at European level was conducted, to assist competent authorities and organizations at national and European level to test these guidelines produced for inter-country communication and information flow in outbreak investigations on ships and management of public health events.

This document will be considered by the EU HEALTHY GATEWAYS joint action sustainability working group in order to determine the next steps forward for exploitation of the suggested inter-country communication guidelines.

2. Background and problem analysis

Public health events can occur on board ships as well as on land-based premises. As ships move rapidly from port to port, when a public health event occurs on board coordinated actions between ships and public health authorities are needed at the various ports of call. Although communication flows, networks and platforms for information exchange related to cross border public health events are well established in EUMS, competent authorities face challenges when dealing with public health events occurring on ships. Under the activities of the EU SHIPSAN ACT and EU HEALTHY GATEWAYS joint actions, the consortiums recognized that past outbreaks occurring on board ships sailing in EU countries' waters were not always timely detected and/or adequately investigated.

The following facts challenge detection, risk assessment, implementation of response measures and follow-up of public health events on ships:

- Ships continuously sail from port to port within the same country or between countries. The normal communication flows of public health information used for land-based premises cannot be used for ship related events.
- Crew members and passengers travel to different destinations around the world upon disembarking. A disease diagnosis could be made after disembarkation.
- Ship routes are not always known, particularly in the case of cargo ships.
- The length of time in which ships are anchored at ports is insufficient for authorities to perform risk assessments and to observe/implement control measures.
- A high population turnaround on board passenger ships can pose a challenge when health measures must be taken to travellers.
- Competent authorities involved in detection, risk assessment, response measures and the legal framework related to ships, differ from those applied on land.

A ship's itinerary should be taken into consideration when scheduling the application of control measures and follow-up of events. If health measures should be taken to travellers and/or crew, the destination country must be informed.

It is essential to ensure early detection and containment of events, before they evolve into outbreaks which fulfill criteria requiring international collaboration for control. Therefore, information sharing should ensure: a) direct port-to-port communication (via EUSIS), and b) communication among authorities at national, EU and international level (via EWRS, EPIS, IHR NFP).

Currently, rules/framework/guidelines do not exist regarding: who coordinates the investigation of an outbreak on board ships that call ports in more than one EU country and/or an EU and non-EU country; what information about implemented measures is shared among competent authorities at the ports of call and how this information is shared; and who determines that the outbreak is over. Each country

communicates information using different means and routes within the country, according to their national policies and structures. Public health events on ships may not fulfill the criteria to be reported through EWRS; however, port-to-port communication is essential. The different ports of call in a ship's itinerary should use the same channels and means for communication and provide only correct and verified information. The COVID-19 pandemic revealed the need for rapid information sharing among the ports of call in a ship's itinerary which are involved in event management on affected ships.

3. Analysis of stakeholders involved in outbreak management on ships

3.1. SHIP OFFICERS, SHIP OPERATORS AND THEIR AGENTS

According to the IHR, ship officers, ship operators and their agents must report to the competent authority at the destination port as early as possible, and as soon as information on any cases of diseases of infectious nature or any public health risk on board the ship becomes available to them [10, 11]. The ship officer, ship operator or their agents should make all efforts to establish communication with the competent authority at the port of destination, in case there is a public health risk on board or cases of diseases of infectious nature. Before arrival at its first port of call and if the port requires, the master of a ship on international voyage should communicate the health conditions on board to the competent authority via submission of the Maritime Declaration of Health (MDH) through the Maritime Single Window or by other means in accordance to the countries requirements [10]. The ship officers, ship operators and their agents should also provide any additional information requested by the competent authority, to facilitate the latter with conducting the public health risk assessment [11].

3.2. LOCAL HEALTH AUTHORITY

The local level competent authority will be the first to receive information of a public health event on board a ship through different means and sources (e.g. via ship, IHR NFP, previous port of call). In accordance with IHR, the local level competent health authority must have established procedures for communication with the ship, the other complementary authorities and/ or service providers at local, regional or central level including the IHR NFP, other Point of Entry types (airports, ground-crossings) and other ports both within and outside the country. The local level authority should perform a risk assessment and implement control measures if necessary. Risk assessment could involve requesting additional information from the ship and reviewing documents remotely, a visit on board the ship to conduct a focused inspection or an outbreak investigation, collecting samples and/or clinical specimens, and interviewing crew members and passengers etc. Health measures could include disinfection, decontamination, disinsection, medical examination, vaccinations, contact tracing etc. Information for risk assessment and/or health measures implementation must be shared with the previous and next ports of calls, the national level authorities, and if necessary shared through international level platforms with other countries. Therefore, information sharing and effective communication by all ports of call is essential.

