Lessons learned from public health laboratory responses to COVID-19 across the WHO European Region

Paris, France
25–26 October 2022
Meeting report
Abstract
This meeting discussed national laboratory responses to coronavirus disease (COVID-19) and the lessons learned from the past two years. The COVID-19 pandemic placed great stresses upon public health laboratories globally. Member States and territories faced many challenges, including laboratory technical capacity, infrastructure, procurement and human and financial resources. A public health crisis of this magnitude, while never anticipated, highlighted the importance of laboratory preparedness and response.

The objectives of the meeting were to:
- allow countries/areas to share their experience, learn and be inspired by one another
- extract best practices, challenges and lessons learned from national laboratory responses and
- discuss next steps to ensure that COVID-19 laboratories remain sustainable.

KEYWORDS
LABORATORIES
PANDEMICS
EMERGENCIES
COVID-19
EUROPE

Document number: WHO/EURO:2023-7419-47185-69126

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Lessons learned from public health laboratory responses to COVID-19 across the WHO European Region

Paris, France
25–26 October 2022

Meeting report
Abbreviations

AAR  after-action review
Ag-RDT  antigen detection rapid diagnostic test
Better Labs  Better Labs for Better Health
COVID-19  coronavirus disease 2019
IAR  intra-action review
IMST  Incident Management Support Team
PCR  polymerase chain reaction
QMS  quality management system
SARS-CoV-2  severe acute respiratory syndrome coronavirus 2
WHE  WHO World Health Emergencies Programme
Lessons learned from public health laboratory responses to COVID-19 across the WHO European Region

Executive summary

This meeting discussed national laboratory responses to coronavirus disease 2019 (COVID-19) and the lessons learned from the past two years. The COVID-19 pandemic placed great stresses upon public health laboratories globally. Countries faced many challenges, including laboratory technical capacity, infrastructure, procurement and human and financial resources. A public health crisis of this magnitude, while never anticipated, highlighted the importance of laboratory preparedness and response.

Countries have had to adapt to cope with demand and strain on laboratories, building new facilities and repurposing existing ones. Quality polymerase chain reaction (PCR) testing was rapidly rolled out on a mass scale – a scale never seen before.

An antigen detection rapid diagnostic test (Ag-RDT) has been developed and introduced to reduce the burden on laboratories due to the high number of suspected cases to be tested. Sequencing capacities had to be implemented to ensure detection of variants.

On-site training and support for testing strategies have been vital in the fighting the COVID-19 pandemic, as have increased coordination and collaboration between public human and animal laboratories and private laboratories to strengthen disease surveillance and address testing needs.

The objectives of the meeting were to:

- allow countries to share their experience, learn and be inspired by one another
- extract best practices, challenges and lessons learned from national laboratory responses and
- discuss next steps to ensure that COVID-19 laboratories remain sustainable.

There was solidarity and increased networking among laboratory staff, who had to work under extremely difficult circumstances. Their key achievements were as follows:

- strengthened and increased laboratory capacity for diagnostics of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) through networking;
- continuing professional development for laboratory staff through training and mentoring;
- digitization of data systems, and indeed modernization of laboratory systems generally, with investment in new methods such as PCR and the much needed upgrading of laboratories.

These achievements aside, gaps still exist and efforts must be made to ensure that investment is utilized to the full. Sustainability must be a priority in order to maintain newly acquired capacities. Lessons learned during the pandemic are valuable and can be integrated into national laboratory policies with the support of WHO.
Lessons learned from public health laboratory responses to COVID-19 across the WHO European Region

Executive summary
Background

Well prepared laboratories are the first line of defence against the spread of the novel coronavirus in the WHO European Region. During routine disease surveillance, as well as in the event of acute outbreaks, laboratories work largely unseen. They provide the vital link in the chain of activities required to keep populations safe from disease. The COVID-19 pandemic has highlighted the need for reliable laboratory evidence, both for everyday health care and for emergency preparedness and response.

