

# Survey on what COVID-19 pandemic changed in pediatric urology

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**Cite this article as:** Tekin A, Tiryaki S, Ulman İ. Survey on what COVID-19 pandemic changed in pediatric urology. *Turk J Urol.* 2021;47(4):338-346.

## ABSTRACT

**Objective:** We aimed to conduct a survey to see how the patient management of pediatric urologists has changed during the COVID-19 pandemic in daily practice and its compliance with the guidelines that aim to minimize the harm to the patient and healthcare professionals.

**Material and methods:** A questionnaire was prepared to be asked to physicians via Microsoft Forms dealing with pediatric urology for this purpose, and a link was shared in social media groups of doctors managing pediatric urology patients.

**Results:** A total of 58 (46 males and 12 females) doctors participated in the survey. Participants stated that they made a very high rate of change in their clinical routine; the most preferred approach for the prevention in the operating room was reducing the number of the working staff, and the second most frequent was performing a preoperative COVID-19 screening. Elective surgeries (ie, inguinoscrotal pathologies) were delayed by the majority. However, the majority of the surgeons did not delay surgeries for ureteropelvic junction obstruction or urinary stones. Ninety-five percent of the participants stated that the number of patients was decreased in the outpatient clinics, which was mainly due to the hospital and government policies. The most used method to communicate with patients during the pandemic was phone calls, and there was a 52% increase in the WhatsApp messenger application before the pandemic.

**Conclusion:** Our survey provided us with an opinion about how our colleagues' lives changed during the pandemic and showed us the importance of a well-established telemedicine system.

**Keywords:** COVID-19; pandemic; pediatric urology; telemedicine; WhatsApp.

## Introduction

The world health organization reported a new coronavirus induced (Severe Acute Respiratory Syndrome Coronavirus-2: SARS-CoV-2) pandemic in March.<sup>1</sup> At different times after the pandemic announcement, governments tried to prevent the spread by imposing curfews.<sup>2</sup> All physicians worked in shifts, regardless of the specialty, to manage the disease diagnosis and treatment. Many physicians did not know what to do under these conditions in their patients' follow-up and treatment. As with other organizations, pediatric urology organizations have published guidelines to direct the approach in their field during the pandemic.<sup>3–5</sup> We aimed to conduct a survey to

see how the patient management of pediatric urologists has changed during the pandemic in daily practice and its compliance with these guidelines that aim to minimize the harm to the patient and healthcare professionals.

## Material and Methods

A 24-item questionnaire was prepared to be asked to physicians dealing with pediatric urology (Supplementary information 1). The Microsoft Forms software was used to prepare and share the questionnaire. Open-ended questions and multiple-choice questions were asked about the demographic information of the participants, the surgeries they performed during the pandemic, the problems they

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**Submitted:**  
26.10.2020

**Accepted:**  
07.12.2020

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experienced in the outpatient clinic, and their solutions for these. The survey link was shared in social media groups of doctors managing pediatric urology patients, such as Facebook and Twitter. Answers were collected in 4 weeks, starting from May 13. The results were obtained as an Excel file from Microsoft Forms, which was transferred to Statistical Package for the Social Sciences (SPSS) version 23.0 (IBM SPSS Corp.; Armonk, NY, USA) for the analysis. Chi-square test, Wilcoxon-signed rank test, independent samples t-test, and regression analysis were used where appropriate for the statistical analysis. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. Ethics approval was obtained from Ege University Medical Research Ethics Committee (20-9T/62).

## Results

A total of 58 (46 males and 12 females) doctors participated in the survey. The mean age was  $44.41 \pm 9.71$ . Thirty-six (62.06%) participants were from Turkey, and 22 from abroad (Bangladesh, Bosnia-Herzegovina, France, India, United Kingdom, Iraq, Mexico, Peru, and Switzerland). We could not make any comparisons among answers according to the countries they live in because most of the participants were from Turkey. When asked about their job description, 25 participants stated that they were pediatric urologists, 26 pediatric surgeons, and seven urologists. When asked about the facilities they work in, 32 participants were working in a training and research hospital, 16 in state hospitals, and 10 in private hospitals.

When the participants were asked to rate the changes they made in their clinical routine from 1 to 5 during the pandemic, it was observed that a very high rate of change occurred (Figure 1).

The European Association of Urology (EAU) guide was the most commonly read guide during the pandemic. Pediatric

urologists were allowed to read the EAU guide with a rate significantly higher than others. This guideline is the most read among pediatric urologists with a rate of 80% (80%,  $P < .05$ , Chi-square test).

