Abstract
In November 2022, the WHO Health Emergencies Programme for the WHO Regional Office for Europe conducted a functional simulation exercise called Exercise JADE (Joint Assessment and Detection of Events). This report summarizes the exercise, feedback and evaluation data, as well as recommendations for future exercises.

Keywords
INTERNATIONAL HEALTH REGULATIONS
HEALTH EMERGENCY
EMERGENCY PREPAREDNESS
BIOSAFETY
NATIONAL IHR FOCAL POINT
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1. Acknowledgements

The WHO Health Emergencies (WHE) Programme for the WHO Regional Office for Europe is grateful to the National Focal Points for the International Health Regulations (2005) for participating in the third edition of Exercise JADE and for providing crucial feedback on the experience. The WHE Programme is committed to improving the exercise and to keeping it engaging, relevant and challenging in the future. We would also like to thank the WHE Programme for the WHO Regional Office for the Western Pacific for giving us the opportunity to learn from their extensive experience in organizing IHR Exercise Crystal 2021, which proved to be invaluable. We would also like to thank the Health Security Preparedness Department at WHO headquarters for providing continuous support in the design, development and execution of the JADE exercise and Public Health Intelligence, for seconding a staff member for a week to help conduct the exercise. We would also like to thank the staff of the WHO Regional Office for Europe who helped to design, develop, refine and implement Exercise JADE.

The WHE Programme for the WHO Regional Office for Europe also thanks the National Institute for Public Health and the Environment of the Netherlands for their support in the implementation and evaluation of Exercise JADE and the European Centre for Disease Prevention and Control for sending two observers whose experience and critical input provided significant added value.

National IHR Focal Point for Sweden

1 IHR Exercise Crystal 2021 report, Manila WHO Regional Office for the Western Pacific, 2012 (https://apps.who.int/iris/handle/10665/357983; accessed 6 February 2023)
Abbreviations

CCHF  Crimean-Congo haemorrhagic fever
DO  Duty Officer
DON  Disease Outbreak News
ECDC  European Centre for Disease Prevention and Control
EIS  IHR Event Information Site
EMT  Exercise management team
EOC  Emergency Operations Centre
EU/EEA  European Union/European Economic Area
EWRS  Early Warning and Response System of the European Union
GOARN  Global Outbreak Alert and Response Network
HTP  High threat pathogen
JADE  Joint Assessment and Detection of Events
JEE  Joint External Evaluation
NFP  National IHR Focal Point
PHEIC  Public Health Emergency of International Concern
RCP  WHO Regional IHR Contact Point
RRT  Rapid Response Team
RRML  Rapid Response Mobile Laboratories
SOPs  Standard operating procedures
SPAR  State Party Annual Report
WHE  WHO Health Emergencies (Programme)
2. Executive summary

Under the International Health Regulations (IHR) 2005 Article 4, each State Party is required to designate or establish a National IHR Focal Point (NFP) to be accessible at all times for IHR-related communications with WHO and relevant sectors within the country. NFPs should provide information consolidated from the State Party’s relevant sectors, including surveillance and rapid response teams (RRTs), and public health services such as national reference laboratories, clinics and hospitals.

WHO is committed to supporting States Parties in exercising their mandatory NFP functions. In November 2022, the WHO Regional Office for Europe conducted the third Joint Assessment and Detection of Events (JADE) simulation exercise for NFPs in the WHO European Region. This exercise creates a safe environment for NFPs to practice and refine their national or subnational systems. The JADE exercise was modelled after the IHR Exercise Crystal, which was first conducted by the WHO Regional Office for the Western Pacific in 2008.

JADE is a functional exercise designed to practice collaboration between NFPs and the WHO Regional IHR Contact Point (RCP). The active participation of 47 out of 55 States Parties constitutes a strong endorsement of the exercise’s value to the NFP community in the WHO European Region. All 55 States Parties to the IHR in the Region were invited, and 47 participated on one of the three possible days. States Parties were divided into groups and each group was assigned to participate in the five-hour exercise on a particular day. Nine Russian-speaking NFPs participated on 24 November 2022, and 38 English-speaking NFPs participated on 22 or 23 November 2022. The scenario for JADE 2022 involved a laboratory leak of Crimean-Congo haemorrhagic fever (CCHF), transmitted primarily by ticks but also via close human-to-human contact with blood, secretions and other bodily fluids of infected people. The exercise included realistic developments such as the slow acknowledgement of a potentially difficult situation, the subsequent recognition of the leak and its eventual reporting to WHO as a potential Public Health Emergency of International Concern (PHEIC). The exercise tested the systems in place to implement the IHR (2005), including NFPs’ awareness of national biosafety arrangements, access to the IHR Emergency Information Site (EIS), risk assessment using IHR Annex 2 and knowledge of the mechanisms for requesting material and support. Over the three days of exercises, NFPs and the exercise management team (EMT) exchanged 1121 emails.

Participants successfully demonstrated the capacity to carry out their responsibilities as NFPs, concerning consultation, verification, information exchange and eventual notification of the RCP, as well as seeking collaboration and assistance outside their own country. The process also strengthens NFP function, helps to forge a deeper partnership between WHO and the NFP, and reinforces the understanding that NFPs are not alone in monitoring and responding to PHEICs under the IHR. This report provides details about JADE 2022 and recommendations for future collaboration under the IHR, organized by the exercise objectives.

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3. Introduction

WHO has recognized for decades the implicit value of using carefully planned exercises to simulate the decisions that must be taken during a real public health emergency. Evaluations have demonstrated that simulation exercises provide quantifiable benefits, including testing of plans, training of personnel, practising protocols, identifying unforeseen difficulties and creating esprit-de-corps among disparate parts of the same institution. Above all, such initiatives permit the cadres who are directly involved in vital life-saving actions to rehearse their roles and responsibilities in a protected environment, where any uncertainty, hesitation or questionable decision will not result in increased morbidity and mortality.

Exercise JADE, an on-line functional simulation designed to test and train the capacities of NFPs, was first implemented in 2018 and 2019 by WHO with measurable success. JADE looked to become an annual feature of public health preparedness. A two-year hiatus then ensued, as the COVID-19 pandemic overshadowed many of WHO’s previously scheduled projects and initiatives. This latest version of Exercise JADE unfolded in 2022 in a significantly changed global context. Concern about the pandemic has raised international awareness regarding the role of public health monitoring in keeping the world safe from the next public health emergency. Epidemiological surveillance has gained recognition and importance as a key aspect of public health early warning and first response. The COVID-19 pandemic has also brought about innovations in our ways of working, consuming and living, as public health professionals increasingly use teleworking, on-line meetings, professional chat groups, Zoom conferences and a host of novel technologies.