The pandemic placed great stresses upon public health laboratories globally. Countries faced many challenges, including laboratory technical capacity, infrastructure, procurement and human and financial resources. A public health crisis of this magnitude, while never anticipated, highlighted the importance of laboratory preparedness and response. Following the identification of the novel virus in January 2020, the Better Labs for Better Health (Better Labs) (1) initiative moved quickly to identify laboratory needs and capacities in the WHO European Region. This included strengthening capacities to test and care for patients in order to prevent and control infections.

The common challenge was making diagnostic services accessible throughout countries and building regional laboratory capacity.

Countries have started conducting comprehensive national and subnational intra-action reviews (IARs) focusing on many pillars of the public health response. In addition, countries from central Asia and the western Balkans are reviewing the lessons learned in their laboratory response to COVID-19 as they address national laboratory policies and strategic planning to further strengthen their laboratory systems.

In the laboratory sector, workshops assessing strengths, weaknesses, opportunities and threats were conducted in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan in relation to their national laboratory response. The present meeting was intended to share these results and plan the next steps based on countries’ experience during the COVID-19 emergency period. For the programme of work, see Annex 1. For the list of participants, see Annex 2.

Objectives of the meeting

- Allow countries to share their experience, learn and be inspired by one another
- Extract best practices, challenges and lessons learned from national laboratory responses and
- Discuss next steps to ensure that COVID-19 laboratories remain sustainable
Lessons learned from public health laboratory responses to COVID-19 across the WHO European Region

WHO European Region laboratory response to COVID-19

In 2012, the WHO Regional Office for Europe launched the Better Labs initiative. Better Labs focuses on strengthening core country laboratory capacities required under the International Health Regulations (2005) (2). Laboratory services are essential for a country’s security as they are critical for infectious hazard detection and characterization; risk assessment; clinical and public health responses; notification; monitoring of risk-management effectiveness; and general monitoring of infectious hazards to public health.

The first cases of COVID-19 were detected in the WHO European Region in January 2020. The Regional Office had already set up its COVID-19 Incident Management Support Team (IMST) – a multidisciplinary team drawing on different areas of expertise – to respond to the threat posed by the new coronavirus disease. In response to the COVID-19 emergency, the IMST created and put in place the laboratory team action plan, based on the following nine key objectives:

- create country testing strategies and action plans for laboratory responses;
- provide adequate and correct specimens;
- provide proper and safe transport of specimens;
- create proper testing capacity by means of training;
- ensure proper procurement for all tests;
- provide quality and safe testing;
- implement and use laboratory information management systems;
- participate in surveillance systems such as those for influenza-like illness and severe acute respiratory infections;
- ensure regular monitoring and evaluation.

The ultimate goal of the action plan is to strengthen country laboratory capacities to ensure reliable rapid diagnosis and identification of variants for proper surveillance of the COVID-19 outbreak.

Coordination and collaboration between public and private laboratories for surveillance purposes is essential. Building and expanding genomic sequencing capacity is critical for detecting, monitoring and responding to the emergence of new variants. [continued on next page]
[..continued]

Quality PCR testing was rapidly rolled out on a mass scale – a scale never seen before. Ag-RDT testing was developed and introduced to reduce the burden on laboratories due to high number of suspected cases to be tested. Sequencing capacities had to be implemented to ensure detection of variants.

With regard to procurement, more methodical and systematic planning will facilitate the process and help to source adequate funding. Overall, the Region has shown good overall COVID-19 external quality assessment capacity, but there is still a need for countries and areas to establish or reinforce their national/territory external quality assessments.

Extending the mentoring approach for quality management systems (QMSs), biosafety and biosecurity and technical on-site support have been proven to support decentralizing of testing capacities. It was noted that realistic test costs are rarely calculated accurately and that very little consideration had been given to laboratory sustainability post-COVID-19.
IAR results

The IAR methodology and its implementation in the Region were presented, with a special focus on findings in the laboratory pillar. As an integral part of the monitoring and evaluation framework of the International Health Regulations, the IAR and the after-action review (AAR) are tools that can be used to assess functional capacity for implementation of the International Health Regulations (2005) in countries.