Among the measures taken in the operating room, it was observed that the most preferred approach was reducing the number of working staff, and the second most frequent was performing a preoperative COVID-19 screening (Figure 2). It was observed that physicians working in private hospitals performed the preoperative COVID-19 screening at a rate of 30%, which was significantly lower than the others (68.75%) ( $P < .05$ , Chi-squared test).

We asked for their preference for delaying or performing some specific operations. Elective surgeries (ie, inguinoscrotal pathologies) were delayed by the majority. Only nine physicians performed elective surgeries, and seven of them worked in private hospitals ( $P < .05$ , Chi-squared test).

On the other hand, the majority of the surgeons did not delay surgeries for ureteropelvic junction obstruction (UPJO) or urinary stones. Pyeloplasty was the most common intervention for

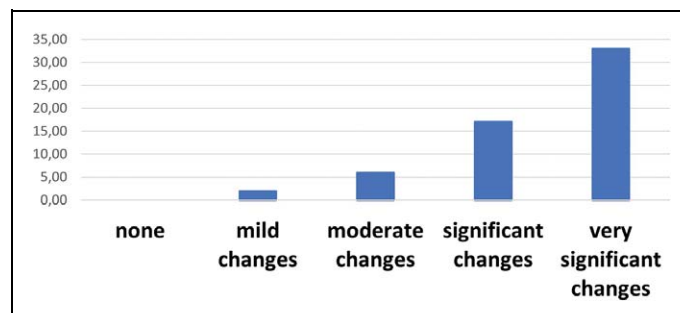


Figure 1. Changes the clinic's routine during the COVID-19 pandemic.

### Main Points

- During the COVID-19 pandemic, elective cases were mostly delayed, except in private healthcare facilities.
- Difficulty in reaching the patients was one of the problems physicians dealing with pediatric urology faced, and it was most prominent in teaching hospitals.
- Despite the difficulties, pyeloplasty is the primary method to treat ureteropelvic junction obstruction among pediatric urologists during the pandemic.
- During the pandemic, telemedicine came forward.
- WhatsApp messenger usage increased more than 50% as a telemedicine method compared to the prepandemic routine.

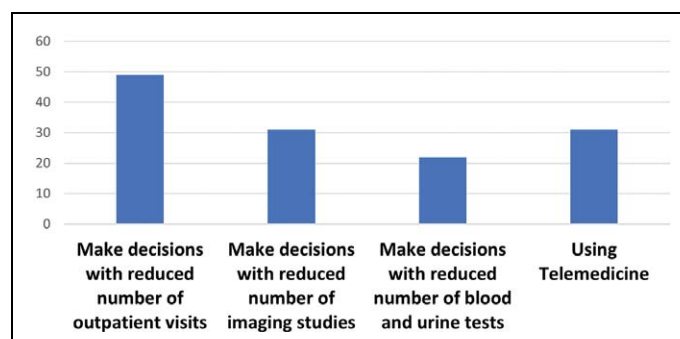


Figure 2. Changes to reduce the hospital admission number or duration of the outpatients.

UPJO, and JJ stent insertion and nonoperative observation were preferred by less than half. The physicians who preferred pyeloplasty were mostly the pediatric urologists (60.1%,  $P < .05$ , Chi-squared test).

In the treatment of urinary stones that cause obstruction, 59.3% of the physicians stated that they preferred temporary JJ-stenting. The remaining physicians stated that they used the treatment methods they would prefer at other times with no modification. However, only 20% of the participants stated that they kept performing the extracorporeal shock-wave lithotripsy (ESWL) during the pandemic.

When asked about the outpatient clinic, 94.8% of the participants stated that the number of patients was decreased, and this was mainly due to the hospital and government policies (Figure 3). They stated that they were postponing the outpatient visits most commonly, including the benign inguinoscrotal anomalies, long-term follow-up of congenital anomalies, and the patients with bladder-bowel dysfunction.

About their effort in reducing the spread, 91.4% of the participants stated that they made some changes to reduce the number of outpatient admissions. The maneuvers to attain this were managing the patients with fewer radiological examinations, less blood and urine tests, less frequent scheduled visits being offered, and using telemedicine (Figure 4).

