

## Impact of Covid-19 Pandemics on Urology Practices and Residency Training in an Indonesian Tertiary Hospital

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### Abstract

The World Health Organization (WHO) declared Covid-19 as a global pandemic on March 11, 2020. Alterations in health service provisions must be applied to maintain prime services and decrease the number of healthcare workers exposure to Covid-19 by reducing the number of patients and workload, as well as cancelling elective surgeries. This study aimed to describe the urological services and residency training program during a Covid-19 year at Dr. Hasan Sadikin General Hospital, Bandung, which is a tertiary health center and teaching hospital in Indonesia. This was a comparative retrospective study conducted from January 2019 to December 2020 that compared the number of patients in inpatient and outpatient settings and emergency department, as well as surgical procedures performed before and during Covid-19 pandemic. Data were obtained from the administration department of the hospital, showing a reduction of 40.94%, 7.39%, 32.3%, and 53.89% of total inpatients, outpatients, emergency cases, and surgical procedures, respectively, in the urology department of the hospital when compared to the previous year. The number of surgeries that could be performed by residents was reduced by 30-60%. This current study showed the decreased number of patients and urological operative procedures during COVID-19 pandemic. This is assumed to give negative impacts to the urological residency training due to the limited exposure to variety of cases and surgical skill procedures.

**Keywords:** Covid 19 pandemic, residency training, urology practices

### Introduction

In Indonesia, the first Covid-19 case was confirmed on March 2<sup>nd</sup> 2020, and by March 11<sup>th</sup> 2020 World Health Organization (WHO) declared Covid-19 a global pandemic.<sup>1,2</sup> Covid-19 which was first discovered in December 2019 in Wuhan, China, is a disease caused by a single-stranded RNA virus, also known as coronavirus 2 (SARS-CoV-2). SARS-CoV-2 lead to various clinical manifestations from mild disease of upper respiratory tracts to severely acute respiratory distress syndrome (ARDS). Transmissions of COVID-19 can occur via droplets and direct contact of human-to-human. Several individuals with Covid-19 infection can be asymptomatic and act as carrier of the disease. Since it was first discovered in

Wuhan, Covid-19 global cases have continued to increase.<sup>2,3</sup> This unprecedented public health emergency has changed many aspects around the world including socioeconomic, education, and especially the healthcare systems. According to the WHO, protecting the health and lives of health care providers as the frontliners is critical to enabling a better global response.

Alterations of health services should be done to maintain prime services and reduce the number of healthcare workers exposure against Covid-19 by reducing the number of patients, workloads, and cancellation of elective operations.<sup>2</sup> These decisions resulted in changes in all departments such as the suspension of any outpatient activities, limiting the amount of procedures, and reorganizing activities in the wards, and with no exception, the urology department.<sup>4</sup> Surgery is the basis of a health system with elective and emergency procedures that contribute to the health of the population. Meanwhile the management of Covid-19 does not only focused on the field of urological surgery, furthermore the operating room is an area that is

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susceptible to transmission of respiratory tract infections.<sup>3</sup> A study showed a reduction in the number of urological surgeries from 79.3% to 42% post pandemic. Approximately 33.3% of patients with age of 60 years and over postponed their scheduled surgeries.<sup>5,6</sup> Based on Rasyid et al., elective surgery in Cipto Mangunkusumo Hospital, Jakarta showed declined percentage during the pandemic.<sup>3</sup> The consequences of this adjustment are still not yet known.

The effect of Covid 19 condition on the decrease in the number of patients and surgical procedures will certainly have an impact on the practice and study of urology. More data needed to show how this situation affects urology practices in one of “type A” hospital in Indonesia which also as a training hospital for residencies. This study was conducted to described the urology practices and residency programs during the Covid-19 era in West Java’s referral hospital.

## Methods

This retrospective descriptive study will compare the number of total patients in outpatient, inpatient, and emergency department, and the number of surgical procedures performed in the Urology Department carried out before and during the Covid-19 pandemic.

