The impact of Covid-19 on the maternal, newborn and child health and nutrition services in the Europe and Central Asia Region
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Limitations of the analysis
There were limitations to this analysis. Firstly, the Europe and Central Asia region was not part of all pulse surveys, which would have been a valuable source of data. In addition, the analysis is based on key informant inputs and some of the inputs must be used with caution as the views may represent informants’ subjective opinions. Also, insight was not always available from interviewing key informants due to participants’ non-response. The inability to confirm survey responses or adjust modelling inputs based upon the absence of this contextual information should be mentioned as a limitation of this analysis.
The impact of Covid-19 on the maternal, newborn and child health and nutrition services in the Europe and Central Asia Region

List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS</td>
<td>Commonwealth of Independent States</td>
</tr>
<tr>
<td>COVID-19</td>
<td>Coronavirus disease 2019</td>
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<tr>
<td>ECARO</td>
<td>Eastern Europe and Central Asia Regional Office</td>
</tr>
<tr>
<td>IGME</td>
<td>Inter-agency Group for Child Mortality Estimation</td>
</tr>
<tr>
<td>JHSPH</td>
<td>Johns Hopkins School of Public Health</td>
</tr>
<tr>
<td>LiST</td>
<td>Lives Saved Tool</td>
</tr>
<tr>
<td>MNCHN</td>
<td>Maternal, newborn and child health and nutrition</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

Acknowledgements .................................................................................................................................................... 2
Limitations of the analysis ........................................................................................................................................ 2
List of Acronyms ........................................................................................................................................................ 3
EXECUTIVE SUMMARY ........................................................................................................................................ 5
INTRODUCTION ........................................................................................................................................................ 8
METHODOLOGY ........................................................................................................................................................ 10
  Analytical framework ........................................................................................................................................... 10
  Background: Data Collection .............................................................................................................................. 11
  Quantitative: Statistical Analyses ......................................................................................................................... 12
  Qualitative: Key Informant Interviews .................................................................................................................. 13
RESULTS .................................................................................................................................................................... 14
  Description of the COVID-19 pandemic and response in the region .............................................................. 14
  Changes in MNCHN services and strategies to address disruption ............................................................. 17
Conclusions ............................................................................................................................................................... 34
Recommendations ..................................................................................................................................................... 35
References ................................................................................................................................................................. 36
ANNEXES .................................................................................................................................................................. 37
  Annex 1: Ethical considerations ........................................................................................................................ 37
  Annex 2: Additional resources ............................................................................................................................ 38
  Annex 3: Country profiles
The impact of Covid-19 on the maternal, newborn and child health and nutrition services in the Europe and Central Asia Region

Introduction

As the full impact of the COVID-19 pandemic continues to be assessed, a better understanding of health system disruption and the consequences for maternal and child health in the Europe and Central Asia (ECA) region would be valuable to guide programme planning and priority setting by global health stakeholders. The objective of this mixed-method analysis is to systematically review available country-specific data and gather feedback from key respondents to develop insights about the current situation and what is urgently needed and would be most beneficial to improve maternal, newborn and child health and nutrition (MNCHN) services despite the rapidly evolving and challenging situation.

Methods

A desk review was conducted and combined with a synthesis of qualitative and quantitative findings from a survey questionnaire, interviews with key informants, and Lives Saved Tool (LiST) modelling. Publications, grey literature (e.g., programme updates, situation reports), and recent national survey data were collated and organized by country. Qualitative data was coded to identify overarching themes using a framework for service disruption based on contributing factors such as access, utilization, and quality. Coverage change for key MNCHN services was modelled with LiST (v6.06) to estimate the impact on adverse health outcomes.

Results

The impact of service disruption was modest for maternal and child health outcomes, including mortality, for countries in the region. Changes in the coverage of interventions were estimated to have a negative influence, but robust efforts to promptly restore or modify service delivery mitigated declines in health. Critical areas were associated with reductions in care at primary health care level such as postnatal care, including well-child and chronic diseases care, childhood immunization, and home visiting. Analysis of the qualitative data highlighted three main critical areas of importance for health systems strengthening and planning for future emergencies.

The dynamic of the epidemic and of the national responses were similar in all 16 countries, with the onset of several waves and the national mitigation measures to curb infection including information and communication, practicing social distancing and isolation, enhanced infection prevention and control, and movement restrictions.

EXECUTIVE SUMMARY
In terms of the health system response, all countries implemented measures that ensured access of the population to COVID-19 diagnostics and treatment, while preserving access to and functioning of the core MNCHN services.

Changes in access to MNCHN services were observed in all 16 countries to varying degrees.

According to inputs from national respondents, over half of the respondent countries (10 of 16) indicated modifications in family planning services. Similarly, antenatal care services were modified in 12 of 16 (75 per cent) of countries. Minimal or no change to antenatal care was reported in Armenia, Belarus, Bosnia and Herzegovina, Tajikistan and Turkey.

Births in medical facilities were modified in 3 of 16 countries, namely Kazakhstan, Kyrgyzstan and Ukraine. The emergency labour and delivery service was almost unmodified, except in two of 16 countries – Kyrgyzstan and Ukraine.

Modification to routine postnatal care was reported for all Western Balkan countries except Bosnia and Herzegovina, as well as Kazakhstan, Kyrgyzstan, Ukraine and Uzbekistan that account for over half of the respondent countries.

Care for small and sick newborns and sick-child care services were unmodified in most countries including the Western Balkans, i.e., in 13 of 16 countries. The three countries that reported modification of services were Kazakhstan, Kyrgyzstan and Ukraine.

Immunization services were disrupted in many countries to varying degrees, from closure in Kazakhstan, Kosovo, Kyrgyzstan and Moldova to partial disruption in most of the other countries. The partial disruption or full suspension of services was therefore registered in 11 of 16 countries.

The well-child care services were modified in 11 of 16 countries and growth monitoring programmes were modified in 9 of 16 ECA countries.

In terms of nutrition services, infant and young child feeding programmes were modified in 10 of 16 countries and maternal nutrition was modified in two-thirds of the respondent countries.

The impact across the ECA region has been examined in terms of the change in the mortality rate, comparing year 1 to the pre-pandemic year for the neonatal rate, the under-five rate and stillbirth rate. The average change for the neonatal rate is 8.8 per cent, for under-five mortality 6.3 per cent and for stillbirth 2.5 per cent.

Of the 16 countries examined, reduction in or disruption of key health service was estimated to lead to 4.2 per cent increase in the total number of under-five deaths and a 5.6 per cent increase in the total number of neonatal deaths compared to the Inter-agency Group for Child Mortality Estimation (IGME) estimates for 2019.

Impact on stunting has been examined across the ECA region and the average change in the percentage of children stunted (0–59 months) amounted to 1 per cent in the 16 countries.

