World Health Organization
REGIONAL OFFICE FOR Europe

Ministry of Health of the Kyrgyz Republic

Report on the results of a hospital safety assessment for the Kyrgyz Republic

Summary 2017

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Preface

Health facilities are critical assets for communities, especially for response to emergencies, disasters and other crises immediately following the impact or exposure. Assessment of 70 hospitals in the Kyrgyz Republic was conducted, using the Hospital Safety Index, to improve safety and ensure functionality during and after emergencies as the information generated by the individual hospital assessment would assist evidence-based planning of service delivery, contributing to a national masterplan for the coming decades and helping guide potential investments in health infrastructure.

This assessment addressed hospitals at different levels (i.e. rayon, city, oblast and republican hospitals) selected by the Ministry of Health according to the geographic location and strategic importance in emergencies. Each hospital assessment process included reviews of relevant documents including emergency plans; hospital staff interviews; and visual inspections.

Less than half the assessed hospitals were assessed as having average level of safety, while the remaining had low level of safety and none of the hospitals met the criteria for a high safety level hospital. It is therefore extremely critical that hospitals with predominantly low scores are upgraded in line with the recommendations provided by the assessment teams, in order to ensure resilience of the health system in times of crisis. In addition, including the components of hospital safety assessment in the Kyrgyz Republic's hospital accreditation process will help ensure that the hospitals' resilience in emergencies.

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Practical activities were coordinated by the WHO Regional Office for Europe and the WHO Country Office for Kyrgyzstan, under the framework of the 2016–2017 Biennial Collaborative Agreement between the Ministry of Health of the Kyrgyz Republic and the WHO Regional Office for Europe.

Deep appreciation and gratitude is expressed for the work done by Dr Ute Enderlein (Programme Area Manager, Country Health Emergency Preparedness & IHR, Division of Health Emergencies and Communicable Diseases, WHO Regional Office for Europe); Dr Jarno Habicht (WHO Representative and Head of WHO Country Office for the Kyrgyz Republic); Dr Osconbek Moldokulov (National Professional Officer in the WHO Country Office for the Kyrgyz Republic); and Dr Mihail Pisla (WHO consultant on hospital safety). Additional support was provided by the staff of the WHO Regional Office for Europe and the WHO Country Office for the Kyrgyz Republic.

Further contributions to the report were made by the WHO expert group, including Drs Rudi Coninx, Hyo Jeong Kim and Mihail Pisla. This group provided instructions and practical training for the assessment team on the evaluation of hospital safety using the revised WHO Hospital Safety Index Tool[1].

Field data collection was carried out by a team of subject matter experts from relevant domains trained in the use of the WHO hospital safety assessment tool and methodology. This team was led by Dr Kanat Bektemorov, Deputy to the Director General of the Republican Blood Centre. Other team members included Mr Askar Sulaimankulov (engineer-consultant in civic construction); Pak Svetlana (Director of Joint Management of the Construction Enterprises); and Bakeev Zarlyk (engineer of civil protection, National Hospital of the Ministry of Health of the Kyrgyz Republic). Contributions to field data collection in 2016 and 2017 were also made by relevant hospital staff, including heads of the hospitals, members of the emergency commissions, and the heads of departments and services responsible for implementing emergency preparedness and response activities.

[1] World Health Organization. Hospital Safety Index Guide for Evaluators – 2nd ed.2015. http://www.who.int/hac/techguidance/hospital_safety_index_evaluators.pdf

Executive summary

Within the framework of the 2016–2017 Biennial Collaborative Agreement between the Ministry of Health (MOH) of the Kyrgyz Republic and the WHO Regional Office for Europe, assessments of 70 hospitals in the Kyrgyz Republic were conducted to improve their safety and ensure their ability to function during and after emergencies, in line with the goal of "enhancing resilience of critical infrastructure" outlined in the Sendai Framework for Disaster Risk Reduction[2]. The assessments were designed to help strengthen the country's health system in order to move towards Universal Health Coverage and strengthen the capacities necessary to fulfil national obligations under the International Health Regulations (2005). It was expected that information generated by the individual hospital assessments would assist evidence-based planning of service delivery, contributing to a national masterplan for the coming decades and helping guide potential investments in health infrastructure.

This assessment addressed hospitals at different levels (i.e. rayon, city, oblast and republican hospitals). The main goal was to determine the safety levels of the hospitals, and to identify key gaps and weaknesses. These were then included in a comprehensive remedial action plan to use HSI in the hospital accreditation process for newly built and renovated hospitals and improve health system resilience, as part of an overarching emergency health preparedness and response plan to strengthen the health systems and IHR core capacities of the Kyrgyz Republic.

The assessments were conducted from June 2016 to July 2017 by a national evaluation team comprising subject matter experts from relevant domains, trained in WHO methodology. This team included health experts and civil and maintenance engineers, working under the guidance of a trained coordinator for uniformity and consistency. The national assessment team was trained by WHO, and the first hospital was assessed in summer 2016 under WHO expert leadership as part of the training to ensure full fidelity to the assessment methodology and providing the team with necessary practical exposure. The assessment made use of the 2015 revised WHO assessment tool, as outlined in the Comprehensive Safe Hospital Framework[3].

Each hospital assessment process included reviews of relevant documents including emergency plans; hospital staff interviews; and visual inspections. The results of the Hospital Safety Checklist and the calculations of the Hospital Safety Index were provided to the MOH for each individual hospital, along with narrative reports including relevant graphs and charts. National level results were presented and discussed with national stakeholders in late August 2017, in order to solicit feedback and consensus for the final report. It is expected that each hospital assessed will review its results with management/stakeholder teams at facility and national level, and prepare action plans to address weaknesses and implement recommendations. Hospitals should then be revisited after 3–5 years to assess progress in implementing the recommendations. The remaining 69 unassessed hospitals in the country may also be subjected to the same procedure as part of comprehensive assessment.

The assessed hospitals were selected by the MOH according to geographic location and strategic importance in emergencies at local, regional, and national levels. Safety levels were assessed for four categories: past and future hazards; structural safety; non-structural safety; and emergency planning. The latter three three categories together generated a composite overall safety level.

