Meeting Report

COVID-19 Contact tracing: country experiences and way forward
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Abbreviations

COVID-19  Coronavirus Disease 2019
ECDC    European Centre for Disease Prevention and Control
EEA     European Economic Area
EU      European Union
LTCFs   Long Term Care Facilities
MS      Member States
NGOs    Non-Governmental Organizations
NPIs    Non-Pharmaceutical Interventions
PHSM    Public Health and Social Measures
RCCE    Risk Communication and Community Engagement
VE      Vaccine effectiveness
VOC     Variant of Concern
WHO/Europe World Health Organization Regional Office for Europe

Acknowledgements

WHO/Europe and ECDC would like to thank all the participants, chairs, presenters, moderators, and rapporteurs for their contributions as well as all staff from WHO/Europe and ECDC involved in the organization of the meeting.
Executive Summary

Contact tracing has been a cornerstone of countries’ response to the COVID-19 pandemic, and it remains a key strategy for interrupting chains of transmission of SARS-CoV-2 and reducing COVID-19-associated morbidity and mortality. Although the pandemic is not over, many countries are transitioning towards a more sustainable and integrated approach to the COVID-19 response. Contact tracing systems are adjusting and need to be adapted further to reflect this change in the long term.

This meeting on COVID-19 Contact Tracing jointly organized by WHO/Europe and ECDC was held online on 1 March 2022. The meeting brought together COVID-19 Contact Tracing experts from 39 countries and territories from the WHO European Region, including 24 European Union (EU)/European Economic Area (EEA) countries. The full list of participating countries is in annex 1.

The meeting focused on two key topics: (i) experiences, challenges and solutions related to COVID-19 contact tracing, and (ii) how contact tracing can be better integrated in health systems strengthening and pandemic preparedness planning moving forward. Two breakout sessions were organised to allow all countries the opportunity to actively engage in discussions related to topics above.

Reflections on contact tracing

In the first part of the meeting, discussions about the challenges related to COVID-19 contact tracing highlighted substantial diversity in contact tracing strategies across European countries including a variety of approaches to promoting public cooperation and ensuring adherence to isolation and quarantine. Despite the diversity in contact tracing strategies, similar challenges were observed among countries, including difficulties around workforce recruitment and training; sustainable financing; timeliness in reaching cases/contacts; adjusting contact tracing operations according to the epidemiological situation; issues around digitalization and risk communication and community engagement. The need to collect high-quality data to inform COVID-19 policy decisions was also emphasised. At the time of the meeting, most countries had reduced the duration of isolation and quarantine and amended their contact tracing protocols as a consequence of the emerging evidence on the epidemiological characteristics of the Omicron variant, underlining the need for flexible, adaptive contact tracing systems.

Future use of contact tracing

The second part of the meeting addressed the future use of contact tracing, both in relation to COVID-19 and as an integral part of health systems strengthening and future pandemic preparedness planning. Participants stressed that it will be challenging to maintain human and financial resources for manual contact tracing, hence alternative solutions were being actively explored. Rather than relying on extensive contact tracing over the coming months, alternative solutions were being considered such as the need to promote and enhance education campaigns, self-testing and digital systems while concentrating manual contact tracing efforts on vulnerable groups or high-risk settings such as long-term care homes. At the same time, it was acknowledged that established contact tracing systems should remain ready for reactivation and rapid scaling-up should the need arise, and that ensuring proper risk communication and community engagement should be a priority.

Conclusion

COVID-19 contact tracing strategies and practices have evolved during the pandemic, adjusting to the constantly changing epidemiological situation, the emergence of new variants and the rollout of vaccines along with the naturally acquired immunity.

At the time of the meeting, a general tendency towards downsizing of contact tracing activities was in progress based on an improved situation in the COVID-19 pandemic. During the meeting, there was broad agreement that established systems and competencies related to contact tracing should be maintained and be ready for rapid reactivation, should the epidemiological situation require so. Furthermore, most participants anticipated that countries will need to maintain focus on contact tracing among vulnerable groups and in high-risk settings in the coming period and rely more on informing and educating the general public rather than reinforcing restrictive COVID-19 response measures.