In all 16 countries the modelling did not reveal any significant change in low birth weight, with an average change of 0.1 per cent.

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1 Drawn from UNICEF’s portfolio of 22 countries and territories in the Europe and Central Asia Region (ECAR), a total of sixteen countries with sufficient data were included in the regional analysis. The countries included are Albania, Armenia, Belarus, Bosnia and Herzegovina, Georgia, Kazakhstan, Kosovo, Kyrgyzstan, North Macedonia, Moldova, Montenegro, Serbia, Tajikistan, Turkey, Ukraine, and Uzbekistan.
Conclusions

Overall, changes in mortality in the ECA region due to service disruption have been mild.

Data suggests that swift action to restore services was effective and able to limit any negative and unintended consequences of the global pandemic.

One key element, related to disruptions in service, has been the degree to which healthcare workers were affected by this pandemic.

Importantly, guidance at the global, regional and national levels was critical to ensure that stakeholders are engaged and action is coordinated.

At the same time, plans of action are dependent upon the country context factoring in health system.

Recommendations

Specific recommendations have been issued, for each country in their profiles generally focused around developing leadership, building the workforce and reliable data, and strengthening demand for services.

Country specific recommendations are available in the country profiles attached to this report.
The novel coronavirus disease 2019 (COVID-19) as a global pandemic continues to have an unprecedented and devastating impact on health outcomes and economic conditions worldwide. On 30 January 2020 the World Health Organization (WHO) declared COVID-19 to be a public health emergency and the mortality and morbidity toll continues to climb more than a year later. Countries burdened with finite resources have struggled to address the direct and indirect consequences of the pandemic while delicately balancing mitigation efforts that have also impacted public health and social services\(^1\). The rollout of effective COVID-19 vaccines offers some hope but successful containment has been outpaced by new challenges created by vaccine hesitancy, pandemic fatigue, and misinformation, which play an increasingly prominent role in individual and governmental decision-making.

**Figure 1. Health system components**

Early reports suggested that the impact of the pandemic could be devastating for pregnant women, newborns, and young children due to declines in coverage of life-saving interventions as well as reduced access to care. Elements of the health systems that may play a role include changes in the availability of healthcare workers, supplies or equipment, demand for key services, and access to those services (see Figure above). Observed trends have supported and amplified these concerns with an elevated risk of serious clinical manifestations noted among pregnant women infected by COVID-19, higher stillbirth rates, poor maternal and foetal outcomes, and the potential exacerbation of maternal and child undernutrition due to the pandemic. Declines in maternal and foetal health may be greater in low- and middle-income country settings as the pandemic has clearly reduced global patterns of maternal care-seeking and negatively impacted the provision of healthcare from the antenatal to childbirth period.

Maintaining services is essential in low- and middle-income countries where a high burden of infectious disease persists and key interventions such as childhood immunization are recognized and established as powerful tools to improve public health. Acute or prolonged disruption of health services becomes a dangerous risk factor for poor health outcomes as overwhelmed healthcare systems struggle to deal with rising infections or limited resources and deliberate measures may be taken to reduce risk for participants of programmes or activities so that modified delivery of care by the health system strays further from ‘business as usual’.

Guided by emerging insights about the epidemiology and influenced by regional and local contexts, countries have pivoted and tried to respond by developing and implementing strategies and multi-layered approaches to limit infection, transmission, and sequelae from the pandemic. Government-implemented responses encompassing non-pharmaceutical interventions have helped control disease and reduce the mortality toll but concerns have emerged about the negative consequences. These may include exacerbation of underlying economic and health disparities, adding undue stress as fragile health systems undergo rapid adaptations, and growing socio-economic pressure for households and individuals as lockdowns or restrictions remain in place. Coordinated global efforts are underway and will continue to systematically collate, examine and compare government responses to better understand health outcomes including clinical manifestations and risk factors, and to examine unintended consequences associated with these complex health interventions, but regional and country-specific factors play a central role.

The emerging availability of COVID-19 vaccines and each country’s ability to procure and scale up this life-saving intervention has varied widely. Planning to mitigate severe disease and death has emphasized reaching high priority and vulnerable groups first, as part of a robust national plan but implementation of COVID-19 immunization has been hampered by issues affecting both the supply and demand sides. Tackling identified bottlenecks and overcoming obstacles will be essential and lessons learned within and across countries will be valuable to guide long-term planning as best practices can be shared. However, the need for evidence-based support is immediate.

Regionally, UNICEF’s response to advance health and nutrition in ECAR centres on ensuring continuity of provision of Healthcare and Nutrition Services including essential health and nutrition supplies, support to countries on infection, protection and control at health system level, and health system level capacity development for mitigation of risks and preparedness for prolonged pandemic.

To better align the MNCHN programming and response during a pandemic and to mitigate the risks of a prolonged pandemic on MNCHN services, UNICEF led an analysis to examine the impact of COVID-19 on MNCHN status and services in the region. The goal of this mixed-method analysis was to guide and refine the UNICEF response to the COVID-19 crisis in each country and across the region. Inputs collated from in-country stakeholders were gathered with available data to generate evidence-based recommendations. These findings are critical to support UNICEF’s longstanding mission of working alongside governments to implement appropriate recovery strategies and to promote preparedness and resilience in the event that similar health catastrophes unfold.
Analytical Framework

The theory of change was based upon a mitigation framework (see Figure 2. below) adapted from WHO guidance14 and building on an earlier picture of the indirect effects of COVID-19 from a health systems lens1. In this framework, critical factors (e.g., the availability of healthy frontline clinical workers and key health supplies or commodities) may be influenced by stressors including the rapid expansion of demand or broken supply chains, and these challenges may translate into intermittent or sustained reductions in service availability and quality. Changes in maternal or caregiver demand for services or fluctuations in the ability to access services, for example due to restricted operating hours or movement restrictions, further impact the utilization of existing services. Parameters may be influenced to varying degrees by individual-level concerns about the risk of infection or broader environmental barriers such as lack of public transport, but these changes all contribute to the potential impact of the pandemic on service delivery and the coverage of health interventions.

Figure 2. Mitigation framework

To examine impact, the project was operationally divided into quantitative and qualitative components in order to inform a real-time analysis of MNCHN services across the continuum of care in the context of the current COVID-19 pandemic. All activities for this project adhered to the institutional and ethical requirements for the responsible conduct of research.
Background: Data Collection
As the first step, key respondents from each country office were identified by the UNICEF regional office and asked to provide country-specific documents related to health intervention policies, mitigation or preparedness plans, and data about health intervention coverage.

A total of 132 documents from 12 countries (75 per cent) were received and reviewed. Materials included in the desk review were: recent nationally representative household surveys, health strategy documents, situation assessments, intervention-specific reports (e.g., iodine supplementation, immunization, perinatal and newborn care), and reports or briefs about the COVID-19 pandemic or status of MNCHN services. Documents were drafted by national ministries of health, UNICEF and other implementing partners or programmes working locally. Recent updates or current events as reported by local or international media outlets were also assessed for relevance and content.