3.3. CENTRAL LEVEL AUTHORITY

Responsible authorities to be involved in the management of public health events at ports include: the IHR NFP, the EWRS NFP, national central level coordinator of points of entry (if applicable), and the NFP of ECDC disease-specific networks. Links should be established between these national central level authorities and the port local health authorities, to ensure public health events that meet certain criteria are reported to the central level authority. The central level authority will then assess the public health events reported, and decide if those events/measures taken should be reported at an EU and/or international (non-EU) level. According to IHR (2005) competent authorities at national level should have the capacities described in Annex 1 of IHR (2005) to assess, notify and respond to public health events [10]. IHR (2005) Annex 2 provides an algorithm for national level authorities to decide if a public health event should be reported to WHO: https://www.who.int/ihr/annex_2/en/. In accordance with Article 15 of Decision 1082/2013/EC, EU MS should designate the competent authority or authorities responsible at national level for notifying alerts and determining the measures required to protect public health [17].

3.4. EU LEVEL AGENCIES AND NETWORKS

3.4.1. Early Warning and Response System

The Early Warning and Response System (EWRS) of the European Union is a tool with restricted access that allows the Commission and EU MS competent authorities **at national level** to be in permanent communication for the purposes of alerting, assessing public health risks and determining the measures that may be required to protect public health [6]. According to Article 15 of Decision 1082/2013/EC, each EU MS should designate the competent authority or authorities responsible at national level for notifying alerts and determining the measures required to protect public health [6]. Moreover, EU MS should “ensure that effective communication channels are established between the EWRS competent authorities and any other relevant competent authorities within their jurisdiction in order to promptly identify serious cross-border threats to health” [8]. There are two main communication channels in EWRS: the first is “general messaging” where the competent health authority in a given Member State shares information about events of a potential EU dimension with all national EWRS focal points, the Commission, ECDC and WHO [7]. The second “selective exchange messaging” channel allows focal points to send a message to selected recipient(s) and can also be used for contact tracing purposes, with contact tracing/health information visible only to the Member States directly concerned [7]. In addition a platform for the secure exchange of Passenger Locator Form data of infected passengers for the sole purpose of SARS-CoV-2 contact tracing of exposed persons by the EWRS competent authorities (‘PLF exchange platform’) is established under the EWRS as a complement of the selective messaging functionality existing within that system. The PLF exchange platform shall provide a digital entry point for EWRS competent authorities to securely connect their national digital PLF systems or connect through the common European Union digital

Passenger Locator Form System ('EUdPLF')¹, in order to enable the exchange of data collected through PLFs [18].

3.4.2. ECDC disease-specific networks

ECDC operates a total of 18 operational disease networks aiming to "enhance capabilities and strengthen capacity for pathogen detection, characterization and surveillance of specific diseases and antimicrobial resistance"[2]. <https://www.ecdc.europa.eu/en/about-us/who-we-work/disease-and-laboratory-networks>

ECDC launched on 22 June 2021 the European surveillance portal for infectious diseases (EpiPulse), an online portal for European public health authorities and global partners to collect, analyse, share, and discuss infectious disease data for threat detection, monitoring, risk assessment and outbreak response. <https://www.ecdc.europa.eu/en/news-events/launch-epipulse-new-portal-strengthen-prevention-and-control-infectious-diseases> [19]. In particular, it allows public health authorities at national level to share technical information to assess whether current and emerging public health threats have a potential impact in the EU.

