



BMJ Open Key lessons learnt from COVID-19 intra-action reviews in the Republic of Moldova, Montenegro, Kosovo and North Macedonia 2020–2021: a qualitative study

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ABSTRACT

Objectives Our study described how the WHO intra-action review (IAR) methodology was operationalised and customised in three Western Balkan countries and territories and the Republic of Moldova and analysed the common key findings to inform analyses of the lessons learnt from the pandemic response.

Design We extracted data from the respective IAR reports and performed a qualitative thematic content analysis to identify common (between countries and territories) and cross-cutting (across the response pillars) themes on best practices, challenges and priority actions. The analysis involved three stages, namely: extraction of data, initial identification of emerging themes and review and definition of the themes.

Setting IARs were conducted in the Republic of Moldova, Montenegro, Kosovo and the Republic of North Macedonia between December 2020 and November 2021. The IARs were conducted at different time points relative to the respective pandemic trajectories (14-day incidence rate ranging from 23 to 495 per 100 000).

Results Case management was reviewed in all the IARs, while the infection prevention and control, surveillance and country-level coordination pillars were reviewed in three countries. The thematic content analysis identified four common and cross-cutting best practices, seven challenges and six priority recommendations. Recommendations included investing in sustainable human resources and technical capacities developed during the pandemic, providing continuous capacity-building and training (with regular simulation exercises), updating legislation, improving communication between healthcare providers at all levels of healthcare and enhancing digitalisation of health information systems.

Conclusions The IARs provided an opportunity for continuous collective reflection and learning with multisectoral engagement. They also offered an opportunity to review public health emergency preparedness and response functions in general, thereby

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ We performed a qualitative study of intra-action review (IAR) missions in four countries and territories in a subregion hard hit by the COVID-19 pandemic and identified lessons learnt that can inform future epidemic and pandemic preparedness.
- ⇒ The study used standardised IAR data collection methodology using well-defined principles but also allowing context-dependent flexibility in the IAR mission design.
- ⇒ The number of analysed missions was, however, relatively small and a number of contextual factors may impact the comparability of the findings from respective countries and territories.

contributing to generic health systems strengthening and resilience beyond COVID-19. However, success in strengthening the response and preparedness requires leadership and resource allocation, prioritisation and commitment by the countries and territories themselves.

INTRODUCTION

On 30 January 2020, the WHO Director General declared COVID-19 outbreak constitutes a Public Health Emergency of International Concern and encouraged countries to scale up their public health response.¹ The COVID-19 pandemic and response measures have had a significant impact on health, society and economies. The pandemic highlighted countries' vulnerability to emerging disease threats and exposed many deficiencies in pandemic preparedness, at both the global and country levels.² Furthermore, the pandemic has emphasised the role of

contextual factors such as age profile of the country, obesity rates and gross domestic product per capita, which explain the variation in the morbidity and mortality due to SARS-CoV-2 and which cannot be readily influenced by policy makers, at least in the short term.³

Under the International Health Regulations⁴ (IHR (2005)) States Parties are legally required to develop and maintain minimum core capacities to detect, assess, notify and respond to any potential public health emergency of international concern.⁴ The IHR Monitoring and Evaluation Framework (MEF) consists of four components: the States Parties annual report (SPAR), joint external evaluations (JEEs), after-action reviews (AARs) and simulation exercises.⁵ An AAR aims to observe and review actions undertaken in response to a real event of public health concern. It brings together key stakeholders involved in the response for collective learning, identifying and documenting lessons learnt and challenges, and institutionalising best practices seen during the response.^{6–8}