The primary areas of the desk review covered:

- COVID-19 control actions and policies in the health, nutrition, economic and social sectors;
- Observed or anticipated COVID-19-related health, nutrition, and social service disruption and related sources of disruption;
- National strategies for health preparedness and efforts to mitigate disruption.

Key focal points were then asked, in January 2020, to complete a web-based questionnaire. The pre-interview questionnaire was a structured assessment to collect up-to-date data about the range of MNCHN services being offered and currently available within the country (see Figure 3. below as an example). Organized by delivery platforms, the questions asked probed the current and prior availability of services, quality of care offered, and demand for or use of services or programmes, which included:

- Family planning;
- Antenatal care;
- Labour and delivery, including both routine and emergency care;
- Postnatal care, including both routine and care for small and sick newborns;
- Sick-child care;
- Well-child care;
- Immunization;

- Nutrition, including severe acute malnutrition treatment, infant and young child feeding programmes, school feeding, growth monitoring, vitamin A supplementation, fortification, and maternal nutrition;
- Water, sanitation, and hygiene;
- Infection prevention and control.

Changes in services compared to the pre-pandemic situation were classified by respondents as none, mild, moderate or severe (see Figure 4.). Respondents also provided additional details about disruptions to services in open-ended questions. Data collected for all 16 countries from the pre-interview questionnaire was used for both the quantitative and qualitative analyses.
**QUANTITATIVE:**
Statistical Analyses

LiST (Version 6.06) was used to estimate the impact of the pandemic on critical MNCHN indicators, including measures of maternal, newborn and child mortality, child health, infant and young child feeding, and undernutrition in the countries with available data.

LiST is a linear and deterministic mathematical model that describes fixed relationships between inputs and outputs\(^\text{15}\). The primary inputs are coverage of interventions and risk factors, with the outputs being changes in cause-specific mortality (e.g., neonatal mortality rate, under-five mortality rate, maternal mortality ratio and stillbirth rate) and population-level morbidity and undernutrition (e.g., wasting or stunting rates, adverse birth outcomes). The relationship between an input as a change in intervention coverage with one or more outputs is specified by the effectiveness of the intervention(s) in reducing the probability of that outcome. Estimates of the effectiveness of interventions are drawn from meta-analyses, systematic reviews or expert consultation\(^\text{15}\).

To estimate the indirect impact of COVID-19 on MNCHN, changes in intervention coverage were modelled in LiST from pre-pandemic levels. Data from the pre-interview questionnaire, complemented by information from the desk review and quantitative data systems (where accessible), were used to estimate the impact of COVID-19 on the effective coverage of health services.

Where a respondent indicated that a health service was halted, it was assumed that there was a 100 per cent reduction in coverage for the period of time the service was unavailable. If a respondent reported the service was modified, it was assumed that there was a 25 per cent reduction in coverage for the period of the modification. In situations where a mediating strategy was implemented, such as a catch-up campaign, the model took recovery as being half of the service suspension or modification period.

Using the assumptions developed as part of a previous multi-country analysis\(^\text{2}\), reported disruptions to the quality and use of a service were converted to numerical reductions in coverage. In line with the previous analysis, disruptions to quality or use classified as mild, moderate, and severe were assumed to result in a 5 per cent, 10 per cent, and 25 per cent reduction in coverage for the period of disruption, respectively. Disruptions to availability, quality and use were then converted to an overall reduction in service coverage using the formula below, adapted from Robertson 2020\(^\text{2}\):

\[
\text{Overall % reduction in coverage from 2019 by health area} = 1 - \left(1 - \text{availability redux}\right) \times \left(1 - \text{quality redux}\right) \times \left(1 - \text{use redux}\right)
\]

The overall reduction was then applied to the baseline coverage for each health intervention. The impact of the first year of the pandemic, from approximately March 2020 to February 2021, was estimated using the overall reported disruption to services. In year 2 of the pandemic, disruptions to quality/use were assumed to be sustained but that modifications to service availability were withdrawn.

Pre-pandemic intervention coverage values were derived from the most recent population-based household surveys (e.g., Demographic and Health Surveys and Multiple Indicator Cluster Surveys) and standard LiST approaches for approximating baseline coverage for key interventions.

After calculating the estimated reductions in intervention coverage, these changes were applied in the first and second year of the pandemic to the intervention coverage levels prior to the pandemic in LiST. Two scenarios in LiST were modelled:

- sustained coverage of interventions at pre-pandemic levels through 2022, and
- calculated reductions in coverage due to COVID-19.

By comparing the number of deaths in the COVID-19 disruption model against the counterfactual model of no change in coverage from pre-pandemic levels, the number of additional deaths that may be attributable to reductions in intervention coverage resulting from the pandemic in the subset of analyzed countries and the broader ECA region was estimated. For each country and scenario in LiST, the following was estimated:

1) the stillbirth, maternal, neonatal and child mortality rates; 2) the proportion of children with low birth weight and the proportion of children who are stunted; and 3) the number of stillbirths, maternal, neonatal, and child deaths and number of stunted children. Regional and subregional estimates were calculated by applying appropriate weights based on demography. The contribution or proportion of deaths among children under five years old attributable to changes in specific interventions (if data were available) was also examined.
QUALITATIVE:
Key Informant Interviews

Following the review of data collected in the pre-interview questionnaire, purposive sampling of key informants began with those who have a broad understanding of regional and country-level policies around MNCHN services and COVID-19 mitigation efforts. Each UNICEF country office recommended two or three key informants drawn from the MNCHN or immunization sectors and/or representatives speaking on behalf of caregivers’ interests. Selected in consultation with the regional office, key informants included senior-level officials from the Ministry of Health, National Immunization Programmes, and provider or caregiver associations.

Semi-structured interviews were conducted to explore key informants’ perspectives on the impact of COVID-19 on essential MNCHN services, including facilitators and barriers to maintaining key health system components and quality MNCHN services, and respondents’ recommendations for programmatic mitigations needed to minimize the impact of COVID-19 on MNCHN services. The development of interview guides was shaped by the review of country-specific policy documents and informed by the above framework on both supply- (i.e., health service provision) and demand-side (i.e., health service utilization) factors. As appropriate, responses from the pre-interview questionnaire, including the perceived impact of COVID-19 on MNCHN services, were also followed up on.