The rate of telemedicine use was 53.4%; however, each participant admitted to use at least one of the methods among phone calls, messaging, e-mail, and official telemedicine to solve the problems that occurred during the pandemic instead of patient admission to the hospital. When asked how frequently they used these communication tools to solve patient problems before the pandemic, it is observed that there was a 52% increase in WhatsApp application ( $P < .05$ , Wilcoxon-signed rank test), 35.9% increase in phone calls ( $P < .05$ , Wilcoxon-signed rank test), and 3.5-fold increase in the use of official tel-

emedicine ( $P < .05$ , Wilcoxon-signed rank test) when compared with prepandemic routine (Figure 5). There was also a statistically significant difference between participants' age who preferred e-mails as a tool for reaching patients and who did not. The mean age of participants who used e-mails was 48.1 ( $\pm 9.98$ ) years; however, it was 41.9 ( $\pm 8.81$ ) years for the ones who did not ( $P = 0.01$ , independent samples t-test).

When asked about the most significant difficulties in follow-up in the outpatient clinic, the most common difficulties were the need for close contact during the physical examination (69%), limited availability in radiological examinations (44.8%), and reaching the patient (31%). When the difficulties in reaching the patient were analyzed, it was observed that it was significantly more difficult for those working in teaching hospitals ( $P < .05$ , Chi-square test).

## Discussion

COVID-19 is the first pandemic the current generation faced. Our lives including our management strategies for patients changed entirely in a short time. It was hard to act on a scientific basis in a rapidly changing situation like this. Guidelines helped us, but everybody questioned what others do while making difficult choices, so surveys became a good source of information in these days. The results of our questionnaire gave us an opinion about our colleagues' notion about the pandemic, their attitude toward changing their daily practice, and the difficulties they experienced. During the survey period, case numbers were around 11/100,000 in Turkey. Some curfews and social field restrictions were imposed in Turkey and most parts of Europe during the pandemic.

It was observed that elective surgical procedures such as circumcision, undescended testis, and hypospadias were generally postponed. The majority of the physicians who performed these procedures during the early pandemic period worked in the private healthcare facilities. This situation may be associated with patient preferences, the assumption of fewer COVID-19 patient admissions in these facilities, or hospital policies that staff doctors have to obey. Preoperative routine COVID-19 screening is also less preferred in private healthcare facilities. This can also be explained with fewer documented COVID-19 patients in these facilities or hospital policies that may differ from government hospitals.

The ESWL is an essential part of childhood urinary system stone treatment.<sup>6</sup> When the participants were asked about the use of urinary stone treatment, 41.4% preferred the usual treatment methods they performed before the pandemic, but the ESWL could only be performed at a rate of 20.7%. Like all

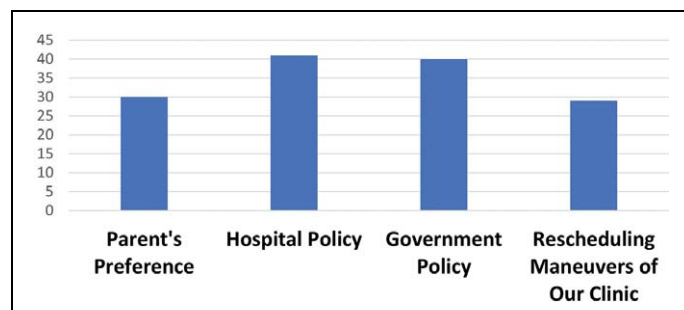


Figure 3. The reasons for the decrease in the number of patients in the outpatient clinics.

procedures, ESWL is a procedure that can be performed in the presence of competent healthcare professionals who cannot be replaced easily. Only one out of 11 physicians who could perform ESWL during the pandemic complained about inadequate health personnel, while 14 applicants could not. Lithotripsy technologists might have been repositioned in COVID-19-associated tasks as their routine duties are considered nonemergent.

Guidelines direct our management; however, our study confirmed that physicians do not make all their decisions based on them. EAU recommendations involved evaluating local conditions and preference of JJ stenting or nephrostomy when necessary for UPJO.<sup>3</sup> British pediatric urology association recommended methods such as JJ stent and nephrostomy if the loss of function is expected in these cases until the pandemic is over.<sup>7</sup> Our study showed that pyeloplasty was most commonly preferred for UPJO among the respondents. The group composed of pediatric urologists who responded as reading the guidelines most commonly, and they were also the ones who preferred this strategy that was not recommended by the guidelines. They probably felt more competent and preferred corrective surgery instead of temporary solutions while the child was anesthetized. The other possibility is that pediatric urologists' conditions in the hospital may differ from others and that may have led them to a different perception about their local conditions. Moreover, pediatric urologists might have thought that the burden of pyeloplasty in experienced hands is not signifi-

cantly higher compared to JJ-stenting or nephrostomy, which are temporary solutions.