3.1 The role of NFPs

The IHR (2005) are an international agreement, legally binding on 196 countries worldwide, to work collaboratively with each other and with WHO to prevent, protect against, control and respond to the international spread of disease. The IHR were adopted by the World Health Assembly in May 2005 and entered into force on 15 June 2007. They lay the foundation for operational communications and coordination between States Parties and WHO in the detection, assessment and management of a public health event.

IHR (2005) Article 4 requires that each State Party designate or establish an NFP function with authorities responsible within its respective jurisdiction for the implementation of requirements under the IHR (2005). The NFP shall be accessible at all times and is responsible for communication with WHO concerning public health events that are relevant under IHR.
The IHR (2005) describes several modalities for event-related communications.

1. Notification (under Article 6) to the RCP of events which may constitute a PHEIC within a State Party’s territory.
2. Information sharing during unexpected or unusual events (Article 7).
3. Consultation with WHO on events not yet meeting notification criteria or to seek advice on appropriate health measures (Article 8).
4. Other reports of public health risks of potential international spread identified outside the State Party’s territory (Article 9).
5. Verification of events (Article 10).
6. Collaboration and assistance (Article 44) between different NFPs.

In addition to four notifiable diseases, NFPs will use the following four criteria included in the IHR Annex 2 decision-making tool for other listed diseases, and for any public health events with potentially serious public health implications, to decide whether to notify WHO of a particular public health event:

1. The seriousness of the event’s public health impact;
2. The unusual or unexpected nature of the event;
3. The risk of international disease spread; and
4. The risk that travel or trade restrictions will be imposed by other countries.
The scenario on bio-safety was good and came very timely”

Feedback from the participant evaluation survey
4. Exercise JADE 2022

Exercise JADE is a regional functional simulation exercise, planned, developed and facilitated by the WHO Health Emergencies (WHE) Programme for the WHO Regional Office for Europe. The hypothetical scenario for JADE 2022 concerns a laboratory leak of the CCHF virus from a private laboratory, which proceeds to infect staff and gradually filters through a wider population. The WHE Programme chose this public health event to reflect potential biosafety hazards in laboratories located throughout the States Parties of the WHO European Region and the real concern over how public health authorities might react in the face of such risks. The scenario outline (see Annex 1) was intended to be as realistic as possible while encouraging the NFP in each participating State Party to respond in a logical and reasoned manner to each new piece of information provided. It should be noted that the potential for a laboratory leak in Europe may have increased in recent years with the proliferation of research labs in many of the 53 Member States of the Region. There has been heightened awareness in recent months about this particular risk among public health professionals.

All exercise communication was conducted through email injects with attached documents and links to access media files included in the exercise.

4.1 Objectives

The purpose of Exercise JADE is to strengthen the functions of NFPs and to demonstrate the importance of IHR communication in contributing to risk assessment and situation monitoring, both regionally and globally.

The specific objectives for Exercise JADE 2022 were as follows.

1. Validate two-way communications between NFPs and the RCP.
2. Test NFPs’ access to, and use of, the EIS.
3. Practice NFP’s assessment of public health events using the decision-making instrument contained in IHR Annex 2 and its notification process, including providing inputs for an EIS posting.
4. Review the existence of and the NFPs’ knowledge about national biosafety procedures and plans.
5. Review other modalities for bilateral communication and assistance between NFPs under the IHR.

By design, the intention of Exercise JADE is not to evaluate the performance of any State Party or individual, but rather to facilitate a safe learning space and to engage NFPs in the Region to enhance preparedness and response mechanisms for eventual use in real emergency event situations.
4.2 Exercise dates

A five-hour simulation exercise was conducted on three separate days for the three groups of countries to facilitate the participation of States Parties. The exercise was carried out in the English language on 22 and 23 November 2022 and subsequently in Russian on 24 November 2022. Efforts were made to encourage the broadest possible involvement of all States Parties. The content of the exercise remained the same over the three days, except during the first day of the exercise (22 November 2022), where one email Inject (7c) was eventually deemed redundant and duly suppressed during the following two days. On the first day, time pressures precluded the sending of Inject 9 to some participants.

Following the first four hours of simulation, the EMT led a daily “hot wash” After Action Review to debrief participants after the exercise for around one hour. This debriefing had a variety of purposes: to identify challenges in fulfilling the NFP role; to understand what worked and what did not; and to gather suggestions on how to improve the exercise. The online hot wash also served to provide participants with an opportunity to decompress from the tension and stress of the simulation. Finally, it constituted a singular moment during the entire exercise when a group of participants could see each other, interact virtually and perceive that they each form part of a regional team.
4.3 Participation

All 55 States Parties in the WHO European Region were invited to participate in the exercise, and 47 confirmed their participation during one of the three scheduled exercise days (Table 1). One State Party declined due to previously scheduled activities. All 47 States Parties that confirmed did indeed participate in the full exercise, although three were unable to participate in the final hour of hot wash to review the process and gather lessons learned.

Table 1. Participating States Parties by simulation date

<table>
<thead>
<tr>
<th>Participating Countries 22. November 2022 (English-speaking)</th>
<th>Participating Countries 23 November (English-speaking)</th>
<th>Participating Countries 24 November (Russian-speaking)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Albania</td>
<td>1. Austria</td>
<td>1. Armenia</td>
</tr>
<tr>
<td>8. Germany</td>
<td>8. Latvia</td>
<td>8. Turkmenistan</td>
</tr>
<tr>
<td>10. Ireland</td>
<td>10. Lithuania</td>
<td></td>
</tr>
<tr>
<td>11. Israel</td>
<td>11. Luxembourg</td>
<td></td>
</tr>
<tr>
<td>12. Italy</td>
<td>12. Malta</td>
<td></td>
</tr>
<tr>
<td>15. Norway</td>
<td>15. Spain</td>
<td></td>
</tr>
<tr>
<td>16. Poland</td>
<td>16. Switzerland</td>
<td></td>
</tr>
<tr>
<td>17. Portugal</td>
<td>17. Turkiye</td>
<td></td>
</tr>
<tr>
<td>18. Slovakia</td>
<td>18. Ukraine</td>
<td></td>
</tr>
<tr>
<td>19. Sweden</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. United Kingdom</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NFPs participated from their workspaces or wherever they typically convene to undertake event management during a public health crisis. No participant travel was necessary. It was noteworthy that in many cases, several colleagues comprising members of the NFP found themselves physically separated from each other rather than working together in a single office, a phenomenon that has become more and more common during the COVID-19 pandemic.

