MOLDOVA: Healthcare System (HC) readiness and COVID-19 pandemic response evaluation

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Table of content

Executive summary

This report was prepared based on the publicly available information on April 10, 2020, is valid and relevant in accordance with this timeline.

The preparedness stage for this pandemic was covered by the fragmented actions and did not ensure a fast and full response to this emergency outbreak.

The collective responsibility approach, the lack of defined timelines, the lack of designated resources creates difficulties in the crisis management process and generates multiple undesired outcomes.

The health authorities need to be prepared to communicate with their populaces about health issues and protective actions that they can take.

The Country Pandemic Plan as a pre-event tool is required for a better execution of preparedness stage and fast response to any disease outbreak.

The quality of the response to this pandemic outbreak was influenced on a large scale by the low level of awareness of the pandemic emergency on the top level of management of the healthcare sector.

The delay in the elaboration of the response country pandemic plan leaded to the delay in the decision-making process and generated several delays in execution of many important action items.

All these actions limited the power of control over pandemic spread in some geographies and increased the risk for population, and specifically for the healthcare workers, police, custom staff.

An epidemiologic investigation and the accompanying response are the backbone of outbreak control.

Technological advances are needed to modernize our diagnostic capabilities to become faster and nimbler at the onset of outbreaks, particularly around novel pathogens. Diagnostic tools are required in settings beyond centralized laboratories.

To adequately prepare for and respond to outbreaks, health facilities would need to increase their capacity for large-scale isolation of patients with highly transmissible respiratory diseases. The biological safety and security require holistic approach and proper resources.

It is recommended to increase the community engagement through dialogue, power sharing, collaborative decision making, and combined actions among a community. Doing this, its leaders can strengthen readiness, response, and recovery in the case of pandemic outbreak.

The communication with the public, partners, and intermediaries as well as between key organizational stakeholders continues to be an important area for strengthening preparedness and response. Without strong, accurate communication efforts, no amount of planning, intervention, or response is likely to be highly effective in the response to a pandemic.

The communication and the establishment of the trusted lines of communication between the community and public health is a vital component of effective public health response.

The application of the travel restrictions, movement restrictions, quarantine, and social distancing, is efficient in conditions of the strong adherence to the rule and require the high level of trust between community and state institutions.

In the event of a rapidly moving pandemic, the Government would need to be able to quickly deploy sufficient resources in order to protect the population and reduce the fatality rate.

Moldova needs support to develop the core public health capacities to prevent, detect, prepare for, and respond to any disease outbreaks.

With this purpose, the country needs a robust national process and a system to enable the collection, analysis, and dissemination of surveillance data, an essential tool for identifying and understanding patterns and drivers behind a wide range of health threats.

The processes and the systems used to conduct risk communication and national surveillance can be multipurpose, serving everyday health priorities, but then tapped, and modified or expanded, if necessary, during emergencies.

The estimated demand for resources, in order to support the actions mentioned in Article 3 are presented in the annex 1. The focus was concentrated to the most urgent and important items, such as PPE insurance for HCP, renovation of the infectious diseases department in the district hospitals, and upgrade of the Intensive Care Units (ICU), by increasing the number of the ICU beds across the country.

The needs for PPE are calculated based on the daily needs for 35000 HCP, in order to cover 100 days of pandemic outbreak.

The need for renovation of the departments for infectious diseases as a primary measure to be prepared for the next wave is calculated for 36 hospitals.

There is a gap of 800 ICU beds in Moldova and urgent need to cover this gap. In the annex 1 is mentioned the full list of equipment required to support this action. The McKenzie company mentioned in their report about pandemic outbreak, as one of mandatory criteria for the country reopening – the presence of >5 ICU beds for 10 000 population. Currently in Moldova there are only 500 ICU beds for 2,6 M people. It is urgent and important to focus on the upgrade of ICU in Moldovan hospitals.