Background

The scale at which contact tracing has been applied during the COVID-19 pandemic is unprecedented. Experience and evidence show that when systematically applied, contact tracing can break the chains of transmission and thereby reduce morbidity and mortality due to COVID-19. It is an essential public health measure which, when implemented effectively, contribute to keeping societies open during the pandemic. However, establishing comprehensive contact tracing systems is a complex and resource-intensive endeavour, in particular at the height of a pandemic.

The context for conducting contact tracing has changed over the course of the pandemic due to the roll-out of vaccines, increasing population immunity and the emergence of more transmissible VOCs that reshaped the landscape for public health measures. At the start of 2022, the emergence and rapid spread of Omicron had a negative impact on critical functions in society due to the sheer number of people that were required to isolate or quarantine. However, at the time of the meeting in March 2022, many countries were transitioning from an acute approach towards a post-acute phase, characterised by de-escalation of public health measures such as physical distancing and mask use while maintaining high vaccination rates and a focus on keeping vulnerable populations safe. This meant that countries were forced to reassess the duration of isolation of cases and
In order to consolidate experiences with COVID-19 contact tracing across Europe and better understand the challenges faced by countries, as well as how contact tracing is likely to be applied moving forward, WHO/Europe and ECDC organized a joint meeting on COVID-19 contact tracing on 1 March 2022. The main objectives of the meeting were to: (i) share best practices, challenges encountered, and solutions related to COVID-19 contact tracing, (ii) reflect on the changing context observed since the Omicron variant swept across Europe at the beginning of 2022, and (iii) address considerations on future investments in contact tracing systems as an integral part of health system strengthening, pandemic preparedness and response to future outbreaks of infectious diseases.

The experiences and good practice examples shared during the meeting will provide the basis for future national and international guidance related to contact tracing and highlights the need for integrating contact tracing into future pandemic preparedness planning.

Methods

Meeting format

The joint WHO/Europe and ECDC contact tracing meeting was held online on 1 March 2022 and attended by 120 participants. These comprised of COVID-19 contact tracing experts from 39 countries and territories of the WHO European Region, including 24 EU/EEA countries, as well as representatives of the WHO and ECDC. The meeting was held in English with simultaneous interpretation into Russian language.

The meeting was opened by a series of presentations from ECDC and WHO/Europe including reflections on contact tracing during the COVID-19 pandemic and the changing epidemiological context due to Omicron and related implications for contact tracing. Furthermore, the opening included presentations on; on contact tracing effectiveness, risk communication and community engagement and the use of digital tools for contact tracing in Eastern Partnership and Western Balkan countries. These were followed by the sharing of contact tracing experience, challenges and solutions in four countries (Belgium, Denmark, Kazakhstan and North Macedonia). Two breakout sessions allowed for more in-depth discussion among participants who were divided into six breakout rooms, debating two key areas, i.e.: (i) reflections on contact tracing during the COVID-19 pandemic, highlighting challenges and best practices, and (ii) future use of contact tracing for COVID-19 and as part of health systems strengthening and future pandemic preparedness planning.

Each breakout room was moderated by a member of the organizing team and hosted participants from nine countries, who were invited to participate and actively contribute through a tour de table. The sessions were recorded, and notes taken by a rapporteur in each room. Meeting participants also formulated suggestions for future contact tracing activities.

Thematic analysis

Following the meeting, notes, presentations, transcripts and recordings were carefully reviewed, and five main themes were identified through inductive thematic analysis.

Figure 1. Main themes identified

Main findings

The five main themes identified were: (i) contact tracing strategies and procedures, (ii) resource management, including contact tracing workforce and systems (iii) risk communication and community engagement, (iv) digitalization, and (v) regulation. Each of these themes is described in detail below.