The number of articles indexed in PubMed in 2020 with the term "telemedicine" in its title was almost twice as many as in 2019, and almost half of these articles were about the pandemic process. This situation alone shows that the importance of telemedicine has increased over the years, but especially during the pandemic. When attendants were asked about their preferred telemedicine method, phone calls and WhatsApp usage were significantly higher. It was seen that Facebook Messenger, which is the messaging application of another social media tool, was less preferred. Many studies have shown that WhatsApp application can be the most used and sufficient telemedicine application in different fields of medicine.<sup>8-11</sup> This was probably due to easy access to the cell-phones while trying to establish communication with patients.

The difficulty in reaching the patients was more prominent in teaching hospitals. This is understandable as they have a more diverse work-load and as a close person-to-person contact with the same doctor is less likely. On the other hand, this reveals the need for better systems and back-up plans in these facilities for extraordinary situations like this.

Another interesting finding of our study was the significantly older age among the participants who preferred e-mails while

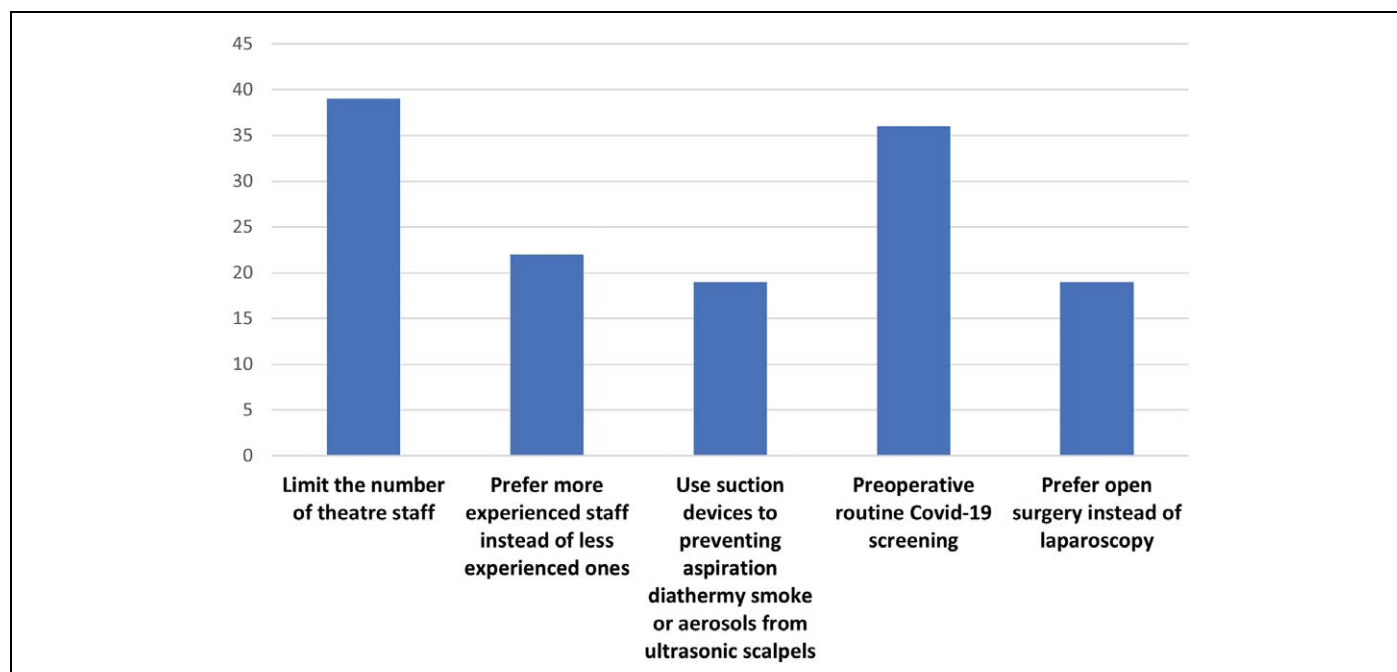


Figure 4. Measures to reduce the dissemination of COVID-19 in the operating room.

communicating. In the last few years, online communication evolved rapidly. Faster communication tools like WhatsApp messenger came forward. The difference between generations showed us that physicians tend to use communication devices they are already comfortable with. We think that telemedicine applications that have user and cell-phone friendly interfaces and support transportation of images, videos, or files will find wide usage and need to be established before another abnormal condition like this.

