

# WHEN PUSH COMES TO SHOVE: ORGANIZING HEALTHCARE DURING CORONAVIRUS PANDEMIC 2020 – THE MODEL OF ZABOK GENERAL HOSPITAL AND CROATIAN VETERANS' HOSPITAL

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The coronavirus pandemic, starting in 2019, penetrated almost all aspects of modern civilization. Governments and organizations worldwide have imposed rules and regulations in order to control the spread of the virus, thereby introducing tremendous changes to everyday life. As the pandemic and the number of the infected around the world increased, so did the need for adequate medical care. Many uncertainties and unknowns regarding the virus and disease have made the task of organizing healthcare a day-to-day battle. The data presented were acquired from February 12 until March 15, 2020, during which time 2638 individuals were tested for SARS-CoV 2 infection. One hundred and forty among them were confirmed positive, with 25 requiring hospital treatment, among which two, unfortunately, passed away. One hundred and thirty individuals under age 18 were tested, infection was confirmed in 10 subjects and none were hospitalized. The mean age of individuals infected was 49.9 years. Our goal was to present and share the experience and challenges during the coronavirus pandemic, which affected us during 2020 in the Zabok General Hospital and Croatian Veterans' Hospital in the Krapina-Zagorje County, which was one of the major pandemic hotspots in Croatia.

**Key words:** COVID-19, coronavirus, healthcare management, hospital organization, pandemic

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## INTRODUCTION

The severe acute respiratory syndrome-coronavirus 2 (SARS-CoV 2) epidemic, from its origins in Wuhan, Hubei Province, PR of China, spread in a matter of weeks across the globe, putting our civilization in an unprecedented position. With the illness, dubbed coronavirus disease (COVID-19), presenting itself with a wide variety of symptoms, as well as due to the fact that a significant amount of the infected had no clinical manifestations, the organization of healthcare has become an arduous task.

In order to cope with the newly established situation, the isolation of patients presenting with symptoms of coronavirus infection, in order to reduce the possibility of them infecting both other 'non-corona' patients,

as well as healthcare workers, has become a priority. The answers to the question 'how to treat them' came easier, in a way, than 'where to treat them'. In an optimal setting, the patients could be treated in so-called 'corona-negative' and 'corona-positive' facilities with the 'positive' and 'negative' pertaining to verified infection or suspicion of infection with coronavirus in the said patients (1) Examples from PR of China and Italy, which were overflowed with patients, show that such organization of healthcare plays a significant role in macro-management of the infection. However, such organization is only possible if the number of medical facilities in a specific area allows for it, together with the necessary manpower, which would allow that all patients, infected or not, would receive the highest level of medical care.

While such organization looks perfect on paper and shows promise, what if the infrastructural and logistic setting does not allow for such organization? In this case, a medical facility is supposed to organize its work on three fronts, the first being the care for COVID-19 patients, the second regarding patients who were suspicious of coronavirus infection (until arrival of their swab analysis) but whose general condition did not allow hospital discharge, and the third, which has to cope with 'normal' or uninfected patients presenting with cases unrelated to coronavirus (2) such as Ebola, Nipah and Zika, it is important that such facilities are kept ready during the inter-epidemic period for training of health professionals and for managing cases of multi-drug resistant and difficult-To-Treat pathogens. While endemic potential of such critically ill patients is not yet known, the health system should have surge capacity for such critical care units and preferably each tertiary government hospital should have at least one such facility. This article describes elements of design of such unit (e.g., space, infection control, waste disposal, safety of healthcare workers, partners to be involved in design and plan. The newly found situation becomes a daily struggle, with the daily-changing regulations and guidelines imposed by the government demanding that the organization of work and manpower is able to adapt to it. An unprecedented situation to say at least.

### LEADERSHIP IN THE PANDEMIC

As the news regarding SARS-CoV 2 pandemic began to emerge in Europe and the proximity of Croatia (the grim scenario of Italy having the most significant outreach), the country began to prepare itself for a similar situation. The need for a governing body led to the establishment of the national Civil Protection Directorate. While the National Directorate was at the top of the chain of command, it did not give out orders *per se*, only recommendations to hospitals and other healthcare institutions. County Directorates were, in turn, founded in order to govern the situation at the local level and had total autonomy during the pandemic. The Hospital established its own Crisis Directorate, which included the Hospital director, consultant infectologist, head nurse of the Emergency Department, and head nurse for hospital infections, who organized procurement and distribution of the necessary equipment. Rules of conduct were also established by the Hospital Directorate, which were regularly updated according to the instructions of the National Directorate.

