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ORIGINAL PAPER

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Family Medicine Practice During COVID-19 Pandemic in Canton Sarajevo: Positive and Negative Aspects

Zaim Jatic^{1,2}, Natasa Trifunovic^{1,2}, Hasiba Erkocevic^{1,2}, Elvira Hasanovic^{1,2}, Katmerka Ceric³, Baskim Bajrami⁴, Maksida Jasarevic³, Larisa Gavran^{5,6}, Amra Zalihic^{7,8}, Melida Hasanagic⁹, Edin Dautbegovic¹⁰, Senada Selmanovic¹¹, Samir Dedovic¹¹, Olivera Batic-Mujanovic^{11,12}

¹Faculty of Medicine, University of Sarajevo, Sarajevo, Bosnia and Herzegovina

²Public Institution Health Center of Canton Sarajevo, Sarajevo, Bosnia and Herzegovina

³Public Institution Health Center Bihac, Bihac, Bosnia and Herzegovina

⁴Public Institution Health Center Gorazde, Gorazde, Bosnia and Herzegovina

⁵Public Institution Health Center Brcko, Brcko, Bosnia and Herzegovina

⁶Faculty of Medicine, University of Zenica, Zenica, Bosnia and Herzegovina

⁷Public Institution Health Center Mostar, Mostar, Bosnia and Herzegovina

⁸Faculty of Medicine, University of Mostar, Mostar, Bosnia and Herzegovina

⁹Public Institution Health Center Old City Mostar, Mostar, Bosnia and Herzegovina

¹⁰MedIt, Sarajevo, Sarajevo, Bosnia and Herzegovina

¹¹Health center with polyclinic "Dr Mustafa Sehic", Tuzla, Tuzla, Bosnia and Herzegovina

¹²Faculty of Medicine, University of Tuzla, Tuzla, Bosnia and Herzegovina

Corresponding author: Associate Professor Zaim Jatic, MD, PhD. Address Grbavička 85, 71000 Sarajevo, Bosnia and Herzegovina. Email: zaim.jatic@mf.unsa.ba. ORCID ID: www.orcid.org/0000-0002-5288-7745.

ABSTRACT

Background: After the World Health Organization declared the outbreak of a new coronavirus on 30 January 2020 a public health emergency of international importance, health authorities in Bosnia and Herzegovina as in other countries around the world, have ordered active surveillance, early detection, isolation and management, cases, contact monitoring and prevention of the spread of infection. **Objective:** The aim of this study was to describe and analyze of the organization of family medicine during COVID-19 pandemic in Canton Sarajevo with its positive and negative aspects. **Methods:** The case study design provided an ideal framework for systematic research into the organization of primary health care in Sarajevo Canton during the COVID-19 pandemic as it is an empirical study exploring a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly visible. Multiple sources of evidence are used. Data were collected in several different ways: analyzing policies, laws, regulations, decisions related to the COVID pandemic, insight into changes in the health information system, collecting data from reports, and through a group interview (Delphi exploratory) with eleven family medicine specialists. **Results:** Primary care was organized as two parallel systems with family medicine in the center. The first system was COVID-19 primary care and the second was regular care for non-COVID-19 patients. Family medicine physicians despite a numerous setbacks provide health care for 106346 COVID-19 cases. **Discussion:** Every principal (first contact access, person-centered care, comprehensiveness, conti-

nuity of care, community based, coordination of care, and holistic modeling) of family medicine was interrupted with consequences for patients and family physicians. **Conclusion:** Additional research is needed to examine all facets of the family medicine and primary health care response to the COVID-19 pandemic in Sarajevo Canton.

Keywords: Family medicine, Primary health care, COVID-19 pandemic.

1. BACKGROUND

After the World Health Organization (WHO) declared the outbreak of a new coronavirus (2019-nCoV) on 30 January 2020 a public health emergency of international importance, health authorities in Bosnia and Herzegovina (B&H), as in other countries around the world, have ordered active surveillance, early detection, isolation and management, cases, contact monitoring and prevention of the spread of infection (1, 2).