WHO, in collaboration with partners, developed the intra-action review (IAR) methodology to support countries in reviewing their ongoing COVID-19 response efforts at the country level through learning and improvement of the outbreak response.⁹ The key purpose of a country IAR has been to provide an opportunity for continuous collective learning by bringing together the relevant stakeholders to critically and systematically analyse and document best practices and challenges identified in the response and to determine short-term and long-term actions to improve the current response and to be better prepared for future outbreaks, without evaluating individual or team performance. Countries are encouraged to share their IAR experiences and results with other countries, WHO and partners to enable peer-to-peer learning. Ultimately, IARs aim to strengthen preparedness and response capabilities and the overall resilience of the health system.^{9,10} Thus far, only a couple of peer-reviewed studies on the experience of IARs and findings have been published^{11,12} and the IAR literature remains scarce. Furthermore, Mayigane *et al.*¹³ published some preliminary findings from the first 20 IAR reports received by WHO, including some of the best practices, lessons learnt and new capacities developed by countries in operationalising the IAR methodology.¹³

Despite progress in recent years towards the Sustainable Development Goals across many health and socioeconomic indicators, important gaps persist between the Western Balkan countries and territories and the European Union (EU).¹⁴ The Western Balkans consist of Albania, Bosnia and Herzegovina, North Macedonia, Montenegro, Kosovo and Serbia. The most recent SPAR scores (2021) in the Western Balkan countries and the Republic of Moldova are on average lower than the European region in general (60% vs 74%).¹⁵ The COVID-19 pandemic has hit the Western Balkans and the Republic of Moldova particularly hard, with COVID-19-associated mortality being among the highest in the WHO European Region.¹⁶ Furthermore, these countries face increasing

numbers of emergencies with health, economic and social consequences from all hazards, highlighting the need to invest in health systems in the long run.¹⁴

Our study described how the WHO COVID-19 IAR methodology was operationalised and customised in the Republic of Moldova, Montenegro, Kosovo and North Macedonia. It outlined key findings on best practices, challenges and priority actions in order to inform analyses of lessons learnt from the COVID-19 pandemic response.

METHODS

IARs following standard WHO methodology and principles⁹ were conducted in the Republic of Moldova (population of 2.6 million in 2021 based on World Bank, <https://data.worldbank.org/indicator/SP.POP.TOTL>), Montenegro (620 000 in 2021), Kosovo (1.8 million in 2021) and the Republic of North Macedonia (2.1 million on 2021) during December 2020 to November 2021. To note, an IAR was also conducted in the Republic of Serbia in May 2020, focusing on long-term care facilities, but not included in the study due its highly specific scope and timing (conducted when the IAR guidance was under development). Thus far, IAR or AAR has not been conducted in any other Western Balkan countries. The countries and territories included in the study first requested an IAR, determined the scope based on their priorities and in collaboration with the WHO developed an agenda following standardised WHO guidance. The WHO Country Office, Regional Office for Europe and headquarters supported IAR missions with external expert facilitators in all the countries. Furthermore, facilitation support was received from the Robert Koch Institute (RKI) (Germany) in Montenegro, North Macedonia and Kosovo.

According to the WHO guidance for a country IAR on COVID-19, an IAR can be conducted either in person or virtually. Once the scope of the IAR has been defined, appropriate stakeholders involved in the technical areas or functions of the response pillars (specific technical/capacity areas) covered by the review are identified. The stakeholders participating in the IAR should be involved in the COVID-19 response. The key IAR principles include participative and solutions-oriented approach, open and honest spirit, space for experience sharing and mutual learning, analysis of systems and processes and compilation of participants' perceptions. Furthermore, root cause analysis methodology is integrated in the IAR guidance.⁹

First, we extracted data from the COVID-19 IAR reports and performed thematic content analysis¹⁷ to identify common (between countries and territories) and cross-cutting (across the response pillars) themes on best practices, challenges and priority actions brought up by the involved experts during their COVID-19 response. In the second stage of the analysis, reports were carefully read through and recurrent keywords or sentences on best practices, challenges and priority recommendations

were classified into broad themes. In the third stage of the analysis, the preliminary identified themes were refined through another read-through of the reports. The grouping of themes was performed by taking into account the differing scope of the IAR missions. For example, the findings from Montenegro contributed to only the identified themes related to infection prevention and control (IPC) and case management (CM) given the mission's scope, which had been requested by the country. To acknowledge the local context with limited human and time resources, the IAR was integrated ('embedded-IAR') into the response activities (training mission) in Montenegro. During the mission, a team of external experts from WHO, RKI, clinical experts from Charité hospital and Humedica International shadowed healthcare workers working on units and wards relevant to the CM and IPC pillars. Being embedded in the daily routine provided facilitators/experts with further insights into Montenegro's response.