Article 1. Preparedness stage

Section 1.01 **Country contingency plan design**

On the pre- event stage few steps for preparedness for Covid 19 pandemic have been executed by the health system management.

On January 24, the Order 81 of MHLSP about preparedness to COVID 19 outbreak was issued. (1)

This order defined among others the Covid 19 case definition. The case definition included the limitation in terms of application for persons returned from Wuhan region of China. The approved Covid 19 case definition remained unchanged till March 2, and this can be considered as one of the limitations in the pandemic surveillance process.

This order also imposed, as a mandatory task for medical institutions, the update of local pandemic plans and inclusion of the comprehensive measures for preparedness and response to Covid 19 pandemic. The Order also defined some important actions for insurance of healthcare professionals (HCP) individual protection. No deadlines and no performance indicators were specified for these tasks.

There was not additional funding provided to healthcare institutions to cover the procurement of Personal Protection Equipment (PPE) and other consumables, like disinfectants solutions and medicines.

On February 26 the Order 188 was issued by MHLSP, approving some measures for reducing the risk of the spread of the novel coronavirus infection.

The algorithm for screening activities on the border, using thermal scanners was imposed. The epidemiological surveillance system established, through the completion of epidemiological forms and their follow up by family doctors during 14 days after people return from the pandemic regions.

The algorithm for pandemic prevention, including the definition of Quarantine were approved by this Order. (2)

Moldova Country COVID 19 pandemic plan was approved on March,13, and covers all important areas for preparedness and response. The plan is well structured and contains all important components of pandemic response. The level of COVID 19 country pandemic risk was defined as High.

The updated case definition was mentioned in the plan. The plan also includes the Key Performance Indicators. The timeline for preparedness stage and response stage are not clearly specified. At the date of approval of Country Pandemic Plan, the first positive patients have been identified.

Section 1.02 **Emergencies management system authorizing**

The specific Covid 19 national task force authorization document was not officially published. Some references to the main healthcare institutions involved in the process are included in the Country Covid 19 pandemic plan.

In the Orders issued by MHLSP are mentioned the responsible persons for their execution.

The approach of collective responsibility was applied in the management of the current pandemic outbreak in Moldova.

Section 1.03 **Risk assessment using matrix approach**

Risk assessment process and description of risk assessment tools are mentioned in the Country Covid 19 pandemic plan at a high level. The three-level risk scale is mentioned. The red level of risk is applied at the moment of completion of this report. There is no clear evidence for how this level was determined.

The risk of pandemic for Moldova is defined as high, but the highest risk areas are not mentioned.

The risk mitigation measures are not described.

The Plan contain three case scenarios. The scenario number 2 was activated on March 24, after reaching the level of 100 positively confirmed patients. (18)

Currently is activated scenario 4, which is not mentioned in the plan. The updated version of the plan is not publicly available.

Section 1.04 **Resources identification: internal and external**

The resources mentioned in the Country Covid 19 pandemic plan, are limited mainly to the national level hospitals and national public health center.

The estimated number of patient flow in the basic scenario seems low, comparing to other countries examples. The testing is intended in one central lab, with limited capabilities. No additional scenarios are described in the plan at the moment of approval and publication. The limitation linked to insufficient availability of the laboratory testing is not mentioned.

The action plan and the detailed description of actions is presented in the annexes to the plan. However, the back-up measures are not mentioned. The possible risk of limited resources is not mentioned, and respectively the risk mitigation and the potential internal and external sources of funding are not identified.

The total amount of the estimated needs is not filled in the annexes of plan, therefore there is lack of transparency on the country needs in this pandemic response. There is limited information about the real needs of resources, required for this emergency situation.

Section 1.05 **Resources deployment planning**

There is a mention in the plan about the evaluation of the stocks of PPE in the healthcare system.

The detailed resources deployment planning, including the timeline is not described in the country pandemic plan.