B&H has two entities and one district. One of these two entities is Federation of Bosnia and Herzegovina, is divided into 10 cantons. Each individual organizational unit has its own health system and the Ministry of Health, and such a complex organization of Bosnia and Herzegovina, is reflected in the complexity of the health system. As a result of such a structure, B&H is one of the few countries in the world that does not have a State ministry of health, but consists of two major health systems and thirteen subsystems. Both systems and the thirteen subsystems formed their own Headquarters for Emergency Situations and specific approaches

to the organization and adjustment of health care during COVID-19. Adaptation and transformation of the health information system (HIS) was carried out at different rates and approaches in individual health subsystems, that is why there were different organizations of the health system for COVID-19 (3-5).

Leading roles in decision-making related to these issues was given to Federal Civil Protection Headquarters (FCPH) but local headquarters were formed within all the above levels of health systems and subsystems. Guided by the orders of the headquarters to the population to reduce consultative-specialist examinations, and to call the family doctor in case of persistence of symptoms before arriving at the health institution, family medicine was also placed at the center of all activities related to COVID-19. After such changes, family medicine operated in two parallel systems - a system for monitoring and guiding patients with COVID infection and a second system for providing regular health care (6, 7).

2. OBJECTIVE

The objective of this study is to describe and analyze of the organization of family medicine during COVID-19 pandemic in Canton Sarajevo with its positive and negative aspects.

3. METHODS

The case study design provided an ideal framework for systematic research into the organization of primary health care in Sarajevo Canton during the COVID-19 pandemic as it is an empirical study exploring a contemporary phenomenon within its real-life context when the boundaries between phenomenon and context are not clearly visible. Multiple sources of evidence are used.

Data were collected in several different ways: analyzing policies, laws, regulations, decisions related to the COVID pandemic, insight into changes in the health information system, collecting data from reports, and through a group interview (Delphi exploratory) with eleven family medicine specialists (male =1) who are members of the Association of Family Physicians.

Questions were structured and open-ended. All study respondents had considerable experience with the topic under consideration and a thorough understanding of organizational issues in family medicine, which enabled us to efficiently capture key areas relevant to our study objectives. The authors analyzed the document reviews, data, and interviews collaboratively. In this way, triangulation was provided as an "attempt to ensure a deep understanding of the phenomenon in question." Triangulation has also been used as an alternative to validation (8, 9, 10).

4. RESULTS

By 08.3.1922, there was 372 645 confirmed COVID cases and 15590 deaths had been reported at B&H (11). In Canton Sarajevo which covers an area of 1,269.05 km² with a total population of 413,593 (12) were a total of 106346 reported cases of COVID-19 and 1912 deaths with a case fatality rate of 1.8% (Table 1).

Variable	Year			Total
	2020	2021	2022*	
Processed tests (RT PCR and Ag-RTD)	103299	290204	101556	495059
Number of reported COVID-19 cases	24298	46750	35298	106346
Number of deaths (reports from health institutions)	382	1276	254	1912
Case fatality rate	1.57%	2.73%	0.72%	1.80%

*Data until 08.03.2022

Table 1. Processed test, reported COVID-19 cases and number of COVID-19 deaths in Canton Sarajevo

Public Institution Health Center of Sarajevo Canton (PIHCSC) provide primary health care in Canton Sarajevo. In family medicine service are registered 220 medical doctors. But of that number usually work approximately 150-160 medical doctors because around 45 medical doctors are at residency programs in different specialization. Only 10% of residents are on family medicine specialization (13). The family medicine service at PIHCSC is open from 7:30 to 20:00, divided into two shifts throughout the day, seven days a week. The working hours of family physicians are 37.5 hours per week (14).

"Working hours were extended to 22:00 at the start of the pandemic. During one period, night work was performed with family doctors on duty on the call center's telephone line to provide psychological support to the Sarajevo Canton's population." (Interviewee 4, woman).

"Family doctors have worked and are still working to exhaustion. Everyday work and everything else that followed as a challenge in this difficult time." (Interviewee 11, woman).

Regular access to health care was jeopardized for three primary reasons: a) difficult access for regular patients to family medicine clinics as a result of the crisis headquarters' decision and lockdown, b) decreased physician and nurse staffing in family medicine clinics as a result of at least 20%-30% of physicians and nurses working in COVID outpatient clinics and approximately 10% on sick leave at all times due to COVID-19, and c) extremely difficult telephone access to family physicians as a result of the same lines being used by COVID-19.