Sample was obtained from hospital data from the Administrative Department of Dr. Hasan Sadikin General Hospital Bandung. Sample size was collected from all data of surgical procedures performed from January 2019 to December 2020, all data were included in the study.

Type and complexity of the urology cases and surgeries were not included in the sample requirement selection criteria. No questionnaire was made, no interview was conducted. Ethical approval was given by the medical record administrative department. Ethical approval number LB.02.01/X.6.5/74/2022. The study was done in the Urology Department Dr. Hasan Sadikin General Bandung, Indonesia from March to April 2021.

## Result

The result of this current study indicates a decrease in the number of total patients in inpatient, outpatient, and emergency department during the Covid 19 year. This study also showed a decrease in the number of surgery procedures performed at Dr. Hasan Sadikin General Hospital Bandung in 2020 compared to 2019.

Data showed that the total inpatients number in 2019 was 1149, while in 2020 the total inpatients was 678. This data showed a significance decrease of 40.94% in the Covid-19 year compared to the non Covid-19 year. The graph of total inpatient presented in Figure 1. Total outpatient number in 2019 was 7314 and total outpatient number in 2020 was 6722. This data showed a decrease of 7.39% in the Covid-19 year. The graph of total outpatient presented in Figure 1.

The number of patients at emergency department in 2019 was 387, and in 2020 was 262. This study showed 32.30% decrease of the emergency cases in 2020 compared to 2019. The graph of total emergency cases presented

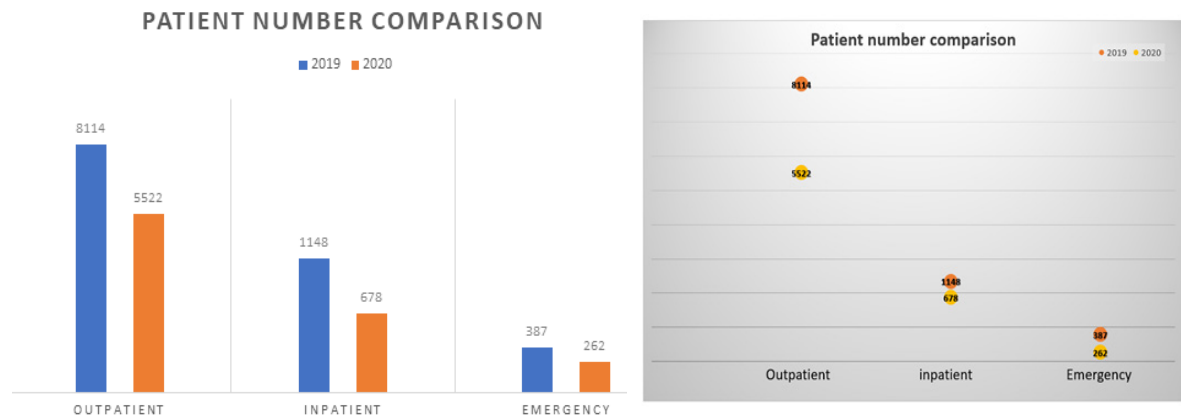
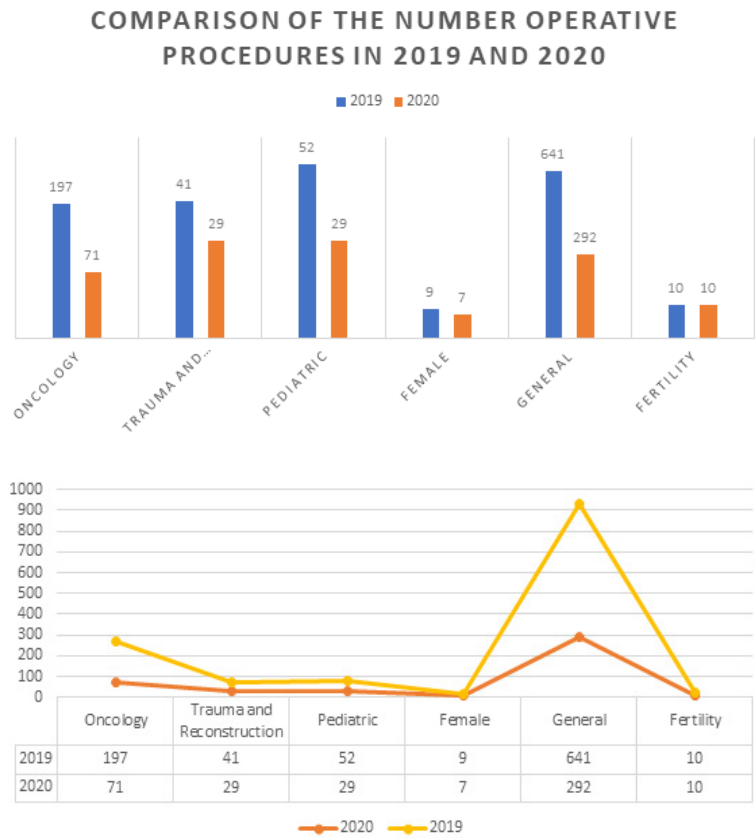


