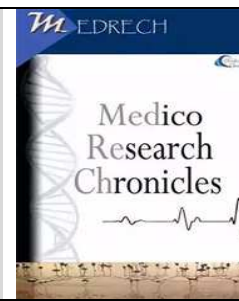




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### THE IMPACT OF COVID 19 IN PAEDIATRIC SURGICAL SERVICES IN DHAKA MEDICAL COLLEGE HOSPITAL; A RETROSPECTIVE OBSERVATIONAL STUDY

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#### ABSTRACT

**Introduction:** Since the COVID 19 declared by the WHO on March 11, 2020, all the non-essential services were affected. To control the spread of virus, the Govt of Bangladesh imposed several measures like social distancing, population lockdown, complete curtailment of public transport. The routine pediatric surgical services were declined due to scarcity unknown disease, fear of contagion, engagement of health care resources to COVID 19 patient's care.

**Aim:** The aim of the study to evaluate the effect of COVID 19 on the pediatric surgical services in our institution.

**Material and methods:** A retrospective observational study was done to analyze the changes in our out patients visit, total routine admission, total emergency admission, total routine operation, total emergency operation, total day care surgery, mortality and academic activities during the pandemic period when compared to the pre pandemic period. Data were divided in to two groups; Pre pandemic period (March 2019-February2020) and during pandemic (March2020-February2021).

**Results:** There were 48.4 % reduction in OPD attendance, 40.9% reduction of total admission, 55.1 % reduction of routine admission, 32.2% reduction of emergency admission, 34.2% reduction of total operation, 35% reduction of routine operation, 33.4 % reduction of emergency operation, 75.2 % reduction of day case surgery, significant

#### ORIGINAL RESEARCH ARTICLE

<b>Corresponding author</b> M. S. Reza*	reduction of endo laparoscopic procedure and academic activities. Mortality rate was also affected during pandemic period. <b>Conclusion:</b> The outbreak of COVID 19 has affected not only individuals with COVID 19 but also patients seeking surgical operation. Understanding the present situation helps the clinician to provide optimal surgical care.
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2022, [www.medrech.com](http://www.medrech.com)**INTRODUCTION:**

Severe acute respiratory syndrome corona virus 2(SARS-COV 2) has caused a pandemic since discovered in the wholesale food market in the Wuhan city, China, in the late December 2019. WHO designated the disease as corona virus disease 2019 (COVID 19) and the causative agent with Severe Acute Respiratory Syndrome Coronavirus 2(SARS-COV 2) in February 2020. Few weeks later, the virus spread was recorded worldwide and was announced as a pandemic by WHO in March 11,2020.

Global spread includes Bangladesh and the first case was reported on March 8, Sunday, 2020. The pandemic caused by the SARS-COV 2 coronavirus disease has led to an unprecedented situation, with population lockdown, congestion of health care resources, cancellation of scheduled surgical activities, fear of contagion at healthcare facilities and delays in patient's care.

The pandemic has forced changes in many aspects of life includes healthcare practices. Covid 19 has a unique challenge that healthcare workers have ever faced. As information on pathogenesis, managements, and the outcomes still evolving, thus a great concern is noted in the healthcare workers including surgeons and their residents. Covid 19 in paediatric populations is different than the adult population regarding infections and mortality rates, as severe Covid 19 in children is rare and infection rate is very low. Children usually present with mild symptoms and have an asymptomatic course that resolves within 1-2 weeks and thus, they could be silent carrier for Covid 19.

Many international as well as national surgical bodies have issued advisories for the changes in the surgical practices for the safeguarding the surgical workforces, avoiding deficiencies of medical and surgical supplies, and providing adequate care to those needing it during this pandemic. Every department has made changes its surgical practice. This study looked at the impact of Covid 19 pandemic on the practice of paediatric surgery in our institution.

Assessing the present situation of paediatric surgery is helpful to the prediction of future surgical needs. It will also help surgical departments to continue to provide adequate levels of treatment to patients with other conditions.

The objective of the study was to analyze the Covid 19 impact on the paediatric surgical activity at a reference healthcare facility.

**METHODS:**

This study is a retrospective observational single centre study. Data were collected from patients who underwent paediatric surgical services in Dhaka Medical College Hospital from March 2020 to February 2021 and from same period the previous year (From March 2019 to February 2020). We analyze the changes in the department of paediatric surgery Dhaka Medical College Hospital including outpatient visit, routine admission, emergency admission, routine operation, emergency operation, day care surgery and mortality. The number of children who underwent surgery in our surgical diagnosis and treatment was determined. We made protocol and reorganized health care facilities to reduce the risk of transmission of

Covid 19 as per national and international guideline.

