

USE OF THE RISK ANALYSIS APPROACH IN THE SERBIAN ARMY INTEGRATION PROCESS AGAINST COVID-19

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Abstract: *Current developments have contributed to organisations paying increasing attention to protecting resources, employee safety, and applying quality products and services. There is a need for increasing the application of standards that define the way of managing quality, safety at work, risk, and many others. One such organisation is the Serbian Army, a complex centralised system that requires integrating these standards, and often stricter, in all fields of its activities. The current situation in the world, and therefore in Serbia, is sufficient motivation for the project provided by this paper. This project aims to show the integration of risk management systems and occupational safety systems, through the level of protection and exposure of members of the army to the virus infection COVID-19 during the implementation of emergency tasks, by defining risks and proposing additional measures to reduce the level of risk and increase the protection of military personnel.*

Keywords: *virus infection, risk, safety management, emergencies, Serbian Army*

1. Introduction

The development of the most critical events in the 21st century has confirmed that the survival of nations and citizens will increasingly depend on the security of the essential functions of society. The ability to protect the population, ensure the functioning of government and civil society institutions, maintain critical infrastructure, and the democratic principles of functioning of state institutions are under enormous pressure in the face of crises. As no crisis is an isolated event "per se," awareness and readiness to counter non-military threats are focused on analysing complex security policy fields based on different management systems, which imposes the need for so-called integrated management systems (IMS). Because of this complexity, the identification and analysis of threats usually

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involve assessing multiple risks and studying scenarios of a limited number of situations identified as potentially risky or catastrophic (Jørgensen et al., 2006). At present, risk assessments and crisis management concepts differ significantly in many countries and are conducted in the broader context of risk and crisis management. The primary and indisputable responsibility for protecting citizens and the fundamental values of society lies with the states. By improving awareness and understanding of the risks faced by states, decision-makers have a better position to agree on preventive measures to be taken and to prepare to avoid the most severe consequences of natural and human-made disasters. In the context of the responsibility of the state to prevent and resolve the effects of crises, special responsibility lies with the army, with an assessment of the comparative advantage of the military over other state bodies, but also the functional needs and opportunities for an effective response to non-military security threats (Karović et al., 2010). One such security threat is certainly the pandemic caused by the COVID-19 virus infection. It represents a new type of "enemy" that the Serbian Army has not yet encountered in its history. Therefore, this research becomes more exciting and encourages and motivates further courses of study. The analysis of various scenarios, which represent the core of the study, is focused on determining all assumptions, possibilities, risks, and prospects for the use of units of the Serbian Army, based on risk assessment, on showing the level of exposure to viral infection in military missions. As a result of this project, the preparedness, level of exposure, and protection of Serbian Army members' are highlighted, and shortcomings are spotted. Possible ways are considered for further suppression and security, while this paper gives new additional measures of security and safety of members in some future similar non-military threats.

2. Covid-19 review and application of the Serbian Army in non-military security threats through swot analysis



COVID-19 is a disease caused by a coronavirus. Coronaviruses are viruses that circulate among animals, but some of them can spread to humans. After they pass from animal to human, humans can distribute viruses among themselves. For example, the coronavirus of the respiratory syndrome SARS originates from the *Viverridae*, an animal from the order of beasts related to cats. Discovered in China in 2003, it is genetically closely related to the COVID-19 virus, and the two viruses have similar characteristics. In eight months, 33 countries reported more than 8,000 cases of SARS. Then one in ten infected people died of SARS. COVID-19 is SARS-CoV-2. It was detected in China, the city of Wuhan, Hubei Province, at the end of 2019, the first case on November 17, 2019. year (Ma Josephina, 2020), while the first case in the territory of Serbia arose on March 6, 2020. year (Government of Serbia, 2020). It is a new strain of coronavirus that has not been detected in humans before.

Although the virus originates from animals, it now spreads from person to person (human-to-human transmission). The virus is mainly transmitted by droplets when sneezing and coughing. Preliminary research indicates that the average incubation period is 5-6 days, with a maximum of up to 14 days (Chu et al., 2020). Although people are most contagious when they have symptoms (similar to seasonal flu symptoms - fever, sneezing, cough, muscle aches, fatigue). There are indications that some people can transmit the virus even though they have no signs or before

symptoms appear, which is not uncommon with other viral infections. In severe cases, severe pneumonia, acute shortness of breath syndrome, sepsis, and septic shock occur, which can cause the patient's death. Older people and people with chronic diseases (such as high blood pressure, heart disease, diabetes, liver disorders, and respiratory diseases) have a higher risk of developing more severe forms of this disease. However, the exposure to this infection is not decreased for emergency and state services, including members of the Serbian Army.

