

HEALTH FACILITY RECOVERY PLAN DUE TO DISASTER AND APPLICATION OF ISO 22301 STANDARD

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Abstract Using the tools of the World's Health Organization, after the evaluation of the safety index of health institutions, it is necessary to create a Recovery Plan due to disasters that have been recognized and determined by the Disaster Risk Assessment. Several key, fundamental elements are recognized: a well-organized system of safety and health at work; integrative approach of four areas; fire protection, emergency situations, safety and health at work and environmental protection; acting in accordance with relevant and/or already introduced standards; application of the ISO 22301 standard; preparation of relevant procedures as well as the recovery plan for health institutions in case of recognized, potential and established dangers such as: earthquakes, floods, biological (epidemics, pandemics), terrorism, fires, major traffic accidents and others. The need to define efficiency in two directions of action is shown: quick action and transition from regular work to work in emergency situations, as well as quick action and transition to regular work after emergency situations. The effectiveness of actions is based on defined procedures and plans, their implementation at all horizontal and vertical levels, good training of internal stakeholders and continuous cooperation with the emergency sector and other external stakeholders. The factor "time" is the basic element and criterion of efficiency, that is, timely action and action with the application of measures for safe and healthy work both in extraordinary and regular work activities. The application of the ISO 22301 standard and the PDCA control matrix of potential risk should provide postulates for an effective model of behavior through a SWOT analysis of the business in the given circumstances. ISO 22301 is an international standard that helps organizations establish business continuity plans to protect them and help them recover from disruptive incidents when they occur. It also helps to identify potential threats to the organization's business and define and build capacity to cope with unforeseen events.

Keywords: ISO 22301; health facility recovery plan; security index and risks; PDCA risk control matrix; SWOT analysis.

1. HOSPITAL SAFETY INDEX

Defining the hospital safety index is a necessary step in the effort to improve the functionality of the hospital during and after emergency situations. By evaluating the safety index, we get the result of the hospital's readiness to organize efficiently and quickly during an emergency situation, as well as quickly transitioning to a regular regime after exiting the emergency regime and rapid recovery after emergency situations. We also detect weaknesses that affect the hospital's effective responses during emergency situations.

Assessment is done through four modules and numerous sub-modules. Modules:

1. Hazards that affect the safety of the hospital and the role of the hospital in the management of emergency situations and disasters: geological, hydrological, biological, technological, social;
2. Structural safety: safety of the construction of hospital facilities;
3. Non-structural security: telecommunications system, alternative sources of water, electricity, medical gases and energy sources; state of safety of medical equipment; fire protection systems; waste management system; equipment and supplies - office, ICT, in all organizational units and services, life support equipment and so on;
4. Management of emergency situations: well-organized management systems: emergency situations, safety and health at work, incident management; coordination with internal and external stakeholders and coordination mechanisms, agreements with the health network as well as the emergency sector of the MUP; human resources, communication and information management; patient triage procedures in emergency situations, patient referral and transfer system; defined procedures for emergency treatment [1].

The standardized "tool" designed by the World Health Organization is a universal matrix for evaluating the hospital safety index. This so-called SWOT analysis gives us the possibility of improving the safety index by undertaking appropriate projects for the improvement, i.e. the optimal functioning of the hospital in an emergency situation and after that situation to respond with full, maximum capacity with a fully functional infrastructure, i.e. that its functionality does not change when the situation changes. On the contrary, it works at full capacity in all cases and at all stages before, during and after an emergency situation, regardless of the necessary urgent changes to procedures and work organization. With this assessment, we accurately define weaknesses and make suggestions for improving the system. In this situation, we can be helped by experts hired from existing resources as well as external ones.

With risk assessments, procedures, programs and plans, these procedures must be planned, predicted, checked and, most importantly, well-rehearsed. Continuous cooperation with external stakeholders and simulating emergency situations will contribute to the rapid, safe and timely response of staff in emergency situations.

2. THE ROLE OF THE ISO 22301 STANDARD

ISO 22301[2] is an international standard that helps organizations establish business continuity plans to protect and support disruptive incidents or emergencies when they occur. It helps organizations to identify potential threats to business and to improve the capacity to act in incident situations or events. To minimize the impact of sudden potential business interruptions, work in emergency situations.

ISO 22301 is a standard that provides a common framework for all management system standards. In this way, consistency is ensured, harmonization of different management system standards. The application of Deming's (PDCA) cycle represents a process approach to quality management in accordance with the ISO 9001[3] standard, and the basic postulate is that the efficient functioning of the institution depends on the interdependence of its processes as a controlled set of activities.

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The PDCA (plan, implement, control, improve) principle is the basic key to applying the ISO 22301 standard in order to continuously improve business efficiency. The process approach involves actions:

1. P (Eng. plan) – planning and establishment of goals and processes necessary to achieve results in accordance with the requirements of service users and the organization's policy;
2. D (eng.do) – application of those processes;
3. C (eng.check) – monitoring and measurement of processes and products (results, efficiency of undertaken activities) with regard to the set policy, goals and requirements;
4. A (eng.act) – taking action to further improve the process.