Less than half the assessed hospitals (31 hospitals, or 44.3% of the total) were assessed as being in safety group B, indicating an average level of safety. The remaining 39 hospitals (55.7%) fell into safety group "C," indicating a low level of safety. None of the assessed hospitals met the criteria for a high safety level hospital. All the assessed republican hospitals (tertiary care hospitals) received higher scores on the Hospital Safety Index when

[2] United Nations International Strategy for Disaster Reduction. Sendai Framework for Disaster Risk Reduction 2015-2030. http://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf

[3] World Health Organization. Comprehensive Safe Hospital Framework. http://www.who.int/hac/techguidance/comprehensive_safe_hospital_framework.pdf?ua=1

compared to hospitals at lower administrative levels. It is therefore extremely critical that hospitals with predominantly low scores in all three categories are upgraded by the Ministry of Health in line with the recommendations provided, in order to ensure resilience of the health system in times of crisis.

Wear and tear of hospitals' structural components was the most common finding, and improved regular maintenance of hospital buildings was the most commonly recommended remedial measure to enhance facility safety. Main weaknesses in the non-structural category (i.e. water supply, electricity, ventilation systems, etc.) were the lack of alternate sources of electricity in case of failure of the main source, and the need for improvements through repairs and/or replacements of existing supply systems. Emergency and disaster management plans need to be updated and made more accessible, and relevant staff training (including simulation exercises) is needed on a regular basis in order to ensure the readiness, efficiency and functionality of existing plans, human and material assets, and systems. Funding and logistical gaps were frequent findings, as were gaps in emergency planning and relevant training.

These should be addressed under a comprehensive remedial national action plan to strengthen the health system of the Kyrgyz Republic. Such a national action plan must also have a monitoring component to ensure robust follow up and tangible progress, and should include plans to upgrade primary health care facilities across the country, as these make up the frontline of the health system. Detailed recommendations for enhancing hospital safety have been drawn up that address the key gaps and major weaknesses identified. Technical support from WHO to hospital leaders will follow, in order to help develop and implement hospital emergency preparedness and response plans, enhance readiness for mass casualty events, build emergency risk communication capacity, etc. This will form part of comprehensive technical support to the Kyrgyz Republic to help strengthen overall health systems resilience and health emergency preparedness.

It is recommended that components of hospital safety assessments be included in the Kyrgyz Republic's hospital accreditation process.

Last but not least, these assessments must be considered as complementary to (and not obviating the critical need for) the in-depth vulnerability assessments that major critical facilities such hospitals should undertake periodically.

Introduction

Health facilities are critical assets for communities. They provide lifesaving services, especially when responding to emergencies, disasters and other crises. After the earthquake in Armenia in 1988, 416 health facilities were destroyed, 24 permanently so[4]; in 2004, the Indian Ocean tsunami destroyed about 60% of the hospitals in the Indonesian province of Aceh[5]; in 2010, within the disaster zone of the Haiti earthquake, 30 out of 49 hospitals were damaged or destroyed[6]; and following the 2015 earthquake in Nepal, a rapid risk assessment conducted by WHO and the Nepalese Ministry of Health showed that hospitals in four of the worst-affected districts were completely destroyed or too badly damaged to function[7]. All of these disasters have provided evidence of how the destruction of vulnerable, non-resilient health systems in emergencies cripples health systems when they are needed the most, putting tens of thousands of already vulnerable people at increased risk of life-threatening adverse health outcomes and heightened suffering.

The importance of hospital safety and resilience was recognized in 2005 at the 2nd World Conference for Disaster Reduction in Kobe, Japan, at which 168 countries approved the Hyogo Framework for Action, agreeing to:

> "…promote the goal of 'hospitals safe from disasters' by ensuring that all new hospitals are built to a level of safety that will allow them to function in disaster situations, and implement mitigation measures to reinforce existing health facilities, particularly those providing primary health care.[8]"

On 25 January 2008, the UN International Strategy for Disaster Reduction (UNISDR) and WHO, with support from the World Bank, launched the "Hospitals Safe from Disasters" campaign[9]. In 2011, the 64th World Health Assembly adopted WHA Resolution 64.10 that advocates "strengthening national health emergency and disaster management capacities and resilience of health systems," and which urges Member States to develop safe and prepared hospitals.[10] The need to ensure hospital safety as a global priority is also reflected in the Sendai Framework for Disaster Risk Reduction for 2015–2030[11].

Having identified the need for measures to ensure the safety, security and functionality of health infrastructure at national and community levels, the Hospital Safety Index was developed by the Pan American Health Organization (PAHO) and WHO, with contributions from national experts in a variety of fields. It was released in 2008. This tool has been used to assess the safety of more than 3,500 facilities and has been adopted by many countries. Based on these experiences, and following intensive discussions and consultations, the Hospital Safety Index was revised in 2015. The Hospital Safety Index has proved to be a valuable tool (saving time and cost) in im-

[4] Krimgold F. Economic and social impacts of Armenia earthquake. Earthquake engineering. Tenth World Conference, Rotterdam. ISBN 905410605. http://www.iitk.ac.in/nicee/wcee/article/10_vol11_7011.pdf

[5] Indonesia: Preliminary Damage and Loss Assessment, The December 26, 2004 Natural Disaster. http://siteresources.worldbank.org/INTINDONESIA/Resources/Publication/280016-1106130305439/damage_assessment.pdf

[6] Haiti Earthquake PDNA: Assessment of damage, losses, general and sectoral needs. https://siteresources.worldbank.org/INTLAC/Resources/PDNA_Haiti-2010_Working_Document_EN.pdf

[7] World Health Organization. WHO issues rapid health assessment on impact of Nepal earthquake. http://www.who.int/mediacentre/news/releases/2015/health-assessment-nepal/en/

[8] United Nations International Strategy for Disaster Reduction. Hyogo Framework for Action 2005–2015: building the resilience of nations and communities for disasters 2007. http://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Hyogo-frameworkfor-action-english.pdf

[9] 2008–2009 World Disaster Reduction Campaign. Hospitals Safe from Disasters. https://www.unisdr.org/2009/campaign/pdf/wdrc-2008-2009-information-kit.pdf

[10] World Health Organization. Sixty-Fourth World Health Assembly WHA64.10. Strengthening national health emergency and disaster management capacities and resilience of health systems http://apps.who.int/gb/ebwha/pdf_files/WHA64/A64_R10-en.pdf

[11] United Nations International Strategy for Disaster Reduction. Sendai Frameworwork for Disaster Risk Reduction 2015–2030. http://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf

proving the safety and functionality of hospitals such that life-saving and other health services can be provided in emergencies and disasters.