The Serbian Army is an organised armed force that defends the country from armed threats from outside and performs other missions and tasks, following the Constitution, law, and principles of international law that regulate the use of force (Law on the Serbian Army, 2019). The President of the Republic or the Minister of Defense, upon the authorisation of the President of the Republic, may decide that the Serbian Army shall assist the competent state body, i.e., organisation, the body of autonomous provinces and local self-government units, at their request, for protection of life and safety of people and property, for other reasons determined by law (Official Gazette of the Republic of Serbia, 2019). After the war in the 1990s, the Serbian Army actively participated in implementing the third mission of the army, i.e., assisted civilian authorities in the event of natural disasters, technical-technological and other accidents. The military usage for civilian purposes could be noticed during firefighting actions on several occasions in recent years, then during the floods of 2014 and 2019, and during the migrant crisis to help civilian structures conduct migrants through the territory Serbia. However, the situation that caused the second state of emergency in the country in the 21st century after the prime minister's assassination in 2003 showed that the modern army had not encountered such a threat so far. The last time army was used in such a case, former JNA, in this territory was in 1972, during the smallpox epidemic "Variola Vera," on securing temporary hospitals. The necessary measures applied by JNA members were protective masks and steeled discipline, and the intensification of hygiene (Radovanovic, 2017). The situation with the disease at that time did not seem to bring any experience, so the Serbian Army entered the fight against COVID-19 practically unprepared. Until the declaration of emergency on March 15, 2020, activities and tasks in the Serbian Army were going according to plan (Official gazette of the Republic of Serbia, 2020).

Table 1. SWOT analysis

Strengths – S		Weaknesses - W	
The medical and health care system is gradually improving - the Military Medical Academy.		The COVID-19 epidemic has spread to many regions in a short period.	
Comprehensive progress of the military health system in terms of taking measures. (Blumenthal et al., 2020).		Rumours of wider disinformation	
Rapid and efficient cooperation of joint prevention and control of the military and civilian structures. (Blumenthal et al., 2020).		Serbia's population density is 98.1 in / km ²	
		Lack of aid and labour supplies (Ebrahim, 2020)	
		Lack of equipment and accommodation (Rimmer, 2020)	
		The public is upset and lacks awareness.	

Opportunities – O	Threats - T
New research COVID-19 (Salvatore et al., 2020)	Impact on the daily life, work, and psychology of employees (Barnes & Sax, 2020)
Further improvement and inspection of the health system in the army (Blumenthal et al., 2020)	Impact on the national economy (Salvatore et al., 2020)
Opportunities for education for infectious diseases and gaining new experiences in combat (Blumenthal et al., 2020)	Possible virus carriers to their families

Namely, for such a case of non-military security threat, there is no plan in the army. All forces are focused on helping civilian structures in extinguishing fires, assistance during floods, and select units of atomic-biological-chemical defence that are engaged in case of CBRN accident. In a way, the unpreparedness for "fighting" against COVID-19 is understandable. Hence the solution to why lessons and experiences were not learned from the epidemic of the 1970s.

Concerning the previous, SWOT analysis presents the situations, which refers to the assessment of various strengths (S), weaknesses (W), opportunities (O), threats (T), and other factors that affect a particular topic. It comprehensively, systematically, and accurately describes the scenario in which the issue is situated. This helps to formulate appropriate strategies, plans, and countermeasures, based on the results of the assessment (Jasiulewicz-Kaczmarek, 2016). This method can be used to identify favourable and unfavourable factors and conditions, target current problems, identify challenges and threats, and formulate strategic decision-making plans. This SWOT analysis (Table 1) of COVID-19 is based on the experience of the reaction to the SARS epidemic from 2003, and the data as a basis are taken from the annual health statistics - China for 2019 and adjusted for R. of Serbia (China Health Statistics Yearbook, 2019).