The Exercise Control team encouraged the convening of relevant stakeholders, such as biosafety technical personnel, to practice multisectoral collaboration and provide input into the various deliverables requested in the exercise. A few NFPs used WhatsApp or other chat groups to share data and remain connected during the exercise.

4.4 Preparations

Planning for Exercise JADE 2022 started approximately six months before the first exercise day, elaborating the scenario, objectives and design elements. All exercise materials, including the exercise debrief and evaluation survey, were prepared in advance by the EMT. The exercise objectives guided the development of the injects and the scenario, informed partially by the feedback received from NFP participants in the 2019 JADE exercise.

Once the list of participants was finalized, the participant handbook, along with time-zone-specific schedules and requested pre-exercise system checks, was sent to all confirmed participating States Parties. One month prior to the exercise, on 26 October 2022, all participants were invited to participate in videoconference sessions to test the connectivity needed for the planned debriefing sessions, ensure that all participating NFPs had access to the EIS and to clarify any questions on how to participate in the exercise. This communication check took place one week before the exercise, on 16 November 2022 (see Annex 1: Exercise JADE Scenario Outline).

“Topic was perhaps less relevant to our country context”
4.5 EMT

The EMT was responsible for the overall organization, implementation and evaluation of Exercise JADE. The development of all exercise materials including briefings, injects, the participant handbook, Problem and Action log sheets, the schedules and debriefing plans, was undertaken by the EMT. The team was drawn from the WHE Programme, within the WHO Regional Office for Europe and associated partners. The EMT consisted of 19 people, including (Table 2):

- Two Exercise Managers (Exercise Control)
- Support to Exercise Control, IT specialist and administrative support
- Duty Officers (DOs)
- Support to DOs (controllers), including teams to monitor and interact with NFPs evaluators
- Observers from the European Centre for Disease Prevention and Control (ECDC).

The EMT convened to run JADE 2022 from the Emergency Operations Centre (EOC) located in Copenhagen, Denmark at the WHO Regional Office for Europe. On each exercise day, participating NFPs were allocated to a dedicated facilitation team within the EMT, consisting of a DO, a controller and an evaluator. These three-person teams worked seamlessly together, under the direction of Exercise Control, to monitor progress, respond to queries and, if necessary, to prompt participants for additional information and identify learning opportunities.

Table 2. Exercise JADE 2022 in numbers

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of participating States:</td>
<td>47</td>
</tr>
<tr>
<td>Number of exercise days:</td>
<td>3</td>
</tr>
<tr>
<td>Preparation time for Exercise JADE:</td>
<td>Approx. 6 months</td>
</tr>
<tr>
<td>Number of emails exchanged during the exercise (over 3 days):</td>
<td>1121</td>
</tr>
<tr>
<td>Number of EMT members:</td>
<td>19</td>
</tr>
<tr>
<td>Number of injects:</td>
<td>16</td>
</tr>
<tr>
<td>Duration of each of the three exercises:</td>
<td>5 hours</td>
</tr>
</tbody>
</table>

“Insufficient time to network and respond”
5. Results and recommendations

OBJECTIVE 1:

Test two-way communications between the NFPs and the RCP using registered official contact details

The ability to contact and sustain communication channels between NFPs and WHO is fundamental to the real-time management of information. Efficient communication during a public health emergency requires timely responses to requests for information and verification. To this end, substantial efforts are made to ensure that contact details for NFPs are updated regularly.

Prior to the exercise, all participants were encouraged to log in to the EIS to check and update the official contact details, if needed. During the exercise, all communications were sent to the officially nominated NFPs, using the official email address registered in the EIS, and to any additional email addresses formally designated by the NFP as participating in the exercise.

Additionally, the pre-exercise communication (from the initial invitation to Inject 0) permitted the EMT to verify the official NFP contact details for the States Parties. Those countries that did not reply via email were contacted via telephone, using the official telephone numbers from the NFP contact list in the EIS.

Results

The result of this attempt to contact NFPs showed that many of the email addresses and/or telephone numbers were no longer valid or were unreachable on several attempts. Furthermore, many of the telephone numbers provided did not work or were switchboards for organizations hosting the NFP, which is not conducive to rapid communication during an emergency. Some 14 NFPs updated their contact details during the course of the exercise planning.

Once communication was established, all participating NFPs sustained communication throughout the course of the exercise, and over the course of the three days of the exercise 1121 emails were exchanged.

Exercise Control does not presume to take credit for these changes/updates as it is a key function of the NFP to maintain up-to-date contact information. Nevertheless, the exercise did prompt several States Parties to update the main contact point after realizing that messages were being sent to outdated recipients.
While under the IHR the exact structure and organization of the NFP is left to the State Party, it is suggested that the function of the NFP resides with a team, rather than an individual. This is designed to facilitate NFP accessibility at all times and to avoid relying on the availability of one individual. In this regard, it was noted during the exercise that many of the NFP email addresses were personal emails, rather than generic or institutional emails. This is more likely to lead to contact details becoming outdated when these individuals change function.

By means of Inject 3, which provided more detail about the event as it developed, NFPs were asked to identify at least three follow-up actions that the NFP might take when faced with possible evidence of a CCHF laboratory leak. The purpose was to test the participants’ strategic thinking in a crisis. Typically, one might expect responses that referred to patient case, isolation of cases, contact tracing, genetic sequencing of the virus, laboratory quarantine, etc. In the end, all but four NFPs were able to do so, 38 fully and five with at least a partial answer. (Fig. 1).

Fig. 1. NFP responses regarding follow-up actions for the situation \( n = 38 \)
It is interesting to note that Inject 3 did not in fact elicit much consultation between NFPs and the RCP; only two NFPs proactively would have sought to notify WHO in this early stage, while another five responded that the use of IHR Annex 2 would be an action taken. This virtual absence of contact (questions and answers, heads-up alert, notification, etc.) may indicate that all the NFPs felt confident in their ability to handle such an event. It may also be indicative of a certain reluctance on the part of NFPs to consult with and involve the RCP in their deliberations and decision-making processes. Other participants mentioned the need to exclude COVID-19, tying this simulation exercise to real-world events.

**Action points**

- As recommended in 2019, NFPs should consider their role as a collective function rather than an individual responsibility, to facilitate accessibility at all times and without relying on the availability of a particular individual.