As part of the 2016–2017 Biennial Collaborative Agreement between the MOH of the Kyrgyz Republic and WHO, assessments have been carried out in 70 hospitals in the Kyrgyz Republic.

The hospital sector in the Kyrgyz Republic

The issue of ensuring hospital safety and functioning in emergencies is extremely relevant for the Kyrgyz Republic, which is vulnerable to a range of natural disasters. Each year, the Kyrgyz Republic experiences about 200 emergency and crisis situations of various types and degrees that directly or indirectly affect the hospital sector. There is, therefore, a pressing national need to strengthen the resiliency of health systems, ensuring the availability of safe hospitals able to withstand the adverse impacts of these hazards, sustain service continuity, and cope with increased demand for services in emergencies and disasters.

Since gaining its independence in 1991, the Kyrgyz Republic has implemented two major health reform programmes of comprehensive structural change aimed at strengthening the primary health care system, developing family medicine and restructuring the hospital sector. As a result, the hospital system has undergone the following changes:

- Most hospitals have acquired national status (centres)
- United oblast hospitals have been formed
- Central rayon hospitals have been reorganized into territorial hospitals, and in some areas into centres of general medical practice.

Since 1991, the number of hospitals in Kyrgyzstan has fallen from 310 to 139. Accordingly, the number of hospital beds has been reduced from 53,305 to 25,533, which computes to 43.8 beds per 10,000 persons.

The 139 hospitals under the stewardship of the MOH include:

1. Tertiary level health organizations providing specialized health care using high-tech equipment, advanced scientific technology and highly specialized medical personnel:
    - 10 national centres and national research centres with 3,571 beds in total
    - 12 republican level health organizations with 2,615 beds.
2. Secondary level health organizations providing specialized health care in outpatient and inpatient settings:
    - 28 health organizations of oblast (regional) and interoblast level with 6,084 beds
    - 17 health organizations of municipal level with 3,550 beds
    - 44 territorial hospitals with 8,006 beds.

3. Primary level health organizations providing emergency medical care and primary health care in outpatient and inpatient settings:

    - 28 centres of general medical practice with 1,707 beds.

The overall capacity in the country can be enumerated as follows:

- 5,682 surgical beds; in cases of emergency situations and natural disasters, it is possible to add up to 2000 more beds.
- 8,050 therapeutic beds; in case of emergency, up to 1,850 beds can be added.
- 3,310 maternity and gynaecological beds, with the possibility to add up to 680 further beds.

Methodology

The hospital safety assessments were conducted using the WHO Hospital Safety Index, which was revised in 2015.[12] The methodology is based on the evaluation of 151 parameters, each of which reflects certain aspect of hospital safety and has its own weight depending on its degree of influence on the facility's safety. These parameters are grouped into three sections or modules:

1. **Structural safety**: this module evaluates the safety of a facility's structural elements, considering the type and quality of construction and materials, wear and tear on the buildings, compliance with construction and refurbishment standards, and the physical consequences of previous emergency situations that could have affected the structural safety of the buildings.

2. **Non-structural safety**: this module evaluates elements such as the safety of the hospital's critical systems (electricity power grids, water supply piping, etc.); security; architectural elements; emergency access and exit routes to and from the hospital; medical, laboratory and office equipment; supplies for analysis and treatment; etc.

3. **Emergency and disaster management:** this module assesses the level of preparedness of a hospital's organization, personnel and essential operations to provide patient services in response to an emergency or disaster.

In addition to the above mentioned modules, this assessment also considered other hazards affecting the safety of the hospital and its role in emergency and disaster management, assessing the nature of these hazards and their degree of severity.

It must be noted that the revised Hospital Safety Index methodology does not replace an in-depth vulnerability assessment or other in-depth studies of hospital safety.

This assessment was conducted by a multidisciplinary team of experts, following the evaluation criteria outlined

[12] World Health Organization. Hospital Safety Index Evaluation Form. 2nd Edition 2015. http://www.who.int/hac/techguidance/preparedness/hospital_safety_index_forms.pdf

by the *Hospital Safety Index guide for evaluators.*[13] The assessment included a review of documents, interviews with hospital personnel, and visual inspections. The results of the assessment were documented in the Hospital Safety Checklist[14] and were processed using the Hospital Safety Index Calculator[15] application.

The Hospital Safety Index represents a value expression of the safety of the assessed hospital — i.e. its ability to withstand the impact of the factors that caused the emergency, while managing to operate at its maximum possible capacity. The value of the Hospital Safety Index can vary from 0.00 to 1.00. Depending on the safety index score, the hospital being assessed can be assigned to one of three groups:

Group A - high safety level: if the value of the index is between 0.66 and 1.00

Group B - average safety level: If the value of the index is between 0.36 and 0.65

Group C – low safety level: if the value of the index is between 0.00 and 0.35.

The same principle is used to classify hospitals' module-specific safety index scores, with the corresponding groups denoted by scores in lower case letters (a, b and c,). Thus, the full safety group classification of a hospital is indicated as follows: A (aba), B (bbc), C (ccb), etc., where the capital letter represents the hospital's overall safety index score group, and the lower case letters represent the safety index score of each module.

Results

70 hospitals in the Kyrgyz Republic were assessed in the three categories of the Hospital Safety Index. The main hazards identified[16] for the Republic were as follows:

- **Threats with high risk** included earthquakes (average probability of occurrence with a high degree of possible impact), mudflows, floods and landslides (high probability of occurrence with an average degree of impact).
- **Threats with average risk** included fires, accidents causing damage to vital hospital supply systems (power grids, water supply, piping, heating, etc.), mass casualties in road traffic accidents, major accidents at hazardous industrial facilities, and patients affected by epidemics or outbreaks of infectious diseases.
- **Threats with low risk** included meteorological hazards (winds, showers, snowfalls, hail, etc.) and threats from radioactive waste from mining.