Based on the presented SWOT analysis, it can be concluded that the defence forces are extraordinary mild and that the weaknesses are too many. It can also be added that the Serbian Army is spread over the entire territory. Due to the realisation of tasks, there is a need to connect personnel on specific charges, which was the case during the formation of a temporary hospital in the military institution "Morovic." The lack of protective equipment can be singled out as a fundamental problem because with the existing resources, members are not adequately protected under regulations (eg. Surgical masks in pharmacies do not have a long-lasting effect; according to some estimates, only 2-3 hours (Chu et al., 2020). Also, the chances that may only arise after a pandemic are reflected inexperience, not allowing the same omissions as during the epidemic of the 70s. As for threats, the most dangerous is related to the army members who are in an unenviable position, given their constant engagements and returns to their families after them. There is an increased risk of exposure to loved ones, regardless of government measures and curfews.

Based on the analysis, the fight against this type of "enemy" is shown in the following text. So far, the Serbian Army's application in the implementation of the third mission has shown that members of the army have not encountered this type of "enemy." Role insecurity is one of the daily tasks of members of the army. During the

security, standardised equipment is used following standardisation documents that are even stricter than management systems' standards. The standardisation documents are the standards of defence of the Republic of Serbia (SORS), product quality regulations (PKP), and technical regulations in the field of protection (TPO) (Official military gazette, 2018).

The defence standard is a document that refers to specific items for the needs of defence and contains technical specifications and criteria that ensure that the material, products, processes, and services correspond to the purpose. The product quality regulation is a document that contains data important for quality in research, development, and production. At the same time, the TPO is a document related to facilities, devices, and plants for other processes, products, and services in the field of defence (Official military gazette, 2018). The Standards of Defense of the Republic of Serbia (SORS), formerly the Standards of National Defense (SNO), are applied to every means, weapon, equipment in use, like the ones in the following figures.

This case study will present three cases in the suppression of COVID-19, as follows:

- Provision of civilian hospitals, health centres, gerontology centres, and other public facilities of importance. During security, members were exposed to contact with staff employed in health facilities, controlled the entry and exit of patients, and performed their identification, as well as the passing of motor vehicles.
- Establishment of temporary "COVID" hospitals in sports halls and the military institution "Morovic." The engagement of members in the formation of temporary hospitals was realised in all significant hotspots. They showed the most significant efforts during the construction of the hospital at the Fair in Belgrade. With a minimum of equipment (surgical mask and gloves), the assessment was that the members were protected during this task's realisation.



Figure 1. A member of the army during the construction of the COVID hospital

- Specialised units of the army realised disinfection of public areas and buildings. The members of the CBRN units had the best protection, but also the most challenging task, because by the nature of their work, they were

most exposed to chemical substances, and they were equipped with overalls, unique protective masks, and gloves at all times.



Figure 2. A member of the CBRN service on the task of disinfection

3. The methodological framework of the research

Research has the character of a theoretical-empirical procedure, where the design and implementation combine theoretical methods of scientific research and empirical methods.

Based on data from foreign and domestic literature, the descriptive method was used to present the viral pandemic situation as comprehensively as possible, both in the world and in the Republic of Serbia. When comparing the cases in which the army was engaged, a comparative analysis was used. The inductive-deductive method was used to draw lessons from foreign countries' experiences, primarily China and Russia. When generalising certain phenomena related to COVID-19 and the Serbian Army's use, the analytical-synthetic method was applied.

The scientific significance of this project work lies in the new theoretical approach in defining the army's role in combating similar non-military security threats and assisting decision-makers with the advantages of this research; those are new adequate measures in case of possible recurrence.

4. Case study

So far, the Serbian Army's application has shown that members of the army have not encountered this type of "enemy." This case study will compare the levels of risk of exposure of members of the Serbian Army to COVID 19 infection in three cases, by multicriteria decision using the TOPSIS method, where issues are defined as options (A) and risks (K), after which alternatives will be ranked. Appropriate conclusions will be drawn for better protection of employees during the performance of duties in these cases:

Case 1: Securing civilian hospitals, health centres, gerontology centres, and other critical public facilities. During security, members were exposed to contact with staff employed in health facilities, controlled the entry and exit of patients, and performed their identification, as well as the passing of motor vehicles.

Case 2: Establishment of temporary "COVID" hospitals in sports halls and the military institution "Morović." The engagement of members in the formation of temporary hospitals was realised in all significant hotspots. They showed the most significant efforts during the construction of the hospital at the Fair in Belgrade. With a minimum of equipment (surgical mask and gloves), the assessment was that the members were protected during this task's realisation.