"The spatial capacities of medical buildings were far from adequate. We are coping with the constant relocation of services and departments within the PHC in the current situation. Additionally, there was a staffing shortage at all levels of health care, although efforts were made to address this by temporarily employing young unemployed health care workers." (Interviewee 5, woman).

"If we had certain resources, we didn't have a unified approach. We missed the opportunity to 'learn from good practice' on the move." (Interviewee 10, woman).

Since the onset of the COVID pandemic, family physicians have been directly involved in all processes of identifying, recording, and monitoring cases of COVID infection. PHC has created two parallel systems, one for patients with COVID-19 and the other for patients who require regular health care. Sarajevo Canton's family medicine was directly

involved in both systems (Figure 1).

Family physicians had the following responsibilities in the newly formed parallel health care system for patients with COVID-19: a) work with a suspected COVID-19 case (phone calls, advice, referral to PCR or Ag-RTD testing); b) work with a confirmed COVID-19 case (epidemiological survey, forms for isolation and submission to the Ministry of Health, telephone counseling, daily telephone monitoring, sick leave management as needed); c) examination of the patient in the COVID clinic; d) referral and transport of patients to the hospital as indicated; and e) post-COVID-1 care (examinations in the family medicine clinic, laboratory tests, referral to different specialists, mostly to general internists and pulmonologists).

COVID-19 health care at the PHC level presupposed the establishment of a so-called COVID-outpatient clinic, which was typically staffed by family medicine physicians and nurses. Additionally, COVID outpatient clinics provided laboratory services (complete blood count, differential blood count, CRP, and sedimentation rate), pulse oximetry, and chest X-rays. Parenteral, inhalation and oxygen therapy were applied in these clinics. Patients suspected of having COVID-19 or who were already had proven SARS-CoV-2 infection did not have direct access to these clinics. These patients require a referral letter from their family physician, who was extremely difficult to reach due to the phone lines being jammed.

Patients who experienced symptoms of infectious syndrome, which are possible signs of COVID infection, were required to contact their family doctor, usually by phone, but occasionally by e-mail. After contacting a patient exhibiting symptoms of an infectious syndrome, the family physician collected comprehensive epidemiological and anamnestic data from the patient (contacts, symptoms, duration of symptoms, vaccination status) (Figure 2).

The family physician was required to determine the optimal time to send a referral for RT PCR / Ag-RTD and enter it into the outpatient information system based on the data obtained from the patient. Due to the enhancement and adaptation of the existing health information system in the Canton of Sarajevo, beginning March 25, 2020, the family physicians were able to create a referral in the health information system.

“Primary health care welcomed the pandemic with insufficient human capacity, primarily due to lack of material resources, personal protective equipment (personal protective equipment), lack of adequate space to form separate