Structural safety

Evaluation of structural safety was based on visual expert evaluation and information obtained by initial reviews of technical documents and the materials and technologies used in the construction and retrofitting of the hos-

[13] World Health Organization. Hospital safety index guide for evaluators – 2nd Edition.2015 http://www.who.int/hac/techguidance/hospital_safety_index_evaluators.pdf

[14] World Health Organization. Safe Hospital Checklist file:///C:/Users/regmij/Downloads/HSI_SafeHospitalsChecklist.pdf

[15] Pan American Health Organization. Hospital Safety Index Calculator. http://www.paho.org/disasters/index.php?option=com_content&view=category&layout=blog&id=907

[16] Hazards identified and prioritized as part of United Nations Inter-Agency Contingency Planning

pitals, and assessing them for compliance with the normative standards set forth by national legislation. Many hospitals are composed of older and newer buildings with inherently different safety standards, and assessment focuses mainly on the hospitals' critical components: intensive care units, operating theatres, emergency departments, patient tracts, and infectious diseases and laboratory facilities. On inspection, the vast majority of hospital buildings showed significant signs of wear and tear including cracks, damaged walls and damaged foundations as a result of previous earthquakes and poor and untimely repairs. It was difficult to assign unambiguous safety ratings to the structural components of all the buildings of particular hospitals. It should be noted that according to the conclusions of local technical commissions, some hospital complexes have buildings that are in disrepair after multiple incidents of structural damage, and require detailed engineering assessments by specialized organizations.

Non-structural safety

Evaluation of non-structural safety revealed the entrances, windows and roofs of the hospitals to be satisfactory. Most hospitals in the region lack elevators, and of those that do exist, some are inoperable. The locations of the hospitals' critical systems and equipment are protected from potential threats. Access routes to all hospitals, exits and evacuation routes are marked and free from obstacles—although unauthorized parking at the hospital ground was a noted problem, and sometimes even blocked emergency entrances. All hospitals are supplied with electricity from local electrical networks; transformer substations located on the hospitals' compounds are mostly owned and serviced by the relevant electricity suppliers. Generators are widely available, but the available fuel supply at any given time does vary. External and internal communication in the assessed hospitals is provided by the city telephone network and personal mobile phones of the hospital staff. Alternate means of communication (for example, portable radios and internal telephone networks) do not exist. Most hospitals are connected to the internet. All hospitals lack early warning systems to alert patients, staff and visitors to threats or emergencies.

Of all hospitals, 24% are supplied with drinking water through their own artesian well, 70% receive it from local networks that do not always supply water consistently, and 6% have a combined water supply system. The majority of hospitals have a fire protection system consisting of fire hydrants connected to water supply networks, but hospitals are not equipped with smoke detectors and automatic fire extinguishing systems. Waste water from those hospitals that are located in the vicinity of a local sewerage network (roughly 55%) is transported to those networks. Waste water from hospitals located in communities without a local sewerage network (roughly 45%) is withdrawn and collected in septic tanks at the hospital site, and subsequently disposed of.

The supply of fuel and lubricants to all hospitals is carried out from gas stations on the basis of signed contracts. In case of an increase in the level of demand for fuel (including in emergencies), there is provision to increase the volume of acquisitions from existing suppliers as well as to receive fuel from state reserves. The supply of medical gases to the treatment units of most hospitals is carried out through oxygen concentrators installed in operating, maternity and resuscitation units. Most hospitals have an independent heating supply system. The supply of hot water is mainly from electric boilers of various capacities installed in hospital units according to need.

Supplies and equipment for office and storage facilities are stored in warehouses on shelves and pallets which are not fixed to walls, and which hence pose a risk of falling. Cabinets have glass doors that could break in case of a fall and injure staff and patients. In general, medical and laboratory equipment in most of the hospitals is in working order. Life support equipment, where available, is securely fixed. Unauthorized parking on hospital premises is a common and serious problem across the hospitals assessed, and includes the alarming practice of parking across the entrance to emergency rooms.

Emergency and disaster management

In 20% of the hospitals, a Commission for Emergency Situations (CES) is established to prepare for and respond

to emergencies. The CES comprises representatives from all units and services involved in the emergency response. In accordance with the Law of the Kyrgyz Republic No. 239 on Civil Protection of July 20, 2009, 10% of the assessed hospitals have vacant positions for specialists in civil protection, whose duties include planning and preparation for, and response to, emergencies.

An Operative Coordination Group (OCG) for the operational coordination of response and disaster relief is not set up in most hospitals. Plans for coordination and communication with institutions and enterprises that would provide the necessary support to a hospital in an emergency are included in the territorial plan of civil protection; but the information necessary to enable this was not available in all hospitals.

Almost all hospitals lacked a developed or approved hospital emergency and disaster management response and recovery plan in accordance with the governing "Emergency Response Plan" document. In most of the hospitals with a hospital emergency and disaster management response and recovery plan, the main activities, procedures and responsible stakeholders in the event of a danger or emergency are indicated; but the plans are not regularly updated or amended.

Practical trainings, drills and simulation exercises are not conducted in any hospital.

Internal and external communication in the event an emergency is provided through fixed and mobile phones. No hospital has an alternate means of communication (for example, a radio station). Procedures that ensure the safekeeping of documents and medical records are specified in the relevant internal regulatory documents. Human capacity to fulfil daily routine activities in tertiary and secondary level hospitals is high; but hospitals in remote regions have low staffing levels, which can cause difficulties in the event of an emergency. In most hospitals, staff duties in case of emergency are indicated in the service instructions. However, drills are not carried out regularly, and do not involve police and firefighters. Duties related to logistics and supplies during an emergency are carried out on the basis of contracts and agreements with the relevant suppliers, in accordance with established procedures. All hospitals have a certain number of vehicles that cover those facilities' respective needs for day-to-day activities, but the number of vehicles may be insufficient in case of emergencies.