The world keeps on changing, and we do not know what future will bring to us. We have to be ready for future pandemics or disasters. Wider usage of telemedicine or rapid transition to it

in an emergent situation like this can only be possible if nationwide official applications are established, and the use of telemedicine is supported by law. A well-built system may even be used at other times, replace our current practice, and reduce the expenses for patients. It will also result in fewer days off the school and work. A small contribution can also be made to one of today's most significant problems reducing the carbon footprint.

**Ethics Committee Approval:** Ethics approval was received from the local Research Ethics Committee (20-9T/62).

**Informed Consent:** Participants were informed about the aim, method, and the concept of the study and that they will be deemed to have given consent to participate in the study if they filled the survey in the invitation message they were sent. In order to keep the results anonymous, signed informed consent was not received.

**Peer-review:** Externally peer-reviewed.

**Author Contributions:** Concept - A.T., S.T.; Design - A.T., S.T.; Supervision - S.T.; Materials - A.T.; Data Collection and/or Processing - A.T.; Analysis and/or Interpretation - A.T., S.T., A.U.; Literature Search - A.T.; Writing Manuscript - S.T., A.U.; Critical Review - I.U.

**Conflict of Interest:** The authors have no conflicts of interest to declare.

**Financial Disclosure:** The authors declared that this study has received no financial support.

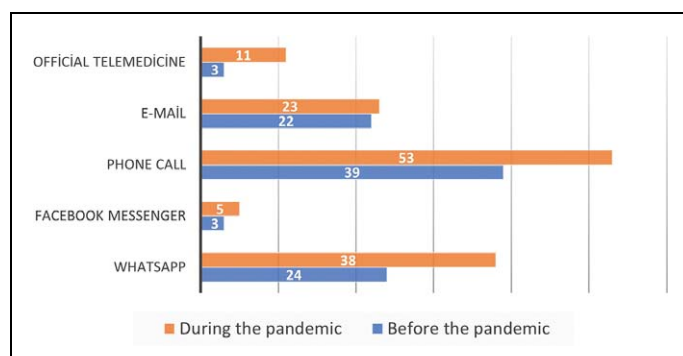


Figure 5. Communication methods used to reach patients.



## Appendix

### Changes in pediatric urology practices during the Covid-19 pandemic

#### 1.Specialization

- ☐ Pediatric Urologist  
☐ Pediatric Surgeon  
☐ Urologist

#### 2.What kind of facility are you working in?

- ☐ Private Hospital  
☐ State Hospital  
☐ Private Office  
☐ Training-University Hospital  
☐ Other

#### 3.Which country are you working in?

#### 4.Current Position

- ☐ Trainee  
☐ Consultant

#### 5.Age

#### 6.Gender

- ☐ Female  
☐ Male  
☐ Prefer not to say

#### 7.Does your hospital treat Covid-19 patients?

- ☐ Yes  
☐ No

#### 8.Are you involved in deciding hospital policy for the Covid-19 pandemic?

- ☐ Yes  
☐ No

#### 9.Did you operate Covid-19 positive patients during pandemic?

- ☐ Yes  
☐ No  
☐ Don't know

#### 10.Did you make any changes to your clinic's routine during the Covid-19 pandemic?

*1 none, 2 mild changes, 3 moderate changes, 4 significant changes, 5 very significant changes*

- 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

#### 11.Which of the following measures are you taking to reduce the dissemination of Covid-19 in the operating room?

- ☐ Preoperative routine Covid-19 screening  
☐ Limit the number of theatre staff  
☐ Use suction devices to preventing aspiration diathermy smoke or aerosols from ultrasonic scalpels  
☐ Prefer open surgery instead of laparoscopy  
☐ Prefer more experienced staff instead of less experienced ones  
☐ Other

#### 12.Which of the following guidelines did you read to guide your practice during the Covid-19 pandemic?

- ☐ Statement of the EAU guidelines panel for paediatric urology  
☐ Statement of the American College of Surgeons  
☐ Joint Statement: Roadmap for Resuming Elective Surgery after COVID-19 Pandemic  
☐ SAGES and EAES Recommendations Regarding Surgical Response to COVID-19 Crisis  
☐ Guideline of the national pediatric urology society of your country  
☐ None  
☐ Other