- NFPs should consider using a generic IHR NFP email account, accompanied by standard operating procedures (SOPs) for accessing and communicating under the IHR.

- NFPs should be encouraged to regularly verify and update contact names and details for accuracy, including phone numbers, in case of changes.

- WHO should perform regular communication checks throughout the year with NFPs to ensure NFP contact details are up to date.

- WHO should develop a briefing on the role of the NFP in operational communication to be sent out to all States Parties, to address both the issue of individuals holding the NFP function and to emphasize the importance of establishing generic/institutional contact details of the NFP.

- NFPs should be encouraged to consult with and involve the RCP as part of their regular handling of any potential serious public health event, using other Articles of the IHR (2005), such as Article 10 on verification. Contact with the RCP is vital early on, when the situation is still unclear, even if the potential PHEIC turns out to be less serious. Likewise, the continuation of sharing of information between the NFP and RCP can be undertaken through Article 7: Information-sharing during unexpected or unusual public health events.
OBJECTIVE 2:

Test NFPs’ access to and use of the EIS

The EIS is the primary communication channel through which WHO disseminates event-related information, risk assessments and public health advice to all NFPs for ongoing public health events, as per IHR Article 11. It is a secure online portal accessible only to relevant WHO staff, NFPs and a few selected international partners. The ability to access updated event-related information via the EIS is essential to conduct national risk assessments and to design relevant public health measures. One of the key functions of the NFP is to share the information received through the EIS with all relevant authorities in their countries while respecting the confidentiality of the information provided.

For this reason, one of the exercise tasks this year requested that NFPs access the EIS and conduct a search for the three most recent current events involving CCHF, to ensure they were able to access and view relevant communication on the EIS.

Results

Even before the start of the exercise, at least a dozen NFPs informed WHO that they were unable to log in to the EIS and requested assistance in gaining access. A few participants also reported EIS access problems during the exercise.

The main challenges encountered in accessing the EIS included:

- Change in staff within NFPs;
- Lost or forgotten login details;
- The delegated JADE participant not listed as an NFP and/or not having access to the EIS;
- Searching the EIS using wrong or imprecise keywords.

It was clear, however, that once NFPs could access the EIS, navigating the site and using the search functions were accomplished effectively and correctly. Only two countries indicated on their Problem and Action sheets (filled out during the simulation) that finding information on the EIS constituted a particular challenge during the exercise.

As part of Inject 7d, NFPs were tasked with distinguishing the difference between the EIS and the Disease Outbreak News (DON) in response to a simulated query from their national Ministry of Health. The expected response would have clarified that the EIS is a detailed registry of public health events accessible only to NFPs and other designated technical personnel, updated in real time to reflect WHO-reported incidents, while the DON is an open-source report of the latest global developments for broad public consultation. Out of 47 participating NFPs, 35 were able to adequately explain the difference during the simulation; another two gave a partial or incomplete answer and 10 missed the distinction or did not respond. While reassuring in the majority of cases, the lack of unanimous clarity on this basic definition points to the need for NFP awareness of WHO’s communication channels concerning public health emergencies.

Access to and familiarity with the EIS constitutes a critical aspect of the IHR WHO event communication channels (IHR Article 11).
Recommended actions

- NFPs should maintain SOPs for accessing the EIS to avoid loss of access as a result of staff turnover, and should make a practise of regularly logging in to check for updates and to ensure that the NFP contact details are up to date.

- WHO may consider including information on the use of the Early Warning and Response System of the European Union (EWRS) as a tool for IHR communications by European Union/European Economic Area (EU/EEA) countries in future exercises for States Parties who are also members of the EU.

- In future exercises, the extent of sharing the information received from EIS by NFPs with relevant authorities and sectors in their countries could be assessed.
OBJECTIVE 3:

Test NFPs’ assessment of public health events using the decision-making instrument contained in IHR

The decision-making instrument – IHR Annex 2

As a part of their function, all NFPs need to be familiar with IHR Annex 2, its application and requirements. Undertaking an assessment in accordance with the Annex 2 decision instrument to determine whether to notify WHO of a detected event constitutes a critical task to enable timely response measures that may limit potential international spread. In order to practise the use of the Annex, the exercise was designed to prompt NFPs to assess and determine if the simulated event met the criteria for formal notification to WHO.

To practise formal notification, it was decided to request that participants summarize in bullet points the relevant information received thus far, which all but five countries (89%) did with varying degrees of accuracy. This process of submitting a synopsis of the event is intended to simulate the actual task that an NFP would perform to notify WHO of an actual public health emergency. As had been hoped, in the process of summarizing the situation, several NFPs anticipated the need to notify WHO about the event and anticipated the prompt from the EMT.

An efficient assessment based on the data provided would have read more or less as follows:
WHO opinion:


Your country | Crimean-Congo haemorrhagic fever

**Serious public health impact – YES**

Crimean-Congo haemorrhagic fever (CCHF) is a disease transmitted primarily through the bites of infected ticks or by direct contact with blood or tissue from infected humans or livestock. Although most cases will suffer mild symptoms such as fever, headache and myalgia, it can manifest as a severe human infection causing bleeding and then death. In some CCHF outbreaks, severe viral haemorrhagic fever has been associated with a case fatality rate of 10–40%. Reports from this event have documented person-to-person transmission among contacts, including nosocomial transmission among two health-care workers attending a severe case. Given the potential disease severity, documented person-to-person transmission and cases among health-care workers, this event is determined to have severe public health impact.

**Unusual or unexpected – YES**

The outbreak seems to have originated through an accidental release from a private laboratory, DEJATECH Laboratory. CCHF should be handled in a biosafety level 4 facility; accidental release from such a facility would constitute an unusual and unexpected event. Furthermore, this outbreak is reported in an unusual population where CCHF is unlikely to occur: i.e. none of the affected individuals have reported occupations or behaviours typically associated with greater CCHF infection risk: hunters, livestock owners, abattoir workers, farmers, etc. None of the individuals reported any outdoor activity or tick bites in the last 21 days. Therefore, it is unusual or unexpected.

**International disease spread – NO**

While the status of the two individuals who travelled outside of YOUR COUNTRY is unknown, the likelihood of their infection and further onward transmission of the disease is assessed to be very low. Furthermore, travellers to and from YOUR COUNTRY have not had known encounters with infected individuals. Therefore, the risk of international spread through travel is also considered to be very low.