The interaction of the PDCA methodology and the process approach form the foundation of the quality management system according to the ISO 9001 standard.

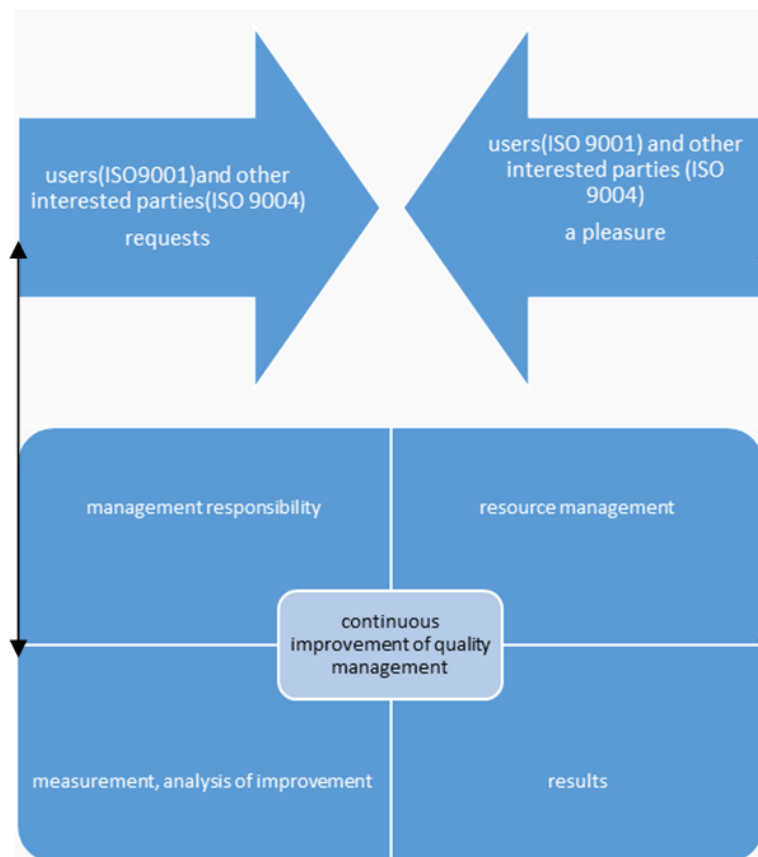


Figure 1. PDCA (Deming Circle).

The four components that rely on the ISO 22301 standard, and are essential in the development of an institution's recovery plan after an emergency situation, are:

1. the concept of continuous business (working at full capacity) - take into account the context of the institution - the environment in which it operates, including internal and external factors that can affect plans for continuous business.

2. interested parties: persons or institutions that can influence, be affected or consider that they can be influenced by a certain decision or activity. These can be external collaborators-suppliers, state institutions, private health institutions, non-governmental and other organizations; successful businessmen;
3. Management requirements that declare the commitment of top management to direct and control the organization at the highest level of safety index;
4. performance evaluation - involves measuring the performance and effectiveness of BCMS (methodology of continuous business system) and involves defining methods for monitoring, measurement, analysis and evaluation in order to ensure valid results, i.e. monitoring parameters.

It is necessary to take into account and define the maximum acceptable interruption of the regular work regime - the time it would take for the negative impacts to become controlled. More precisely, determine the "maximum tolerable period of disruption" acceptable for the functioning of the institution without interruption in an emergency situation. That the institution can achieve its primary goal, the provision of health services during the transition from a regular to an extraordinary form of organization of work and business. When the priorities are determined, which are the critical weaknesses of the institution and activities, which need to be managed in a controlled manner and to undertake recovery after critical situations. Also, it is necessary to define the order and time of recovery for critical activities and in relation to critical activities. This means: define activities, communication, procedures, plans, responsibilities, allocation of human and material resources, cooperation of internal and external stakeholders.

Kesetovic and Kekovic cite Diljoti and Ronaldo as one of the definitions of crisis management "...as the ability of an organization to act quickly, efficiently and effectively in possible operations aimed at reducing threats to human health and safety, reducing damage to public or corporate property, reducing adversely affecting the continuation of normal business or other operations" [4].

The same authors also state: "Crisis management can be defined as a set of functions or processes that aim to identify, study and predict possible crisis situations and establish specific ways that will enable the organization to prevent a crisis or to deal with it and overcome it, while minimizing its consequences and returning to normal as quickly as possible" [5].

3. RECOVERY PLAN OF THE HEALTHCARE INSTITUTION

The application of PDCA with the application of the ISO 22301 standard as an umbrella standard for all relevant standards in the functioning of a healthcare facility contains the structure of the healthcare facility's recovery plan after an emergency situation.