The following networks are relevant to cruise ships public health events:

- **Travel-associated Legionnaires' disease surveillance scheme of the European Legionnaires' Disease Surveillance Network (ELDSNet)** (<https://www.ecdc.europa.eu/en/about-us/partnerships-and-networks/disease-and-laboratory-networks/eldsnet>): the aim of ELDSNet is to "detect, control and prevent cases, clusters and outbreaks of Legionnaires' disease in EU/EEA countries, and assist with detection and response outside these countries. The network supports the Member States and other involved countries to share information and collaborate on response actions to provide better protection from travel-associated Legionnaires' disease, both domestically and abroad" [4]. National public health authorities appoint members to the ELDSNet network that act as contact points, and events are communicated via the ECDC EPIPULSE [4].
- **FWD (Food- and Waterborne Diseases and Zoonoses)**: EPIPULSE-FWD facilitates the early detection and assessment of multi-country/multinational molecular typing clusters and outbreaks of FWDs [3].
- **VPD (Vaccine Preventable Diseases)**: EPIPULSE-VPD facilitates the early detection and sharing of information on outbreaks of VPDs and adverse events from vaccinations, allowing exchange of information on technical topics related to vaccinations and the control of vaccine preventable diseases [3].

¹ <https://www.euplf.eu/en/home/index.html>

3.4.3. European Maritime Single Window

In order to simplify reporting formalities on board ships, EU MS have developed national “single windows” where ship operators can submit data electronically and make data available to multiple authorities. The Commission had established a European Maritime Single Window environment’ (‘EMSWe’) which provides “the legal and technical framework for the electronic transmission of information in relation to reporting obligations for port calls in the Union, which consists of a network of maritime National Single Windows with harmonised reporting interfaces and includes data exchanges via SafeSeaNet and other relevant systems as well as common services for user registry and access management, addressing, ship identification, location codes and information on dangerous and polluting goods and on health” [5]

3.4.4. Ship sanitation database, EU SHIPSAN Information System (EUSIS)

Regulation (EU) 2019/1239 of the European Parliament and of the Council of 20 June 2019 establishing a European Maritime Single Window environment and repealing Directive 2010/65/EU includes the establishment of a common ship sanitation database that is able to receive and store data on Maritime Declarations of Health applicable from 15 August 2025 [5]. *In accordance with Article 17, the Commission shall make available a common ship sanitation database that is able to receive and store data related to the Maritime Declarations of Health under Article 37 of the IHR (2005). Personal data relating to ill persons on board ships shall not be stored on that database. The competent health authorities of the Member States shall have access to the database for the purpose of receiving and exchanging data* [5]. The EU SHIPSAN Information System (EUSIS) (<https://sis.shipsan.eu/>) consists of four components and records data of ship inspections and data on management of public health events on ships (names of ships, hygiene inspection results, description of public health events on ships, names of ports and names of officers working in EU ports). The system enables ship-to-port, port-to-national authorities and port-to-port communication. Moreover, read access is given to the national central level authorities, ECDC, NFP ECDC networks, the European Commission and WHO. Data are recorded by officers working at port health authorities in EU countries and by ship operators/Captains of ships sailing in the EU. The purpose of EUSIS is to maintain a communication system that can improve consumers’ (passengers and crew) health protection through:

- (a) recording of information related to communicable diseases by the ship using web based standardized disease recording forms. This information can be used for the risk assessment conducted by competent authorities (e.g. port health authorities, national authorities, EWRS NFPs),
- (b) facilitating communication by maintaining registries including contact details for ships, competent authorities, and port health officers including inspectors,
- (c) creating an alert system to ensure that outbreaks and other public health events can be investigated and controlled in a timely manner without over reaction,

- (d) facilitating the exchange of information between ports during outbreak investigation,
- (e) sharing of information on hygiene inspections, sharing epidemiological information among competent authorities at ports in a standardized and confidential way,
- (f) to maintain a European database for storing the Maritime Declaration of Health which have been submitted to the National Single Window to EUSIS.