The human resources management tools and plan is not defined. There is lack of visibility on the available human resources in the country, for all categories of the healthcare workers.

On March 4, the Order 222 about designation of some hospitals as strategic healthcare institutions responsible for Covid 19 patients was issued. (4)

The patient flow management system was approved by Order 250 issued on March 12 by MHLSP. (6)

The functionality and involvement of the primary care level was determined in the Order 253, issued by MHLSP on March 13. (7)

Some restrictions in the planned medical assistance were applied on March 13, through the Order 264 issued by MHLSP. (8)

Additional resources deployed on March 13, by MHLSP through approval of the Order 263. Two more hospitals were involved in the patients flow management. These changes were not mentioned in the updated version of the country plan. (9)

Section 1.06 **Personnel capacity building: HCP in focus**

The personnel capacity building and training was mentioned in several Orders issued by MHLSP in the period January,24 – March,30. See Section 1.07 of this report.

There is no publicly available information about execution of these provisions.

The number of Covid 19 positive tested healthcare professionals still high at the moment of the completion of the current report.

This fact can be determined by multiple factors, inclusively and not limited to lack of PPE and lack of training in the field of individual protection of healthcare workers. The biosecurity of healthcare professionals was mentioned in some Orders of MHLSP however it was not supported with clear guidelines and SOP in order to protect the personnel from contamination.

Section 1.07 **SOP elaboration and approval**

There is no publicly available information about recommended templates for SOP or any other documents regulating the quality management system in the healthcare institutions.

Some of the required processes are mentioned in the Orders approved by MHLSP and disseminated to the state-owned healthcare institutions. (1-16)

Section 1.08 **Clinical treatment protocol design**

The interim clinical protocol for treatment of Covid positive patients was approved on March 30 by MHLSP and became immediately valid for all healthcare professionals. The protocol included the provisions for off label use of some medicines. The legislation in this field, to allow the off-label use and the use of investigated drugs in the treatment on a large scale, was not amended so far yet.

Section 1.09 **Communication management system set up**

The communication management system is defined by country pandemic plan, with high level description of communication strategic goals.

In the real life, we have two times daily briefings, held by top level country officials, presenting limited information about statistics and some actions in the field of pandemic response.

The comprehensive information about pandemic situation is missing, very fragmented, and often confusing for a large audience.

Conclusions:

The preparedness stage for this pandemic was covered by fragmented actions and did not ensure a fast and full response to this emergency outbreak.

The collective responsibility approach, lack of defined timelines, lack of designated resources creates difficulties in the crisis management process and generates multiple undesired outcomes.

Recommendations:

Moldova needs support to develop core public health capacities to prevent, detect, prepare for, and respond to any disease outbreaks.

Health authorities need to be able to communicate with their populaces about health issues and protective actions that they can take.

The Country Pandemic Plan as a pre-event tool is required for better execution of preparedness stage and fast response to any disease outbreak.

Article 2. Response stage

Section 2.01 **National Task force establishment**

The multilevel national task force was established on March 17. (17)

The healthcare system was covered by Focus group managed by Minister of Health and Social Protection.

The country management commission for exceptional situations was leaded by the Prime Minister. In the country management commission for exceptional situations the healthcare field was presented by Minister. No medical or epidemiological staff presented in this commission.

The Focus group held daily meetings, followed by short briefings. (23-45)

The country management commission for exceptional situations held daily meetings, followed by briefings.

The decisions of commission were published on web page.

The decisions of the medical focus group were not made publicly available.

Section 2.02 **Epidemiological supervision launching**

The epidemiological surveillance was launched on March 2, through the order 213 of MHLSP. (3)

Later the involvement of the primary level of the healthcare system was disposed through the order 253, approved on March 13 by MHLSP. (7)

There is limited information in the open space about the capabilities and available resources to manage properly the surveillance of the contaminated people and their contacts. The contacts tracing process is covered partially.