**Interference with international travel or trade – NO**

Based on the current information available, there is no public health justification for implementing any additional measures to prevent the spread of this disease by restricting travel or trade.

*Source:* Extract from WHO-prepared EIS posting.
Results
Of the 47 participating NFPs, only two failed to respond to the inject. Fully 42 NFPs (89%) notified WHO in accordance with IHR Annex 2. Interestingly, three NFPs chose not to notify WHO based on context-specific analysis of the event: that CCHF was not considered unusual in their country or did not pose a significant health threat. It should be noted that only 27 of the 47 NFPs (70%) used all four criteria of Annex 2 to make their analysis, which should have been the basis for the decision; several stopped their analysis after finding two positive responses. Additionally, only 21 of the 47 NFPs (57%) provided sufficient detail to justify their decision; for example, explaining why the event was unusual or unexpected, how it might have serious impact, why there was a risk of international spread and how it might affect commerce or travel, although some NFPs had to be prompted for additional detail (Fig. 2). The vital take-away from this task is not that most NFPs responded exactly as WHO had intended but rather that there is still ample room for continuous training and practising on the use of the decision-making instrument in IHR Annex 2.

Fig. 2. IHR Annex 2 criteria event assessment data by NFPs (n = 47)
The vast majority of countries that responded to this inject assessed the event as worthy of notifying WHO, including a few that anticipated the issue by notifying the EMT about the event prior to the inject. Fully 25 NFPs assessed the event to be both a serious public health event and unusual or unexpected, satisfying criteria 1 and 2 of IHR Annex 2. Fourteen NFPs determined that the event satisfied criteria 3, arguing that it posed a serious risk of international spread. Only three NFPs assessed that the event represented a risk of travel or commerce restrictions, criteria 4. It should be noted, however, that many respondents did not evaluate all four criteria, stopping once they had reached at least two positive answers, this being sufficient to notify WHO; or, alternatively, only assessed the criteria considered positive, given the situation. The importance of this exercise was not necessarily to reach the same answer as the simulation designers (to notify WHO), but rather to show the ability to use IHR Annex 2 appropriately and justify one’s decision. In this respect, fully 45 out of 47 countries (96%) effectively demonstrated this capacity.

**EIS postings, provision of information by WHO – IHR (2005) Article 11**

NFPs were asked to elaborate a summary of the event in bullet points, based on information received, as a simulation of their role during a real public health event. The EMT requested that they check the accuracy of a draft EIS posting prepared by the simulated RCP. The draft posting intentionally included inaccuracies and errors designed to test the NFPs’ situational awareness and engage them in the process of fact-checking the EIS posting. The majority of NFPs identified and corrected all or most of the errors, and many further elaborated on the draft EIS, demonstrating an effective collaborative engagement with the RCP. This aspect of the simulation was mentioned by several NFPs as one of the more useful tasks in the exercise.

**Recommended actions**

- NFPs should undertake regular training, particularly with the induction of new staff, to ensure their confidence in the use of IHR Annex 2.

- WHO should provide NFPs with a briefing note to clarify “informal consultations with WHO”, “WHO event verification process” and “formal notification to WHO under IHR (2005)”.

- WHO and ECDC should again remind NFPs of the special arrangement for event reporting to ensure the compliance of State Parties with the IHR within the context of regional reporting arrangements and the EWRS. In particular, when EU/EEA Member States use the EWRS for IHR notification, they should use the relevant section in the EWRS to include their assessment of the event in accordance with IHR Annex 2.
OBJECTIVE 4:

Review the existence of and the NFPs’ knowledge about national biosafety procedures and plans

The proliferation of laboratories working with high threat pathogens (HTPs) throughout the WHO European Region has become widespread. In such an environment, the possibility of a leak or mishandling of biological agents lies well within the scope of reality. Therefore, it is critical that NFPs have access to timely information, plans, expertise and guidance at national and international levels. To this end, Inject 2 of Exercise JADE 2022 requested that participants verify the existence of a national biosafety plan or manual in their country. In addition, the inject also asked the NFP to provide a link to relevant guidance on the topic from WHO.

Results

A total of 43 out of 47 of participating NFPs (91%) provided a clear answer, yes or no, as to whether such a national plan existed in their country. The remaining four either did not respond or were unable to verify the existence of such a plan during the simulation. It is interesting that 30 of the States Parties have a national biosafety plan and that one uses the plan of a neighbouring country. Twelve NFPs responded that their State Party had no such plan in place. In response to the second request, all but three NFPs (94%) responded with a relevant link to WHO biosafety guidance.

During the hot wash following the exercise on all three days, a few NFPs mentioned the difficulty they had encountered in identifying, locating and contacting the appropriate expertise on biosafety in general (and on CCHF in particular). Even considering the rushed nature of the simulation requests for information directed to the participants, it is noteworthy that this task proved difficult for many NFPs. As has happened in the past, it is not outside the realm of possibility that such an incident might occur again, requiring rapid knowledge, decision-making and response by the State Party. This would argue for a greater level of preparedness on the part of NFPs, including the maintenance of a roster of key technical expertise in their country and familiarity with various emergency plans and protocols in country.
**EXPERT opinion:**

Dr Joanna Zwetyenga,
Technical Officer (Laboratory) in Infectious Hazard Management Unit Health Emergencies Programme at the WHO Regional Office for Europe.

Biosafety, maintenance of safe conditions in storing, handling and disposing of biological substances to prevent inadvertent exposure of personnel and accidental release to the community or environment, is a central IHR capacity included in the WHO State Party Annual Report (SPAR) and Joint External Evaluation (JEE) assessments.

Key national capacities on biosafety include the existence of a national biosafety framework and comprehensive oversight and monitoring systems. The analyses of JEE and SPAR submissions and other assessments have demonstrated biosafety commonly has significant capacity gaps across the WHO European Region.

One of the objectives of the JADE exercise was to review the National IHR Focal Point’s knowledge and existence of biosafety procedures and plans in their settings. Although most States Parties had a national biosafety plan, too many \((n = 12)\) did not have highlighting important priority actions. And even if the plan is in place, it is essential to operationalize the plans and make sure appropriate, readily available expertise on biosafety exists. Biosafety is everyone’s business in the laboratory world, and effectively linking all public and private research laboratories in a national biosafety oversight and monitoring systems is key to improved capacities and health security in general.

**Recommended actions**

- NFPs should ensure their own familiarity with biosafety/biosecurity arrangements within their State Party, including contact details for responsible entities and expertise.