3.4.5. Union Maritime Information and Exchange System (SafeSeaNet)

SafeSeaNet (SSN) is a Union information system for the exchange of vessel and voyage related information between designated participants within EU established under Directive 2002/59/EC, as amended. The system was developed by the Commission in cooperation with the Member States to ensure the implementation of Union legislation. EMSA is responsible for the development, operation and maintenance of the central SSN system as well as the interfaces with the Member States national systems. The objective of the SSN system is to support EU and MS activities and enable the receipt, storage, retrieval and exchange of information for the purpose of maritime safety, port and maritime security, marine environment protection and the efficiency of maritime traffic and maritime transport. The SSN system also supports the data exchange at EU level between the maritime National Single Windows established under the European Maritime Single Window environment Regulation (EU) 2019/1239. Member States receiving information on a possible, probable or confirmed COVID-19 case may share it on a voluntary basis with the Member States along the planned route of the ship and the ship's flag (if an EU Member State) via SSN. For this, an addendum to the SSN Incident Report Guidelines² has been adopted by the Commission and the Member States on 15th April 2020 providing guidance to Member State Authorities on how to exchange information relating to possible, probable, or confirmed cases of COVID-19 infection on board ships, and on the measures taken by the competent authorities in Member States located along the routes taken by the ships concerned. Member States can share this information with other Member States on a voluntary basis using the Incident Report type "Others" which is an existing functionality of SSN.

3.5. INTERNATIONAL LEVEL (NON-EU)

3.5.1. IHR NFP network

IHR (2005) requires Member States to establish a National IHR Focal Point to communicate with the WHO IHR contact points for urgent communications between countries and WHO. The functions National IHR NFPs have as described in IHR (2005) (Article 4) are: (a) sending to WHO IHR Contact Points, on behalf of the State Party concerned, urgent communications concerning the implementation of these Regulations, in particular under Articles 6 to 12; and (b) disseminating information to, and consolidating

² Available at <http://emsa.europa.eu/ssn-main/documents/item/1137-ssn-incident-report-guidelines-v120.html>

input from, relevant sectors of the administration of the State Party concerned, including those responsible for surveillance and reporting, points of entry, public health services, clinics and hospitals and other government departments. [10]

The IHR NFP has to notify within 24 hours all events that may constitute a public health emergency of international concern (PHEIC) via the most effective means and to continue to communicate with WHO to provide timely, accurate and sufficient public health information regarding the event notified (IHR, Article 6) [10]. IHR NFP should use the decision instrument available in Annex 2 of the IHR to assess if an unexpected or unusual public health event may constitute a public health emergency of international concern and should be notified to WHO [10]. WHO in turn will communicate with all parties to inform them of a public health risk and provide information in order to prevent similar incidents from occurring [10]. The communication channels used by the IHR NFP for reporting to WHO are:

- *urgent communications under IHR 2005*
- *European Commission's Early Warning and Response System (EWRS)*
- *other governmental channels (e.g. the Ministry of Health and national government agencies), or*
- *partner networks (e.g. other UN agencies, Global Outbreak, Alert and Response Network (GOARN)) [15]*
- *IHR Event Information Site (EIS) - Secure website developed by WHO to facilitate communications with the National IHR Focal Points (NFPs) [20]*

The WHO Event Management System (EMS) is the central electronic repository for event-related information. National IHR Focal Points (NFPs) and relevant government communications, event details, WHO assessments and decisions are documented and recorded in EMS [15]. All events that fulfil the Annex 2 criteria for notification must be recorded in EMS. However, other public health events monitored by WHO may also be recorded in EMS [20].

4. Suggested information flow in response to outbreaks on ships

Six **routes of communication** exist during outbreak investigations on ships and public health event management, depending on the severity of the event:

- a) *Ship-to-port*
- b) *Port-to-ship*
- c) *Port-to-port*
- d) *Port to national and sub-national level*
- e) *National level to international level*
- f) *National level to port*