The IAR is a facilitated participative discussion that allows national stakeholders to reflect on the COVID-19 response to identify best practices, gaps and lessons learned. In addition, this process allows for reflection on corrective measures and actions to improve and strengthen the current response. In the long term, IAR findings and recommendations contribute to improved management of emergencies and support long-term strengthening of health security systems. To date, 17 IARs or AARs have been conducted in the Region with WHO guidance, of which seven were officially led by WHO. The IARs were conducted at different times in relation to the respective pandemic trajectories. Of the seven WHO-led missions, five countries reviewed the laboratory pillar.

The review of the laboratory pillar covered the functioning of the national laboratory system in the task of providing timely confirmation of COVID-19 cases in the country/territory, including the collection and safe transportation of specimens to national and international reference laboratories as necessary. In addition, the review covered the diagnostic tools (both PCR and point-of-care tests) developed and used by the country concerned during the COVID-19 pandemic and how these impacted the response and control efforts. Finally, the review covered the sharing of specimens with laboratory networks for phylogenetic analysis of the SARS-CoV-2 genome, as well as the monitoring, detection and sharing of sequences and information on variants of concerns with the international community. Some key themes seen during the IARs and AARs relating to the laboratory pillar were as follows:

- the ability to increase test capacity relatively swiftly from low initial levels;
- the existence of a national reference laboratory and an established network between the national and regional laboratories;
- centralized procurement;
- public-private collaboration in scaling up laboratory capacity (with ministry of health/national public health institute oversight mechanisms);
- standard operating procedures and national guidelines on diagnostic methods; and
- continuous training of laboratory specialists (through national or international networks).

Globally, there have been 77 AARs conducted by 43 countries and 128 COVID-19 IARs conducted by 77 countries. A global analysis of available IAR findings (CIARA) was recently published (3). The IAR/AAR guidance toolbox which includes all that is needed for the IAR/AAR process can be found online in all six official UN languages (4).
Lessons learned from public health laboratory responses to COVID-19 across the WHO European Region
Achievements and challenges faced in the laboratory response to COVID-19

Country/area/territory presentations

Achievements and challenges faced in laboratory response to COVID-19 – country/area/territory presentations and discussion

Representatives of Kazakhstan, Kyrgyzstan, Netherlands (Kingdom of the), North Macedonia, Republic of Moldova, Serbia, Tajikistan and Uzbekistan, as well as Kosovo[1], shared their COVID-19 response experiences, outlining their successes and remaining challenges.

These countries/territories had been selected to participate because of the work they had carried out, based on the lessons each country or area had learned during the COVID-19 pandemic period.

The nine groups were invited to present the challenges their laboratories had experienced during the pandemic, their achievements in facing up to and attempting to overcome them and the mechanisms and procedures they had put in place to deal with similar emergencies in the future.

A strengths, weaknesses, opportunities and threats analysis had been conducted on the national laboratory response in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan. Countries/areas were also encouraged to carry out an IAR of their COVID-19 response.

In central Asia, some countries had already developed their national/territory laboratory policy and strategic plans, which are being reviewed taking into account the lessons learned during the COVID-19 pandemic.

The nine presentations emphasized sharing national/area experience of the pandemic at a laboratory level. These were followed by an open discussion, during which clear issues were raised, many of which were common to most or all of the groups that presented.

During the pandemic, countries and territories faced many challenges, including laboratory technical capacity, infrastructure, reagents and human and financial resources, since countries/areas had not anticipated a public health crisis of this magnitude, especially at the beginning of the pandemic.

A key theme throughout was improving the use of technology by digitizing and sharing data in a more fluid manner and introducing robust laboratory information management systems. Another predominant feature of all of the presentations was the insight that challenges offered an opportunity to increase PCR capacity in countries/areas and improve the way laboratories function and coordinate in the future.