Contact Tracing Strategies and Procedures

Country experiences

Diversity of contact tracing across Europe

The structure of contact tracing systems differed among countries. Some countries opted for a centralized approach whereby trained staff performed manual contact tracing in a national ‘call centre’ setting that was established early in the pandemic; such centres expanded over the course of the pandemic and had federal or regional oversight. Other countries relied on a decentralized system whereby contact tracing was delegated to regions in the countries and performed local call centres and/or health workers at the local community level. Most participants indicated that there was good collaboration between institutions and health workers.
Good adherence to contact tracing regulations was reported by participants from countries that performed manual contact tracing through phone calls initiated by health workers. Contact tracing of high-risk groups was also prioritized in most countries. The publication of technical guidance documents by WHO, ECDC, and the US Centers for Disease Control and Prevention, was considered valuable to determine and adjust national contact tracing strategies.

Participants described how national COVID-19 contact tracing strategies had to be adjusted according to the changing epidemiological situation during the course of the pandemic, e.g., as a consequence of increasing vaccination uptake, emergence of variants of concern and the application and effectiveness of public health and social measures (PHSM). Decision-making algorithms were applied in some countries to improve efficiency and standardize procedures across the response. Certain participants reported using contact tracing data to document effectiveness of response measures and to inform COVID-19 policy decisions; revise contact tracing protocols (i.e., operational procedures or instructions to staff on how to carry out contact tracing); and investigate vaccine effectiveness against transmission. Policy changes throughout the pandemic required frequent amendments to contact tracing protocols, systemic changes to contact tracing operations, as well as the communication of these changes to the contact tracing workforce and the public. A few participants reported that they referred to international guidance or adapted protocols from neighbouring countries when developing or updating national protocols.

There was considerable variation in contact tracing strategies and protocols. For example, whether backward contact tracing was performed; whether there were links with testing strategies; whether cases and contacts were called on their phone or received automatic SMS or letters/emails with instructions; whether data was collected and indicators used to evaluate performance; whether there was outbreak vs location-based tracing of contacts; whether it was through mobile or self-testing; which entities were ultimately responsible for enforcement of isolation/quarantine, and finally whether high-risk contacts were monitored by contact tracers during the quarantine period.

Box 1 - Contact Tracing Systems, Strategies and Procedures

<table>
<thead>
<tr>
<th>Country experiences/reflections</th>
<th>Way forward</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Frequently revised strategies in response to different phases of the pandemic*</td>
<td>* De-escalation (downsizing) of contact tracing systems*</td>
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<tr>
<td>* Substantial differences in contact tracing implementation across countries*</td>
<td>* Maintain responsiveness to scale up quickly*</td>
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<tr>
<td>* Prioritization of high-risk groups; dedicated teams and/or protocols established for specific settings, risk- and vulnerable populations*</td>
<td>* Conform contact tracing to prioritised high-risk settings and vulnerable populations*</td>
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<tr>
<td>* Contact tracing linked with intensive testing*</td>
<td>* Remain alert to new VOC through sentinel surveillance*</td>
</tr>
<tr>
<td>* Challenges due to frequent changes in NPIs, protocols and lack of public compliance*</td>
<td>* Balance between pandemic measures (including contact tracing) and a return to ‘normal’ life*</td>
</tr>
</tbody>
</table>

Flexible contact tracing protocols

The need for different contact tracing protocols for specific population groups or settings was addressed by some participants. For example, in some countries, contact tracing in schools, hospitals and long-term care facilities (LTCF) is handled either by the institutions themselves or by dedicated teams with detailed knowledge of these settings, whereas contact tracing among the general public is managed centrally or at local level. In some countries, dedicated teams were established for international contact tracing to facilitate cooperation between national and international authorities, whereas people experiencing language barriers or difficulties in adhering to isolation/quarantine regulations were directed towards specific call centres or field agents who performed home visits.

The ongoing de-escalation of contact tracing operations was extensively discussed during the meeting. At the time of the meeting, most countries had revised their strategies and protocols following the growing evidence related to the epidemiological characteristics of the dominant Omicron VOC. A high incidence of COVID-19 cases and contacts overwhelmed contact tracing systems and led to the disruption of essential societal functions due to the high numbers of people in isolation or quarantine.