Both group and individual discussions were led by a team of two experienced Johns Hopkins School of Public Health (JHSPH) faculty members with expertise in qualitative research and conducting interviews with key informants. All discussions were conducted using Zoom videoconferencing for meetings in either the local language or English, depending on the preference of the respondent. When interviews were conducted in the local language, the support of a translator was provided by UNICEF. All interviews were recorded and transcribed either by the JHSPH faculty when in English, or by translators provided by UNICEF when in the local language. Transcripts were coded following an integrated approach, which employs both inductive and deductive development of a coding structure based on the research questions and overarching framework for provision and coverage of health services, and emergent codes from the qualitative data. Qualitative analysis was completed by JHSPH faculty members. Initial results were discussed among the JHSPH research team for interpretation and synthesis of results for each country and ultimately the region overall.
Description of the COVID-19 pandemic and response in the region

Most ECAR countries had reported the first documented cases of COVID-19 by March 2020 attributable to international travellers or migration. Case counts remained low initially and most countries in the region acted quickly to implement a national response that included partial or complete lockdowns with strict restrictions. The official response was limited in some countries such as Belarus and Tajikistan, but measures adopted in most countries included: closing of schools, restaurants, bars, and some non-essential businesses, bans prohibiting any large or public gatherings, restrictions on transport and travel deemed non-essential, and formal closing of borders or limited international movement. The duration and severity of restrictions varied by country, with some policies being extended by the government beyond the initial period while others lapsed or gradually expired.

During the first wave in March to May 2020, traditional infection prevention and control strategies were followed at most hospitals and health facilities and some sporadic outbreaks occurred. Some restructuring of the health system was noted although the availability of COVID-19 testing was inconsistent across the region. Additional waves during winter (November 2020 to January 2021) and early spring (March to April 2021) prompted renewed restrictions. Many countries are currently experiencing another wave (August to September 2021) fuelled by the spread of more contagious viral variants.

All the countries have experienced four waves of the pandemic to date; none of them were prepared for it but reacted rapidly.

- **In Albania**, the government acted swiftly by employing measures to curb infection by closing schools, gyms and nightclubs and soon afterwards restaurants and bars. Lockdown measures were implemented and strictly enforced from 15 March to 18 April 2020.

- **In the Federation of Bosnia and Herzegovina** and Republika Srpska entities, COVID-19 cases and deaths were confirmed in March 2020, a state of emergency was declared and lockdown measures were rolled out. Mitigation efforts included stay-at-home orders or movement restrictions, curfews, and school and workplace closures.
The impact of Covid-19 on the maternal, newborn and child health and nutrition services in the Europe and Central Asia Region

• In Georgia, COVID-19 cases were detected in the very early months of the pandemic as cases imported from international travel. The national government took swift action and rapidly established the Inter-Agency Council for Coordination Against the Coronavirus. Respondents reported that this ability to build and sustain ongoing communication between healthcare providers and families as the clients was beneficial overall as it strengthened interpersonal relationships between doctors and patients.

• In Kosovo, after the government announced a state of Public Health Emergency, measures including the closure of universities, schools and borders, movement restrictions and quarantines, and suspension of large gatherings were initiated to mitigate the spread of the virus in affected cities and municipalities. Strict movement restrictions and curfews were in place from April to June 2020 and the public reaction included massive stockpiling and excessive purchasing of essentials such as flour. Schools and businesses have generally reopened. Kosovo, like other countries in the region, has experienced four waves of the pandemic to date.

• In Kazakhstan, mitigation measures were put in place including closing all schools, closing shops and workplaces except for essential workers, suspending large public events, and initiating quarantine policies and movement restrictions. Some cities and regions adopted more stringent lockdowns to further restrict entry and exit corridors. International borders were closed but restrictions were gradually eased to allow some travel.

• A national state of emergency was announced in Kyrgyzstan and strict movement restrictions, forcing families and non-essential workers to stay home, was in place from March to May 2020. Public transportation in the capital was halted and provincial districts with COVID-19 cases were locked down.

• By the end of March 2020, the Parliament of Moldova had declared a 60-day state of emergency. Moldova was among those countries with the highest incidence rate of COVID-19 in Europe’s first wave of the pandemic. Moldova is currently experiencing a fourth wave with record numbers of new COVID-19 cases and deaths. A state of emergency in public health was declared by the Extraordinary National Commission for Public Health and Emergency Situations.

• In Armenia, respondents indicated that the health system did not face widespread shortages of human resources, as the health workforce was minimally affected by the pandemic. There was an uptake in the use of telemedicine services due to patients’ concern about exposure to COVID-19 at health facilities. Respondents reported that this ability to build and sustain ongoing communication between healthcare providers and families as the clients was beneficial overall as it strengthened interpersonal relationships between doctors and patients.

• In Belarus, community mobilization through crowdsourcing successfully raised funds as awareness grew about emerging pandemic-related critical needs. A volunteer-led campaign procured and distributed personal protective equipment, oxygen tanks and other medical equipment to hospitals across the country from March 2020.
Health from May to June 2020. Schools were closed from May to August 2020 and movement restrictions were put in place. Mitigation measures included mandatory curfews, required wearing of masks in public places, limitations on public gatherings, and restrictions for international entry and domestic businesses.

- In Montenegro, by mid-March 2020 the country’s borders were closed. Schools and universities closed, and supermarkets stayed open but with stringent capacity limits. Strict movement restrictions, requiring families and non-essential workers to stay home, were in place from March to May 2020. There was a similar situation in North Macedonia and Serbia.

- In Tajikistan, public stockpiling of key essential commodities led to sharp price increases and shortages of flour and other staples. A public hotline was announced by the Ministry of Health and Social Protection in March 2020 to respond to queries related to the COVID-19 pandemic.

- In Ukraine, the Cabinet of Ministers established four different levels of epidemiologic risk accompanied by sets of varying restrictions. Regions are classified by these zones with status updated as conditions change.

- In Uzbekistan, the Ministry of Health intensified programmes to provide the required medicines, supply personal protective equipment, set up testing systems to detect COVID-19, and supplement the salaries of overburdened health workers as compensation for service.

In most ECAR countries, plans for the rollout of COVID-10 vaccines started at the beginning of or by spring 2021. Some countries, such as Turkey and Serbia, began efforts earlier to procure doses of the Chinese CoronaVac (Sinovac COVID-19 vaccine) and the Russian COVID-19 vaccine Sputnik V (Gam-COVID-Vac) respectively. Countries participating in COVAX Advance Market Commitment include Kosovo, Kyrgyzstan, Moldova, Tajikistan, Ukraine, and Uzbekistan. As of September 2021 Belarus, Georgia, Kyrgyzstan, Tajikistan, and Uzbekistan are still restricting COVID-19 vaccine to specific vulnerable populations while all others have shifted to policies based upon universal vaccination. Only Turkey and Serbia have over 40 per cent of their population fully vaccinated and several countries have only 15 per cent fully vaccinated. A wide range of COVID-19 vaccine products are being used across the region (e.g., Pfizer, AstraZeneca, Sputnik, CoronaVac) representing varying efficacy and protection against the circulating variants.