[1]All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)
Common achievements

Countries/territories invested heavily to ensure that the necessary human resources, testing capacity, consumables and equipment were available to respond to the unprecedented demands on laboratories and public health systems.

Training continued throughout the emergency period, was adapted and accelerated to help deal with the crisis. WHO had always recognized prior to COVID-19 that training (with specific mention of the Better Labs mentoring programme) had to be a key focus for developing sustainable laboratory systems, and great efforts were made throughout the pandemic to continue to deliver not only online but also in-country/area face-to-face training wherever and whenever possible. These were appreciated by countries and areas as on-site support and training allowed for better understanding and an enhanced learning experience.

Digitization of data systems was also a common theme throughout all of the presentations, since it helps to facilitate the sharing of data, streamline processes, save time and increase efficiency and actually represents a wider topic of modernization. Public health laboratories are vital components of a Member State’s or territory’s public health infrastructure and the data digitization issue is actually part of a much wider programme of ongoing laboratory modernization.

Networking and establishing laboratory networks including intersectoral and interministerial cooperation. This allows not only for improved coordination throughout laboratory systems but also provides a mechanism for exchange of information, experience and strengthening capacities which are particularly important during and following a public health emergency.

Support from WHO, WHO collaborating centres, government, donors and all partners is crucial to making the above possible. This includes not only financial support but also training programmes, general guidance and organization of relevant, regular meetings to exchange knowledge and experience to help support sustainable and continuous laboratory development.

What must be emphasized is the commitment of laboratory staff, who worked tirelessly throughout the pandemic in extremely challenging circumstances. It was a period during which it was particularly important for laboratory personnel to feel valued. This can be achieved not only via financial remuneration initiatives, but also through continuing personal development programmes to help them feel satisfied in the essential and valuable work they do.
Key achievements

Participants were divided into groups to identify common achievements using the IAR template. They focused on the best practices during the COVID-19 response and took into account the impact of those best practices and the enabling factors that helped to achieve the impact. The results were as follows.

WHO Health Emergencies Programme (WHE) countries/areas served by the WHO Balkan Hub: Best practices and their impact:

- **Rapidly increasing laboratory capacity at the regional level**
  The impact of this has been better regional capacity for patient testing, more timely results, easing of the burden on national/area laboratories, strengthening of surveillance and improved contact-tracing, as well as strengthened technical capacity for the future for surveillance of non-SARS-CoV-2 pathogens (e.g. HIV, influenza).

- **Strengthening of laboratory capacity at the central level**
  This had the impact of improving the quality of work while increasing cost-effectiveness and efficiency of both staff and resources. In addition, sequencing capacity was boosted.

- **Training**
  This was another common feature in the countries/territories served by the WHO Balkan Hub, with training courses and webinars on PCR, biosafety and biosecurity/personal protective equipment being cited. This increased the commitment and motivation of laboratory staff to "go the extra mile".

- **Centralized (digitized) data systems**
  This has allowed efficiencies to be introduced and also made collaboration between different sectors possible.

Enabling factors for all the above:

- government/political support (ministries of health);
- support from and collaboration with WHO (including training and QMS mentoring programme);
- staff commitment to working very long hours, partly incentivized by increased pay, but efforts were also made to employ additional laboratory staff;
- more funds made available during the pandemic helped to make this happen.
Lessons learned from public health laboratory responses to COVID-19 across the WHO European Region
Achievements and challenges faced in the laboratory response to COVID-19

Key achievements

Central Asia group: best practices and their impact:

- **Increased capacity of human resources**
  This led to better quality and safety of testing and an increased number of trained specialists in in PCR testing, which can be applied to other pathogens, as well as the introduction of quality modern laboratory diagnostic methods. Overall, this enabled the expansion of laboratory testing capabilities.

- **Digitization of data systems**
  This has enabled more efficient data management, improved the timeliness of results and reduced human error and fraudulent results. Most importantly, it has increased public trust in laboratories.