No hospital assessed had an existing Memorandum of Understanding (MOU) or any other contract with essential suppliers to meet critical surge needs in case of a potential hospital emergency. Hospitals do carry out emergency practical drills, but these are mainly confined to staff evacuation in case of fire alarms and are carried out in individual wards, not as total facility evacuation drills flanked by first responders (i.e. fire brigades and police).

In general, all hospitals are supplied with personnel protective equipment (PPE) for use in case of contamination with infectious agents, but are only partially equipped for contamination by chemical and/or radioactive substances. None of the hospitals are equipped for degassing and decontamination in case of exposure to chemical or radiological agents.

Crowd management in hospitals during emergencies is provided by the facilities' security personnel and public order groups (consisting of the institutions' employees), and supported by the territorial subdivisions of the Ministry of Internal Affairs.

Analysis of the Hospital Safety Index scores

The HSI scores of the evaluated hospitals vary from 0.21 (Kurshab CGMP) to 0.55 (Issyk-Kul UOH).

The distribution of safety groups across the different hospital types is reflected in Diagram 1 and Annex 1.

It is noteworthy that none of the 70 evaluated hospitals scored higher than 0.66, which would allow them to be assigned to safety group "A," showing a high level of safety.

Diagram 1: The number and share of hospitals assigned to different safety groups based on HSI score

In 31 of the evaluated hospitals (or 44.3% of the total), the value of the HSI ranges between 0.36 and 0.65, putting them in safety group "B," an average safety level. In the remaining 39 hospitals (55.7%), the value of the HSI is below 0.36, putting them in safety group "C," a low safety level.

Analysis of the safety indexes of various categories of hospitals indicates that the HSI scores of all four republican hospitals and both municipal hospitals is between 0.36 and 0.65, indicating an average level of safety. The HSI scores of the seven oblast hospitals indicate that five (71.4% of the total) achieve an average level of safety, and two (28.6%) have a low level of safety. The HSI scores of territorial hospitals show that slightly more than half of them (19 hospitals or 52.8% of the total) have an average level of safety, and the remaining 17 (47.2%) have a low safety level. Only three (14.3%) of the CGMP achieve an average safety level, while the remaining 18 (85.7%) have a low safety level.

The analysis of the average HSI scores of different categories of hospitals (Table 1) indicates that the overall average HSI score for all evaluated hospitals is 0.36. This average indicates that the evaluated hospitals, when viewed as a group, achieved safety group "B", an average safety level. At the same time, it is necessary to take into account the discrepancy between hospital types: the average scores of republican, oblast and municipal hospitals — respectively 0.51, 0.42 and 0.40 — indicate an average level of safety for each group, but averages for territorial hospitals and CGMPs — respectively 0.35 and 0.33 — show low safety levels.

Table 1: Average value of safety indexes (red = low safety level; yellow = average safety level; green = high safety level)

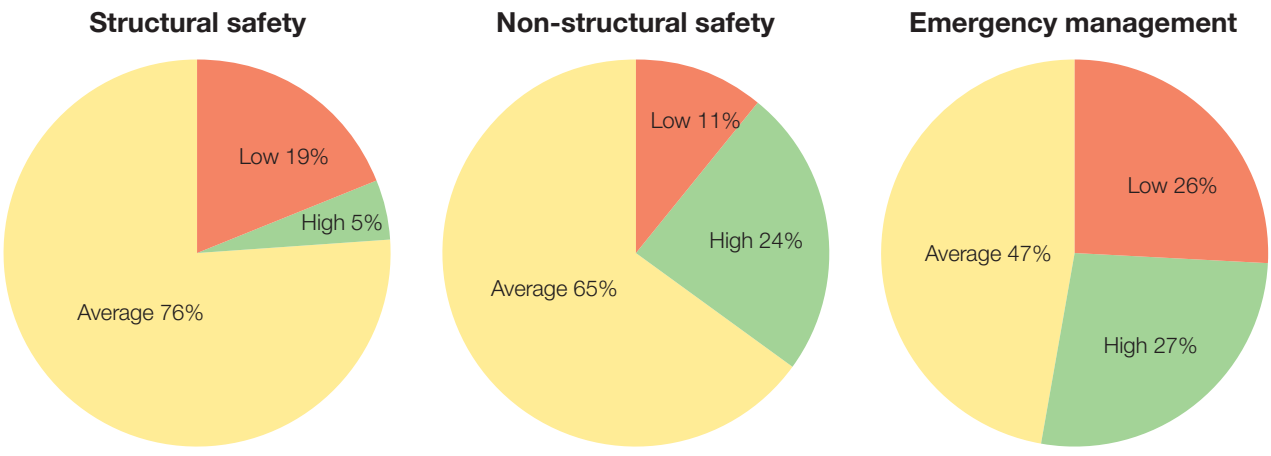
№	Category of hospitals	Overall HSI	HSI for components			Safety groups
			Structural	Non-structural	Emergency management	
1	Republican hospitals	0.51	0.52	0.40	0.66	**B(bba)**
2	Oblast (regional) hospitals	0.42	0.46	0.34	0.40	**B(bcb)**
3	City hospitals	0.40	0.42	0.33	0.47	**B(bcb)**
4	Territorial hospitals	0.35	0.41	0.28	0.30	**C(bcc)**
5	Centers of general medical practice	0.33	0.41	0.25	0.25	**C(bcc)**
	All assessed hospitals	0.36	0.42	0.29	0.32	**B (bcc)**

Analysis of the average HSI scores of different safety components (i.e. structural and non-structural safety and emergency management) shows that the structural safety component across all hospitals indicates an "average" level of safety (with an average score of 0.42), while the average scores for the non-structural and emergency management safety components are 0.29 and 0.32 respectively, indicating low safety levels.

Taken as a group, republican hospitals' structural and non-structural components have an average safety level, while their average emergency and disaster management score shows a high safety level. In oblast and municipal hospitals, structural and emergency and disaster management safety is at an average level, while non-structural safety is at a low level. The structural safety component of territorial hospitals and CGMPs is at an average level, and the non-structural and emergency and disaster management components are assessed as having a low level of safety.