### INFRASTRUCTURE AND SETTING

Zabok General Hospital and Croatian Veterans' Hospital is, as of 2020, the youngest hospital in Croatia. Built in 2009, it covers an area of over 23,000 square meters. It lies near the Croatian-Slovenian border, which will become an essential factor in dealing with the coronavirus epidemic in Croatia, and it is the only hospital in Krapina-Zagorje County, which has a population of over 130,000 spread across 7 towns and 25 districts. The hospital has 12 departments, 222 beds, including surgical, neurological, pediatric, obstetric and gynecologic, and internal medicine wards and covers the majority of healthcare-related needs of the County catchment population.

Following the rise of patients presenting themselves with the symptoms of coronavirus infection, the facility underwent a set of organizational changes. In order to accommodate patients potentially infected with the coronavirus, part of the Hospital had to be 'transformed'. Initial planning for reorganization and repurposing of the Emergency Department began in February 2020. The only available option at the time was part of the Emergency Department, which has a separate entrance, colloquially dubbed 'the Isolation Ward'. The Isolation Ward was initially sealed off from the rest of the hospital on February 12, 2020, when the first patient suspected of COVID-19 infection was admitted. The area initially contained 4 separate patient rooms, each covering about 20 square meters. The area has a separate entrance and exit for patients and medical personnel attending them, not to come in contact with other patients and healthcare workers and potentially infect them. Following the steep increase in the number of cases, 4 more rooms were included in the emergency room quarantine.

As the Isolation Ward was initially planned only for isolation of the suspected of COVID-19 until arrival of their swab analysis, the ward was outfitted with only a limited amount of medications and equipment, taking into account the fact that the patients presenting in the early days of the pandemic in Croatia all had only mild symptoms of the COVID-19 infection. As the number of potentially infected individuals grew, the Ward, with its initial capacity and resources, could not cope with the ever-increasing patient numbers, so additional measures had to be taken. Following suspension of all non-essential medical procedures and outpatient clinics, the Department of Physical Medicine and Rehabilitation was repurposed for treating patients with severe COVID-19 (a COVID ward). After removing all unnecessary furniture and equipment, the area was thoroughly disinfected and outfitted. Eighteen bed units were set up, with the necessary equipment for ventilation and invasive monitoring. The Department

of Physical Medicine is the sole department located in the hospital subterranean level and also has its own separate entrance, factors which greatly help organize healthcare and attendance of such patients. A 24-hour video surveillance was also introduced to all isolation units, and a healthcare worker was continually attending to the video material. The follow-up measurement of vital parameters was conducted at least twice daily. Additionally, on March 30, 2020, 2 pediatric isolation units were established and furnished adequately to meet the needs of this particular age group within the pediatric ward. Until then, children were examined in the Isolation Ward.

As a way of proving that an individual is infected with coronavirus is by analysis of the naso- and oropharyngeal swabs, it was necessary to organize swabbing of those potentially infected in such a way that the risk of infection for healthcare workers and other patients was reduced to minimum. For this purpose, a specially modified container was set up in the proximity of the hospital. Those potentially infected would have their swabs taken and their vital parameters inspected. With the increase in the number of swabs taken daily, a 'drive-in' swab station was also organized. Those with suspicion of coronavirus infection would have their vital parameters and swabs taken while sitting in their vehicles, after which, if their parameters were within the reference values, they would drive home. The drive-in station helped immensely in speeding up the process while simultaneously upholding safety regulations regarding contact between patients and healthcare workers.

Because of the potential risk of having to operate on a patient infected with SARS-CoV 2, a surgical theater was prepared and outfitted with all necessary surgical and protective equipment. Gynecologic operations and childbirths were also to be conducted in this theater if the need had arisen.

## HUMAN RESOURCES

On February 12, the first patient in the Zabok County Hospital and Croatia was isolated because of the suspected coronavirus infection. Until the end of March 2020, all patients suspected of SARS-CoV 2 infection were attended by a consultant infectologist and the Emergency Department head nurse. Afterwards, Emergency Department nurses and junior doctors were performing swab sampling in non-hospitalized patients suspected of COVID-19. They conducted swabbing of patients and attended mostly to the ones hospitalized, as those patients presented with mostly mild symptoms or were asymptomatic and isolated because of epidemiological reasons. They also main-

tained and managed all documentation regarding the patients (history of illness, reporting forms for national and local epidemiology departments).