- Member States should be encouraged to run small-scale tabletop exercises in their national contexts on this particular topic, to facilitate better preparedness in the future.

- NFPs should have a basic understanding of fundamental principles applicable to all core capacities of IHR, including biosafety capacities. To facilitate this liaison function logistically, maintaining an up-to-date list of contact information is recommended.

- If a JEE\(^1\) has been conducted, the NFPs may consider reviewing Technical Area P7: Biosafety and biosecurity for progress made since the evaluation.
OBJECTIVE 5:

Review other modalities for bilateral communication and assistance between NFPs under the IHR

One of the key messages built into Exercise JADE 2022 was the notion that NFPs constitute a regional and global network designed to protect public safety in case of a serious public health emergency. This message “you are not alone” was implicit in Injects 8 and 9 of the simulation. Inject 8 tasked NFPs to identify a modality explicitly written into the IHR for seeking material and knowledge support from outside their country, citing a supposed lack of laboratory reagents and personal protective equipment as an urgent need. The correct response solicited was the citation of Article 44 of the IHR (2005) on Collaboration and assistance. Inject 9, sent shortly thereafter, requested that the NFP identify the “international mechanisms of assistance” available to States Parties, specifically seeking a mention of systems such as the Global Outbreak Alert and Response Network (GOARN), RRTs, Standby Partnerships and the like.

Results

In terms of material and knowledge support, 36 participants (77%) cited Article 44 of the IHR (2005) as the relevant mechanism (Fig. 3). This is an important finding, in that it demonstrates that NFPs have a comprehensive awareness of the existence of a clear route for seeking such support. Several NFPs’ answer went beyond what was requested, mentioning paragraphs from other IHR articles.

Fig. 3. Number of NFPs who identified the potential for outside assistance under Article 44 ($n = 47$)

Source:
On the final question about “international mechanisms of assistance,” the NFPs provided various responses, not all of which seemed relevant to the situation. The task was posed to only the participants from 23 and 24 November, as time pressures precluded the dispatch of this final inject on the first day of the exercise. Of the 27 participants who received this inject, eight NFPs answered as expected, citing the relevant mechanisms, while 15 provided only a partial response without grasping the essential point. (Fig. 4) It is possible that some participants could have misunderstood the purpose of the question, as it may have been linked semantically to the previous Inject 8 about Article 44. In any case, this result was unfortunate, as it failed to confirm a clear awareness on the part of NFPs concerning the various operational mechanisms of support available to Member States during a public health crisis. It is critical that NFPs be able to seek outside support and feel confident in advising the relevant authorities in their country that such channels exist.

Fig. 4. Number of NFPs who identified international mechanisms of support ($n = 27$)
**EXPERT opinion:**

Dr Oleg Storozhenko,
Partnerships Officer, Health Emergencies Programme in the WHO Regional Office for Europe.

**International operational mechanisms of assistance**

In situations where there is a potential emergency with serious consequences to health there are a number of operational mechanisms that can support a Member State.

1. The **Global Outbreak Alert and Response Network (GOARN)** combines over 250 technical institutions and networks globally that respond to acute public health events with the deployment of staff and resources to affected countries. GOARN aims to deliver rapid and effective support to prevent and control infectious diseases outbreaks and public health emergencies when requested by deploying public health surge capacities in the areas of epidemiology, laboratory, clinical management, research, communication, logistics, support and others.

2. Linked to GOARN is a mechanism for the deployment of **Rapid Response Mobile Laboratories (RRMLs)** which can be deployed to bolster laboratory capacity in major outbreaks. GOARN and RRML are WHO initiatives.

3. The **Emergency Medical Teams** initiative is a significant network of qualified medical teams, trained and prepared to provide immediate support during an emergency. The purpose of the Emergency Medical Teams Initiative is to improve the timeliness and quality of health services provided by national and international Emergency Medical Teams and enhance the capacity of national health systems to respond in the immediate aftermath of a disaster, outbreak and/or other emergencies. So far, 39 international teams have already been classified by WHO, with nearly 100 more currently undergoing the classification process to meet the highest standards of health-care assistance in emergencies.

4. The **Global Health Cluster** is a coordination platform for organizations to work in partnership to ensure collective action results in more timely, effective and predictable response to health emergencies. WHO is the Cluster Lead Agency and it provides secretariat support through the Global Health Cluster Team in the WHO Emergency Response Division, Health Emergencies Programme. There are over 900 partners at country level, of which 60 partners engage strategically at global level. These partners include international organizations and United Nations agencies, nongovernmental organizations, national authorities, affected communities, specialized agencies, academic and training institutes, and donor agencies.

5. **Standby Partnerships** is a network of bilateral agreements between organizations and United Nations agencies which maintain rosters of experienced humanitarian workers that can be deployed to support a crisis. WHO holds Standby Partnership agreements with external partners who provide short-term surge support to WHO’s emergency work. The Standby Partner covers costs and manages most administrative requirements, allowing WHO to deliver surge capacity rapidly and flexibly. WHO holds Standby Partnership agreements with nine external partners who provide short-term surge support to WHO’s emergency work.

6. The **European Regional laboratory task force for high threat pathogens (Lab Task Force)** aims to strengthen preparedness for outbreaks in the WHO European Region to improve their capacities for the detection of outbreaks caused by HTPs. The WHO Regional Office for Europe functions as the Secretariat for the Lab Task Force.
Recommended actions

- All NFPs should be encouraged to review Article 44 of the IHR.

- WHO should inform NFPs through appropriate channels about the various mechanisms of international assistance available to Member States.

- The RCP should reinforce to NFPs its role as interlocutor for public health emergencies in their States Parties and emphasize the interactive aspect of the NFP network within the region.
6. JADE 2022 exercise evaluation

General feedback from hot wash sessions
On each of the three exercise days, the final hour was dedicated to a virtual meeting between participants and the Exercise Control team, in which NFPs could see each other online, introduce their team (if co-located) and offer their unvarnished reactions to the simulation.

6.1 Mentimeter feedback summarized

During the initial ten minutes of the hot wash following each day’s exercise, participants were encouraged to respond anonymously to a series of quick questions via Mentimeter. This served to break the ice among participants who do not normally see or interact with each other. Participants were asked the following questions.

1. How are you personally feeling right now (1- or 2-word responses)?
2. Did you find the exercise challenging (yes, no or uncertain)?
3. Please rate the following three statements according to how strongly you agree or disagree with them according to the Likert scale: (1) strongly disagree; (2) disagree; (3) neither agree nor disagree; (4) agree; (5) strongly agree.

   a) JADE 2022 met its stated objectives
   b) JADE 2022 served to strengthen the NFP function
   c) I would be willing to participate in JADE next year.