Across all assessed hospitals (Diagram 2, Table 2) the safety parameter with the largest proportion of "low" safety level scores (26%) was the emergency management component. This was followed by structural safety (19%) and non-structural safety (11%).

Diagram 2: Proportion of safety level values per parameter, across all assessed hospitals



Conclusions

The issue of hospital safety and continued hospital functioning in emergencies, disasters and other crises is extremely relevant to the Kyrgyz Republic.

The 70 hospitals selected for assessment represent a considerable proportion (around 50%) of all 139 hospitals in the country, and the assessments' findings together paint a representative picture of challenges and limitations to hospital safety across all facilities. It would also be safe to presume that the situation may not radically differ in the remaining, unassessed 50% of hospitals in the country. Findings underscore a dire and urgent need to invest in improving the overall function and safety level of the hospitals of the Kyrgyz Republic.

None of the assessed hospitals met the criteria for a hospital with a high level of safety. Less than half of the evaluated hospitals (31 hospitals or 44.3%) were classified in safety group B, indicating an average level of safety, while the remaining 39 hospitals or 55.7% were classified in safety group C, indicating a low level of safety.

The classification results cannot overemphasize the clear conclusion that hospitals in the Kyrgyz Republic need to be strengthened to ensure the resilience of the health system.

The average value of the index scores for the respective safety components of all evaluated hospitals were highest for the structural safety index (an average score of 0.42), followed by the emergency and disaster management safety index (0.32), and then the non-structural safety index (0.29).

Relatively speaking, the emergency management safety index scores of republican hospitals are higher than those of other hospitals, suggesting that the central hospitals are best prepared to respond to national emergencies.

The main, recurring gaps identified during the assessment are as follows:

- **Structural safety**: inspections found issues including cracks in bearing and non-bearing walls, lintels and plates; signs of damage to foundations (which could be worsened by rain); unsealed or poorly sealed expansion joints allowing moisture to get between panels in several buildings; damaged rooftop coverings; shortcomings in maintenance and proper use of buildings; etc.

- **Non-structural safety**: inspections found issues with the utility networks (electricity, water supply, sewerage, etc.) in the majority of hospitals, requiring repair or replacement; inadequate or non-existent capacity to ensure availability of alternate sources of power, water supply and heating; shortcomings in fire safety; non-operational or non-existent drainage systems from rooftops; poorly operational or absent ventilation and climate control systems; and blockage of entrances through unauthorized parking on hospital premises.

- **Emergency management**: inspections found issues with: a lack of efficiency and functionality in hospital commissions for emergency situations and in emergency operational groups; gaps in, and irregular updating of, emergency preparedness and response plans; insufficient trainings, drills and simulation exercises; insufficient capacity and resources for providing emergency medical care for large numbers of patients; insufficient staffing of hospitals; absence or insufficient quantity of stockpiles to deal with identified hazards; inadequate funding; etc.

Critical gaps:

- No MOUs are in place with relevant contractors/suppliers to cover urgent/critical needs in emergencies. These need to be put in place immediately.

- The emergency drills that are currently conducted are limited in scale and scope, and thus inadequate; drills should cover all facilities and staff, and should be carried out in coordination and collaboration with relevant Police and Fire Departments.

- Staff do not know their roles and responsibilities in emergencies. Job Action Sheets (JAS) need to be prepared that cover emergency roles and responsibilities.

- Unhindered, safe access to the entrances of emergency units is often not available; the practice of un-authorized parking inside hospital premises must be discontinued through enforcement of parking rules.

- Hospital Emergency Preparedness and Response plans are outdated, inadequate or incomplete. The WHO Regional Office for Europe can provide technical assistance through capacity building and on-the-job training to develop/improve and test hospital emergency preparedness and response plans, and through identifying relevant stakeholders to strengthen emergency readiness and response.

- Mass Casualty Incident Management (MCIM) plans, capacities and capabilities are inadequate and insufficient. The WHO Regional Office for Europe can provide technical assistance, including on-the-job training to improve MCIM capacities and capabilities.

Recommendations to strengthen hospital safety in the Kyrgyz Republic

General measures

1. Develop and implement a national programme to strengthen the safety of health care facilities, including primary health care facilities.

2. Each evaluated hospital should put in place a plan with tasks, responsibilities and a timeframe to implement most of the recommendations of their hospital safety assessment, in order to develop and implement measures to address the identified gaps and shortcomings.

3. Set aside a budget in the MOH, the Medical Insurance Fund and health care facilities to fund preparedness and response activities to address identified emergencies.

4. Ensure that the checklist for hospital accreditation includes parameters for the safety of hospitals during emergencies, disasters and other crises.

5. Assessed hospitals may be re-visited after 3-5 years to monitor progress in implementing the recommendations and improving hospital safety.

6. Costed proposals for improving hospital safety by addressing the findings and recommendations of this

assessment may be developed by relevant health authorities, for use in advocacy and resource mobilization with appropriate international donors. WHO will be glad to provide technical assistance in this regard.

7. Hospital staff should be trained in emergency response management. Job action sheets should be provided to key persons.

Measures to strengthen hospital structural safety

8. Carry out construction, renovation, rebuilding, retrofitting, alterations, and modernization of health care buildings to ensure they are in full compliance with the normative rules set forth for constructions by the national government.

9. Conduct regular evaluations of the structural elements of hospital buildings, and carry out timely interventions when needed.

10. Conduct a detailed assessment of the seismic resistance of the buildings in order to determine the degree of safety of each building and the possibility of further usage.

11. Plan and execute repair and restoration works based on the above assessment, aiming to consolidate cracked foundations, bearing walls and other structural elements.

12. Implement the urgent transfer of treatment subdivisions from damaged buildings to safe ones.

13. Ensure that unused damaged buildings that may pose a threat to patients, staff, visitors and other buildings are written off the balance sheet of hospitals in accordance with the established procedure, and then demolished.

14. Undertake measures to prevent penetration of water under the foundations and in the basements of hospital buildings.

15. Install drainage systems for hospitals located in areas with high groundwater levels and/or which are susceptible to mudflow flooding.

16. Draw up a technical blueprint for each hospital building and reflect in it all relevant technical data regarding the necessary interventions (repair, reconstruction, expansion, etc.) and the building's status.