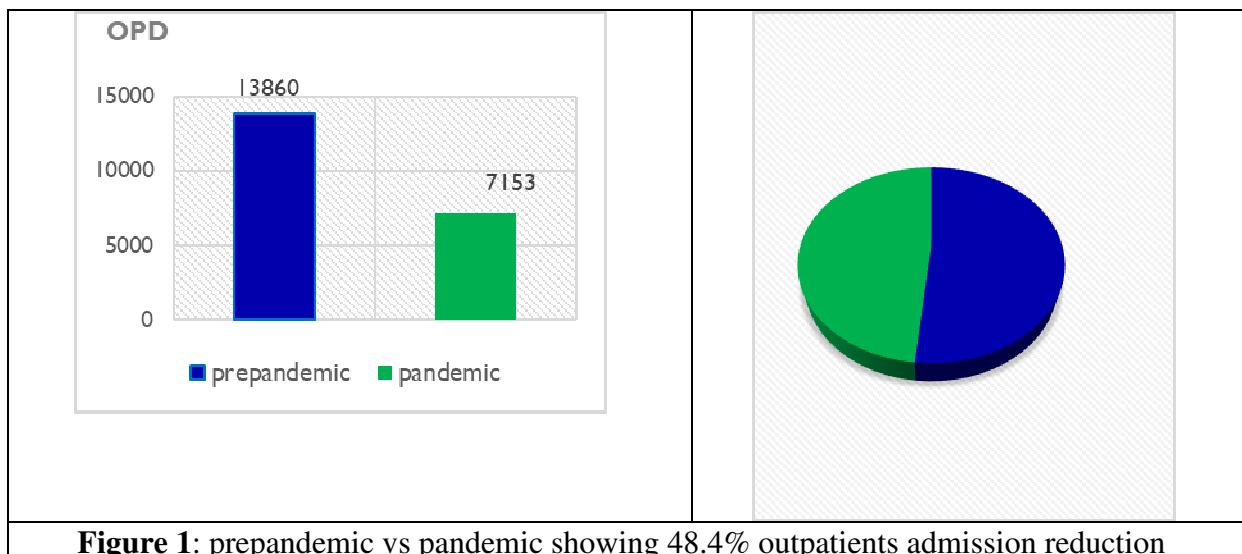
**Statistical analysis:**

The data were evaluated using IBM SPSS Statistics version 23 through descriptive and analytical statistics. We used ANOVA to examine the changes in the number of cases during one year study period. A P value less than 0.05 was considered statistically significant.

The reduction of patient's inflow was calculated as:  $A-B/A \times 100$ . Data were collected from the hospital record books and devices. The data were divided into two groups according to time frame Pre pandemic March 2019 to February 2020. Pandemic March 2020 to February 2021. The children outside the mentioned timeframe were excluded from the study. The data from March 2019 to February 2020 was mentioned as A. It was representatives of the pre pandemic hospital working period. The data from March 2020 to February 2021 was mentioned as B. It was representatives of the effect of the pandemic outbreak.

**RESULTS:**

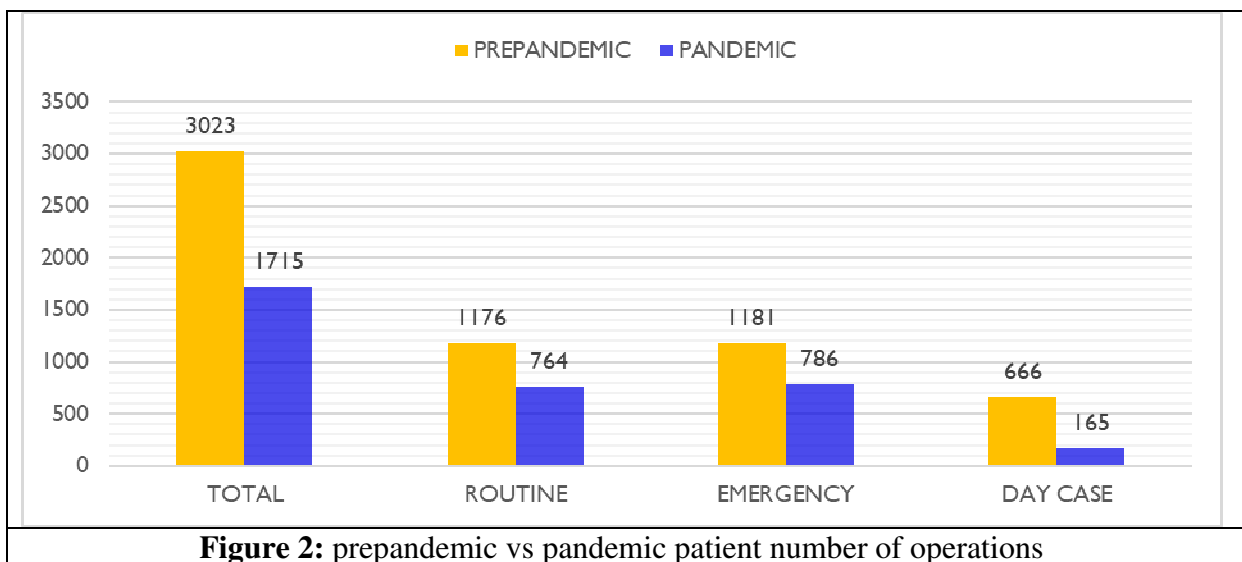
The paediatric OPD attendance fell by 48.4%, in the pandemic period when compared to pre pandemic period. (Graph 1). Total admission reduced 40.9% in pandemic period when compared to pre pandemic period. (Graph 2). Routine admission affected more than emergency. Routine admission declined in 55.1% while emergency admission declined in 32.2%. (Graph 2). 34.2% reduction in total operation in pandemic period as compared to pre pandemic period. 35% reduction of routine operation and 33.4% reduction in emergency operation. (Graph 3). 75.2% reduction in day care surgery in pandemic era. Endo laparoscopic activities were postponed due to covid 19 protocol. Mortality rate in pre pandemic period was 4.46%, where in pandemic era it was 6.99%. (p value <0.05) which is significant. In person academic activities were replaced by virtual activities largely.