In Turkey, a public portal provided COVID-19 case counts, tracked potential hot spots, and allowed citizens to report hospital wait times and personal protective equipment fraud. In mid-March, primary, secondary, high school and university education was suspended, and distance education was put in place. Businesses and places of worship ceased indoor operations, movement became more limited as modes of public transport were suspended, and a curfew was enforced for vulnerable groups (e.g., elderly, immunocompromised).
Changes in MNCHN services and of strategies to address disruption

Both the dynamic of the epidemic and of the national responses were similar in all 16 countries: the onset of several waves and the national mitigation measures to curb infection that include enhanced information and communication, practicing social distancing and isolation, enhanced infection prevention and control, and movement restrictions.

In terms of the health system response, all 16 countries implemented, to varying degrees, measures that ensured access of the population to COVID-19 diagnostics and treatment, while preserving access to and functioning of the core MNCHN services.

Changes in access to MNCHN services were also observed in all 16 countries, to varying degrees.

Changes in MNCHN services in WESTERN BALKAN countries

At the onset of the pandemic, while the initial aim was exclusively to control COVID-19, countries realized the need to preserve routine essential services and programmes such as MNCHN services, and to minimize disruptions.

In six Balkan countries availability of antenatal care services provided through the public sector varied: in Bosnia and Herzegovina there was minimal change between 2019 and 2020, while in the other five countries the services were moderately changed.

Family planning was modified or mildly disrupted in all six countries as was routine postnatal care which was disrupted in all countries except Bosnia and Herzegovina.

Moderate disruptions were noted during this period for the availability of specific health activities, including infant and young child feeding and breastfeeding programmes, but mitigation measures did not impact the quality of these programmes which was reported to be only mildly disrupted. Utilization or demand for these maternal or child nutrition services was not impacted.

A frequent theme of the reports from the six Balkan countries was the disruption or suspension of routine immunization. In Kosovo routine immunization services for children were suspended for several weeks, while in Montenegro, Bosnia and Herzegovina and Serbia severe disruption was noted regarding utilization or demand for immunizations in the survey response. Countries did not report any stockouts overall for vaccines, but intermittent difficulty due to the lack of some vaccines, which was soon resolved, was cited by a key informant. Catch-up activities were planned and implemented in several countries by January 2021.
A pre-interview questionnaire (annexed) was shared with national key respondents and the respondents were asked to evaluate the disruptions to the availability of a range of MNCHN services.

According to inputs from national respondents, over half of the countries (10 out of 16) indicated that there were modifications in the family planning services. Similarly, antenatal care services were modified in the majority of the countries, with minimal or no change to antenatal care reported in Armenia, Belarus, Bosnia and Herzegovina, Tajikistan and Turkey.

Births in medical facilities remained mostly unchanged throughout the region, with mild modification of services reported in 3 out of 16 countries (Kazakhstan, Kyrgyzstan and Ukraine). The emergency labour and delivery services were largely unmodified, except in 2 out of 16 countries (Kyrgyzstan and Ukraine).

Modification of routine postnatal care was reported for all Western Balkan countries except Bosnia and Herzegovina, as well as in Kazakhstan, Kyrgyzstan, Ukraine and Uzbekistan, accounting for over half of the 16 countries.

Care for small and sick newborns and sick-child care services were unmodified in most countries, including the Western Balkans. The three countries that reported a modification of services were Kazakhstan, Kyrgyzstan and Ukraine.

Immunization services were disrupted in many countries to varying degrees, from suspension in Kazakhstan, Kosovo, Kyrgyzstan and Moldova, to partial disruption in 7 other countries. Partial disruption of service or full closure was thus registered in 11 out of 16 countries, two-thirds of the countries in the ECA region.

Well-child care services (such as routine doctor visits for comprehensive preventive check-ups) were modified in 11 out of 16 countries, affecting two-thirds of ECA countries. In terms of nutrition services, the ones addressing acute malnutrition were reportedly modified in two countries, namely Bosnia and Herzegovina and Kyrgyzstan.

Infant and young child feeding programmes were modified in 10 out of 16 countries. Maternal nutrition was modified in two-thirds of the respondent countries.

Growth monitoring programmes were modified in 9 out of 16 countries, accounting for over half of the respondent countries.

Availability of these programmes may have been disrupted due to, for example, reduced working hours or closure of health facilities, disruptions in health commodity supply chains, or reductions in human resources.

In rare instances some programmes, including infection prevention and control, and water, sanitation, and hygiene, managed to increase services (Georgia, Kosovo and Serbia) while in other countries these were not modified.

The above changes have been summarized in the tables below. The two tables immediately below show the changes in access to essential MNCHN services in Western Balkan respondent countries (Table 1) and in the rest of the Europe and Central Asia respondent countries (Table 2).
The impact of Covid-19 on the maternal, newborn and child health and nutrition services in the Europe and Central Asia Region

Table 1. Changes in Access to essential MNCHN services (based on interview results)

<table>
<thead>
<tr>
<th>Service</th>
<th>Albania</th>
<th>Bosnia and Herzegovina</th>
<th>Kosovo</th>
<th>North Macedonia</th>
<th>Montenegro</th>
<th>Serbia</th>
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</thead>
<tbody>
<tr>
<td>Family planning</td>
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<td>Emergency labour and delivery</td>
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Table 2. Changes in MNCHN services in respondent countries (excluding Western Balkans)

<table>
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<tr>
<th>Service</th>
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<th>Belarus</th>
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<th>Kyrgyzstan</th>
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<th>Tajikistan</th>
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The modelled reduction of services for the first and second years of the pandemic, for each of the sixteen countries, can be summarized as follows.

Among the 16 countries for which the modelling has been undertaken, at least three patterns can be observed:

a) Countries with a low to moderate reduction of services, relatively homogenous across the board, with no remarkable difference between years 1 and 2 of the pandemic (Albania, Armenia, Belarus, Kyrgyzstan, Moldova, North Macedonia, Serbia, Ukraine and Uzbekistan):
With available data from Kyrgyzstan, the Lives Saved Tool (v6.06) was used to examine the impact of the pandemic based upon MNCHN indicators. Models were created from survey responses submitted by in-country informants which included local practitioners and/or health program staff.

The modeling exercise revealed that on average utilization rates for essential services being modified or suspended fall by 10-21% in the Year 1 followed by 5-10% decline in the Year 2. Based on the modeling most of the services were affected (Fig. 1). Utilization of these services has declined by over 15% in the Year 1 and 9.8% in the Year 2. (Fig. 1)

To explore the impact of health system disruption on health outcomes, the Lives Saved Tool (v6.06, https://www.livessavedtool.org/) was used to model the impact of the pandemic in Belarus. Models were created based on statistical data (DHS, MICS) and based on survey responses. As result of modelling, coverage changes were not sizeable in Belarus because services were either rapidly restored or sustained throughout with modifications. According to modelling, the utilization of the following services shows the largest reduction: well-child and sick newborn.