Measures to strengthen non-structural hospital safety

17. Provide all health care facilities with alternate sources of power, water supply, heating, etc., which, in case of need, would cover at least half of the institutions' needs.

18. Plan for and carry out the appropriate maintenance, regular repair and renewal of critical systems (power, water supply, sewerage, heating, etc.) in all hospitals.

19. Ensure safe transportation, storage and usage of oxygen and other medical gases.

20. Plan and carry out repair and restoration works for damaged rooftop coverings. Install, repair or restore water gutters and windproof systems.

21. Speed up the replacement of doors and windows.

22. Plan and carry out the repair of damaged facades and protective door visors above the entrances into buildings.

23. Ensure the connection of all internal and external fire hydrants to water supply networks, and ensure that they are appropriately equipped and are functional.

24. Ensure strict compliance with fire safety rules and regulations in health care facilities.

25. Conduct technical assessments of and, if necessary restore, the integrity and functionality of existing fire-fighting water tanks.

26. Install fire and smoke detectors in hospitals, as well as early warning systems to alert patients, staff and visitors about threats or emergencies.

27. Ensure all hospitals have clear, well-defined markings for all escape routes and exits in case of fire or other emergencies.

28. Correctly install power generators and fix them to their bases with anchor bolts. Assign persons responsible for use and maintenance of generators.

29. Install fixing and brake control devices on mobile medical equipment.

30. Secure and fix all stationary medical equipment, furniture and shelves to the walls and/or floors. Set the limiting edges on shelves.

31. Restore and repair hospital fences.

32. Install service car parks or parking lots in all hospitals, to keep emergency entrances and other entrances unobstructed and free of vehicles.

Measures to strengthen emergency and disaster management

33. Revise old hospital emergency preparedness and response plans (or develop new ones) based on modern approaches.

34. Regularly update all hospital emergency preparedness and response plans, working jointly with other stakeholders responsible for ensuring preparedness and response to emergencies (i.e. local public authorities, civil protection authorities, utilities companies, etc.), according to the Law of the Kyrgyz Republic “About Civil Protection” of July 20, 2009, No. 239 (in edition of the Laws of the Kyrgyz Republic of 13.07.2012 No.108, 18.03.2017 No. 46).

35. Ensure prompt notification and effective management of emergency response actions by hospital commissions for emergency situations and emergency operational teams.

36. Plan, regularly update, and provide the logistics necessary to implement, measures to increase hospital capacity in the event of a large number of sick and injured patients.

37. Strengthen logistics capacities to stockpile the necessary drugs, consumables, general maintenance supplies, drinking water, food, fuel etc.

38. Provide alternative sources of medical gases designed for emergency situations when oxygen concentrators fail or there are power outages (i.e. specialized oxygen cylinders).

39. Ensure unhindered access to hospitals for special vehicles (ambulances, fire vehicles, public utilities vehicles, etc.), while restricting access for unauthorized transportation.

40. Prevent congestion and traffic obstruction around hospital entrances and perimeters.

41. Ensure the locations of hospitals are indicated by appropriate road signs.

42. Develop and carry out training programmes for all relevant staff (managers, health workers, administrative and technical personnel, etc.) on their roles during emergencies. Develop relevant standard operating procedures (SOPs) and toolkits.

43. Develop and implement a national system of medical triage for mass casualties and crowd management during emergencies and disasters.

44. Plan and regularly conduct practical training and simulation exercises to reinforce individuals' roles in case of emergencies. Update relevant documents and identify necessary trainings based on the results of the trainings and exercises carried out.

Way forward

Structural and non-structural challenges identified in this report require financial investment to improve the safety and operational capabilities of the hospitals. The MOH of the Kyrgyz Republic and other relevant stakeholders will need to work together to identify resources and prioritize investments by each hospital. WHO will continue to be a critical support partner in this endeavour.

Emergency and disaster management is primarily an issue of capacity building and training of staff, and updating relevant guidelines, plans, SOPs, simulation drills, etc. WHO will provide technical support to the MOH to support implementation of report recommendations in this area; to ensure the appropriate training of hospital staff in emergency management, mass casualty incident management (MCIM), and development of SOPs; and to assist hospital drills to test the instituted systems and plans.

Lastly, now that the UNISDR agenda of 2008 has been updated by the Sendai Framework 2015–2030, WHO will work with the MOH to ensure fidelity to the health sector guidance and recommendations within the Sendai Framework.

Annex 1

HSI scores by category

Green: high safety level Yellow: average safety level Red: low safety level

№	Hospital	Overall safety index score	Safety indexes for components			Safety groups
			Structural	Non-structural	Emergency Management	
	Republican hospitals					
1	MOH of the Kyrgyz Republic National Hospital	0.54	0.44	0.49	0.84	**B(bba)**
2	Bishkek Scientific Centre of Traumatology and Orthopedics	0.54	0.59	0.37	0.69	**B(bba)**
3	National Centre for Cardiology and Therapy	0.50	0.50	0.42	0.64	**B(bbb)**
4	National Surgical Centre	0.47	0.56	0.31	0.47	**B(bcb)**
	Average value	**0.51**	**0.52**	**0.40**	**0.66**	**B(bba)**
	Oblast hospitals (OH)					
1	Issyk-Kul UOH	0.55	0.49	0.53	0.76	**B(bba)**
2	Osh UOH	0.52	0.64	0.36	0.45	**B(bbb)**
3	Jalal-Abad UOH	0.43	0.51	0.34	0.37	**B(bcb)**
4	Naryn UOH	0.37	0.43	0.31	0.30	**B(bcc)**
5	Chuy UOH	0.35	0.43	0.25	0.29	**B(bcc)**
6	Talas UOH	0.34	0.37	0.32	0.32	**C (bcc)**
7	Batken UOH	0.33	0.37	0.25	0.33	**C (bcc)**
	Average value	**0.42**	**0.46**	**0.34**	**0.40**	
	City hospitals					
1	Bishkek Clinical city hospital №1	0.42	0.43	0.29	0.56	**B(bcb)**
2	Osh Clinical City Hospital	0.39	0.41	0.36	0.38	**B(bbb)**
	Average value	**0.41**	**0.46**	**0.34**	**0.40**	**B(bcb)**
	Territorial hospitals (TH)					
1	Ak-Suu TH	0.46	0.41	0.39	0.66	**B(bba)**
2	Jayyl United TH	0.43	0.45	0.27	0.59	**B(bcb)**
3	Uzgen TH	0.41	0.41	0.34	0.54	**B(bcb)**
4	Nookat TH	0.39	0.41	0.35	0.39	**B(bcb)**
5	Nooken TH	0.39	0.41	0.41	0.33	**B(bbc)**