The recovery plan of the health institution contains measures, procedures, procedures for the fastest possible continuation of the institution's regular functioning after an emergency situation. Analogous to how disaster risk assessments should include measures, activities and a disaster response plan, a disaster recovery plan should also include elements of recovery. The elements of a recovery plan are:

1. measures for the continuity of recovery of the institution, which include: organizational, information-communication, health, competitive, cooperative, financial activities and elements;
2. measures for personnel recovery; pragmatic allocation of human resources;

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3. measures for the necessary quantities of supplies in medical and non-medical equipment; procurement and replacement of equipment; financial measures - dedicated funds before, during and after an emergency situation;
4. external collaborators and financial resources, as well as a priority plan for urgent non-structural and structural quick recovery of the health institution;
5. procedure for recovery and rehabilitation of patients.

Table 1. Schematic representation of the necessary activities that should be an integral part of the recovery plan of the health institution [6].

Plan	Apply	Control	Advance
Initiating the concept of continuous work (actions, business)	Adopting a strategy of the concept of continuous business in an emergency situation	Monitoring, efficiency control, analysis and evaluation	Treatment of nonconformities, audit plan
Understanding of the organization	organizational structure	Internal audit	Continuous improvement of measures, procedures, plans, operations
analyzing the existing business system	document management	management review	
approval of the project by management	Protection measures and mitigating the consequences of an emergency situation	Treatment, Non-conformities, improvement of measures	
scope of undertaking activities	business continuity and definition of procedures	continuous improvement	
Enactment of the policy of the concept of continuous business in an emergency situation	Communication		
Analysis of the impact of the crisis situation on the institution's operations	Training-organization of training		
Risk assessment	Exercises, awareness of the importance of practice and readiness for a quick, efficient response in a given situation and knowledge testing		

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The hospital's recovery plan should be an integral part of the institution's business continuity plan in accordance with the ISO 22301 standard and should include the occupational health and safety policy as well as the institution's strategic plan. First of all, it is necessary to adopt a national strategy for the continuous operation of health institutions, which must be in accordance with the strategy of the Ministry of Internal Affairs' emergency situation sector, as well as the relevant documentation of local self-government. The occupational safety and health system includes measures for occupational safety and health both in regular and emergency situations. Procedures, instructions, trainings, exercises are measures that need to be applied in order to preserve human resources as well as non-structural and structural elements.

How to evaluate the quality of the health system? Namely: "The quality of a health system, among other things, is evaluated by its readiness to respond to emergency situations and disasters. Unpreparedness, or only partial readiness, can lead to unforeseeable consequences for the overall health of the population, which further endangers all segments of the social system" [7].

Coordinated and clearly defined actions of relevant entities of the state, private and public sector, successful businessmen and interested parties need to be documented and defined. Such a document is the backbone of the recovery plan of each health institution after hazards that have been identified by assessing the risk of disasters as well as potential other hazards.

It is necessary to keep in mind that: "The crisis management system at all levels mostly struggles with the problem of lack of funds (two out of five organizations), untrained employees (every fourth organization) and technical lack of equipment (especially the public sector). In the for-profit sector, a significant problem is also the absence of leadership awareness. In accordance with the diagnosed weaknesses, the proposed measures are as follows: personnel training as a primary measure, in almost half of the organizations, and technical equipment necessary for all organizations" [8].

4. CONCLUSION

The World Health Organization and the relevant entities of the state recognized the need to assess the safety index of health institutions, relying partly on the current exposure to the dangers of modern society, and partly on the need to raise the level of the safety index of health institutions in the Republic of Serbia. As the hospital "Dr Dragisa Misović-Dedinje" is part of this pilot project, the team that evaluated the hospital's safety index, and after training for this type of activity, presented its proposals for the structure and content of the institution's recovery plan after an emergency. Since the attitude of the relevant subjects in the health care system is such that in the near future all health

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institutions will have the opportunity for this type of assessment, it is expected that this work will contribute to the proposal of the structure and content of the recovery plan of the health institution. Investing in infrastructure, in certain projects, will influence a quick and efficient response in an emergency situation, and above all, the effective implementation of health activities before, during and after an emergency situation with constant care for human resources with provided financial support. The absolute support of the state and its subjects, both financial, legal and organizational, as well as raising awareness and good training, as well as clearly defined tasks and powers of all participants in the security system of health institutions, is necessary.

However, it is necessary to keep in mind that: "A crisis management system that is not focused on risk analysis and monitoring, communication, coordination and control, does not bring the desired results in terms of efficiency and effectiveness" [9].

The ISO 22301 key standard, by applying all the measures of the safety and health system at work, the measures defined by the disaster risk assessment and the recovery plan of the health institution, will contribute to the efficient functionality of the health network, especially after an emergency situation.

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