There are several signs about large contaminated areas, like Soroca, Hancesti and Stefan Voda, including healthcare institutions in these communities, which arise multiple questions about the quality of the execution in the process of surveillance and contacts tracing.

The self-quarantine was applied by more than 20000 people, returned from the countries with high risk for Covid 19. The process was not properly controlled at the level of the primary care.

The issue of multiple cases of misinformation included in the epidemiological forms was signaled. The form was updated with the statement of assumed responsibility.

The delay in the transmission of epidemiological forms to the family doctors was mentioned several times in the briefings.

Section 2.03 **Testing capabilities enabling**

Specific diagnostic information during pandemic is of great importance, and country should have plans for the development or uptake of diagnostic tests.

In preparation for this, national public health laboratories and large commercial laboratories should develop a concept-of-operations for how to distribute test kits rapidly to relevant clinical sites and laboratories in areas affected by the outbreak.

The country pandemic plan specified only one state laboratory for testing of Covid 19 suspected patients and did not include any provisions for back up.

Later, the policy and tactics have been amended and some of the commercial laboratories have been involved in the testing process. The intention to identify and connect some regional laboratories as well, was communicated in the briefing. (20)

The low number of available tests along with the limited testing capabilities were perceived as a limitation for performing the testing on a large scale. (21)

Section 2.04 **Patient flow management**

The patient flow management system was constantly changed and adapted since the beginning of the current pandemic outbreak.

The initial intention was to involve only four strategic hospitals in the treatment of Covid 19 patients.

This was established by several Orders issued by MHLSP. (6-10)

Later the approach was changed, and the trier center was established on the larger scale in the adapted capabilities. Some local hospitals have been included in the increasing patient flow management process.

The mild forms of the disease will be treated at home since April 10.

Section 2.05 **Medical facilities readiness**

The number of beds for infectious diseases were reduced drastically in the last years in the country. Currently their number is about 15-40 dedicated beds in the small district hospitals. The national hospital for infectious diseases “Toma Ciorba” was available to allocate 100 beds for Covid 19 suspected patients.

The epidemiological situation in each institution should be managed by a specialist epidemiologist. There are hospitals where this position is a vacant one. The biological security and safety are not properly ensured in the time of pandemic. The strong demand for disinfectant agents and PPE was made public since the beginning of the emergency outbreak.

The primary medical care sector has also signaled the request for PPE and disinfectant agents.

Medical facilities in Moldova have limited capacity for the intensive therapy care. The request for ventilators, consumables and some equipment, specific to intensive therapy care department, was disseminated in the public space.

All these requests and information about public procurement processes serve as an indicator, that the vital needs were uncovered at the moment of pandemic launch in Moldova.

Section 2.06 **Community transmission scrutiny**

The community transmission analysis tools and resources are not publicly communicated during the briefings. The epidemiological examination and establishment of all contacts serve as a powerful instrument to stop the spread of pandemic.

It seems, that there are limited resources at the local level to perform this scrutiny process and contacts tracing properly.

The approach of passive screening of suspected patients through the flow of calls to emergency service 112 was adopted. No proactive identification and isolation of the 1-st level and 2-nd level contact people were applied on a large scale.

The official quarantine, applied in some villages, served as a good practice for limiting of the pandemic spread.

At the moment of the completion of this report the community transmission was practically uncontrolled and moved fast in multiple geographies.

Section 2.07 **Personnel protection**

The protection of healthcare workers was one of the biggest issues since the very beginning of the current emergency outbreak. It was determined mostly by lack of PPE, lack of disinfectants, lack of institutional SOP, lack of guidance and funding for coverage of these needs.

The first directive from the Minister level was sent to medical institutions end of January, and periodically was updated and supported by new orders. It was a simple paper directive aimed to ensure the protection of healthcare workers. No established deadline, no technical guidance and no funding were provided to support the execution.