**Figure 1:** prepandemic vs pandemic showing 48.4% outpatients admission reduction

**Table-1:** prepandemic vs pandemic patient admission

	Total admission	Routine admission	Emergency admission
Prepandemic	2588	1006	1582
Pandemic	1529	457	1072
Reduced in pandemic	40.9%	55.1%	32.2%



**Figure 2:** prepandemic vs pandemic patient number of operations

**Table 2:** prepandemic vs pandemic patient mortality for total admission

	Total admission	Mortality	% Of mortality
prepandemic	2588	118	4.46%
pandemic	1524	107	6.99%

**DISCUSSION:**

The Covid 19 pandemic is causing insurmountable amount of stress in our lives. The pandemic has had a major impact on health care system across the world. In March 2020, the government of Bangladesh has announced several measures to prevent the spread of virus. Here we report the impact of Covid 19 on paediatric surgical services in tertiary medical college hospital.

The corona virus pandemic affected the system of hospitals more than any other field, and great amount of people were

concerned about visiting the hospitals for any reasons.

During the pandemic period, the most of our hospitals have begun to follow the recently published recommendation and triage systems in all subspecialities, putting in to consideration the local resources, facilities, and healthcare workers available in each hospital. Our main aim was to prioritize the medical and surgical admissions to preserve PPEs, masks, and other supplies to save our health care workers and patients as well as preserve our hospital beds in case of any inevitable surge of Covid 19 patients.

We analyse the data regarding OPD attendance, total hospital admission, total routine and emergency admission, total operation, total routine and emergency operation and the mortality rate in pandemic period and compared it to pre pandemic period in same duration.

Our study found decreased OPD attendance, decreased routine and emergency admission, a lesser number of surgeries both routine and emergency, and increased percentage of mortality during lockdown period. We evaluated the decrease in the number of the patients during the lockdown period. The decrease number of patients in out patient's department probably due to restriction of transport and fear of contagion of unknown virus.

Since elective surgery was restricted, the routine admission reduced in 55.1%, there was 32.2% reduction in emergency visit as well.

However, on evaluation of mortality rates, we found 2.53% increase in mortality rate as compare to pre pandemic period. This could be explained as paediatric patients could not manage to reach a tertiary health care centre easily due to restricted public transport, the escalated cost of travel and fear of unknown disease. During pandemic period emergency surgeries were delayed due to delay in diagnosis, delay in RTPCR, shortage of anaesthetist and other health care workers as they were engaged in Covid 19 services which may have contributed to the increase in mortality rate.

From surgical perspective mass questions have arisen regarding the potential risks of the increasing operation. We should find ways to reduce the risk of transmission of Covid-19 in hospitals while continuing to meet the public need of surgeries. We made protocols and reorganize health care facilities according to national and international recommendations. After implementation, the number of operations performed by

emergency surgery, outpatient surgery, routine surgery remained stable during the post pandemic period.

Our study has few limitations. First, we have evaluated the changes in paediatric surgery services for a short duration. Second, this is a single centre retrospective study. Third, admission and mortality data of all departments and other hospitals may be able to give a more wholesome picture of the Covid-19 impact on the health services.

#### **CONCLUSION:**

The lockdown implemented due to Covid-19 caused difficulty for the public in accessing medical services. The decreased number of paediatric operations at our institution during the period indication that this pandemic has affected not only individuals with Covid-19 but also patients seeking care for other medical conditions. Online teaching and clinical activities have evolved even in Bangladesh during this pandemic.

Understanding the Covid-19 situations helps the clinicians to provide possible optimal surgical care.

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