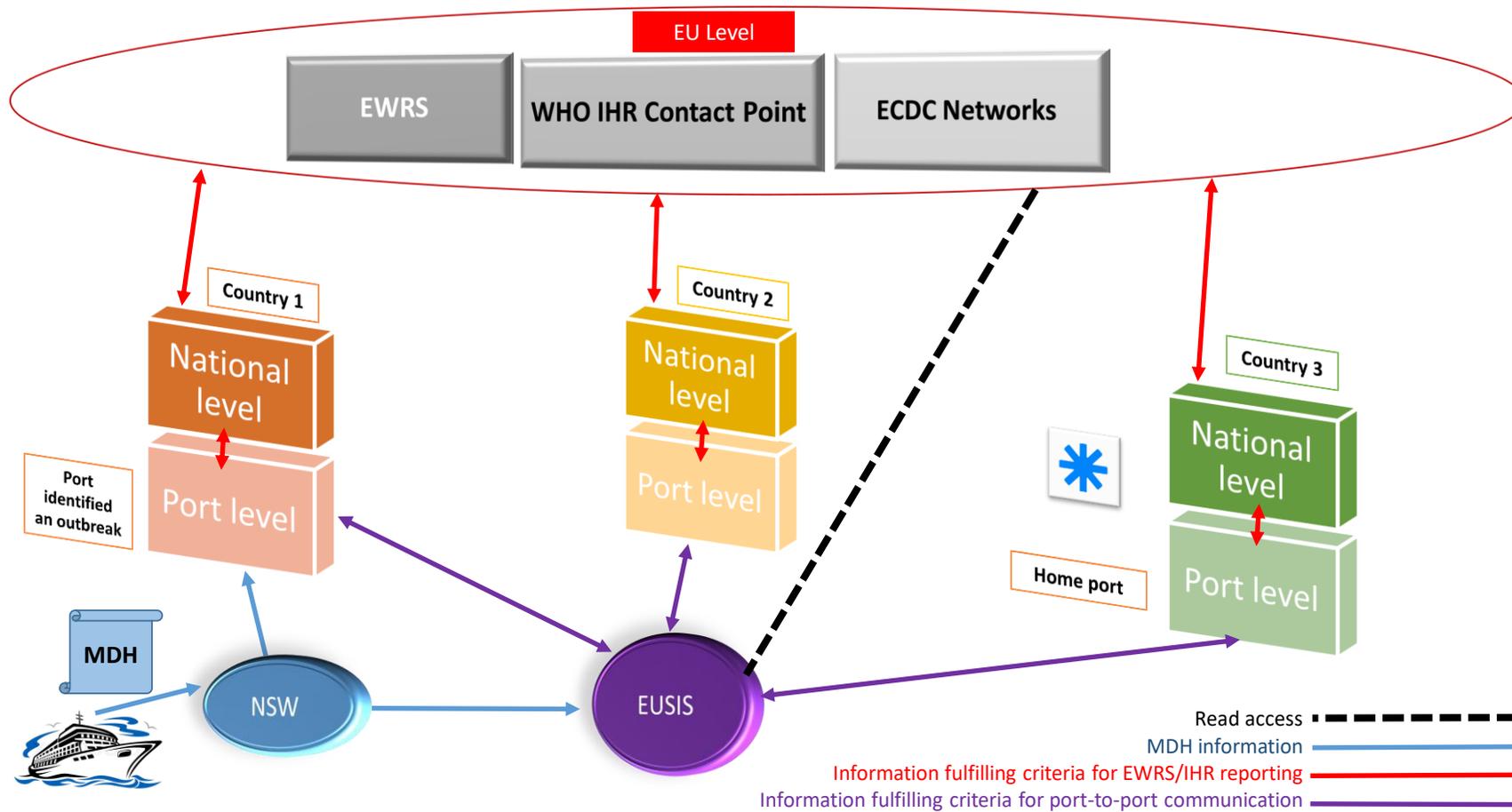
Both port-to-port and (inter)national communication routes are indispensable. The port-to-port communication route is critical because local level authorities have immediate access onto ships and the



Co-funded by
the Health Programme
of the European Union

competence of applying health measures; therefore, reliable and verified information can be rapidly shared with others. The (inter)national route can be used only when certain criteria are fulfilled, and consist of the formal channels that keep national authorities aligned and informed. The flow chart for communication routes is provided in **Figure 1**.

Figure 1: Flow chart of information when responding to public health events on ships



 Port/country coordinating outbreak response (home port) - if not possible then the port that identified an outbreak should take the lead of the outbreak

MDH: Maritime Declaration of Health, NSW: National Single Window, EUSIS: SHIPSAN Information System, EWRS: Early Warning and Response System, IHR: International Health Regulations

Note: For COVID-19 cases reporting on board ships, competent authorities can use the SafeSeaNet following the instructions given in the [SafeSeaNet Incident Report Guidelines Addendum on "Reporting COVID-19 cases on board ships"](#).