Figure 1 Comparisons of the Number of Patients in 2019 and 2020



**Figure 2 Comparison of the Number of Operative Procedures in 2019 and 2020**

in Figure 1. Surgical procedures done in 2020 also decreased significantly by 53.89%. The total number of surgical procedures in 2019 was 950 and 438 during the 2020 pandemic. Figure 2 showed the total surgical procedures divide by each division.

This study also compared the number of operations for residents each semester. Our study showed 10<sup>th</sup> semester residents underwent an average of 150 open surgeries and 398 endoscopic surgeries in 2019. However, in 2020, the average procedure were 71 open surgeries



**Figure 3 Comparison of the Number of Surgeries For Open and Endoscopic in 2019 and 2020**

and 149 endoscopic surgeries. This showed almost 52.6% reduction of open procedures and 62.6% of endoscopic procedures. 9<sup>th</sup> semester residents underwent an average of 142 open surgeries and 310 endoscopic surgeries in 2019. While in 2020, the average procedure were 56 open surgeries and 217 endoscopic surgeries. This study showed 60.6% reduction of open procedures and 30% reduction of endoscopic procedures. 8<sup>th</sup> semester residents had an average of 145 open surgeries and 316 endoscopic surgeries in 2019. Meanwhile in 2020 average procedure for each resident were 77 open surgeries and 468 endoscopic surgeries. This showed 46.9% decrease of open procedures, and however 48.1% increase of endoscopic procedures. 7<sup>th</sup> semester residents had an average of 116 open surgeries and 133 endoscopic surgeries in 2019. While in 2020 average procedure for each resident were 48 open surgeries and 76 endoscopic surgeries. This showed 58.6% decrease of open procedures and 42.8% reduction of endoscopic procedures. The decreased of surgical procedures for residents are presented in Figure 3.

## Discussions

The health system has some aspects affected from the Covid-19 pandemic. Some very important adjustments need to be made to prevent health service providers from this virus infection. To be able to adjust to this pandemic, several recommendations have been made by the health authorities. This includes aspects of daily practice such as outpatient polyclinics, operating rooms, and the use of personal protective equipment (PPE). Some of the recommendations include conducting distance consultations through virtual clinics and postponing non-urgent elective surgeries.<sup>3</sup> A new or revised Hospital regulations are made to deal with the situation. In a teaching hospital, not only the patient health services but also the residents training programmed will be affected. In urology department, health services include inpatient, outpatient, emergency department, and surgical procedures. Based on our study, all departments experienced a decrease in the number of patients in 2020. Our hospital regulations also took part in this decline phenomenon. In outpatient department, for example, hospital policy was made to prevent crowds in the entrance, admission, and waiting room. These can be reached by reducing the

number of patients visits each day. Patient also have to make an online registration before visiting. While in inpatient department, our previous surgical ward was allocated for isolation and treatment of Covid-19 patients. Therefore, the available bed capacity for surgical treatment patients is reduced. Likewise for surgical procedures, operation room allocated for Covid-19 surgical procedure will reduced the available capacity for elective non Covid-19 surgical procedures.