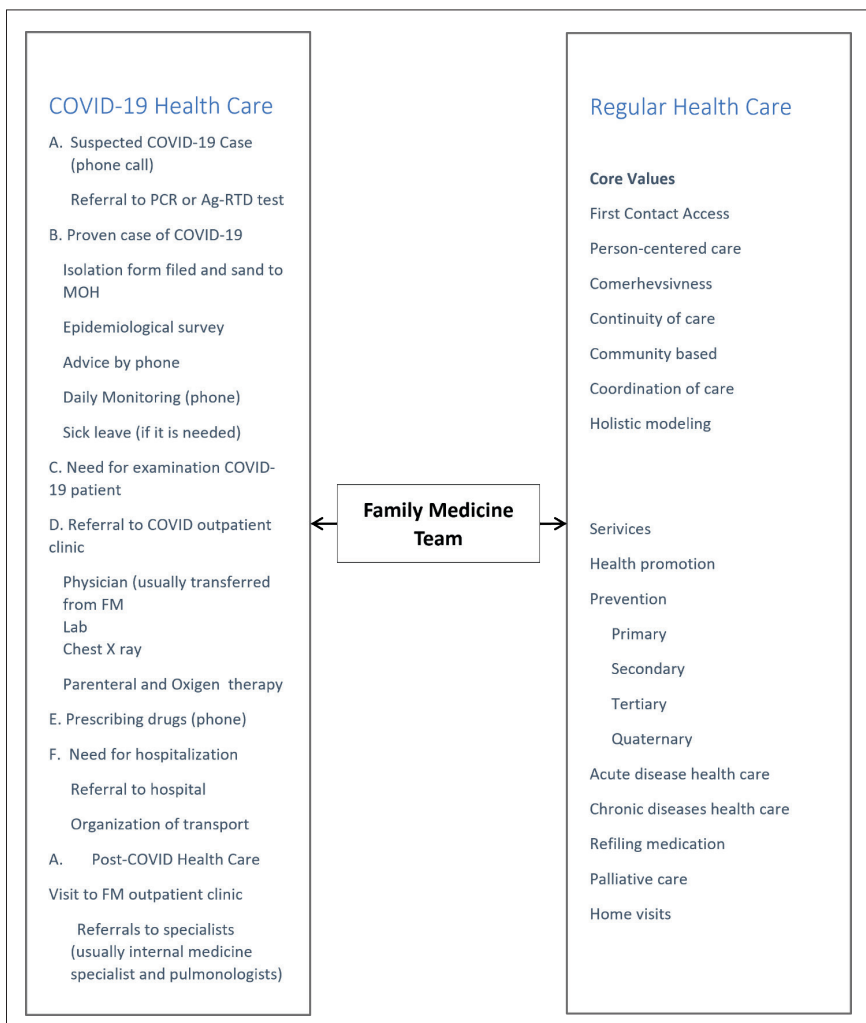


Figure 1. Parallel Primary Health Care System in Canton Sarajevo during COVID-19 pandemic

spaces for the examination of positive patients and to adapt and improvise everything. The outpatient health information system (OHIS) was the fastest to adapt, and on March 25, 2020, it had all the modules needed to easily manage and monitor triage, self-isolation, sending referrals electronically, which significantly reduced the loss of time to write all these records manually, and increased completeness, the accuracy of data and visibility of records at all levels.” (Interviewee 4, woman).

The family physician was required to contact the patient and communicate the test results, as well as to decide whether to refer the patient to the COVID outpatient clinic for examination and diagnosis as part of the daily monitoring of symptoms for each patient individually. While the establishment of the Viber application to communicate test results directly to patients aided the family physician’s work somewhat, the family physician was still required to monitor the patient’s health condition and symptoms daily. In the event of deteriorating symptoms necessitating laboratory or radiological diagnosis and examination at a COVID outpatient clinic, the family physician created a referral for these examinations and procedures, and he was obligated to monitor and inform the patient about the results of these examinations and tests. A family physician initiated a specific course of treatment based on the results of diagnostic

tests. Referral to necessary controls was also the responsibility of family physicians.

During the COVID pandemic, the family physician was the only health care professional who could enroll a patient in an isolation and follow-up system for a duration determined by applicable local guidelines (typically 14 days at the start of pandemic and 7 to 10 days afterwards).

During the follow-up of a person infected with SARS-CoV-2, the family physician was required to manage the patient's sick leave throughout the course of treatment and the period of isolation, as well as afterward in the presence of post-COVID syndrome symptoms. Numerous patients who recovered from COVID-19 had deteriorating underlying diseases. Exacerbations of cardiovascular disease, chronic respiratory disease, hypertension, and diabetes mellitus were the most common. Consequently, many patients were referred to internists, pulmonologists, as well as endocrinologists for specialist consultations.

"State institutions do not acknowledge the significance of family medicine in the COVID pandemic. There are insufficient incentives for family medicine teams working in outpatient clinics and interacting with positive patients." (Interviewee 8, woman).

"I didn't have time for myself or my family. I have two serious chronic diseases that I haven't controlled since 2019." (Interviewee 9, woman).

The Federal Ministry of Health introduced comprehensive guidelines for COVID-19 management at the end of 2021 (16). Prior to that, various associations of family medicine and public health institutes issued recommendations for good practice (17). With the exception of a few continuing medical education events, these guidelines and recommendations were not properly disseminated.

When asked what the most difficult aspect of the COVID-19 pandemic for them was personally in their private and professional lives, participants answered as follows.