Case 3: Disinfection of public areas and buildings carried out by specialised military units. The members of the CBRN units had the best protection, but also the most challenging task, because by the nature of their work, they were most exposed to chemical substances, and they were equipped with overalls, unique protective masks, and gloves at all times.

After defining the cases and gathering information on the dangers posed by a viral infection, a risk assessment follows. One of the simplest methods used is to determine the level of risk. Three levels of severity of consequences and three levels of Probability of occurrence are defined, and then the level of risk is specified based on these data (Table 2).

Table 2. Defining risk levels

Consequences Probability	Slightly Dangerous	Dangerous	Extremely Dangerous
Probable event	MEDIUM RISK	HIGH RISK	VERY HIGH RISK
Rare event	LOW RISK	MEDIUM RISK	HIGH RISK
Sporadic event	VERY LOW RISK	LOW RISK	MEDIUM RISK

Based on the presented method of risk assessment and perception of the situation in the field, the risk assessment of the study case takes the Probability of events: Probable event, and based on the table, we see the consequences of events through a medium, high, and very high risk. A rare event is not taken as a reference, and also, the situation is not harmless, so a sporadic occurrence and a shallow risk are excluded (Čerepnalkovska, 2016). Based on the above, the risks and levels of risk are defined, which are shown in Table 3:

Table 3. Defining risks and levels - weighting coefficients

Risk		MEDIUM RISK	HIGH RISK	VERY HIGH RISK
Risk 1	Level of protection of members of the Armed Forces			
Risk 2	Possibility of infection			
Risk 3	Possibility of possible transmission to other members of the Armed Forces	1	3	5
Risk 4	Possibility of possible transmission to their families			
Risk 5	Presence of chemicals			
Risk 6	Possibility of unwanted contact and conflict			

Explanation of the level of risk (weighting coefficients) of the First Case:

- The protection of members of the Armed Forces was assessed as "very high risk" because members use only surgical masks N95 or AM-1002 and surgical gloves.
- The possibility of infection was assessed as "high risk" because members are exposed to potential patients at the entrance to public buildings, keeping a distance of 2 meters but with a personal identification check that requires a reduction in the prescribed space.
- The possibility of possible transmission was assessed as "very high risk" because members come to work after completing the task and then go to their homes. There is a possibility that they are potentially infected.
- Persons on this task are not exposed to excessive effects of disinfectant chemicals.
- The possibility of unwanted contact and conflict was assessed as "high risk" because there are situations in which potentially infected people refused to cooperate and were brought to the brink of physical confrontation.

Explanation of the level of risk (weighting coefficients) of the Second Case:

- The level of protection of members of the Armed Forces was assessed as "very high risk" because members use only a surgical mask, improvised mask, and surgical gloves or work gloves (Figure 1).
- The possibility of infection was assessed as "high risk" because the members are at a distance of fewer than 2 meters and a large concentration of people in one place.
- A possible transfer was assessed as "high risk" because members remain in contact after the task, during the rest and preparation for the next job but do not come into contact with their families.
- Persons on this task are exposed to a specific effect of chemicals during the disinfection of established hospitals, and this risk is assessed as "high risk."
- The possibility of unwanted contact and conflict was assessed as "medium risk" because there are no other persons than members of the Armed Forces to implement this task.

Explanation of the level of risk (weighting coefficients) of the Third Case:

- The level of protection of CBRN members was assessed as "medium risk" because they use special protective equipment for particular purposes (Figure 2).
- The possibility of infection is assessed as "high risk" because members do not come into direct contact with the infected or potentially infected.
- A possible transfer was assessed as "high risk" because they are in constant contact with each other and go to their families after work.
- People on this task are most exposed to chemicals during disinfection because in addition to the use of chemicals, it is necessary to do the same, and this risk is assessed as "very high risk."
- The possibility of unwanted contact and conflict was assessed as "medium risk" because there are no persons other than CBRN members to implement this task.