13. Which of the following surgeries are you performing during the Covid-19 pandemic?

- ☐ Hypospadias
- ☐ Orchiopexy
- ☐ Hydrocele
- ☐ Newborn inguinal Hernia
- ☐ Inguinal hernia with history of incarceration
- ☐ Uneventful inguinal hernia
- ☐ Circumcision
- ☐ Meatotomy
- ☐ Incontinence Surgery
- ☐ Botulinum Injections
- ☐ Buried Penis
- ☐ Benign (hemi)nephrectomy
- ☐ Bladder-augmentation
- ☐ Catheterizable Stoma
- ☐ Appendicocostomy
- ☐ Bladder Exstrophy Correction
- ☐ Open or Endoscopic Vesicoureteral Reflux Correction
- ☐ Pyeloplasty in UPJ Obstruction without Loss of Differential Function
- ☐ Pyeloplasty in UPJ Obstruction with Loss of Differential Function or Severe Symptoms
- ☐ Urolithiasis without Infection or Obstruction
- ☐ Urolithiasis with Infection or Obstruction
- ☐ Posterior urethral valve ablation when transurethral catheter can be placed
- ☐ Posterior urethral valve ablation when transurethral catheter cannot be placed
- ☐ Obstructed Megaureter with Progressive Loss of Differential Function
- ☐ Urosepsis with Obstruction
- ☐ Trauma with Hemodynamic Instability (endovascular or surgical procedures) or Urinary Leakage
- ☐ Malignant Renal, Testicular/Paratesticular, Bladder, Prostate and Other Urogenital Tumors
- ☐ Testicular Torsion
- ☐ Paraphimosis

14. Which treatment method do you prefer in cases of ureteropelvic junction obstruction with differential function loss during the Covid-19 pandemic?

- ☐ Observation with frequent ultrasonograms
- ☐ JJ stent insertion
- ☐ Pyeloplasty (open, laparoscopic or robotic)
- ☐ Other

15. Which treatment method do you prefer in cases of kidney stones with obstruction, with or without infection during the Covid-19 Pandemic?

- ☐ Apply the regular treatment protocol
- ☐ Prefer stent applications such as JJ stent or percutaneous nephrostomy

16. Do you use regularly shock wave lithotripsy for the treatment of nephrolithiasis during the Covid-19 pandemic?

- ☐ Yes
- ☐ No
- ☐ Other

17. Did the number of patients decrease in your outpatient clinic during the pandemic?

- ☐ Yes
- ☐ No

18. Which of these were the reasons for this decrease?

- ☐ Parent's preference
- ☐ Rescheduling maneuvers of our clinic
- ☐ Hospital Policy
- ☐ Government Policy
- ☐ Other

19. Which of the outpatient appointments did you postpone during the pandemic?

- ☐ Benign inguinal-scrotal and penile diseases
- ☐ Hydronephrosis
- ☐ Urinary stone
- ☐ Bowel-Bladder dysfunction
- ☐ Vesicoureteral reflux
- ☐ Patients in long-term follow-up with congenital anomalies
- ☐ Other

20. Did you make any changes in your practice to reduce the hospital admission number or duration of the outpatients?

- ☐ Yes
- ☐ No

21. Which of the following changes did you do?

- ☐ Make decisions with reduced number of imaging studies
- ☐ Make decisions with reduced number of blood and urine tests
- ☐ Make decisions with reduced number of outpatient visits
- ☐ Using telemedicine
- ☐ Other

22. Did you use the following tools during the pandemic to solve the problems of patients?

- ☐ WhatsApp
- ☐ Facebook Messenger
- ☐ Phone call
- ☐ e-mail
- ☐ Official telemedicine software
- ☐ Other

23. Which of these tools were you using before the pandemic?

- ☐ WhatsApp
- ☐ Facebook Messenger
- ☐ Phone call
- ☐ e-mail
- ☐ Official telemedicine software
- ☐ Other

24. What was the most challenging part of your outpatient follow-up during the pandemic?

- ☐ Difficulties in performing imaging studies
- ☐ Close contact with the patient during physical examination
- ☐ Difficulties in reaching patients
- ☐ My additional duties about the pandemic
- ☐ My outpatient clinic was reserved for COVID patients
- ☐ Insufficient Personal Protective Equipments
- ☐ Insufficient staff due to assignments in COVID services



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