Participants reported that some countries have responded by shortening the period of isolation, reducing or eliminating the need for quarantine and testing for contacts, and by introducing self-testing requirements after a short quarantine period for partially vaccinated and non-vaccinated contacts. Other countries have introduced online self-reporting of contacts for newly diagnosed cases of COVID-19 or have stopped conducting contact tracing altogether.

Way forward

The main issue discussed during the second breakout session was the challenge of planned de-escalation or downsizing of contact tracing systems while maintaining overall responsiveness and the ability to scale up quickly should the need arise. There was general agreement that this transitional step is crucial at this stage of the pandemic to achieve a balance between pandemic control measures and a return to ‘normal’ life. Therefore,
a change in contact tracing strategies and protocols was deemed necessary by most participants.

There was general agreement that contact tracing should be prioritised for a) vulnerable populations at increased risk of severe disease such as elderly, persons with underlying illness and potentially unvaccinated persons; b) individuals in high-risk settings including hospitals, LTCF, or crowded environments, and c) travellers from a country where a new VOC is appearing. At the same time, participants acknowledged the need to remain vigilant to new VOC and other pandemic challenges, which in turn requires the continued collection of relevant data through sentinel or other types of surveillance.

Some countries will be investing in digitalization and improvement of electronic data management systems with a focus on self-reporting of cases or contacts and interoperability across electronic platforms. In some countries, contacts will no longer be required to quarantine, and strategies for voluntary public health and social measures – including quarantining of contacts – are being pursued while minimizing mandatory interventions as much as possible.

Contact tracing workforce and systems

Country experiences

Appropriate management of the resources required to perform effective contact tracing is essential. Ensuring that there are enough well-trained contact tracing personnel, for example, reduces tracing delay – something that was considered a key component in breaking transmission chains and keeping case numbers under control (and for containment of disease outbreaks in general).

Participants reported that some countries received support from or were reliant on volunteers, students, non-governmental organizations (NGOs) such as the International Committee of the Red Cross; the military/police or other non-medical personnel and health workers who were temporarily redeployed from other health services or agencies. In some countries, the relatively high turnover of contact tracers was problematic and efforts to counteract this through issuing long-term, flexible contracts were not always successful. In countries where call centres were established to centralize contact tracing activities, some centres were managed by a professional agency that received support from health workers for complicated cases. Continuous training and education, for example through a formalized training schedule with opportunities to shadow experienced contact tracers and supported by a central knowledge platform for ease of reference, were repeatedly highlighted as being critical to quickly get staff onboard.

Challenges regarding financial resource management were also highlighted by participants. Among these were difficulties related to securing funding for contact tracing activities and the challenges of expanding contact tracing capacity or establishing new call centres at relatively short notice, such as when the number of COVID-19 cases rapidly increased. Staff shortage was also encountered either when health workers were redeployed to their previous roles, or during the process of recruiting, training, and retaining staff in situations of high turnover.

Way forward

To be prepared for future COVID-19 waves including the emergence of new VOC, many participants highlighted the importance of enhancing epidemiological and contact tracing capacity/expertise and thereby strengthening their country’s surveillance system by investing in the training, education and recruitment of epidemiologists and contact tracing personnel. As other essential health needs of the population are becoming increasingly pressing after a prolonged pandemic, the effective use of the existing health workforce is essential.

Maintaining costly testing and tracing capacities in the face of competing needs and shrinking budgets is likely to be challenging. At least one country intends to keep a permanent group of field epidemiologists who could work on contact tracing for other infectious diseases but can be quickly deployed when there is a need to scale-up activity. Another proposed approach was to preserve the skills of current staff who have gained experience in contact tracing but might be released or redeployed elsewhere. General Practitioners and other medical professionals should also receive training in infectious disease identification and management.
Risk Communication and Community Engagement

Country experiences

Risk Communication and Community Engagement (RCCE) was another key theme identified by participants. The engagement of communities is a crucial driver of the success of pandemic response measures. Different successful examples of RCCE were shared by participants, including: (i) meaningful engagement of specific community groups and institutions, (ii) raising awareness of the different PHSM and utilizing tailored approaches to not leave anyone behind, and (iii) establishing online knowledge-sharing platforms for healthcare providers workers and the general public to ensure that only credible information is shared. Several participants reported on the use of call centres to provide cases and contacts with the correct instructions and answer any personal questions. In times of high case numbers, some countries have used automated text messages to communicate instructions, rather than through a phone call.