The Mentimeter results seemed to confirm that Exercise JADE 2022 had met its objectives and that it served to strengthen the NFP function. There was also a general expression of willingness to participate in next year’s JADE (see Figs. 5–7 below for screenshots of the Mentimeter results during the hot wash for each of the three days).
Fig. 5. Screenshots of results for the “How are you feeling?” Question for each of the three days.

Note that the most common responses were “tired, relieved, good, great” which is not unusual for a stressful simulation exercise.
Fig. 6. Screenshots of results for the “Did you find the exercise challenging?” question for each of the three days

For this question, there was a sharp divergence between the responses on the two English-language days compared with those of the Russian-speaking participants. This may in part be attributed to the imperfect cultural translation/interpretation of the concept of “challenging” in the Russian language.

“Good training opportunity”
“Revealed several gaps, which we will now try to address”
Fig. 7. Screenshots of results for the three statements rated on a 1-5 Likert scale for each of the three days.

It is encouraging to note that for all three days, each of the statements received an average of four or above on a five-point scale, in an anonymous rating.

"Valuable way to include new colleagues"
6.2 NFP feedback participant survey

In addition to the hot wash debriefing that immediately followed the end of the exercise, participants were requested to complete an anonymous online evaluation survey on the quality of the exercise, learning points and areas of the exercise which could be improved. The following tables provide a snapshot of some of the more salient results, which underline the value of the exercise. Notably, all 36 respondents agreed or strongly agreed with the statement that the exercise achieved its purposes and objectives. The vast majority of respondents felt that the exercise was well organized (an average response of 4.68 on the five-point Likert scale). Further, 30 out of 38 (79%) agreed or strongly agreed that the exercise was a useful tool to strengthen the NFP network. Most tellingly, perhaps, 34 out of 37 participants (92%) either agreed or strongly agreed with the notion of participating in next year’s JADE exercise.

6.3 Results of the evaluation survey

The results of the evaluation survey are visually summarized in Fig. 8-10.
The exercise improved my understanding of my role and function within the IHR system.

The JADE exercise contributed to increasing my level of understanding of the assessment of public health events using the decision-making instrument contained in Annex 2 of the IHR (2005) and its notification process including an EIS posting.

The JADE exercise contributed to improving my understanding of how and when to communicate with the WHO IHR Regional Contact Point using registered contact details.

The JADE exercise contributed to improving my understanding of the importance of IHR Article 44 on Collaboration and Assistance.

The JADE exercise contributed to improving my understanding of operational mechanisms of support and assistance.

The exercise was well organized.

The information contained in the participant guide was clear and useful for me to participate in this exercise.

The scenario was realistic.

The questions and tasks were clear.

The post exercise debrief ("hotwash") was useful to share my experiences and hear from other participants.

The pace of the exercise was appropriate.
Fig. 11. Evaluation survey: which optional NFP functions would you like to see included for JADE 2023 in addition to the mandatory functions?

- Providing advice to senior health and other government officials on the implementation of WHO recommendations to prevent international disease spread

- Providing advice to senior health and other government officials on notifications to WHO

- Coordinating the provision of public messages by WHO and national authorities

- Coordinating closely with the national emergency response systems or EOCs

- Engaging in collaborative risk assessment with WHO regarding public health events, risks and public health emergencies of international concern

- Liaising with relevant authorities on points of entry

- Management of misinformation and infodemic situations

- Engaging with other relevant government sectors

- Intercountry or regional coordination and information exchange
Recommended actions

- The EMT should continue to develop scenarios that require consultation and communication with different sectors. Participants should be given enough time to coordinate with and involve relevant sectors.

- Care should be taken to ensure that the scenario developed for the next year’s JADE be equally relevant and applicable to all States Parties, taking into account differences in institutional arrangements, policies and epidemiological profile.

- The EMT should consider creating an advisory group, composed of a few representative NFPs, which may be called upon to provide advice and discuss aspects of the next JADE exercise.

- Exercise organizers should consider providing a “heads-up” to all participating NFPs in advance of the next JADE, perhaps offering hints about the sectors that may be involved. Expertise to be tapped and interactions with WHO/IHR or other NFPs that might be expected.

Feedback from Problem and Action sheets

In an effort to gain greater insight into the process and actions of each NFP, the EMT had designed a combined Problem and Action log sheet that NFPs were asked to fill out as they progressed through the exercise. The hope was that participants – despite the pressures placed on them by the demands of the simulation – might discover opportunities and gaps in learning by monitoring their own activities and decisions. The EMT requested that NFPs submit the log sheets at the end of each day following each simulation exercise. Fifteen log sheets were returned to the EMT.

Many of the log sheets revealed a common problem of time pressure, which is not unusual in emergency settings. In particular, a few NFPs noted that there was insufficient time to contact appropriate experts, update Ministry personnel or even consult with WHO. The EMT might consider expanding the duration of the simulation exercise next time to enable participants to complete with greater detail the assigned tasks. In any case, such time pressures will likely arise during a real PHEIC.

Several participants emphasized the challenge of activating their own internal crisis structures, reaching agreement on the appropriate mechanism and protocol for emergency management and triggering a national alert system. One NFP noted the difficulty that arose in distinguishing between national and regional responsibilities during such a crisis. Another NFP suggested the need to centralize their biosafety plan and other such emergency protocols in one place for ease of consultation. Hopefully, this exercise may spark internal discussion within NFPs and States Parties to clarify and detail these vital steps.
At least four different NFPs mentioned the issue of media coverage and how to communicate with the wider population without causing a panic. The decision over whether to inform the population or not constituted a major point of discussion. One participant identified the need to identify a focal point for the media or a press officer to handle such issues.

Some of the other challenges and debates identified in the Problem and Action log sheets included (inter alia):

- Discovering whether there was a national biosafety plan and where it was held;
- Determining how and when to do contact tracing;
- Recommending isolation and quarantine of cases;
- Deciding whether the event represented a potential risk to travel or commerce;
- Lack of familiarity with specific terms (Article 44, international mechanisms); and
- Difficulty in searching the EIS for recent events.

In the final analysis, it seems that the Problem and Action log sheets in and of themselves served as a learning tool for participants.