№	Hospital	Overall safety index score	Safety indexes for components			Safety groups
			Structural	Non-structural	Emergency Management	
6	Tokmok TH	0.39	0.45	0.33	0.32	**B(bcc)**
7	Balykchy TH	0.39	0.45	0.32	0.33	**B(bcc)**
8	Toktogul TH	0.38	0.39	0.36	0.37	**B(bbb)**
9	Ysyk-Ata TH	0.38	0.43	0.30	0.35	**B (bcb)**
10	Keminsk TH	0.38	0.43	0.29	0.35	**B (bcb)**
11	Issyk-Kul TH	0.38	0.45	0.34	0.28	**B(bcc)**
12	Kochkor TH	0.38	0.45	0.34	0.27	**B(bcc)**
13	Sokuluk TH	0.38	0.43	0.29	0.40	**B (bcb**
14	At-Bashy TH	0.37	0.43	0.36	0.25	**B(bbc)**
15	Aksy TH	0.36	0.39	0.28	0.39	**B(bcb)**
16	Suzak TH	0.36	0.39	0.31	0.36	**B(bcb)**
17	Leilek TH	0.36	0.44	0.28	0.28	**B(bcc)**
18	Moskovsky TH	0.36	0.43	0.30	0.28	**B(bcc)**
19	Chuy TH	0.35	0.41	0.27	0.31	**B(bcc)**
20	Jumgal TH	0.34	0.45	0.27	0.17	**C (bcc)**
21	Tup TH	0.34	0.45	0.27	0.16	**C (bcc)**
22	Ala-Buka TH	0.33	0.37	0.26	0.34	**C (bcc)**
23	Tong TH	0.33	0.45	0.24	0.16	**C (bcc)**
24	Kara-Suu Children TH	0.32	0.45	0.21	0.14	**C (bcc)**
25	Aravan TH	0.32	0.39	0.26	0.24	**C (bcc)**
26	Kyzyl-Kiya TH	0.32	0.39	0.24	0.29	**C (bcc)**
27	Bazar-Korgon TH	0.31	0.39	0.23	0.23	**C (bcc)**
28	Kara-Kulja TH	0.31	0.39	0.23	0.24	**C (bcc)**
29	Ak-Talaa TH	0.31	0.41	0.27	0.13	**C (bcc)**
30	Talas TH	0.31	0.39	0.25	0.21	**C (bcc)**
31	Kara-Buura TH	0.31	0.34	0.33	0.20	**C (ccc)**
32	Kara-Suu TH	0.31	0.34	0.29	0.28	**C (ccc)**
33	Alay TH	0.29	0.37	0.22	0.21	**C (bcc)**
34	Tash-Kumyr TH	0.29	0.34	0.23	0.26	**C (ccc)**
35	Kadamjay TH	0.26	0.34	0.15	0.25	**C (ccc)**
36	Kochkor-Ata TH	0.25	0.35	0.14	0.17	**C (ccc)**

№	Hospital	Overall safety index score	Safety indexes for components			Safety groups
			Structural	Non-structural	Emergency Management	
	Average value	**0.35**	**0.41**	**0.28**	**0.30**	**C (bcc)**
	Centres of general medical practice (CGMP)					
1	Myrza Ake CGMP	0.52	0.64	0.36	0.45	**B (bbb)**
2	Mailuu-Suu CGMP	0.41	0.41	0.34	0.50	**B (bcb)**
3	CGMP Bakay-Ata	0.37	0.45	0.31	0.25	**B(bcc)**
4	Kara-Kul CGMP	0.35	0.39	0.29	0.37	**C (bcc)**
5	Khaidarkan CGMP	0.35	0.42	0.28	0.29	**C (bcc)**
6	Shamaldy-Say CGMP	0.35	0.39	0.28	0.34	**C (bcc)**
7	Toguz-Toro CGMP	0.34	0.41	0.26	0.27	**C (bcc)**
8	Jeti-Oguz CGMP	0.34	0.45	0.26	0.19	**C (bcc)**
9	Suluctu CGMP	0.34	0.39	0.24	0.39	**C (bcc)**
10	Chatkal CGMP	0.34	0.37	0.34	0.27	**C (bcc)**
11	Manas CGMP	0.33	0.43	0.30	0.14	**C (bcc)**
12	Suusamyr CGMP	0.33	0.41	0.27	0.23	**C (bcc)**
13	Panfilov CGMP	0.32	0.43	0.23	0.19	**C (bcc)**
14	Ananjevo CGMP	0.31	0.45	0.23	0.05	**C (bcc)**
15	Sumsar CGMP	0.30	0.39	0.21	0.19	**C (bcc)**
16	Orlovka CGMP	0.30	0.43	0.19	0.14	**C (bcc)**
17	Kok-Zhangak CGMP	0.29	0.37	0.16	0.30	**C (bcc)**
18	Jany-Jer CGMP	0.29	0.43	0.18	0.09	**C (bcc)**
19	Chong-Alay CGMP	0.28	0.35	0.21	0.21	**C (ccc)**
20	Min-Kush CGMP	0.27	0.39	0.19	0.11	**C (bcc)**
21	Kurshab CGMP	0.21	0.27	0.12	0.18	**C (ccc)**
	Average value	0.33	0.41	0.25	0.25	**C (bcc)**

The WHO Regional Office for Europe

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World Health Organization Regional Office for Europe
UN City, Marmorvej 51, DK-2100 Copenhagen Ø, Denmark
Tel.: +45 45 33 70 00 Fax: +45 45 33 70 01
Email: eurocontact@who.int
Website: www.euro.who.int