4.1. Technique for order preference by similarity to an ideal solution

The Technique for the Order Preference by Similarity to Ideal Solution (TOPSIS) was introduced by Hwang and Yoon (1981). The standard TOPSIS method is based on the concept that the best alternative should have the shortest Euclidian distance from the ideal solution, and at the same time, the farthest from the anti-ideal solution. TOPSIS method can be implemented using the following steps:

Step 1: Method starts with determination of a *Decision matrix* $X = (x_{ij})_{m \times n}$, in which element x_{ij} indicates the performance of alternative A_i when it is evaluated in terms of decision criterion C_j , (for $i = 1, 2, 3, \dots, m$ and $j = 1, 2, 3, \dots, n$):

$$X = [x_{ij}] = \begin{matrix} & \begin{matrix} C_1 & C_2 & \dots & C_n \end{matrix} \\ \begin{matrix} A_1 \\ A_2 \\ \vdots \\ A_m \end{matrix} & \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ x_{m1} & x_{m2} & \dots & x_{mn} \end{bmatrix} \end{matrix} ; \quad (1)$$

Step 2: Determine the normalized decision matrix which elements are r_{ij} :

$$r_{ij} = \frac{x_{ij}}{\sqrt{\sum_{i=1}^m x_{ij}^2}} , \quad (2)$$

Step 3: Obtain the weighted normalized decision matrix whose elements are v_{ij} by multiplying each column j of the normalized matrix by its associated weight w_j :

$$v_{ij} = r_{ij} \cdot w_j , \quad (3)$$

Step 4: Determine the positive ideal and the negative ideal solutions:

$$\begin{aligned} V^+ &= (v_1^+, v_2^+, \dots, v_n^+) = \{(\max_i \{v_{ij} \mid j \in B\}), (\min_i \{v_{ij} \mid i \in C\})\} \\ V^- &= (v_1^-, v_2^-, \dots, v_n^-) = \{(\min_i \{v_{ij} \mid j \in B\}), (\max_i \{v_{ij} \mid i \in C\})\} \end{aligned} , \quad (4)$$

Where B and C are associated with the maximisation and minimisation criteria sets, respectively.

Step 5: Calculate the separation measures (Euclidean metric) from the positive ideal solution and the perfect negative solution. The separation of each alternative from the perfect positive solution is given as:

$$S_i^+ = \sqrt{\sum_{j=1}^n (v_{ij} - V_j^+)^2} \quad (5)$$

The separation of each alternative from the negative ideal solution is given as:

$$S_i^- = \sqrt{\sum_{j=1}^n (v_{ij} - V_j^-)^2} \quad (6)$$

Step 6: Calculate the *relative closeness* of the *i*-th alternative A_i to the positive ideal solution:

$$P_i = \frac{S_i^-}{S_i^+ + S_i^-} \quad (7)$$

The relative closeness P_i can have values between (0, 1), whereby $P_i = 0$ represents a negative ideal solution, while $P_i = 1$ stands for a perfect positive solution. According to P_i values, the alternatives can be ranked. The best option has the highest value, P_i , because it is the closest to the positive ideal solution.

Since the last part of the paper defines alternatives (A) and criteria (K), it is necessary to determine the weights of the bars (risk), based on an exchange of opinions with occupational safety officers, for the application of the TOPSIS method, according to the following:

- for K1 - 0.4 - is considered the most important because it is the protection of human lives;
- for K2 - 0.2 - presented as an important criterion because it entails other risks and possibilities of spreading the infection;
- for K3 - 0.1 - presented as a medium-important criterion because there is a possibility of spreading the disease to military circles;
- for K4 - 0.15 - presented as an essential criterion because employees, finishing their work, can spread the disease to their family members;
- for K5 - 0.1 - it is considered not very important because only select units of the army work with chemicals;
- for K6 - 0.05 - presented as the least important criterion because the cases are individual.

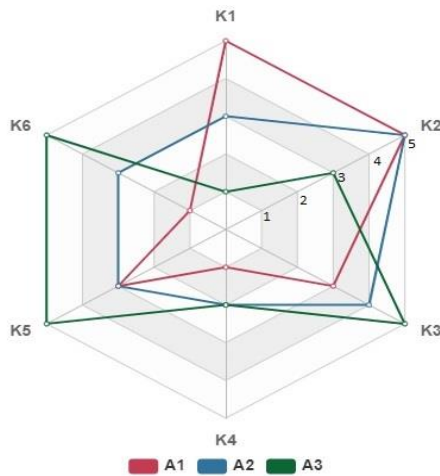


Figure 3. Defining risk levels by alternatives

The first step is the initial table-matrix of initial data with the assignment of coefficients, determination of values that are minimised and maximised, and assignment of weight values, which is shown in Table 4.