- **Training**
  The impacts of this were as follows: reliable and timely results, confirmation of the technical competence of laboratory staff, systematic improvements in and standardization of laboratory processes and verification of test systems and equipment.

- **Establishing national laboratory groups (networking)**
  The main impact of this has been a marked improvement in coordination and information-sharing throughout laboratory systems as well as increased capacity for testing.

Enabling factors for all the above:

- **Government/State/political commitment and support and presence of a regulatory framework**

- **Support from and collaboration with WHO and WHO collaborating centres (including both offline and online training and the QMS mentoring programme)**

- **Donor and partner support (funding)**

- **Social and financial support for laboratory staff**
Pandemic preparedness in the WHO European Region

COVID-19 significantly affected societies and had economic impacts outweighing any previous outbreaks or pandemics. Most countries have transitioned from an acute response mode into longer-term management of COVID-19 alongside other respiratory viruses such as influenza and it is therefore considered timely for all countries/areas to review their response to COVID-19 to identify the main gaps and challenges from the response and learn from these.

A priority for WHO will be to strengthen the Global Influenza Surveillance and Response System, e.g. under the aegis of the Pandemic Influenza Preparedness Framework, and to support countries with updating pandemic preparedness plans based on COVID-19 lessons. COVID-19 has highlighted the need for widening the scope of pandemic planning to multiple respiratory pathogens and to obtain high-level commitment and ensure long-term investments in pandemic preparedness.

Furthermore, multisectoral engagement and ownership in pandemic preparedness planning need to be strengthened in countries and the linkages between pandemic preparedness planning other emergency preparedness planning need to be emphasized.

In the laboratory sector, WHO is providing country support to improve collaborative surveillance through strengthening integrated surveillance for SARS-CoV-2, influenza and other respiratory viruses, establishing mechanisms for national/area risk assessments to feed into policy decisions, refining test capacities and developing plans for surge capacity.
Lessons learned from public health laboratory responses to COVID-19 across the WHO European Region
Development of an integrated respiratory laboratory network

Integrated respiratory laboratory network

Development of an integrated respiratory laboratory network

Respiratory viruses remain the main cause of large-scale epidemics and pandemics. They are of particular concern owing to their relatively short incubation periods, the similarity of their clinical presentation, the ease with which they spread and their potential to overwhelm health-care services. In addition to this, some virus groups are prone to high rates of virus evolution, making them even more difficult to contain and deal with.

Parallel systems for surveillance and response to each individual respiratory virus are resource-intensive and undermine effectiveness, hence the global interest in integrated approaches to epidemic and pandemic threats from respiratory viruses.

Lessons learned from the COVID-19 pandemic indicate that moving from traditional single-pathogen to integrated multi-pathogen approaches to surveillance and response may increase efficiency. This also provides a coherent framework to address pathogen-specific measures and interface with cross-cutting systems. The Global Influenza Surveillance and Response System network served as a foundation for prompt building of national, regional and global COVID-19 testing networks.

Integrated surveillance of influenza and SARS-CoV-2 has shown that it is possible to monitor relative (co-)circulation viruses and identify local, regional and global patterns, monitor virus evolution and detect signals of unusual viral activity.

The integrated surveillance network approach for respiratory viruses is feasible owing to advances in diagnostic and digital technologies and the application of new surveillance strategies. The integrated surveillance agenda has been advanced through the joint efforts of the WHO Regional Office for Europe and the European Centre for Disease Prevention and Control; many European countries have either already implemented or plan to implement integrated surveillance in the near future.

The laboratory network for integrated respiratory surveillance can be built and strengthened through the development of normative guidance, strengthening of capacities for detection and characterization of influenza and other respiratory viruses, introduction of new technologies, improved integrated reporting and ongoing support and capacity-building for existing and prospective national influenza centres.
Panel discussion on remaining challenges

Significant new laboratory capacity was created during the COVID-19 emergency, and thought needs to be given to how to use that capacity post-COVID-19. Staff retention was repeatedly mentioned as a challenge, with financial incentives being introduced in order to keep trained staff in their roles. There are generally not enough staff, including medical doctors, and ageing of staff was mentioned as an issue. In contrast, in one country in particular it was mentioned that the availability of qualified personnel had helped in rapidly implementing SARS-CoV-2 sequencing.