With the number of patients, the severity and diversity of clinical presentations increased, and the need for more organized work structure became apparent. As the Krapina-Zagorje County was one of the 'hot spots' of coronavirus disease in Croatia (alongside the City of Zagreb and Split-Dalmatia County), a solid and steadfast solution was needed. On March 25, 2020, a 'corona team' workforce was organized and established. The workforce was made up of various specialists (infectology, internal medicine, neurology, anesthesiology), as well as residents or junior doctors and nurses. Teams worked in 14-day shifts followed by 14 days of self-isolation. Before returning to work, all members of the corona team were tested for SARS-CoV 2 to minimize any chance for intrahospital transmission of the virus. The physicians and nurses attended and monitored patients, and managed other respective comorbidities such as arterial hypertension, diabetes, and chronic obstructive pulmonary disease. Because of the shift in workload, nurses from outpatient clinics, as well as other departments such as surgery and internal medicine, were redeployed to the corona team. Physicians and nurses not assigned to the corona workgroup continued working in their designated departments, although in reduced numbers as they only covered emergency patients.

## FLOWCHART OF HEALTHCARE ORGANIZATION IN SUSPECTED OR 'CORONA-POSITIVE' PATIENTS

The bulk of the work and management regarding coronavirus was handled in and around the Zabok County Hospital Emergency Department with daily communication and support of the local public health and epidemiological services of the Krapina-Zagorje County. Healthcare workers working in family medicine practices in the County were outsourced to the Hospital to fill the evident lack of personnel.

The Croatian Institute of Public Health (CIPH) established guidelines for patient triage regarding SARS-CoV 2 infection. Guidelines have been updated several times due to rapid changes in epidemiological dynamics regarding the spread of the virus. Case definition was established, and the daily number of suspected and confirmed cases was documented, which were later forwarded to relevant institutions (local public health service, Civil Protection Directorate of the country, and County likewise). At the beginning of the epidemic, both epidemiological and clinical criteria had to be met for an individual to be suspected

of SARS-CoV 2 infection (3). As of March 13, 2020, epidemiological criteria ceased to be included in the guidelines as the local transmission of the virus in Croatia had been confirmed (Fig. 1.A-B (4).

<p><b>CLINICAL CRITERIA</b></p> <p>1) a patient with acute respiratory tract infection (sudden onset of at least one of the following: cough, fever, sore throat, shortness of breath)</p> <p><b>AND</b></p> <p><b>EPIDEMIOLOGICAL CRITERIA</b></p> <p>2) a patient with any acute respiratory illness AND having been in close contact with a confirmed OR probable COVID-19 case in the last 14 days prior to onset of symptoms</p> <p><b>OR</b></p> <p>3) a patient with a history of travel or residence in a country/area reporting local or community transmission* during the 14 days prior to symptom onset (China, South Chorea, Italy Veneto and Lombardia regions)</p> <p>* according to WHO classification, see respective daily updated Coronavirus disease (COVID-2019) situation reports at <a href="https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/">https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/</a></p>	<p>1) a patient with acute respiratory tract infection (sudden onset of at least one of the following: cough, fever, shortness of breath) AND with no other aetiology that fully explains the clinical presentation AND with a history of travel or residence in a country/area reporting local or community transmission* during the 14 days prior to symptom onset;</p> <p><b>OR</b></p> <p>2) a patient with severe acute respiratory infection (fever and at least one sign/symptom of respiratory disease (e.g., cough, fever, shortness breath) AND requiring hospitalisation (SARI) AND with no other aetiology that fully explains the clinical presentation.</p>
<b>A</b>	<b>B</b>

Fig. 1. Criteria for recognizing an individual potentially infected with SARS-CoV 2; initial (A) and modified (B)

Those who were suspicious of coronavirus infection were instructed first to contact one of the three epidemiological stations in the County by telephone upon which they would describe their case. Upon verification of suspicion, the potentially infected were instructed to contact the Emergency Department of the Hospital. The individual would then get reassessed based on a questionnaire that would be filled out by a nurse or junior doctor. The questionnaire contained detailed questions about occupation, lifestyle, recent travels, symptoms, and epidemiological parameters. After filling out the questionnaire, the individual was invited for swabbing at a specific time, in most cases, the day after initially contacting the Hospital. Also, those with suspicion were instructed not to leave their homes. As the pandemic progressed and the number of those suspicious of infection grew, the potentially infected were instead instructed to initially contact their attending general practitioner who would reass-

sess their symptoms and, based on the outcome, indicate if swab analysis of the particular individual is needed.

