Impact of SARS-COV2 pandemic on emergency surgical services at Groote Schuur Hospital

University of Cape Town

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by

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Declaration

I, Koshlen Dookhony hereby declare that the work on which this dissertation/thesis is based on is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.
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Date: 28/12/2023

Abstract

Background: An international survey (98 collaborators from 31 countries) on the impact of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic on emergency surgery services revealed an 87.8% decrease in procedures. The aim of the study was to determine the impact of the coronavirus 19 (COVID-19) pandemic on the number of emergency surgical operations performed at Groote Schuur Hospital, Cape Town, South Africa.

Methodology: The study was a retrospective cross-sectional study, comparing the number of emergency surgical operations performed before the COVID-19 pandemic to those performed during the COVID-19 lockdowns at Groote Schuur Hospital in Cape Town, South Africa. the data was retrieved from the Web Surgibank and Clinicom databases.

Results:

The total number of surgeries performed during the study period (April 2019 – March 2021) was 13715. The most frequently performed surgeries were orthopaedics (18.6%), hands (16.3%), acute surgery (16.5%), neurosurgery (10.5%) and trauma (10.1%).

There were statistically significant differences in the number of surgeries before COVID-19 and during COVID-19 ($p=.002$). There was a 19.5% reduction in the number of surgeries.

The mean number of surgeries during the pandemic was less compared to the pre COVID-19 period ($p<.001$). The patterns in the types of surgeries performed were similar before and during the various levels of the pandemic. There was a statistically significant difference in the number of surgeries performed across the various stages of the alcohol lockdowns. The increases and decreases varied across different conditions. From the first full alcohol ban (March to May 2020) to the first and 2nd alcohol partial ban (June to July 2020) – the numbers of emergency surgeries in thirteen out of the seventeen types of conditions continued to decrease while they increased in three conditions. The types of conditions that increased between the complete and partial alcohol ban were trauma (increased by 70.4%), ENT (increased by 41.1%), eyes (increased by 68.5%) and hands (increased by 3.4%).

Conclusion:

COVID-19 has significantly impacted the number of surgeries performed during the pandemic at Groote Schuur Hospital. In addition, alcohol ban has also significantly impacted the pattern of surgeries performed in our institution. This overall reduction was less compared to international centres. The lesser reduction is likely due to high incidence of trauma in South Africa as well as local hospital policy to maintain a contingency plan to avoid total collapse of the surgical system.

Keywords

- COVID-19
- Emergency surgical operations
- Lockdown
- Alcohol Ban

Publication-ready Manuscript

Impact of SARS-COV2 pandemic on emergency surgical services at Groote Schuur Hospital

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Title of Project

Impact of SARS-COV2 pandemic on emergency surgical services at Groote Schuur Hospital

Introduction

COVID 19 was declared a global pandemic by the World Health Organisation (WHO) in March 2020[1,2]. A State of Disaster was declared by the President of South Africa on the 15th of March 2020 following a steady increase in the number of COVID-19 cases [3]. A series of restrictions and regulations were implemented including a lockdown. The objective of a lockdown is to limit public movement and to prevent the spread of the disease among the general population [4]. An essential aspect of the preparedness of a country is to adapt its health care system to make beds available and alleviate its emergency services to be able to accommodate for a surge in COVID-19 cases. Routine elective surgery and outpatient's visits were postponed as well as healthcare resources used for non-emergency activities were reduced. Emergency service delivery was maintained throughout the different levels of lockdown. However, during the COVID-19 pandemic, the emergency surgeon had to take into consideration several factors such as limited access to operating theatres (many having been converted into ICUs) and the risk of virus dissemination in theatre. Their objectives were to minimize virus exposure in operating theatres, decrease risk of environmental contamination, minimize occupation of operating theatre and reduce hospital stay of patients undergoing emergency surgery [5].

An international survey among the World Society of Emergency Surgery (WSES) members (98 collaborators from 31 countries) on the impact of the SARS-CoV-2 pandemic on emergency surgery services revealed an 87.8% decrease in the total number of patients undergoing emergency surgery [6]. It seems several factors were assumed that potentially reduced the emergency surgery service delivery such as the lockdown restrictions, including patients fear of contracting the virus when attending hospitals.

The purpose of this study was to explore the impact of COVID-19 pandemic and lockdown measures on the number of emergency surgical operations performed between April 2019 till March 2021 in an urban academic hospital.