Maintenance of laboratory equipment was also an issue, with a lack of trained engineers available to perform maintenance. Agreements need to be made between suppliers and maintenance companies to ensure not just a quality service, but also a long-term, reliable, consistent one. One possible sustainable way suggested is to provide this through training of trainers for engineers and to find ways of keeping them in the job.

It was also pointed out that some equipment was no longer even being manufactured and was therefore impossible to maintain, as spare parts could not be sourced. Maintenance is important and as such should have its own separate budget line, although this aspect is too often forgotten. Attention needs to be paid to improving coordination between ministries of health and public health laboratories on these issues. Regular revision of national/area policies and strategy plans helps to determine budget needs and plans for future work; this is part of the advocacy work to be addressed.

Procurement was also a discussion point, notably the experience of some countries that achieved accelerated procurement during the pandemic via agreements between suppliers and the ministry of health through emergency funding and emergency legal frameworks to allow for fast response at a reasonable cost. Discussions also centred around the possible local manufacturing of test kits. During the pandemic, laboratories enjoyed significant levels of investment in equipment, construction, reagents and consumables.

These requirements will persist, however, even when COVID-19 is no longer seen as a significant challenge. Lack of national regular external quality assessment schemes was mentioned several times by different countries. This particular challenge is to be addressed in the near future, with a training package that has been developed and whose roll-out is already being planned.

Another common challenge was coming up with a system to make diagnostics accessible throughout the country and building regional laboratory capacity. Some countries of central Asia and the Balkan Hub are reviewing the lessons learned in their laboratory response to COVID-19, addressing national laboratory policies and strategic planning to further strengthen their laboratory systems. [continued on next page]
[...continued]
The analysis and proper utilization of data in the preparedness and response process was also discussed. Time limitations, appropriate capacity to analyse and data privacy present challenges to public health officials. In addition, although laboratories collect large volumes of data, if the data are not analysed quickly in order to formulate a plan of action, they soon become outdated and lose their value. Digitization of data and data systems was a common theme of discussion for most countries.

It was pointed out that the excellent collaboration between the veterinary and human health sectors had led to greater efficiencies and productivity during these recent challenging times, along with continued/increased QMS mentoring and biosafety training. The One Health concept brings together the human, animal and environmental health sectors: One Health exists to address the challenge of different disciplines in effectively communicating with one another and exchanging valuable experience, knowledge and perspectives.

However, it was also stressed that the One Health initiative is a long-term ongoing initiative and constant planning is required for such collaborations, rather than responding in an ad hoc fashion to emerging events. Furthermore, interdisciplinary relationships (between different institutions, ministries and organizations) must be supported and workflow charts should be documented.

Capacities built up during pandemic times should be put to good use, for example for integrated surveillance of respiratory pathogens. Regional laboratories are being trained in multiplex testing of various pathogens (especially influenza) and building of sentinel surveillance in regions, which was not possible before the pandemic. Overall, newly created laboratory capacity should be used to improve public health systems generally.

The sharing of experiences and information between laboratories and countries/areas is essential in order to move forward constructively and efficiently after the pandemic and to discuss the next steps needed to put in place structures and procedures to improve laboratory preparedness for the future. Best practices which are delivering results in one country/area can almost certainly be of benefit to other Member States/territories and so need to be presented and shared openly.
A group discussion on sustainability was held in plenary, asking how to address sustainability for COVID-19 laboratories. The discussion reflected on the future of COVID-19 laboratories and on the extra capacity built up during the pandemic period. This capacity needs to be put to good use, but must also be maintained and expanded upon for the future development of public health generally.