---

**Belarus**

![Chart showing modeled reduction in service utilization in Belarus.](chart-belarus)

**Kyrgyzstan**

![Chart showing modeled reduction in service utilization in Kyrgyzstan.](chart-kyrgyzstan)
The impact of Covid-19 on the maternal, newborn and child health and nutrition services in the Europe and Central Asia Region

With available data from Moldova, the Lives Saved Tool (v6.06) was used to examine the impact of the pandemic based upon MNCHN indicators. Models were created from survey responses submitted by in-country informants which included local practitioners and/or health program staff. Of note, the impact of immunization declines appears modest overall because modeling trends are assessed by year and rapid catch-up efforts after a two-month halt mitigated the annual drop. Also, the broader population-level impacts among elderly, adult males, etc. from the two-month suspension of primary care services was not assessed.

The modeling exercise revealed that on average utilization rates for essential services being modified or suspended fall by 5-22% in the Year 1 followed by 5-14% decline in the Year 2. The most affected services are family planning, ANC, immunization, well-childcare, IYCF and maternal nutrition. Utilization of these services has declined by over 1/gdC% in the Year 1 and 10% in the Year 2. (Fig.1)

Utilization of Essential MNCHN Services

To explore the impact of health system disruption on health outcomes, the Lives Saved Tool (v6.06, https://www.livessavedtool.org/) was used to model the impact of the pandemic in North Macedonia. Models were created based on statistical data (DHS, MICS) and based on survey responses. According to modelling, the utilization of the following services shows the largest reduction: antenatal care and family planning. (Fig 1).

---

**Moldova**

**North Macedonia**
To explore the impact of health system disruption on health outcomes, the Lives Saved Tool (v6.06, https://www.livessavedtool.org/) was used to model the impact of the pandemic in Serbia. Models were created based on statistical data (DHS, MICS) and based on survey responses. According to modelling, the utilization of the following services shows the largest reduction: infant and young child feeding, family planning, routine postnatal care and growth monitoring programmes (Fig 1).

Utilization of Essential MNCHN Services

- Family planning
- Antenatal care
- Routine labour and delivery
- Emergency labour and delivery
- Routine postnatal care
- Small and sick newborns
- Immunization
- Well-child care
- Sick-child care
- Severe acute malnutrition
- Infant and young child feeding
- Maternal nutrition
- Salt iodization
- Growth monitoring and promotion

Serbia

![Graph showing modeled reduction in service utilization in Serbia](image)

Ukraine

![Graph showing modeled reduction in service utilization in Ukraine](image)
The impact of Covid-19 on the maternal, newborn and child health and nutrition services in the Europe and Central Asia Region

With available data from Uzbekistan, the Lives Saved Tool (v6.06) was used to examine the impact of the pandemic based upon MNCHN indicators. Models were created from survey responses submitted by in-country informants which included local practitioners and/or health program staff. Changes in health outcomes resulting from direct or indirect influences were examined.

The modeling exercise revealed that on average utilization rates for essential services being modified or suspended fall by 5-23% in the Year 1 followed by 5-9.8% decline in the Year 2. The most affected services are family planning, ANC, child care, IYCF, maternal nutrition and vitamin A supplementation. Utilization of these services has declined by over 15% in the Year 1 and 9.8% in the Year 2. (Fig.1)

Utilization of Essential MNCHN Services

<table>
<thead>
<tr>
<th>Service</th>
<th>Year 1</th>
<th>Year 2</th>
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</thead>
<tbody>
<tr>
<td>Family planning</td>
<td>15.4%</td>
<td>15.4%</td>
</tr>
<tr>
<td>Antenatal care</td>
<td>9.8%</td>
<td>9.8%</td>
</tr>
<tr>
<td>Routine labour and delivery</td>
<td>5.0%</td>
<td>5.0%</td>
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<tr>
<td>Emergency labour and delivery</td>
<td>15.4%</td>
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<td>Routine postnatal care</td>
<td>9.8%</td>
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<tr>
<td>Small and sick newborns</td>
<td>5.0%</td>
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<tr>
<td>Immunization</td>
<td>15.4%</td>
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<td>Well-child care</td>
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<td>Sick child care</td>
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<td>Severe acute malnutrition</td>
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<tr>
<td>Infant and young child feeding</td>
<td>9.8%</td>
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<td>Maternal nutrition</td>
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<td>Salt supplementation</td>
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<tr>
<td>Growth monitoring and promotion</td>
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<tr>
<td>Vitamin A</td>
<td>15.4%</td>
<td>15.4%</td>
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</table>

b) Countries with an uneven disruption of services, with much lower disruption in year 2 of the pandemic (Bosnia and Herzegovina, Georgia, Kazakhstan, Kosovo and Montenegro):
Georgia

To explore the impact of health system disruption on health outcomes, the Lives Saved Tool (v6.06) was used to model the impact of the pandemic in Georgia. Models were created to incorporate survey responses from local practitioners and/or health program staff to assess the direct or indirect influences of the pandemic.

The modelling exercise revealed that on average utilization rates for essential services being modified or suspended fall by 5-35% in the Year 1 followed by 5-14% decline in the Year 2. The most affected services are family planning, immunization, well-childcare, maternal nutrition, growth monitoring and promotion.

Kazakhstan

With available data from Kazakhstan, the Lives Saved Tool (v6.06) was used to examine the impact of the pandemic based upon MNCHN indicators. Models were created from survey responses submitted by in-country informants which included local practitioners and/or health program staff.

The modelling exercise revealed that on average utilization rates for essential services being modified or suspended fall by 12-30% in the Year 1 followed by 4-14% decline in the Year 2. The most affected services are well-childcare, sick child and maternal nutrition.

Utilization of these services has declined by approximately 30% in the Year 1 and 10% in the Year 2.
To explore the impact of health system disruption on health outcomes, the Lives Saved Tool (v6.06, https://www.livessavedtool.org/) was used to model the impact of the pandemic in Kosovo. Models were created based on statistical data (DHS, MICS) and based on survey responses. According to modelling, the utilization of the following services shows the largest reduction: well-child, antenatal care and family planning, IYG EC, maternal nutrition and growth monitoring programmes. (Fig 1).

![Kosovo utilization of essential MNCHN services](image1)

To explore the impact of health system disruption on health outcomes, the Lives Saved Tool (v6.06, https://www.livessavedtool.org/) was used to model the impact of the pandemic in Montenegro. Models were created based on statistical data (DHS, MICS) and based on survey responses. As result of modelling, coverage changes were not sizeable in Montenegro because services were either rapidly restored (e.g., immunization catch-up campaigns) or sustained throughout with modifications. According to modelling, the utilization of the following services shows the largest reduction: immunization, well-child, antenatal care and family planning. (Fig 2).