5. Recommendations

Channels of communication

Communication rules, regulations and practices may vary from country to country. It is important to use existing channels and frameworks of inter-country communication. Moreover, guidelines produced can be flexible to allow for various communication options, provided that all stakeholders can access the appropriate information. On-line web based platforms present advantages and provide an EU added value to public health information sharing.

Coordinating a public health event

When a public health event occurs on board a ship calling different ports in EU countries, it is important that one of the authorities coordinates the public health response, informs all involved authorities regarding the outbreak investigation's outcome, prepares the investigation report and decides to close the public health event. The working group that developed the current guidelines suggests that for events on ships sailing in EU countries that **do not fulfill criteria** to be reported at EU level then the competent authority in the home port country could act as coordinator or when national rules require it the central level authority in the home port country could act as coordinator. If this option is not possible it is suggested that the port or central level authority in the country that identified the public health event could take on the role of coordinator. For public health response of events that **fulfill criteria to be reported at EU level** it is suggested that the central level authority in the country that identified the public health event acts as coordinator. If the central level authority in the country that identified the public health event cannot act as coordinator, then the central level authority in the country of the ship home port should take on the role of the coordinator. For public health events affecting more than one country and/or there is transmission not only on board ships but also in the community, then ECDC if asked by EU MS could coordinate the response to the event.

Port-to-port communication

The local authorities at the ports of call should inform about any new evidence related to the event and response measures to the relevant authorities within their country at local, sub-national and national levels and also update with this information the port-to-port communication platform (EU SHIPSAN Information System - EUSIS). EUSIS records data of ship inspections and data on management of public health events on ships (names of ships, hygiene inspection results, description of public health events on ships, names of ports and names of officers working in EU ports). The system enables ship-to-port, port-to-national authorities and port-to-port communication. Moreover, read access is given to the national central level authorities, the European Centre for Disease Prevention and Control (ECDC), the National Focal Points of ECDC networks, the European Commission and the World Health Organisation



Co-funded by
the Health Programme
of the European Union

(WHO). Data are recorded by officers working at port health authorities in EU countries and by ship operators/Captains of ships sailing in the EU.

Working group members

Barbara Mouchtouri¹, Elina Kostara¹, Martin Dirksen-Fischer², Kristina Militzer³, Jan Heidrich³, Doret de Rooij⁴, Corien Swan³, Thijs Veenstra³, Jorrit Kabel⁴, Brigita Kairiene⁵, Janusz Janiec⁶, Leonidas Kourentis¹, LEMONIA Anagnostopoulou¹, and Christos Hadjichristodoulou¹

1. Laboratory of Hygiene and Epidemiology, Faculty of Medicine, University of Thessaly, Larissa, Greece
2. Institute for Hygiene and Environment of the Hamburg State Department for Health and Consumer Protection, Hamburg, Germany
3. Institute for Occupational and Maritime Medicine, Hamburg, Germany
4. RIVM, National Institute for Public Health and the Environment, Bilthoven, the Netherlands
5. National Public Health Centre under The Ministry of Health, Klaipeda, Lithuania
6. National Institute of Public Health - National Institute of Hygiene, Warsaw, Poland

To request access to the full document, please email info@healthygateways.eu

The working group is grateful for input provided by the European Centre for Disease Prevention and Control and the European Maritime Safety Agency.