Upon arrival for their scheduled swabbing, individuals would have their vital parameters (body temperature, blood pressure, heart rate, respiration frequency, and oxygen saturation) checked, as well as their naso- and oropharyngeal swabs taken (blood serum samples were taken at first alongside swabs, but the practice was discontinued as of the end of March). If the vital parameters were within the normal range, the patient had no significant comorbidities, and if the clinical presentation was mild, people were instructed to head to their homes after leaving their contact information directly; the result of the swab analysis would be conveyed to them *via* telephone. If the test came back positive, the individual was placed in self-isolation for 14 days, upon which they would have their swabs retaken. If the follow-up swab came back negative and the individual reported no symptoms, they were declared cured. This was the case until March 23, 2020; after this point, only healthcare workers and symptomatic individuals would be retested after the 14-day isolation; asymptomatic individuals would be declared cured. The CIPH defined this workflow.

Those patients presenting for swab diagnostics with pathological values of vital parameters or who had severe clinical presentation indicative of acute respiratory failure would be immediately hospitalized and isolated upon swabbing into the Isolation or COVID ward, depending on the severity of their presentation. The patients were constantly attended by at least two nurses and two physicians regarding their current but also concomitant medical conditions if they had any.

The ones whose swab analysis came back negative but still required medical treatment were taken out of the Isolation Ward and transferred to the pulmonary department of the Hospital for further treatment. The area they occupied while in the Isolation Ward would then be thoroughly cleaned and disinfected to allow for the potential new patients to be introduced.

Patients presenting with symptoms of acute respiratory failure and need for mechanical ventilation were directly admitted to our Isolation Ward, where they would be stabilized and connected to an artificial ventilation unit if there was an indication to do so. Upon stabilization of the patient, they would be transferred to the Respiratory Centre of Dr. Fran Mihaljević University Hospital for Infectious Diseases in Zagreb.

As stated before, the proximity to the Slovenian border was a contributing factor in the management of the coronavirus epidemic in Croatia. Most travelers

entering Croatia *via* Slovenia do so at the Macelj border crossing, which is the biggest one between the two countries, with the nearest hospital being the one in Zabok. In the early days of the pandemic, individuals returning from areas deemed high-risk of coronavirus infection were placed in self-isolation for 14 days; SARS-CoV 2 swabs would be taken at the beginning, as well as the end of the isolation period. When the local transmission of the virus was confirmed, this practice was discontinued with only the clinical criteria defining the need for isolation (5) 30 January 2020, World Health Organization declared Coronavirus disease-2019 (COVID-2019).

The residents of various nursing homes were another issue. The County has at least 17 private or state-run nursing homes that are home to more than 1500 people, each according to their capacity. As the residents of such institutions are, in most cases, elderly and have their own underlying comorbidities, they became an ideal spreading point for coronavirus. The fact that residents spend most of their time indoors with little to no social distancing only made the situation more complicated. As seen in countries such as Spain, this issue was widespread on a global scale (6).

#### DISCHARGING A CORONA-PATIENT

While the CIPH clearly defined criteria by which an individual is to be hospitalized if suspected of SARS-CoV 2 infection, the discharge criteria of the same patients upon curing them were not clearly established, at least in the first days of the pandemic. The Hospital established a practice of swabbing patients until their results came back negative. Afterwards, the CIPH defined the criteria as follows: cessation of clinical presentation of infection for at least 3 days together with 2 negative swab analyses in the last 72 hours.