In real life, the process was impacted by several limitations, determined by, and not limited to the bureaucratic procurement procedures, limited offers for supply, limited available funds.

The high number of contaminated healthcare workers leaded to lockdown of some hospitals.

The demand in PPE still high and continue to require a special attention.

The decision to allocate funding for procurement of PPE was approved on March 25. (19)

Section 2.08 **Logistics and stock management**

At the beginning of pandemic, it was not a designated centralized system for logistics management of resources, collected mainly from community fundraising platforms and NGO.

On March 31 the consignee was designated for all humanitarian aid. The goods were received by this consignee, authorized for distribution by MHLSP, and distributed physically to all hospitals on a daily basis.

The stock management for all goods, received as humanitarian aid was also ensured by this consignee.

The procurement procedure was amended and the capping of 800 kMDL was established per procurement contract for hospitals during the pandemic outbreak. The procurement procedure was shortened and less bureaucratized.

The borders were closed, and the restrictions for export of some medicines and PPE were applied.

The limited offer for PPE created acute shortage in several hospitals. The healthcare workers used the handmade masks, and adapted gloves to protect themselves.

Some local producers changed their mind and started to produce some elements of PPE, inclusively some of them - ready to use.

Section 2.09 **Healthcare system continuity insurance**

The state-owned healthcare system capacity in Moldova is extremely limited. To free up some capability, the ban for planned medical investigations was applied in all state hospitals. The capacity of the private segment in medical system was accepted for use to cover emergency needs. However, at the moment of completion of this report it was not activated.

The healthcare system continuity depends from the availability of resources, inclusively of human resources. The high rate of contamination of healthcare workers is signaling a potential issue in short term in this field. Some departments in the big hospitals have been locked down due to personnel contamination.

There is constant change in tactics and use of healthcare capabilities.

There is limited information about total number of hospitalized patients and average of completeness of the hospital beds at this moment. The briefings do not cover this topic.

The decision to initiate the elaboration of the healthcare system restructuring plan was announced on April 7. (22)

Section 2.10 **Change management system supporting**

From the public information available at this moment, we can conclude, that the change management is applied at a large scale, through multiple sporadic actions.

There are multiple changes applied in the field of testing, patient flow management, management of supply and logistics, performance management and motivation of the healthcare workers, practically on a daily base. This is confirming a great level of flexibility in decision making process and high degree of adaptive thinking.

Many of these changes are mentioned in the decisions of the country commission. These decisions about changes are not reflected in the country pandemic plan.

There is no any visible established procedure for the change management in conditions of this pandemic outbreak. The country pandemic plan does not contain the change management chapter.

Section 2.11 **Communication platform facilitating**

The communication on behalf of pandemic task force is done twice a day, on a daily base.

In the morning the medical focus group is presenting their briefing. (23-45)

In the second part of the day national task force is communicating about their decisions.

There are few online web platforms developed about this pandemic outbreak, including statistical information, support for different categories of vulnerable people, information about disease, self-hygiene, and psychological support.

There is extremely limited possibility for questioning during live briefings, which is determining the one-way communication flow.

The healthcare professionals do not accept any interview without the permission of MHLSP. This fact indirectly shows the limitation for open two-way communication during this pandemic outbreak in the medical system.

Section 2.12 **Data management and IT support**

At the moment of completion of this report, there is no any data management system available in the medical system to collect the data about the number of suspected, isolated, confirmed cases. The data are collected on the paper base, from the medical institutions and their processing is delayed constantly.

The information about the total number of suspected, tested, hospitalized patients is missing on a national level. There is daily information about the number of positively confirmed cases, deaths, treated patients.

There is information about the number of healthcare professionals, positively confirmed for Covid 19.

The emergency line 112 is overloaded with calls from suspected Covid 19 patients. However, it was no any extension line designated to cover their needs.

The green line phone number for public information about Covid 19 was assigned by a medical focus task force.