![Montenegro utilization of essential MNCHN services](image2)

Respondents indicated that clinics were closed for only a few weeks before reopening and immunization service delivery points, typically housed in primary healthcare centers throughout the country, were never closed.
c) Countries with a uniform level across services with no dynamic in year 2 of the pandemic (Turkey – with low disruption, and Tajikistan – with high disruption levels):
LiST was used to estimate the impact of the pandemic on critical MNCHN indicators, including the measurement of maternal, newborn and child mortality, child health, and infant and young child feeding and undernutrition in the countries with available data.

With data available from the 16 ECA countries, LiST was used to examine the impact of the pandemic based on MNCHN indicators. Models were created from survey responses submitted by in-country informants that included local practitioners and/or health programme staff. The resulting charts spanning seven years from pre-pandemic to year 6 of the pandemic for under-five mortality, neonatal, maternal mortality rate, stillbirth, low birth weight and stunting, show a return to pre-pandemic indicators by the third year of the pandemic. This is a general trend for most countries. Below are the charts for Bosnia and Herzegovina, as a country example. Other country-specific charts are shown in country profiles (see Annex 3.)
The impact across the ECA region has been examined in terms of changes in mortality rates, comparing year 1 to the pre-pandemic year for the neonatal rate, under-five rate and stillbirth rate.

The average change for the neonatal rate is 8.8 per cent, for under-five mortality 6.3 per cent, and for stillbirth 2.5 per cent.

Of the 16 countries examined, the reduction or disruption of key health services was estimated to lead to 4.2 per cent increase in the total number of under-five deaths and a 5.6 per cent increase in the total number of neonatal deaths compared to IGME estimates for 2019.

Impact on stunting has been examined across the ECA region, comparing rates of stunting in all 16 countries. The average change in the percentage of children stunted (0–59 months) amounted to 1 per cent.

In all 16 countries the modelling did not reveal a significant change in low birth rate, with the average change at 0.1 per cent.
LiST modelling suggests that changes in the coverage of intervention coverage was associated with an increase of approximately 500–610 stillbirths for years 2020 and 2021 in ECAR countries included in the analysis. An additional 5,410 and 4,790 child deaths are estimated for 2020 and 2021 with the majority (67–69 per cent) of the additional deaths occurring during the neonatal period. An additional 130 (in 2020) and 110 (in 2021) maternal deaths are estimated during this period.

| Table 3. Regional and subregional impact of COVID-19 on mortality and morbidity |
|---|---|---|---|---|---|
| | 2019 (baseline) | Projected 2020 | Projected 2021 | Relative change in rate or per cent (2019–2020) | Relative change in rate or per cent (2019–2021) |
| **Stillbirth rate (stillbirths per 1,000 total births)** | | | | | |
| CEE | 4.09 | 4.18 | 4.16 | 2.2% | 1.6% |
| Caucasus, Turkey and Ukraine | 4.68 | 4.77 | 4.76 | 1.9% | 1.8% |
| Central Asia and CIS | 6.42 | 6.61 | 6.57 | 2.9% | 2.4% |
| **Neonatal mortality rate (neonatal deaths per 1,000 live births)** | | | | | |
| CEE | 4.06 | 4.27 | 4.27 | 5.1% | 5.1% |
| Caucasus, Turkey and Ukraine | 5.23 | 5.58 | 5.54 | 6.7% | 5.9% |
| Central Asia and CIS | 9.19 | 10.65 | 10.50 | 15.9% | 14.3% |
| **Under-five mortality rate (deaths in children 0–59 months per 1,000 live births)** | | | | | |
| CEE | 6.08 | 6.32 | 6.31 | 3.9% | 3.7% |
| Caucasus, Turkey and Ukraine | 9.69 | 10.08 | 10.03 | 4.0% | 3.5% |
| Central Asia and CIS | 17.56 | 19.80 | 19.59 | 12.8% | 11.6% |
| **Maternal mortality rate (maternal deaths per 100,000 women of reproductive age)** | | | | | |
| CEE | 0.50 | 0.71 | 0.69 | 43.0% | 39.4% |
| Caucasus, Turkey and Ukraine | 0.99 | 1.35 | 1.34 | 37.2% | 35.9% |
| Central Asia and CIS | 1.64 | 2.38 | 2.10 | 45.7% | 28.6% |
| **% low birth weight** | | | | | |
| CEE | 11.32 | 11.33 | 11.33 | 0.1% | 0.1% |
| Caucasus, Turkey and Ukraine | 14.14 | 14.16 | 14.16 | 0.1% | 0.1% |
| Central Asia and CIS | 10.84 | 10.86 | 10.85 | 0.2% | 0.1% |
| **% of children stunted (12–23 months)** | | | | | |
| CEE | 11.32 | 11.33 | 11.33 | 0.1% | 0.1% |
| Caucasus, Turkey and Ukraine | 14.14 | 14.16 | 14.16 | 0.1% | 0.1% |
| Central Asia and CIS | 10.84 | 10.86 | 10.85 | 0.2% | 0.1% |

CEE: Central and Eastern Europe; CIS: Commonwealth of Independent States
Table 4. Estimated impact of COVID-19 on health outcomes

<table>
<thead>
<tr>
<th></th>
<th>Calculated for 16 countries surveyed</th>
<th>Projected for all 22 UNICEF ECAR countries</th>
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<tbody>
<tr>
<td></td>
<td>Year 1</td>
<td>Year 2</td>
</tr>
<tr>
<td>Additional stillbirths due to disruption (compared to 2019)</td>
<td>610</td>
<td>500</td>
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<tr>
<td>Additional neonatal deaths due to disruption</td>
<td>3,760</td>
<td>3,220</td>
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<tr>
<td>Additional under-five deaths due to disruption</td>
<td>5,410</td>
<td>4,790</td>
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<tr>
<td>Additional maternal deaths due to disruption</td>
<td>130</td>
<td>110</td>
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<tr>
<td>Additional children stunted</td>
<td>6,990</td>
<td>16,310</td>
</tr>
</tbody>
</table>

Projecting this level of impact across all 22 ECAR countries would lead to an estimate of 2,240 additional stillbirths, 20,030 additional child deaths (13,910 additional deaths among neonates), and 490 additional maternal deaths in 2020.

The subsequent strategies undertaken by the countries to ensure continuity of key MNCHN services include governance mechanisms, generating data and information for decision making and implementing mitigating actions, such as adaptations to health service, securing supplies and medication, launching communication activities and optimizing and incentivizing the health workforce.

In terms of the adaptation of health services to the pandemic, several trends emerged across countries: operating modifications to schedules and frequency of visits, restrictions on numbers of group sessions, extended hours, catch-up and special provisions (e.g., for immunization), and the modification of protocols. Additional measures were taken to ensure safe patient flow by triage screening and isolation, as well as enhanced infection prevention and control measures. Service delivery was modified to include mobile services and telemedicine.