Due to qualitative differences in the best practices and challenges, the comparison between the raw numbers was not the aim of the study, nor was it meaningful. The data are not presented by country or response pillar to ensure anonymity since the IAR reports analysed in the study are not publicly available. The permission for the use of report findings was granted from the responsible authorities in each country or territory.

Patient and public involvement

Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this study.

RESULTS

The IARs were conducted at different time points relative to the pandemic trajectories in the respective countries. The review in the Republic of Moldova took place at the time of peak transmission period (14-day incidence rate of 495 per 100000) whereas the missions in the other countries occurred during the low or more moderate incidence period (14-day incidence rate ranging from 23 per 100000 in Kosovo to 324 per 100000 in North Macedonia). Based on country requests, the number of reviewed pillars ranged from 2 (Montenegro) to 9e (Moldova), with CM being the pillar that was reviewed in all the IARs. IPC, surveillance and country-level coordination pillars were reviewed in three countries. All IARs were conducted onsite with some participants connecting online (eg, from local/regional hospitals or public health authorities). This format was requested by the respective countries as face-to-face interaction allowed more interactive and participatory discussion in these particular settings. The timeline, format of the review, number of participants and the reviewed response pillars of the IARs are summarised in [table 1](#).

In total, 190 best practices, 185 challenges and 247 priority actions (137 for immediate-term or short-term

implementation, 110 for mid-term to long-term implementation) were identified in the four IARs included in the study. The thematic content analysis identified four common and cross-cutting best practices, seven challenges and six priority actions (including short-term and mid-term to long-term actions grouped together). The findings are shown in [table 2](#).

DISCUSSION

We described how the WHO COVID-19 IAR methodology was implemented and tailored in three Western Balkan countries and the Republic of Moldova. Through a qualitative thematic content study, we identified several common and cross-cutting best practices, challenges and priority actions. The analysed IAR missions were organised at different time points during the pandemic and considered the priorities and context of the countries, highlighting the flexible approach of the IAR methodology. Review on CM was requested by all countries, followed by IPC, surveillance and country-level coordination, potentially reflecting the relative importance of these technical areas in the response.

The practical arrangements considered the public health and social measures (PHSM) in place during the time of the review and WHO guidance.¹⁸ Discussions on the pillars were organised in parallel sessions when necessary for time management. In consultation with national stakeholders, the IAR in Montenegro was tailored to the country context and a so-called embedded IAR approach was developed and piloted. A team of experts, including clinicians from Germany, shadowed healthcare workers in COVID-19 wards to gather standardised information for the IAR (best practices, challenges and priority actions) while also providing hands-on clinical training onsite. This approach was appreciated by the local IAR participants, as it required less time off from their routine work and may be replicated in other similar settings and beyond the COVID-19 pandemic.

Stakeholders pointed out how pre-existing structural issues in national healthcare systems have been major barriers in the COVID-19 response. Chronic shortage of healthcare professionals was a recurrent theme across the pillars, with countries indicating that insufficient human resources and emigration of public health professionals are barriers to long-term health systems strengthening. This finding was common across all countries and pillars. For example, it was mentioned how the chronic shortage of healthcare professionals negatively impacted the care provided to hospitalised COVID-19 cases. There was some variation to other published IAR findings likely due to differing contextual variables, study methodology and response timeline covered.^{11–13} Nevertheless, findings on procurement, capacity building and training (in particular on IPC), and human resources were similar. A recent analysis of JEEs, a voluntary component of the IHR⁴ MEF conducted in the European Region prior to the pandemic, showed that strengthened coordination and

Table 1 Summary of intra-action reviews included in the study, WHO European Region, 2020–2021