Conclusions:

The quality of the response to this pandemic outbreak was influenced on a large scale by low level of awareness of the pandemic emergency on the top level of management of the healthcare sector.

The delay in the elaboration of the response country pandemic plan leaded to the delay in the decision-making process and generated several delays in execution of many important action items.

All these actions limited the power of control over pandemic spread in some geographies and increased the risk for population, and specifically for the healthcare workers, police, custom staff.

Recommendations:

An epidemiologic investigation and the accompanying response are the backbone of outbreak control.

Technological advances are needed to modernize our diagnostic capabilities to become faster and nimbler at the onset of outbreaks, particularly around novel pathogens. Diagnostic tools are required in settings beyond centralized laboratories.

To adequately prepare for and respond to outbreaks, health facilities would need to increase their capacity for large-scale isolation of patients with highly transmissible respiratory diseases. The biological safety and security require holistic approach and proper resources.

To increase the community engagement through dialogue, power sharing, collaborative decision making, and combined actions among a community. Doing this, its providers, and its leaders can strengthen readiness, response, and recovery in the case of pandemic outbreak.

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Communication and the establishment of trusted lines of communication between the community and public health is a vital component of effective public health response.

The application of travel restrictions, movement restrictions, quarantine, and social distancing, is efficient in conditions of strong adherence to the rule and require the high level of trust between community and state institutions.

Article 3. Recovery stage

Section 3.01 **Continuity of some pandemic workstreams**

It is obvious at this moment, that some pandemic workstreams will require continuity and proper management set up. The most important are:

- Epidemiological surveillance on the border and contact tracing process.
- Maintenance of the biosafety and biosecurity processes in the hospitals.
- Protection of the healthcare workers for the daily base activities.
- Maintenance of the capacity of the intensive therapy care departments.
- People development activities and people training.

All these workstreams will require sufficient resources allocation.

Section 3.02 **Restoring the HC system functionality**

The healthcare system functionality will be deeply impacted during this pandemic outbreak.

To restore the functionality of the full system, the system will require significant support in following areas:

- The decontamination of the facilities and equipment
- The renovation of some infection departments in district hospitals
- The recovery of the healthcare workers and psychological support for PTSR
- The renewal and replacement for some equipment, especially in the intensive therapy care departments
- The coverage of needs with the sufficient stock of consumables and PPE
- The quality management process update and implementation
- The data management system design and implementation
- The empowerment of the epidemiological surveillance capabilities

The execution of these activities will require the attention from the top-level country management and proper resources allocation.

Section 3.03 **Upgrading the HC system capabilities**

To adequately prepare for and respond to outbreaks and pandemics in the future, Moldova should assess the readiness of health facilities to effectively treat patients with a transmissible disease with high case fatalities. The intensive therapy care departments will require an assessment and significant upgrade.

Health facilities would play a central role in mitigating or amplifying disease spread during communicable disease emergencies. The hospital for infectious diseases and the infectious departments

in the district hospitals will require upgrade in term of quality and number of dedicated resources, including hospital beds.

The surveillance system will require some capacity building measures, including plan and exercise the pandemic scrutiny process.

The testing facilities will require the novel diagnostic equipment on a central level and increase of capacity on the regional level.

Biosafety and biosecurity needs to become a national-level political priority.

The comprehensive national pandemic plan with inclusion of the all stakeholders, supported by clearly defined processes and SOP, followed by training and exercise, will ensure proper guidance and support the surveillance of the pandemic outbreak in the future.

Medical education system will review and update some continuous medical educational programs, in order to fulfil the demand for HC specialists in the new knowledge.

The country communication plan for risk communication and public communication with involvement of society and NGO sector is necessary as part of the adequate response to a pandemic outbreak.

Section 3.04 **Preparedness for the next pandemic wave**

There are multiple professional opinions from epidemiologists about the second wave of the Covid 19 pandemic outbreak in the autumn 2020.