Other participants described how their country had actively engaged with the media to improve communication with communities. For example, governmental decisions and information about the measures implemented to support the public and to curb COVID-19 transmission were transmitted using several media channels and platforms. 'Pandemic fatigue' among the general population was a concern: several participants highlighted the importance of understanding both people's behaviour, and the challenges faced by individuals and families when trying to adhere to the public health and social measures such as fear of stigmatization and financial concerns associated with isolation and quarantine. Such knowledge would inform the decision-making process and help to ensure that barriers to compliance with public health measures are addressed.

Way forward

Building trust between the authorities and the communities is a time-consuming process, so it is essential to build on the experience made during this pandemic and ensure that the current level of trust and channels of communication are maintained and strengthened. Several participants expressed a need for an evaluation of the current channels of communication and risk communication strategies and community engagement approaches to prepare for future COVID-19 waves, new COVID-19 VOC or other possible disease outbreaks. A multisectoral RCCE preparedness plan should be developed and adopted, building on individual sectors' and other MS experiences.

Digitalization

Country experiences

The importance of developing automated digital systems to supplement or replace manual contact tracing was reiterated throughout the discussions. Some countries have implemented systems that enables COVID-19 cases to self-report their contacts on digital platforms, thereby alleviating the workload of contact tracers. Other countries have implemented online booking system for COVID-19 tests, which also records, stores and presents the results.

The use of the EU Digital Passenger Locator Form (EU dPLF) platform was also described by some participants as an opportunity for more rapid data collection, leading to faster, more effective and efficient cross-border contact tracing. Additionally, the EU’s Early Warning and Response System (EWRS) was mentioned as a tool for communication with other countries to support cross-border surveillance. However, many participants also highlighted that there had been several missed opportunities to prioritise such digitalization and automation of contact tracing processes.

1 The European Digital Passenger Locator Form (dPLF) [website]. EUPLF; 2022
2 Early Warning and Response System of the European Union. Stockholm: European Centre for Disease Prevention and Control, 2018 (https://www.ecdc.europa.eu/en/publications-data/early-warning-and-response-system-european-union-ewrs, accessed 15 June 2022). Access to this application is limited to the members of the EWRS, i.e. the competent Public Health Authorities of the EU/EEA Member States, which have been designated officially by the government of their country as members of the EWRS, and the competent service of the European Commission.
Several participants raised concerns about ensuring sustainable financing of such technologies and the challenges of meeting the highest standards of data management, storage, and protection while adhering to the General Data Protection Regulations (GDPR)\(^3\). Moreover, many participants agreed that community acceptance of and trust in any implemented tool is paramount for its uptake and success.

**Way forward**

Going forward, participants highlighted the necessity of establishing digital contact tracing systems, integrating those systems into countries’ existing digital infrastructure, and identifying and evaluating any gaps in their functionality to promote long-lasting interoperability. Investing in the development of new digital tools for contact tracing, or refining existing tools to address any gaps, would ensure their sustainability and use in future outbreaks, beyond the current pandemic. Raising awareness about the digitalization of the contact tracing services and fostering trust among communities was also considered to be important.

**Regulation**

**Country experiences/Reflections**

- A strong regulatory framework should provide the basis for contact tracing activity

**Way forward**

- Revise current regulation in anticipation of future epidemics
- Address contact tracing in national regulatory frameworks

**Conclusion**

COVID-19 contact tracing strategies and practices have evolved during the pandemic, adjusting to the constantly changing epidemiological situation, the emergence of new variants and the rollout of vaccines along with the naturally acquired immunity.

At the time of the meeting, a general tendency towards downsizing of contact tracing activities was in progress based on an improved situation in the COVID-19 pandemic. During the meeting, there was broad agreement that established systems and competencies related to contact tracing should be maintained and be ready for rapid reactivation, should the epidemiological situation require so. Furthermore, most participants anticipated that countries will need to maintain focus on contact tracing among vulnerable groups and in high-risk situations.