Looking at the first like solid criteria, asymptomatic patients with positive swab tests began to emerge. Additionally, patients with prolonged (more than 30 days) symptoms whose swab tests were negative were also a clinical and logistic problem. After a period of ever-changing directives and recommendation, the CIPH finally established non-test based discharge criteria for these patients on April 2, 2020, as follows: patients were deemed 'corona-free' 28 days after the first clinical presentation for those with negative swab tests and 28 days after the first positive swab analysis for asymptomatic patients. An exception was made for healthcare workers and individuals who were infected, but their symptoms ceased within 28 days of the first presentation; 2 negative swab tests within a minimum period of 24 hours would deem them corona free. An asymptomatic patient could have his swabs taken at

least 72 hours after withdrawal of symptoms, 7 days after first presenting with symptoms or 7 days after a first positive swab analysis result.

#### 'CORONA-FREE' HEALTHCARE

While the organization of healthcare for coronavirus patients did take the world by storm, the world itself did not stop, and as such, patients came to the Hospital because of corona-unrelated reasons. Being the only general hospital in the County, Zabok Hospital could not cease to treat patients, although certain changes and regulations had to be implemented.

All non-essential diagnostic and curative procedures were postponed indefinitely. Patient visits were prohibited in all wards except for the pediatric ward. All medical personnel and patients had their body temperature measured upon entering and exiting the facility. In addition, a questionnaire regarding clinical and epidemiological parameters had to be filled out at the time. All personnel were required to wear surgical masks during working hours, with a new mask being used after every 3 hours of wearing one. Patients coming to the Emergency Department would be triaged with a quick questionnaire regarding symptoms, recent travels, and contacts with the potentially infected; their body temperature would be measured to define if they could be potentially infected with SARS-CoV 2. If the patient was afebrile and had no symptoms indicative of coronavirus, they would be declared 'corona non-suspected'. They would be allowed to enter the emergency department with a surgical mask as well, where they would receive appropriate medical care and treatment regarding their initial reason for arrival.

The ones who had symptoms, epidemiological evidence (before March 13, 2020) and/or elevated body temperature would be triaged according to the severity of their symptoms. Their underlying reason for coming to the emergency room would be reassessed. If they were vitally endangered, immediate diagnostics and treatment of the patient would start with them being treated as infected with coronavirus. Those whose condition allowed them to wait until the results of the swab analysis came would be isolated, the course of their treatment being based and planned upon swab results.

#### SPECIMEN TRANSPORT

The analysis of swab specimens, i.e. naso- and oropharyngeal swabs, as well as blood serum (only during the first 30 days of the pandemic) was performed by

real-time polymerase chain reaction (RT-PCR). Since our Hospital does not have its own RT-PCR device, all samples were transported to Dr. Fran Mihaljević University Hospital for Infectious Diseases in Zagreb and Varaždin County General Hospital. Both of these institutions have the necessary devices, as well as engineers who could operate them in order to analyze the specimens, and it only takes 30 minutes by automobile to reach them. The Hospital deployed a paramedic vehicle and its designated driver in order to transport the specimens for analysis regularly. The transport would be organized at least twice daily. Swab samples were transported inside iced boxes within zip-lock bags alongside all the needed documentation.

### COMPARING APPROACHES

A major stepping stone that the Zabok General Hospital faced, together with other healthcare institutions in Croatia and worldwide, was the unprecedented character of the situation. In the light of the lack of knowledge about the pathogen, as well as low amounts of scientific evidence, guidelines were often made up 'on-the-go' and were often subjected to change. The overwhelming mass media interest in the pandemic, although praiseworthy, produced, at times, contradictory content and statements regarding the situation, which in turn affected the general public (7,8). In a way, the global availability of information in today's age helped healthcare institutions and workers organize themselves because it indirectly connected all of them; through interviews, news articles, and social media posts (9). Although the data are still scarce, comparing approaches of different institutions leads to a conclusion that our approach to the COVID-19 pandemic did not differ significantly from the strategies of bigger and more specialized institutions, although on a smaller scale, of course (10,11). While several institutions suffered under a shortage of personnel and equipment, the same could not be said for this case; throughout the pandemic, a lack of resources or manpower has never been reported. All of the activities were carefully documented for both on-site and future referencing (Table 1 A-B).

Table 1A.