Cases of non-emergency urology or benign disease should be postponed, such as cases of benign prostatic hyperplasia, erectile dysfunction, reconstruction, genitourinary prolapse, and infertility.<sup>3</sup> A present study in Europe displayed a decline of total numbers of surgical procedures during the COVID-19 pandemic, it was significantly lower 53.89% in 2020 compared to 2019.<sup>7</sup>

The latest EAU guidelines has provide some guidance to increased safety on operative procedure. Safety instructions have been given during this pandemic including regarding preoperative management, general surgical procedures, and surgery for patients who are positive for covid 19. According to the existing guidelines, in the preoperative stage, patients who have some clinical symptoms of covid 19 and/or patients who have been in contact with people who are positive for covid 19 must be tested for covid 19 first. Surgical patients who are positive for COVID-19 must have a special operating room prepared. Surgical procedures should be performed by experienced surgeons and anyone who is not involved with the surgical process should not be in the operating room. It is necessary to consider and be careful in performing surgery for elderly patients and patients who have comorbidities.<sup>7</sup>

As it was mentioned before, COVID-19 pandemic has influenced a lot of life aspects, including the residency training programs and medical graduate education. Residents, the frontlines of medical services, might have extra precaution especially proper use of PPE is vital. In many countries, most clinical rounds are canceled.<sup>8</sup> Medical training and learning programs at the hospitals and the medical faculties have changed during the COVID-19 pandemic to become remote or online/virtual activities. In Singapore, the movement of hospital staff is restricted both within and between hospitals. Meanwhile, residents in several hospitals were asked to stay in the hospital without a time limit. However, all of this is being

considered to ensure that this action does not harm all health workers. All the problems that arise as a result of this pandemic such as delays in hospitalization cases, non-emergency elective procedures, and termination of clinical rounds do not result in stress among residents and students.<sup>3</sup>

Based on Abedi et al.,<sup>9</sup> the Iranian residents has restrictions opportunity in both clinical and surgical training activities during pandemics. Significant declined in number of operative procedures that decreased the urological residents to participate in operations per week while performing surgery is the most crucial factor of urological residency education. Elevation of worries in senior residents also reported regarding their operative training. Non-emergency procedures includes endoscopic and open surgery reduce in this pandemic era or it can be postponed to prevent viral transmission. Residency training in important surgical skills for open, endoscopic, laparoscopic, and robotic procedures in this era, virtual reality simulators at hospital and home laparoscopy box trainers have been chosen to maintain residents technical skillset. Instead, these simulations may never be an ideal learning examples for live surgeries.<sup>9</sup> Changes due to the impact of this pandemic can disrupt urology residency training, this is because patient care is only provided for cases that cannot be deferred. This was also the case in other study that had been conducted, where delays in medical examinations and academic rounds have caused stress among medical students.<sup>10,11</sup> One study in France found that fifty percent of urology residents in training reported experiencing mental stress due to the COVID-19 pandemic. Monitoring and maintaining the health of residents have to be done to prevent their mental fall.<sup>12</sup> Nassar and his colleagues suggest a "Functional Restructuring" of residency training programs during this pandemic so that patient care can still be carried out optimally and while maintaining the mental condition of residents.<sup>13</sup> In conclusion, the present study showed decreased of total amount patients in inpatient, outpatient, emergency department, and operative procedure during this COVID-19 pandemic. Our study showed decreased of 40.94%, 8.09%, 10,78%, and 53.89% of total inpatients, outpatients, emergency cases, and operative procedure, respectively. This condition might impact in limiting the urological residency exposure to a variety of cases and surgical skill procedures. The residents, department, and hospital should consider ways to minimize the

impact on both resident studies and urological services to the community

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