In order to be prepared to the new wave, the list of short-term actions needs to be initiated asap.

- The country response pandemic plan needs to be updated, based on the current experience.
- The adequate supporting documentation (guidelines and SOP) needs to be developed and implemented in all hospitals.
- The healthcare workers to be trained in the most important fields, including the individual protection.
- The surveillance system to be fortified and the contact tracing system to be activated.
- The sufficient stock of consumables and PPE to be procured and be ready for use in the country.
- The lack of ventilators and other essential equipment to be addressed urgently.
- The communication about the importance of the social distancing and isolation in the reduction of pandemic spread, to be supported.

Conclusions:

In the event of a rapidly moving pandemic, government would need to be able to quickly deploy sufficient resources in order to protect population and reduce the fatality rate.

Moldova needs support to develop core public health capacities to prevent, detect, prepare for, and respond to any disease outbreaks.

With this purpose, the country needs a robust national process and a system to enable the collection, analysis, and dissemination of surveillance data, an essential tool for identifying and understanding patterns and drivers behind a wide range of health threats.

The processes and systems used to conduct risk communication and national surveillance can be multipurpose, serving everyday health priorities, but then tapped, and modified or expanded, if necessary, during emergencies.

This report was prepared based on the publicly available information on 10 April 2020, is valid and relevant in accordance with this timeline.

The estimated demand for resources, in order to support the actions mentioned in Article 3 are presented in the annex 1.

The high-level view of the response to Covid 19 pandemic outbreak in Moldova is presented on the fig.1

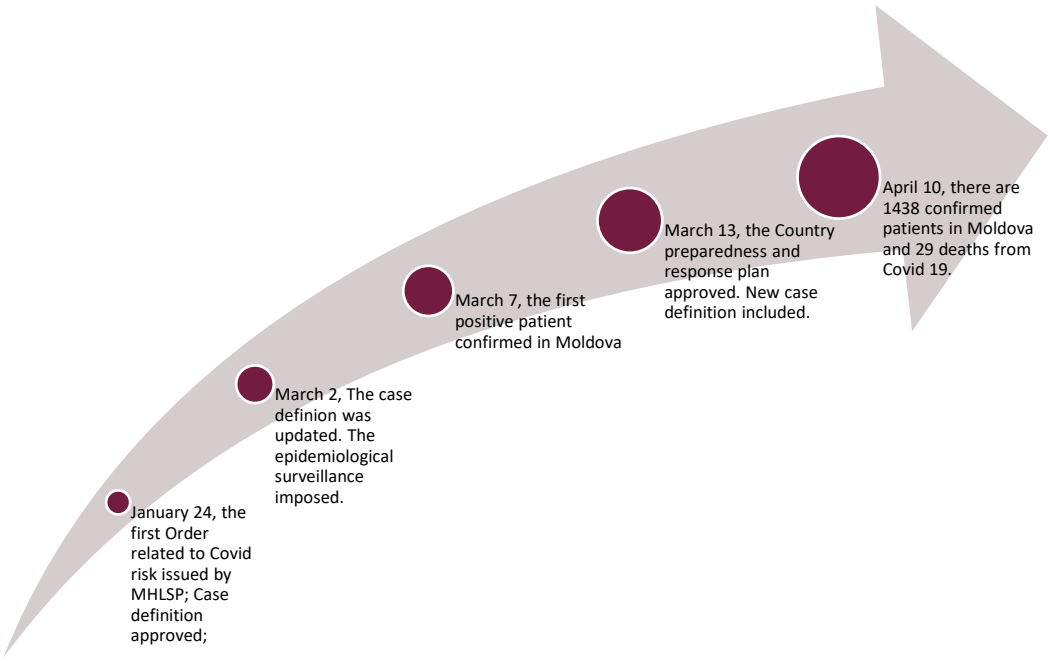

fig.1 Level view of the response to Covid 19 pandemic outbreak in Moldova.