These response measures aim to: 1) ensure access to diagnostics and treatment; 2) strengthen the capacity of the health system to respond; and 3) leverage digital solutions and data to improve surveillance and care. Given that the health systems are already being overburdened by the surge in demand for diagnostics and treatment, and health providers are being faced with unprecedented levels of demand, these measures are intended to mitigate the situation.
The impact of Covid-19 on the maternal, newborn and child health and nutrition services in the Europe and Central Asia Region

As the pandemic influenced community and social interactions, service delivery modalities were adjusted. Health facilities introduced various measures to prevent the transmission of infection while maintaining the quality of services. Key measures applied were the introduction of staff duty schedules, allowing health personnel to work from home, providing online consultations (by phone, WhatsApp, video, messaging) to their service users/clients and promote continuity of care by encouraging caregivers to bring children for routine services. For the management of routine visits, health facilities introduced visit scheduling, limiting the presence of accompanying persons to one, and placing posters on handwashing, wearing masks and social distancing on walls in waiting areas and consultation rooms. Health workers provided guidance about wearing masks and social distancing to women and children visiting health facilities. Modified service delivery modalities were introduced for the provision of family planning, antenatal and postnatal care, immunizations, well-child care, infant and young child feeding, maternal nutrition, and growth monitoring and promotion programmes. Moderate disruption was reported for both the quality and uptake of antenatal and postnatal services for this period, but labour and delivery services were only mildly impacted.

Adaptation to health crisis in Albania

As the pandemic influenced community and social interactions, service delivery modalities were adjusted. Health facilities introduced various measures to prevent the transmission of infection while maintaining the quality of services. Key measures applied were the introduction of staff duty schedules, allowing health personnel to work from home, providing online consultations (by phone, WhatsApp, video, messaging) to their service users/clients and promote continuity of care by encouraging caregivers to bring children for routine services. For the management of routine visits, health facilities introduced visit scheduling, limiting the presence of accompanying persons to one, and placing posters on handwashing, wearing masks and social distancing on walls in waiting areas and consultation rooms. Health workers provided guidance about wearing masks and social distancing to women and children visiting health facilities. Modified service delivery modalities were introduced for the provision of family planning, antenatal and postnatal care, immunizations, well-child care, infant and young child feeding, maternal nutrition, and growth monitoring and promotion programmes. Moderate disruption was reported for both the quality and uptake of antenatal and postnatal services for this period, but labour and delivery services were only mildly impacted.
Conclusions

Overall, changes in mortality in the ECA region have been mild due to service disruption.

Based on the examination of the modelling in 16 countries, the reduction or disruption of key health services was estimated to lead to a 4.2 per cent increase in the total number of under-five deaths and 5.6 per cent increase in the total number of neonatal deaths compared to IGME estimates for 2019. This was despite the fact that the disruption in preventative services, mildly reduced the availability of the care across the board for different components of the MNCHN, their quality and the demand for the services. It is therefore possible to conclude that even a limited reduction in care-seeking could have effects on the health outcome of children and women.

Data suggests that swift action to restore services was effective and able to limit negative and unintended consequences of the global pandemic. This finding is similar to reports that point to the positive development of a lessening in disruption of services starting in 2021. The findings that health service disruptions are lessening are similar to the health sector findings of the UNICEF COVID-19 socioeconomic impact surveys as well as other studies that have examined the changes in health services using routine health information.

Several countries (Albania, Bosnia and Herzegovina, Montenegro, Tajikistan, Ukraine, Uzbekistan) stressed the role of a healthy workforce as a key component and the need to address human resource gaps in order to ensure the effective functioning of MNCHN services. WHO reports available in 2021 concur with this fact, citing a significant burden of mortality among healthcare workers worldwide.

Real-time high-quality data was often lacking. However, this type of data is needed to make the most informed and effective decisions.

Guidance at the global, regional and national levels were critical to ensure that stakeholders are engaged and action is coordinated.

Plan of actions are dependent upon the country context factoring in health system components as well as political will.
The impact of Covid-19 on the maternal, newborn and child health and nutrition services in the Europe and Central Asia Region

Recommendations

Country specific recommendations are available in the country profiles attached to this report (Annex 3.).

Overall recommended targeted actions to safeguard essential maternal and newborn services include:

• The pandemic has highlighted the importance of investing in resilient health systems that can respond to crises while maintaining essential services. Governments, health organizations, and communities must work together to address the impacts of COVID-19 on maternal and child healthcare services.

• Strengthen the primary healthcare to make it ready to deliver essential services during the pandemic: Invest in the primary healthcare infrastructure and healthcare workforce. Increase the number of healthcare providers in underserved areas and provide ongoing education to ensure high-quality healthcare services for children.

• Foster national leadership and greater transparency with advocates to promote COVID-19 immunization.

• Increase community engagement to address the main drivers of vaccine hesitancy in vulnerable communities and increase coverage of COVID-19 immunization.

• Strengthen the capacities and use of the health information system to ensure that real-time data can be used for decision making.

• Explore new models of care: Upgrade digital infrastructure, provide telemedicine, and develop parents’ application to ensure information sharing and connections with caregivers.

• Improve multidisciplinary collaboration: Foster collaboration between healthcare providers, social workers, educators and other stakeholders to address the social determinants of health that affect children.
REFERENCES


Ethical Considerations

For the statistical analyses all data sources were publicly available and deidentified datasets were used that do not involve ‘human subjects’, as defined by US federal regulations and guidance. Use of these datasets (e.g., from Demographic and Health Surveys and Multiple Indicator Cluster Surveys did not require review by the Institutional Review Board nor a formal exempt determination.

For the qualitative assessment, study activities related to the key informant interviews were considered low risk to respondents with the primary risk being to their privacy. The study team took further precautions to ensure that the respondents’ privacy and any sensitive information was properly protected during the data collection and analysis phases of the study. Verbal consent was obtained from all participants to allow recording of the interviews and all respondents were offered the option to turn off their video and/or use an alias in the recorded interview. For due diligence, the study protocol and all interview guides were appropriately submitted for review and the activity was determined by the JHSPH Review Board to not qualify as human subjects research and was therefore exempt. This determination was documented in JHSPH Institutional Review Boards correspondence dated 28 July 2020.
Annex 2

Additional resources

**ALBANIA**

https://www.oecd-ilibrary.org/sites/933637d0-en/index.html?itemId=/content/component/933637d0-en#chapter-d1e11082


**ARMENIA**

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**BELARUS**

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The impact of Covid-19 on the maternal, newborn and child health and nutrition services in the Europe and Central Asia Region

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The impact of Covid-19 on the maternal, newborn and child health and nutrition services in the Europe and Central Asia Region


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