Overview of data on COVID-19 pandemic collected at Zabok General Hospital

First patient suspected of SARS-CoV 2 infection	February 12, 2020
First patient with confirmed infection with SARS-CoV 2	March 15, 2020
Total number of the tested for SARS-CoV 2 (as of May 21, 2020)	2638
Total number of confirmed cases of SARS-CoV 2 infections	134+8 cases of patients not from the County
Total number of patients hospitalized with SARS-CoV 2 infection	25; 5 transferred to Dr. Fran Mihaljević University Hospital for Infectious Diseases
Total number of patients who passed away while hospitalized with SARS-CoV 2 infection	2
Total number of individuals under age 18 tested (as of May 21, 2020)	130
Total number of confirmed cases of SARS-CoV 2 in those tested under age 18	10
Total number of patients hospitalized under age 18 with SARS-CoV 2 infection	0
Mean age of individuals infected with SARS-CoV 2 tested in Zabok General Hospital	49.9

Table 1B.

Overview of SARS-CoV 2 tested versus infected individuals on a monthly basis

	February 2020	March 2020	April 2020	May 2020
Number of individuals tested	3	246	1132	1117
Number of positive results	0	69	88	6

### CONCLUSION

The COVID-19 pandemic has introduced tectonic changes in today's society but simultaneously provided a setting from which new experience and knowledge could and have been drawn. In order to fight the virus, novel medical protocols have been tested and established. Consultants from different medical fields and nurses from various wards were included in the treatment and management of those infected with SARS-CoV 2, erasing the barriers between those fields and establishing a truly multidisciplinary team that was critical for the appropriate care of patients. Junior doctors of the Zabok General Hospital, most of whom had only recently graduated, improved their skills and knowledge exponentially in a 'baptism by fire' scenario. The National Civil Protection Directorate complimented the Hospital on more than one occasion for their efforts and results.

The ever-changing dynamics of the pandemic, combined with regulations and restrictions imposed by the National Directorate, meant that the system had to be flexible and susceptible to changes on a daily basis.

Hospitals and other healthcare institutions were mostly left to fend for themselves in this newfound situation, trying to provide the best healthcare with the personnel and resources they had at their disposal (12) Piedmont, Veneto, Friuli, Trentino, Emilia Romagna Regions.

With the world seemingly starting to recover from the pandemic and the restrictions imposed by various governments starting to loosen, a number of questions remain: will the coronavirus pandemic become a seasonal occurrence, or is this the last we have seen from it? Will the vaccines that are currently being developed prove effective, and if yes, when will it become available? Will the world be forced to adapt to the presence of the virus and, with facemasks on and increased sanitary regulations at all times? May more questions arise, with the answers still somewhat hidden and unclear. With adaptability and perseverance, the current situation has been brought under control. If hoping to be up to the task in the near and far future, sharing discoveries and achievements, failures, and mistakes, is the way by which new labors could and can be bested, with healthcare taking the helm. High-quality fundamentals have already been set if the need arises.

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## S A Ž E T A K

### STJERANI DO ZIDA: ORGANIZACIJA ZDRAVSTVENE SKRBI TIJEKOM PANDEMIJE KORONAVIRUSA 2020. – MODEL OPĆE BOLNICE ZABOK I BOLNICE HRVATSKIH VETERANA

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Pandemija koronavirusa, počevši krajem 2019., prožela je gotovo sve aspekte modernog društva. Pravila i zakoni uvedeni od vladajućih struktura i organizacija širom svijeta uveli su iznimne promjene u svakodnevicu. Sa širenjem pandemije i porastom broja zaraženih pojavila se i potreba za odgovarajućom zdravstvenom skrbi oboljelih. Nesigurnosti i nepoznanice vezane za virus pretvorile su rad s bolesnicima u svakodnevnu bitku. Prikazani podatci prikupljeni su u razdoblju od 12. veljače do 15. svibnja 2020. U navedenom razdoblju 2638 pojedinaca je bilo testirano na infekciju SARS-CoV 2 od kojih je 140 imalo pozitivan nalaz, 25 ih je zahtijevalo bolničko liječenje te su dvije osobe preminule. Testirano je i 130 pojedinaca mlađih od 18 godina od kojih je 10 bilo pozitivno na infekciju SARS-CoV 2, a nijedna osoba nije hospitalizirana. Cilj naše publikacije je prikazati i podijeliti iskustva koja smo stekli tijekom pandemije virusa tijekom 2020. u Općoj bolnici Zabok i Bolnici hrvatskih veterana u Krapinsko-zagorskoj županiji koja je bila jedna od većih žarišta pandemije u Republici Hrvatskoj.

*Ključne riječi:* COVID-19, koronavirus, organizacija zdravstva, organizacija bolnica, pandemija