Country	Review time period	Timeline and mission duration	Format	Nuo of participants*	Reviewed pillars
Moldova	January 2020–November 2020	December 2020 (4 days)	Working group onsite/online	104	<ul style="list-style-type: none"> ▶ Country-level coordination ▶ Risk communication and community engagement ▶ Surveillance, case investigation and contact tracing ▶ Points of entry ▶ The national laboratory system ▶ Infection prevention and control ▶ Case management ▶ Operational support and logistics ▶ Maintaining essential health services
Montenegro	January 2020–May 2021	May 2021 (5 days)	Onsite (embedded format)	16	<ul style="list-style-type: none"> ▶ Infection prevention and control ▶ Case management
Kosovo	January 2020–September 2021	October 2021 (4 days)	Working group onsite	60	<ul style="list-style-type: none"> ▶ Country-level coordination ▶ Risk communication and community engagement ▶ Surveillance, case investigation and contact tracing ▶ The national laboratory system ▶ Infection prevention and control ▶ Case management ▶ Public health and social measures
North Macedonia	January 2020–October 2021	November 2021 (4 days)	Working group onsite	50	<ul style="list-style-type: none"> ▶ Country-level coordination ▶ Surveillance, case investigation and contact tracing ▶ Case management ▶ Maintaining essential health services ▶ Public health and social measures ▶ Vaccination

*Excluding the external expert facilitators from WHO or RKI.
RKI, Robert Koch Institute.

information exchange between key institutions during ‘peace time’, developing a national legislative framework, digitalisation of surveillance and reporting systems and organising regular multisectoral simulation exercises to test public health emergency plans were some of the common themes recommended by the JEE expert teams.¹⁹ These findings reflect many of the results in this study and highlight how the pandemic further exposed underlying weaknesses in health systems. In some countries, the participants also brought up political instability

as a challenge affecting the response activities and public health programmes in general.

The IAR participants also identified a range of best practices in the national COVID-19 responses. Best practices included the ability to adapt to the rapidly changing situation by reallocating hospital beds and staff to COVID-19 response activities, potentially indicating the strong commitment of healthcare workers. Moreover, it was mentioned that the prepandemic JEE was helpful in the initial setting up of the multisectoral

Table 2 Common and cross-cutting themes on best practices, challenges and priority actions identified in intra-action reviews in the Western Balkan countries and the Republic of Moldova, 2020–2021

Best practices	Challenges	Priority actions
Multisectoral coordination mechanisms, which were in place before the beginning of the pandemic (eg, response to previous emergencies, WHO joint external evaluation) ¹⁷	Chronic shortage and unequal distribution (rural vs urban areas) of healthcare workers, public health professionals	Investing in sustainable human resources and of technical capacities developed during the pandemic
Regular knowledge exchange (eg, teleconferences) between healthcare workers in the country and international partners	Inadequate hospital bed capacity (especially in rural areas)	Continuous capacity-building; institutionalisation of best practices and training (with regular simulation exercises), in particular, on infection prevention and control
Capability to rapidly mobilise volunteers (eg, students) and other (medical) staff to support the response	Limited regular prepandemic exercises to test preparedness on health emergencies	Updating and streamlining legislation related to emergencies and communicable diseases
Reallocation of beds and facilities in response to the increasing number of hospitalisations	Pandemic fatigue and suboptimal compliance with public health and social measures	Improving coordination and communication between healthcare providers at all levels of healthcare
	Absence and difficulty in forecasting the need for national supplies for medical devices, medicines and personal protective equipment	Procuring a stock of essential supplies and equipment; establishing a mechanism for stockpile management and distribution
	Limited digital health infrastructure and interoperable electronic registers (eg, laboratory and clinical/hospital databases)	Enhancing digitalisation of health information systems
	Duplication of data and decision making between key institutions involved in the response	

coordination mechanism. To note, many detailed and country-specific findings were identified in all the reviews but are not presented in this paper. Regarding national laboratory systems, for example, it was often mentioned as best practice that development and scaling up of laboratory capacity for SARS-CoV2 testing was implemented relatively quickly. The primary laboratory response to COVID-19 started in February 2020 with WHO support in all the countries and territories included in the study.