"The fact that we are neglecting all our other obligations by dealing exclusively with COVID 19 and that will have additional negative consequences for the health of our patients." (Interviewee 1, woman).

"When you heal a sick person while also being aware that he/she is dying." (Interviewee 2, man).

"Overburdened by a plethora of concurrent demands placed on family physicians, but without management or health authorities recognizing that family physicians are the ones who 'carry' the pandemic on their backs and

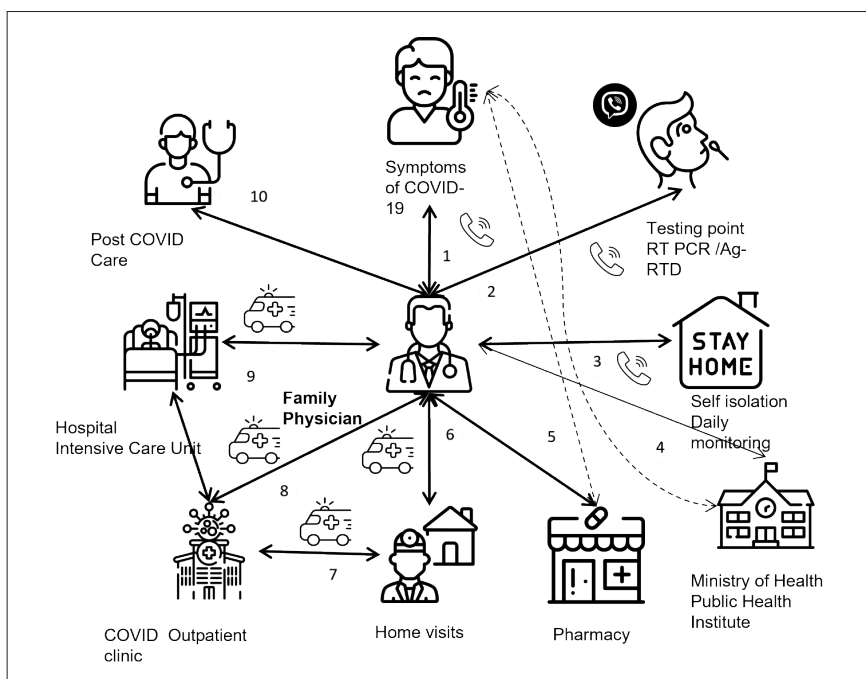


Figure 2. Primary care for COVID-19 in Sarajevo Canton (1) A patient with symptoms suspected of COVID-19 must call a family physician (FP); (2) FP have sent an e-referral to the test site for PCR or Ag-RTD, test results are sent to the patient via Viber, and to FP via HIS; (3) Positive cases must be in home self-isolation and contact with FP telephone; (4) FP sent information to the Ministry of Health and the Institute of Public Health; (5) FP sent an e-prescription to pharmacies, a third party had to pick up the medication and bring it home to the patient; (6) FP organizes home visits for patients who are unable to go to the outpatient clinic (severe cases, life itself, infirm persons, persons with disabilities. FP may decide to treat the patient at home or send him to the COVID outpatient clinic (7, 8) or directly to the hospital (9), 10. Patients after COVID-19 regularly visit FP. The critical points of this organization were the following services: (1), (3), (8) and (9) because FP has to make decisions based on telephone conversation with the patient and writing e-referrals. The telephone lines were often busy and communication between patients and FPs was difficult to establish. The patient to be tested or examined in a COVID outpatient clinic had to have e-referrals by FP. (Icons by Courtesy of Flaticon, Freepik Company, S.L.)

protect secondary and tertiary health care. Yet the most difficult aspect of the COVID pandemic was witnessing my patients die." (Interviewee 4, woman).

"State institutions do not acknowledge the significance of family medicine in the COVID pandemic. There are insufficient incentives for family medicine teams working in outpatient clinics and interacting with positive patients." (Interviewee 8, woman).

"I didn't have time for myself or my family. I have two serious chronic diseases that I haven't controlled since 2019." (Interviewee 9, woman).

"The chaos that reigned, which could be resolved through concrete proposals and ideas from practicing health professionals. Regrettably, we were not respected or consulted. Only imposed obligations. During the COVID pandemic, not all health care workers bore the same burden." (Interviewee 10, woman).