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Annex 1

Personal protection equipment for healthcare professionals

The needs in PPE for HCP is calculated based on the following:

Doctors – 12000

Nurses – 23000

Daily needs multiplied to 100 days of active pandemic outbreak.

	Daily need in units (average)	**HCP**	**Days**	**Total needs in units**
GOOGLES (eyes protection)	2	35000	100	7.000.000
GLOVES (hands protection)	40	35000	100	140.000.000
Respiratory protection FFP2 or FFP3	2	35000	100	7.000.000
Body protection (L and XL size)	2	35000	100	7.000.000

The upgrade of the Departments for infectious diseases

The departments for infectious diseases located in the hospitals in 36 districts of Moldova will require mostly renovation.

The renovation budget for 1 department is estimated to be around 0,8-1,0 mln Moldavian lei, or approximate average equivalent of 50000 Euros.

For the renovation of 36 departments the needs are as following:

	Euros/1	**Number of hospitals**	**Total amount, Euros**
Renovations of the infectious department	50000	36	1.800.000

The upgrade of the Intensive Care Units beds

The needs in equipment to upgrade the Intensive Care units was calculated based on the following assumptions:

The country reopening criteria is to have minimum 5 IC beds/10 000 population.

Moldova population – 2 600 000 people.

Available ICU beds – 500

The minimal number of ICU beds required – 1300

The gap – 800 ICU beds.

The National standard for organisation and management of ICU beds was applied. (46)

Intensive Care upgrade needs	**units for 1 bed**	**Number of beds**	**Total needs in units**
Ventilators EXPIRATION VALVE, flow sensor, reus.	1	800	800
Portable Electric Syringe Pump	5	800	4.000
MONITOR PATIENT, multiparamet. ECG/CAPNO/SpO2/NIBP/Temp,230V, +acc	1	800	800
DEFIBRILLATOR, mobile, semi-auto, multi-paramet,AC/DC, w/acc+trolley	0,125	800	100
The mobile device for extrarenal purification (hemofiltration, hemodiafiltration, plasma filtration)	0,125	800	100
The portable mobile X-ray machine	0,125	800	100
ULTRASOUND SYSTEM MOBILE, transducer, trolley, 220V, w/ acc.	0,125	800	100
Fibrobronhoscope	0,125	800	100
The portable stretcher with oxygen cylinder	0,125	800	100
The transportation monitor	0,125	800	100
The transport fan	0,125	800	100
Set of 2 external pacemakers (pacemaker for internal stimulation);	0,125	800	100
The complex hemodynamic monitoring device	0,125	800	100
The mini-invasive cardiac output measuring device	0,125	800	100
The heating systems for infused fluids	0,125	800	100
The intubation system for dificult cases	0,125	800	100
The resuscitation trolley	0,125	800	100
The bandage trolley.	0,125	800	100
The rapid infusion system	0,125	800	100
Device for achieving hypothermia	0,125	800	100
ELECTROCARDIOGRAPH, portable, 3 ch+ACC	0,333	800	266
Cardiostimulator portable	0,333	800	266
PORTABLE SURGICAL ASPIRATOR	0,333	800	266
ELECTRONIC DROP COUNTER, IV fluids infu. gravity monitor, alarm, batt.AA	1	800	800
CONCENTRATOR O2 portable, 3L + acc.	0,333	800	266
OXYMETER, PULSE, finger tip model, SpO2/PR, 2xAAA batt.	1	800	800
SUCTION PUMP, MECHANICAL (Twin Pump) + collection bottles	0,333	800	266
SCALE, mechanical, adult 0-150 kg, grad. 500 g	0,333	800	266
Thermometer, clinical, IR, handheld set	1	800	800
ICU Beds	1	800	800
LARYNGOSCOPE,fib.opt, ad/ch, diam.28mm, blades(MacIntoch2/3/4+Miller1), sp.bulbs	1	800	800