Table 4. Assignment of values and determination of max and min and weight values

	Criteria					
	K ₁	K ₂	K ₃	K ₄	K ₅	K ₆
	0.4	0.2	0.1	0.15	0.1	0.05
Alternatives	min	min	min	min	min	min
A ₁	5	5	3	1	3	1
A ₂	3	5	4	2	3	3
A ₃	1	3	5	3	5	5

The values of the criteria are determined, where maximised-rewrite and minimised-convert to the max, as shown in Table 5:

Table 5. Criterion values obtained after minimisation and maximisation

	Criteria					
	K ₁	K ₂	K ₃	K ₄	K ₅	K ₆
	0.4	0.2	0.1	0.15	0.1	0.05
Alternatives	min	min	min	min	min	min
A ₁	0	0	2	4	2	4
A ₂	2	0	1	3	2	2
A ₃	4	2	0	2	0	0

The next step is to determine the norm and to form a normalised matrix. The determination of weighted values follows this, and the obtained data are shown in Table 6:

Table 6. Weighted values

Alternatives	Criteria					
	K ₁	K ₂	K ₃	K ₄	K ₅	K ₆
	0.4	0.2	0.1	0.15	0.1	0.05
	min	min	min	min	min	min
A ₁	0	0	0.089	0.111	0.070	0.044
A ₂	0.178	0	0.044	0.083	0.070	0.022
A ₃	0.357	0.2	0	0.055	0	0
Best max	0.357	0.2	0.089	0.111	0.070	0.044
Best min	0	0	0	0.055	0	0

Finally, the distance is calculated according to the shown values, and the alternatives are ranked, as shown in Table 7.

Table 7. The final ranking of alternatives

	Criteria					
	S ⁺	S ⁻	The similarity to the solution		RANK	
A ₁	0.1345	A ₁	0.40987	A ₁	0.7528	1
A ₂	0.2006	A ₂	0.27436	A ₂	0.5775	2
A ₃	0.4098	A ₃	0.13454	A ₃	0.2471	3

Based on the final rank of alternatives shown in Table 7, it is concluded that members of the Serbian army engaged in protecting hospitals and public institutions (alternative 1) were most exposed to COVID-19 infection. The risk of their disease is the most significant, primarily due to daily exposure to potentially infected persons. In contrast, the lowest possibility of infection was present in members of the CBRN service (alternative 3) because they possessed the highest protection level. Members of the army engaged in the formation of "covid" hospitals were ranked second because there was no one in their presence except themselves.

A graphical representation of the final rank of alternatives is shown in Figure 4.

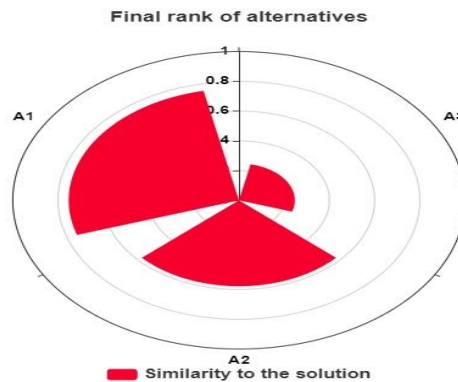


Figure 4. Graphical representation of the final rank of alternatives by the TOPSIS method

5. Conclusion

This research showed the level of protection and risk of members of the Serbian Army. Which were engaged in three cases, with some new security, which motivated the authors to examine the level of maximum risk exposure and identifies gaps and shortcomings, and proposes additional measures based on the research results. Based on the case study and the application of multicriteria decision-making using the TOPSIS method, the results showed that military members are most exposed to the possibility of contracting COVID-19 virus infection, primarily due to low levels of protection and contact with potentially ill persons. CBRN members serve, thanks to their protective equipment and almost minimal contact with potentially infected people, they are the safest from the effects of a viral infection. Members in the second case who were engaged in the formation of "covid" hospitals were assessed with a medium level of risk due to their spatial distribution in places where no viral agents were present. Based on the research and case study, measures can be concluded and proposed to further prevent the spread of infection according to the following:

- Provide sufficient quantities of surgical masks to ensure the condition of replacement every two hours,
- At the entrance to human accommodation (for pedestrians and vehicles), install and maintain disinfection barriers in the complexes (NaClO, Pinosteril 200, Chlor, Alcohol 70%),
- Regularly disinfect the premises for housing and dining of people,
- Perform regular personal and collective hygiene and accommodation and eating people, i.e., before eating to control the personal hygiene of all persons,
- During the execution of hospital security tasks, avoid close contacts with persons who show signs of acute respiratory diseases and strictly adhere to all prescribed measures,
- Indirect communication with the civilian population, provide a distance of at least 2 meters,
- measure the members' temperature before performing the task, and send it to the ambulance if it occurs.
- Use protective equipment (gloves and visor) when making the disinfectant mixture,
- After engaging in tasks, disinfect personnel and equipment.