We argue that the IARs provided an opportunity to all countries and territories in the Western Balkans to initiate work on enhancing preparedness and response capacities in the short term to modify the ongoing response as necessary, as well as improving health systems resilience for future emergencies. The Republic of Moldova, for example, used the IAR results to evaluate and adjust the PHSM in place, update the COVID-19 emergency preparedness and response plan, update the public health laboratory strategy, develop a laboratory information management system and COVID-19 CM guidelines. Furthermore, the IAR findings were used to develop project proposals to further address the identified gaps, such as the proposal for the 'EU for the Republic of Moldova project'.²⁰ Montenegro used the IAR findings to develop and implement clinical management guidelines, guide the development of countrywide capacity-building programmes on IPC, and guide the process for developing the national action plan for health security. In Kosovo, the IAR results prompted enhancement

of the current surveillance system, as well as upgradation of the existing laboratory information management system and establishment of external quality assessment for the laboratories. It also triggered capacity-building activities for epidemiologists, risk communication and community engagement and IPC specialists, as well as the finalisation of many standard operating procedures and data management systems supporting the COVID-19 response. North Macedonia, on the other hand, used the IAR results to revise the Strategic Preparedness and Response Plan for COVID-19, which includes all the response pillars. Despite the fact that the operational support and logistics pillar was not selected for the IAR in most countries, IAR findings helped to better understand the challenges and solutions to address delays associated with medicines, devices and procurement and supply of IPC equipment, and triggered improvement in these areas by countries where this was the case.

As COVID-19 is likely to become an endemic disease,²¹ countries are gradually transitioning from an acute emergency response management approach to mainstreaming COVID-19 management into the health system. They may decide to conduct a COVID-19 AAR based on their IAR experiences to build sustainable health emergency preparedness and response capacities and capabilities. WHO encourages countries to conduct more IARs and subsequent AARs at national and subnational levels to document best practices and lessons learnt from this response to the pandemic. In February 2022, WHO conducted a subregional training

course on AARs/IARs for multisectoral experts from the Western Balkan countries and territories.²² The training programme sought to build national capacity for leading the implementation of future IAR/AARs at the national and subnational levels, with the goal of making it one of the primary practices for system learning and development.

This study has some limitations. The number of IAR missions analysed is rather small and further thematic analyses are needed to confirm our findings to inform analyses of lessons learnt from the response to the COVID-19 pandemic. Although the IAR methodology is standardised and all external facilitators received in-depth training before the mission, there may be differences in the facilitation practices, affecting the discussions and note-taking between the missions as the teams were different. The differences in the country context with differing health systems and the level of participation of stakeholders in the different IARs should also be taken into account. The identified challenges were mostly reflected on the priority actions although some discrepancy was observed and expected due to the potential methodological limitations. The IARs analysed were conducted at different points in time in relation to national COVID-19 situations, which may impact the comparability of challenges and the identified lessons learnt. To note, the missions teams were asked to provide feedback on the IAR methodology and templates, which led to some revisions over time mainly on improving the templates and informed the development of specific AAR guidance for COVID-19. The main principles and the data collection methodology, however, did not change significantly during the study period.

In conclusion, we analysed how the IAR methodology was operationalised and used in the different contexts of three Western Balkan countries and Moldova, and what were the common and cross-cutting IAR findings. The analyses offered an opportunity to review preparedness and response functions in general, contributing to overall health systems strengthening and capacity-building activities beyond COVID-19. However, follow-up actions are essential and success in strengthening the response and preparedness requires leadership and resource allocation, prioritisation and commitment by the countries and territories themselves, as well as implementation support from WHO and partners.

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Contributors JSs designed and coordinated the study, wrote the draft of the manuscript and is the author responsible for the overall content as the guarantor, JSs and TS conducted the thematic analysis of the IAR reports, NI, RI, GB, LNM, DP, JSt, SE, AF, MB, BB, IG, IH, DGB, SG, AK, SM, KS, DD, DC and AAM critically reviewed and commented the manuscript.

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Author note All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

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