Frustrated by some of the questions that did not follow normal procedure for our context (e.g., Minister of Health aware of DON; RRT contacting NFP; etc.)
Useful to repeat each year; looking forward to next year!"
7. Conclusion

Exercise JADE 2022 took place in a different working context than the previous simulations held in 2018 and 2019, due to the global impact of the COVID-19 pandemic. It is also a context in which teleworking and isolation have essentially become normalized over co-located office sharing, complicating the work and coordination tasks of public health professionals. Within this context, several NFPs reported that they had taken the initiative to co-locate with technical colleagues for the exercise. Others had quickly established a WhatsApp group to link in outside participants whose involvement would be vital.

In these circumstances, Exercise JADE 2022 has achieved its objectives, starting with the active participation of 47 out of a possible 55 States Parties invited. Participation by NFPs was generally of high quality, with some differences in capacity, highlighted by the responses to the injects. Differences in capacity are expected and can be attributed to staff turnover within the NFP function, the size of the NFP team and the degree of familiarity with the tasks requested.

The exercise clearly demonstrated that the procedures for communication under IHR are well established throughout the WHO European Region; however, the relative infrequency of events that may constitute a PHEIC which requires notification, means that these processes are not practiced very often. Exercise JADE, therefore, gives NFPs an opportunity to annually validate, refine, practice and assess their IHR functions, procedures and communication with WHO.

The debrief sessions with participants and the EMT indicated that JADE is a valuable learning and training exercise. Almost all participants indicated that they would like to participate in this exercise next year. The comments and feedback received from the online evaluation survey will greatly assist in guiding the direction and design for Exercise JADE 2023.

Post-exercise is the best time to implement refinements to strengthen NFP function where needed. It is recommended that the NFP be set up in a manner that will facilitate NFP accessibility at all times and prevent reliance on the availability of a particular individual.

With this third iteration of the simulation, Exercise JADE has now been re-established as an annual IHR exercise for the pan-European region. We look forward to next year and to continuing to work together to prevent, prepare for, detect and respond to all public health threats and emergencies in our Region.
ANNEX 1.
Exercise JADE
scenario outline

Background

- DEJATECH Laboratory Inc is a private laboratory located at the urban centre in your capital. It is at the cutting edge of the biotech revolution, focusing on diagnostics, vaccines and therapeutics against viral agents requiring high or maximum containment (biosafety level 2 to biosafety level 4) by conducting innovative scientific research on viral agents.
- There have been protests at DEJATECH, because of the nature of its work and the proximity to the community. There has been at least one news article covering these protests and several social media posts have been made in protest, including one claiming to have noticed a strange smell emanating from the laboratory.

22 November

- A leaked document of a DEJATECH Laboratory Inspection report from the national reference laboratory reveals that there has been no Quality Assurance Inspection recorded at DEJATECH since 2019, and, therefore, that inspection of DEJATECH at the earliest opportunity has been declared a priority.
- A DEJATECH Laboratory Manager calls the National IHR Focal Point (NFP) to reveal that two laboratory technicians working in a high threat pathogen (HTP) facility department have called in sick. She asks the NFP if a national biosafety plan exists and when it was last updated and to share any WHO biosafety guidance.

27 November

- The Rapid Response Team (RRT) makes a report to the NFP of cases forming part of a cluster involved in a family gathering of 25 guests, attended by one of the laboratory technicians (male, age 39). A suspect case was defined as any person who met clinical criteria (fever, headache and/or myalgia). Most contacts have been reached but two have been lost to follow-up as they have gone on vacation in Foreign Country A. Five of the contacts have symptoms compatible with the case definition.
In the meantime, the second (female, age 52) DEJATECH lab technician’s symptoms have become more severe and she has been hospitalized in the Intensive Care Unit for infectious diseases. She reported three contacts of whom none displayed any symptoms.

Both laboratory technicians work as specialized cleaners at DEJATECH in multiple HTP laboratories, including sectors handling flaviridae, filoviridae and bunyaviridae pathogens.

29 November

The RRT reports that the hospitalized laboratory technician has deteriorated and remains in intensive care. Haemorrhagic symptoms have begun, with the patient bleeding from the nose, gums and gastrointestinal tract. Petechial rash has spread from the chest to the rest of the body.

She has had tests for several pathogens. The results for Crimean-Congo haemorrhagic fever (CCHF) were inconclusive, but showed a signal. The national reference laboratory is rerunning the specimens. All other suspect cases were also tested for CCHF and awaiting results. Also, based on the most recent Internal Quality Assessment on CCHF at DEJATECH, the result for CCHF proficiency was poor.

A possible nosocomial infection is reported, after two hospital workers who attended to the laboratory technician also developed compatible symptoms.

Contact tracing was extended up to 24 days. All combined contacts were identified and followed daily. No additional cases were reported.

30 November

The RRT updates the NFP that a thorough investigation of all HTP laboratories at DEJATECH have shown detection of CCHF virus via reverse transcription polymerase chain reaction (RT-PCR) tests in three of the 12 samples collected (25%). The conclusion is that there has been an accidental leak of CCHF at DEJATECH Laboratory. Both laboratory technicians could have been exposed before the onset of illness.

1 December

The WHO Regional IHR Contact Point (RCP), through routine epidemic intelligence from open sources, detects an article related to a possible laboratory leak from DEJATECH and requests verification, risk assessment and, if necessary, notification of the event.

2 December

The RCP drafts an IHR Event Information Site (EIS) for correction and posting at the site.
8 December

- The national reference laboratory requests that the NFP coordinate supplies of personal protective equipment and reagents for testing CCHF among cases through IHR Article 44: Cooperation and assistance.

13 December

- An updated RRT reports that two more health-care workers have developed symptoms and four more contacts from the initial cluster have developed CCHF symptoms; one has died.
- The Minister of Health contacts the NFP to enquire about what international mechanisms of assistance are available.
"Would be useful to forewarn NFPs in advance about the category of disease to be simulated, in order to drill down more deeply"
Member States

Albania
Andorra
Armenia
Austria
Azerbaijan
Belarus
Belgium
Bosnia and Herzegovina
Bulgaria
Croatia
Cyprus
Czechia
Denmark
Estonia
Finland
France
Georgia
Germany
Greece
Hungary
Iceland
Ireland
Israel
Italy
Kazakhstan
Kyrgyzstan
Latvia
Lithuania
Luxembourg
Malta
Monaco
Montenegro
Netherlands (Kingdom of the)
North Macedonia
Norway
Poland
Portugal
Republic of Moldova
Romania
Russian Federation
San Marino
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Tajikistan
Turkmenistan
Ukraine
United Kingdom
Uzbekistan