Experiences that can be gained during this project's development are that the approach to the problem must be more serious and meaningful. It is necessary to look retroactively and see that preparation didn't exist for this type of "fight" and that for some future situations, all the people should be in the machine in a state of emergency.

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References

- Barnes, M., Sax P. (2020). Challenges of "Return to Work" in an Ongoing Pandemic, *New England Journal of Medicine* 383(8), June 18, 2020, 779-786. <https://doi.org/10.1056/NEJMSr2019953>.
- Blumenthal, D., Fowler, E., Abrams, M., Collins S. (2020). Covid-19 — Implications for the Health Care System, *New England Journal of Medicine*, July 22, 2020. <https://doi.org/10.1056/NEJMsb202>.
- China Health Statistics Yearbook. (2019). ISBN: 9787567913233
<http://news.hc3i.cn/art/201912/44108.html>,
Accessed: 11.04.2020. y.
- Chu, D., Akl E., and others. (2020). Physical distancing, face masks, and eye protection prevents person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis *Open Access*, Volume 395, Issue 10242, June 27 – July 3, 2020, 1973-1987. [https://doi.org/10.1016/S0140-6736\(20\)31142-9](https://doi.org/10.1016/S0140-6736(20)31142-9).
- Ebrahim, A. (2020). A global survey on changes in the supply, price, and use of illicit drugs and alcohol, and related complications during the 2020 COVID-19 pandemic, Published in *MedRxiv*, 2020, <https://doi.org/10.1101/2020.07.16.20155341>.
- Government of Serbia. (2020), Coronavirus information.
www.covid19.rs/питања-и-одговори-о-болести-узрокован/,
Accessed: 07.04.2020. y.
- Hwang, C.L. & Yoon, K. (1981). *Multiple Attribute Decision-Making Methods and Applications*. Springer-Verlag, New York. <http://dx.doi.org/10.1007/978-3-642-48318-9>.
- Isaksson, R., Tostebj, J., Abrahamsson, S. (2010). *Integrated Management Systems: advantages, problems, and possibilities*, Conference Paper, January 2010.
- Jasiulewicz-Kaczmarek, M. (2016). SWOT analysis for Planned Maintenance strategy—A case study, *IFAC PapersOnLine* 2016, 49, 674–679.
- Jørgensen, et al. (2006). Integrated management systems - Three different integration levels, *Journal of Cleaner Production* 14 (8), 713-722.
- Karović, S. et al. (2010). Risk management as a prerequisite for integrated system management in the organisation, *Military Technical Courier* 2010, 146–161.
- Law on the Serbian Army ("Official gazette of the Republic of Serbia," бр. 116/2007, 88/2009, 101/2010 – etc., 0/2015, 88/2015 – decision US, 36/2018 i 94/2019) - Article 2, paragraph 2, necessary provisions.
- Ma, Josephina. (2020). China's first confirmed Covid-19 case traced back to November 17, *South China Morning Post*. Archived on March 19, 2020.
- Radovanovic, Z. (2017), *Variola Vera - virus, epidemic, humans*, *Heliks*, 2017, 129. ID: A166505.
- Rimmer, A. (2020). Covid-19: Shielding doctors express concerns about returning to work. Published in *The BMJ* 370, on July 21, 2020. doi.org/10.1136/BMJ.M2918.
- Salvatore, C.M., Han J.Y., Acker K., and others. (2020). Neonatal management and outcomes during the COVID-19 pandemic: an observational cohort study, *The Lancet Child & Adolescent Health*, 2020 October 4 (10), 721–727.

Use of the risk analysis approach in the Serbian army integration process against Covid-19

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"Official gazette of the Republic of Serbia," no. 94/2019.

"Official gazette of the Republic of Serbia," no. 29/2020.

"Official Military Gazette," no. 24/2018.

Čerepnalkovska, S. (2016). A model for improving an integrated risk-based management system, Faculty of Technical Sciences, University of Novi Sad, 26-31.

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