As a result of the foregoing, all of family medicine's principles have been adversely affected, including the patient-centered clinical method, continuity of care, effective promotion and prevention, a unique consultation process, a specific decision-making process, and addressing health problems in their physical, psychological, social, cultural, and existential dimensions.

5. DISCUSSION

Health systems in all countries had to be urgently reorganized to respond to the COVID pandemic. Family medicine has undergone significant organizational changes with numerous consequences for patients and family physicians. FP are positioned at the epicenter of the transforming health care system because of their critical role during and following the COVID-19 pandemic (7, 18).

Similarly, as in B&H, in other countries during the COVID-19 pandemic, health care systems were strongly challenged to provide appropriate care to both COVID-19 patients and other patients. Korotschka et al. find in Italy that family medicine services were challenged to rapidly reorganized the practice, although local, regional, and national evidence-based guidelines on COVID-19 management were lacking. As a result, services and care provision reorganizations were left to the capacities of the individual GPs. In addition, FPs experienced poor coordination of COVID-19 care and often also poor communication among health care services. They also reported low quality of health care for non-COVID acute and chronic patients and problems in communication due to a lack telephone lines. To provide high-quality care, GP practices faced unprecedented organizational and structural challenges, including limited staffing, inadequate infrastructure, and -especially early in the pandemic- a lack of personal protective equipment (15).

Numerous authors from various countries document interruptions in care continuity, resulting in a loss of health care quality and endangering the population's health. International experts have expressed concern about the consequences of postponed care. This interruption in continuity of care may have resulted in decreased adherence to treatment, low quality of life, increased hospital admission rates, mortality, morbidity, and increased direct and indirect costs associated with health conditions (19-23).

Increased pressure on family doctors and consequent stress during the COVID pandemic is caused by sudden changes in work organization, increased workload, concerns about the accuracy of diagnosis and the possibility of errors during telephone contacts, a lack of clinical guidelines and difficult access of patients to clinics (18, 24-26).

The comprehensiveness of health care has been disrupted in other countries as well, primarily due to limited access to family medicine and lockdown measures. Doctors expressed concern about the deteriorating physical and mental health of their patients, as well as the lack of preventive activities (27, 28).

The Strengths and Limitations

The case study's strengths include the ability to comprehend complex relationships within a health care organization, its grounding in "lived reality," and its use of a variety of data sources.

Our case study has several typical limitations, including the possibility of bias, doubts about "objectivity," inability to generalize in the conventional sense, subjective method, and difficulty simplifying the complexity examined.

6. CONCLUSION

There are many negative and positive aspects of organizing the family medicine in the manner in which it was

organized in Canton Sarajevo.

The positive aspects of organizing parallel health care systems in Canton Sarajevo include the following: a) expanding the roles of family medicine was a critical step toward improving primary health care's responsiveness during the pandemic; b) accelerating the transformation and adaptation of the health information system and facilitating work with the transformed information system; c) during the pandemic, family medicine played a central role in protecting hospitals; d) essentially, it was a good idea to make all data available to the family physician who was involved in both parallel systems; e) the new situation and health care organization have demonstrated the adaptability of family medicine to work in new and unforeseen situations; and f) family physicians and nurses have demonstrated resilience and adaptability in supporting efforts to detect, isolate, and treat patients in difficult and demanding times while continuing to care for patients with conditions unrelated to COVID-19.

Negative aspects include the following: a) organization did not imply or provide a sufficient number of health workers in the PHC; b) too many administrative tasks were transferred to the FP without a use of administrative workers; c) complicated organization of monitoring a patient with COVID-19 symptoms; d) only family physicians and nurses worked in COVID outpatient clinic without help of health workers from other services; e) family physicians and nurses, often moved from their jobs to work elsewhere (COVID clinic, call center), f) only telephone communication with COVID-19 patients was possible, with an insufficient number of telephone lines, g) missed opportunity to introduce and regulate telemedicine in the health system and h) the most important drawback - regular health care is denied to patients, especially those with chronic diseases.

Additional research is needed to examine all facets of the family medicine and primary health care response to the COVID-19 pandemic in Sarajevo Canton.

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