REFERENCES

1. European Commission, C., Health, Agriculture and Food Executive Agency,. *Consumers, Health, Agriculture and Food Executive Agency. Grant agreement Number – 801493 – Healthy GateWays.*; Available from: <https://www.healthygateways.eu/>.
2. European Centre for Disease Prevention and Control. *Disease and laboratory networks* Available from: <https://www.ecdc.europa.eu/en/about-us/who-we-work/disease-and-laboratory-networks>.
3. European Centre for Disease Prevention and Control. *Epidemic Intelligence Information System (EPIS)*. Available from: <https://www.ecdc.europa.eu/en/publications-data/epidemic-intelligence-information-system-epis>.
4. European Centre for Disease Prevention and Control. *ECDC TECHNICAL DOCUMENT European Legionnaires' Disease Surveillance Network (ELDSNet) Operating procedures for the surveillance of travel-associated Legionnaires' disease in the EU/EEA*. 2017; Available from: https://www.ecdc.europa.eu/sites/default/files/documents/ELDSNET_2017-revised_guidelines_2017-web.pdf.
5. European Commission. *Regulation (EU) 2019/1239 of the European Parliament and of the Council of 20 June 2019 establishing a European Maritime Single Window environment and repealing Directive 2010/65/EU*. 25.7.2019; Available from: <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:4407248&from=EN>.
6. European Commission. *Decision No 1082/2013/EU of the European Parliament and of the Council of 22 October 2013 on serious cross-border threats to health and repealing Decision No 2119/98/EC Text with EEA relevance*. 22.10.2013; Available from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02013D1082-20131105>.
7. European Commission. *COMMISSION RECOMMENDATION of 6 February 2012 on data protection guidelines for the Early Warning and Response System (EWRS)*. 2012; Available from: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32012H0073>.
8. European Commission. *Commission Implementing Decision (EU) 2017/253 of 13 February 2017 laying down procedures for the notification of alerts as part of the early warning and response system established in relation to serious cross-border threats to health and for the information exchange, consultation and coordination of responses to such threats pursuant to Decision No 1082/2013/EU of the European Parliament and of the Council (Text with EEA relevance)*. 2017; Available from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32017D0253>.
9. World Health Organization, *Guide for public health emergency contingency planning at designated points of entry*. 2012, Geneva.
10. World Health Organization, *International health regulations (2005)*. Third ed. 2016, Geneva.
11. World Health Organization, *Handbook for management of public health events on board ships*. 2016, Geneva.
12. World Health Organization. *Standard Operating Procedures - International Health Regulations (IHR) - National Focal Point (NFP)* 2017; Available from: <http://www.paho.org/sites/default/files/2020-09/Standard-Operating-Procedures-IHR-NFP.docx>.
13. World Health Organization. *Acute public health events assessed by WHO Regional Offices for Africa, the Americas, and Europe under the International Health Regulations (2005) - 2017 Report*. 2017 November 2018 2021]; Available from: <https://www.paho.org/en/dva-annual-report>.
14. World Health Organization. *Acute public health events assessed by WHO Regional Offices for Africa, the Americas, and Europe under the International Health Regulations (2005) - 2018 Report*. 2018 July 2020 2021]; Available from: <https://www.paho.org/en/dva-annual-report>.
15. World Health Organization. *Acute public health events assessed by WHO Regional Offices for Africa, the Americas, and Europe under the International Health Regulations (2005) - 2019 Report*. 2019 October 2020 2021]; Available from: <https://www.paho.org/en/dva-annual-report>.

16. European Maritime Safety Agency. *SSN Incident Reports Guidelines – Addendum COVID-19* 2020 15/04/2020; Version: 1.0:[Available from: <http://emsa.europa.eu/ssn-main/documents/item/1137-ssn-incident-report-guidelines-v120.html>].
17. EUROPEAN COUNCIL, *DECISION No 1082/2013/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 22 October 2013 on serious cross-border threats to health and repealing Decision No 2119/98/EC*. Official Journal of the European Union, 2013.
18. European Commission. *Implementing Decision (EU) 2021/858 of 27 May 2021 amending Implementing Decision (EU) 2017/253 as regards alerts triggered by serious cross-border threats to health and for the contact tracing of passengers identified through Passenger Locator Forms (Text with EEA relevance)*. 2021; Available from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021D0858>.
19. European Centre for Disease Prevention and Control. *Launch of EpiPulse, a new portal to strengthen the prevention and control of infectious diseases*
- 2021 22 Jun Available from: <https://www.ecdc.europa.eu/en/news-events/launch-epipulse-new-portal-strengthen-prevention-and-control-infectious-diseases>.
20. World Health Organization. *WHO event management for international public health security*. 2008; Available from: https://www.who.int/csr/HSE_EPR_ARO_2008_1.pdf.