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settings in the coming period and rely more on informing and educating the general public rather than reinforcing restrictive COVID-19 response measures.

From the country experiences shared during the meeting, it was evident that contact tracing is a complex mechanism that is dependent on many aspects to be successful, e.g. an adequately sized workforce, funding and legislation, flexible protocols, proper risk communication and community engagement and well-established standardized systems for tasks related to digital contact tracing and management of contact tracing data. Countries across the European Region have faced multiple challenges with establishing contact tracing systems at the required scale in the midst of a pandemic and ensuring flexible systems that were able to adjust according to the epidemiological situation. The experiences, challenges and reflections shared during the meeting are essential for all countries, as well as for international organizations like WHO and ECDC, because they provide unique insight that can be used to shape future national and international guidance and inform health systems strengthening, as well as future pandemic preparedness planning, across Europe.
Annex 1 – List of participating countries and territories

1. Andorra
2. Armenia
3. Austria
4. Belgium
5. Bulgaria
6. Croatia
7. Czechia
8. Denmark
9. Estonia
10. France
11. Georgia
12. Germany
13. Hungary
14. Iceland
15. Israel
16. Italy
17. Kazakhstan
18. Kyrgyzstan
19. Latvia
20. Liechtenstein
21. Lithuania
22. Luxembourg
23. Malta
24. Monaco
25. Montenegro
26. Netherlands
27. North Macedonia
28. Poland
29. Portugal
30. Romania
31. Serbia
32. Slovakia
33. Slovenia
34. Spain
35. Switzerland
36. Tajikistan
37. Türkiye
38. Turkmenistan
39. United Kingdom
## Annex 2 – Programme, 1 March 2022

<table>
<thead>
<tr>
<th>Time</th>
<th>Activities</th>
<th>Presenters/Representatives</th>
</tr>
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<tbody>
<tr>
<td>13:00-13:15</td>
<td>Opening of meeting</td>
<td>Gerald Rockenschaub, WHO</td>
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<td></td>
<td></td>
<td>Natasha Azzopardi Muscat, WHO</td>
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<td></td>
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<td>Emmanuel Robesyn, ECDC</td>
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<td>13:15-13:45</td>
<td>COVID-19 contact tracing</td>
<td>Presenters:</td>
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<tr>
<td></td>
<td>WHO/Europe reflections on contact tracing</td>
<td>Michala Hegermann, WHO</td>
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<td>Current evidence on contact tracing effectiveness</td>
<td>Daniel Cauchi, WHO</td>
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<td>Risk Communications and Community Engagement</td>
<td>Altug Akin, WHO</td>
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<td>European evaluation of digital tools for contact tracing</td>
<td>Vanja Pajic, WHO</td>
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<td></td>
<td>ECDC update on contact tracing</td>
<td>Favelle Lamb, ECDC</td>
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<tr>
<td>13:45-14:15</td>
<td>Country experiences</td>
<td>Presenters:</td>
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<td></td>
<td>Belgium</td>
<td>Country representatives</td>
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<td></td>
<td>Kazakhstan</td>
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<tr>
<td>14:15-14:45</td>
<td>Break-out session part 1</td>
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<td></td>
<td>Sharing best practices in relation to contact tracing during the COVID-19 pandemic, including current paradigm shift in the light of Omicron.</td>
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<tr>
<td>14:45-15:00</td>
<td>Break</td>
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<td>15:00-15:30</td>
<td>Country experiences</td>
<td>Presenters:</td>
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<td></td>
<td>Denmark</td>
<td>Country representatives</td>
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<td></td>
<td>North Macedonia</td>
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<td>15:30-15:50</td>
<td>Break-out session part 2</td>
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<td>Sharing reflections on contact tracing in the future, i.e., for COVID-19 and as part of pandemic preparedness and health systems strengthening.</td>
<td>Richard Pebody, WHO</td>
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<tr>
<td>15:50-16:00</td>
<td>Meeting closure</td>
<td>Emmanuel Robesyn, ECDC</td>
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