All agreed that sustainability of the established COVID-19 testing laboratories needs to be addressed and that laboratory systems should be reviewed, attributing clear roles to each level of laboratory in the laboratory system to avoid duplication and ensure a more efficient national laboratory system.
Conclusion and next steps

The pandemic placed great stresses upon public health laboratories globally. Nevertheless, many common achievements were highlighted during the meeting, showing associated improvements in the laboratory sector during the crisis.

Countries and territories identified common challenges in increasing their capacity to respond to the COVID-19 pandemic. They were able to achieve this in several ways. Training was not only continued, but was actually accelerated during the emergency, and this helped greatly in increasing laboratory and testing capacity. The use of digitized data systems also helped in streamlining processes and facilitating the sharing of data.

Efficient and effective networking capabilities played an important role in the exchange of information and experience and strengthening of capacities, both during and following this public health emergency.

All these activities were supported by WHO, the WHO collaborating centres, governments, donors and all partners. What should also be remembered is the commitment of laboratory staff, who worked so tirelessly throughout the pandemic in very difficult conditions. They played a vital role in the achievements throughout the COVID-19 crisis.

Countries/areas are encouraged to review their laboratory policies and strategic plans, taking into account the challenges faced during the pandemic in strengthening their laboratory systems. Coordination both within the ministry of health and with other ministries should be strengthened to enable a One Health approach.

To respond to further needs raised by the pandemic, national genomic surveillance strategies should be established, allowing for coordination between different vertical programmes and development of national/area capacity to respond to multiple diseases.

More advocacy should be conducted to enable laboratories to have their own budget lines, which would also cover preventive maintenance. As for sustainability, a technical working group within the Regional Office was established to work on an assessment checklist; the first results will be presented next year.
Conclusion and next steps

Next steps

- Ministry of health, and other concerned ministries where possible, to endorse country laboratory policies in order to begin implementation of strengthening activities
- Review the activities to be fulfilled by the newly established PCR laboratories to ensure sustainability and maintain technical capacity
- Review country laboratory systems, distributing roles and responsibilities to the appropriate level, avoiding duplication of activities for better sustainability
- Evaluate running costs of the laboratories and advocate for more appropriately adjusted budget lines
References


Additional resources


# Annex 1. Programme

Lessons learned from public health laboratory responses to COVID-19 across the Region

**25-26 October 2022**  
**Paris, France**

## Programme

**Wednesday 25 October 2022**

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<tr>
<td>10:30–10:15</td>
<td>WHO laboratory response to COVID-19</td>
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<td>Joanna Zwetyenga</td>
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<td>10:15–10:30</td>
<td>IAR results</td>
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<td>Achievements and challenges faced in laboratory response</td>
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<tr>
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<td>Achievements and challenges faced in laboratory response</td>
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<td>Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan</td>
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<td>15:00–15:30</td>
<td>Coffee Break</td>
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<td>Group work to review common achievements from day 1 to extract lessons learned</td>
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<td>17:15–17:30</td>
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[1] All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)
## Lessons learned compilation

09:00–11:00

### Coffee Break

11:00–11:30

### Evaluation of the WHO pandemic response

**Michala Hergermann-Lindencrone**

11:30–12:00

### Lunch break

12:00–13:00

### Development of integrated respiratory laboratory network

**Karen Nahapetyan**

13:00–13:30

### Panel discussion on remaining challenges and how to address these

13:30–15:30

### Coffee Break

15:30–16:00

### Group discussions to address and summarize sustainability

16:00–17:15

### Conclusion

17:15–17:30
Annex 2. List of participants

Kazakhstan
Zaure Dalelovna Akhmedova
Bota Serikovna Berdiyeva
Gulnara Yedilovna Sarsenbayeva

Kyrgyzstan
Bahadyr Adahamov
Aigul Dumakanova
Gulushkan Tailakova

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[1]All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999)
The WHO Regional Office for Europe

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DOCUMENT NUMBER: WHO/EURO:2023-7419-47185-69126