Methodology

Setting and Design

The study was a retrospective cross-sectional study, comparing the number of emergency surgical operations performed before the COVID-19 pandemic and during the COVID-19 lockdowns at Groote Schuur Hospital in Cape Town South Africa. The pre-COVID-19 period was April 2019 to March 2020 and the COVID-19 lockdown period was April 2020 to March

2021. The data was extracted from the electronic databases of Web Surgibank and Clinicom surgical theatre module.

Participants

All surgical departments performing emergency surgery were included: acute care surgery, trauma, colorectal, vascular, hepatobiliary, endocrine, orthopaedic, maxillo-facial, plastics, cardiothoracic, urology, ear-nose-throat, neurosurgery (excluding trauma) and ophthalmology. The number of emergency surgical cases performed in each surgical departments during above mentioned study period were identified.

Lockdown levels and Alcohol ban periods

From 27th March 2020 to 31st March 2021, there were five lockdown levels restricting social movement. In addition, there were different restrictions on alcohol sales throughout these periods. The different lockdown levels and corresponding alcohol bans are illustrated in Table 1.

Table 1: South African COVID-19 lockdown levels and alcohol ban periods for 27th March 2020 till 31st March 2021

Lockdown	**Level 5**	**Level 4**	**Level 3**	**Level 3 (modified)**	**Level 2**	**Level 1**	**Level 3**	**Level 3 (modified)**	**Level 1**
Dates	27 Mar–30 Apr 2020	1 May –31 May 2020	1 Jun–12 Jul 2020	13 Jul–17 Aug 2020	18 Aug–20 Sep 2020	21 Sep–28 Dec 2020	29 Dec-1 Feb 2021	2 Feb- 28 Feb 2021	1 Mar-31 Mar 2021
Alcohol ban	Complete ban 1		Partial ban 1	Complete ban 2	Partial ban 2		Complete ban 3	Partial ban 3	No ban

Statistical Analysis

The data was analysed using SPSS version 28. Descriptive statistics in the form of frequencies, means and standard deviations were used to analyse the number of surgeries in different surgical departments across the whole study period, Pre-COVID 19, COVID-19 period and during the different stages of alcohol bans. Independent sample t-tests were used to compare the mean number of surgeries across before and during the lock down while univariate analysis of variance ANOVA was used to compare the number of surgeries during the different stages of lockdown and alcohol bans. The threshold for significance was set at $P< 0.05$. A univariate ANOVA was performed to analyse the differences in the number of surgeries performed in the different surgical specialties, before the pandemic and during the different stages of lockdown.

Results

The total number of surgeries performed during the study period (March 2019 – April 2021) was 13715.0, with a mean (standard deviation) of 806.8 (SD=812.7). The most frequently

performed surgeries were orthopaedics (18.6%), hands (16.3%), acute care surgery (16.5%), neurosurgery (10.5%) and trauma (10.1%). Transplants, UGI and endocrine surgeries accounted for smaller proportions of the surgeries performed during the study period, 0.8%, 0.3% and 0.2%, respectively. The different types of surgeries performed are presented in Table 2.

Table 2 summarises descriptive statistics of all surgeries performed during the whole study period

Speciality	**Number of surgeries**	**Mean (SD)**	**Proportion (%)**
Orthopaedics	2549.0	106.2 (20.9)	18.6%
Hands	2236.0	93.2 (34.1)	16.3%
Acute surgery	2262.0	94.2 (17.9)	16.5%
Neurosurgery	1439.0	59.9 (11.4)	10.5%
Trauma	1381.0	57.5 (21.3)	10.1%
Ear Nose Throat	575.0	24.0 (8.6)	4.2%
Cardiothoracic	496.0	20.7 (9.4)	3.6%
Urology	617.0	25.7 (8.4)	4.4%
Eyes	471.0	19.6 (7.0)	3.4%
Colorectal	422.0	17.6 (6.4)	3.1%
Vascular	407.0	17.0 (8.0)	3.0%
Hepato-biliary	288.0	12.0 (8.1)	2.1%
Maxillo-Facial	242.0	10.1 (5.4)	1.8%
Plastics	151.0	6.3 (3.9)	1.1%
Transplant	107.0	4.5 (3.7)	0.8%
Upper Gastrointestinal	42.0	1.7 (1.4)	0.3%
Endocrine	30.0	1.2 (1.3)	0.2%
Total	13715.0	806.8 (812.7)	100%

There were statistically significant differences in the number of surgeries before COVID-19 and during COVID-19 t=2.0, p=0.002. The number of surgeries was reduced from 7598 between April 2019 and March 2020 to 6117 between April 2020 and March 2021 showing a decrease of 19.5% in the total number of surgeries performed. Figure 1 depicts a bar graph comparing the total number of surgeries before COVID-19 to during COVI-19.

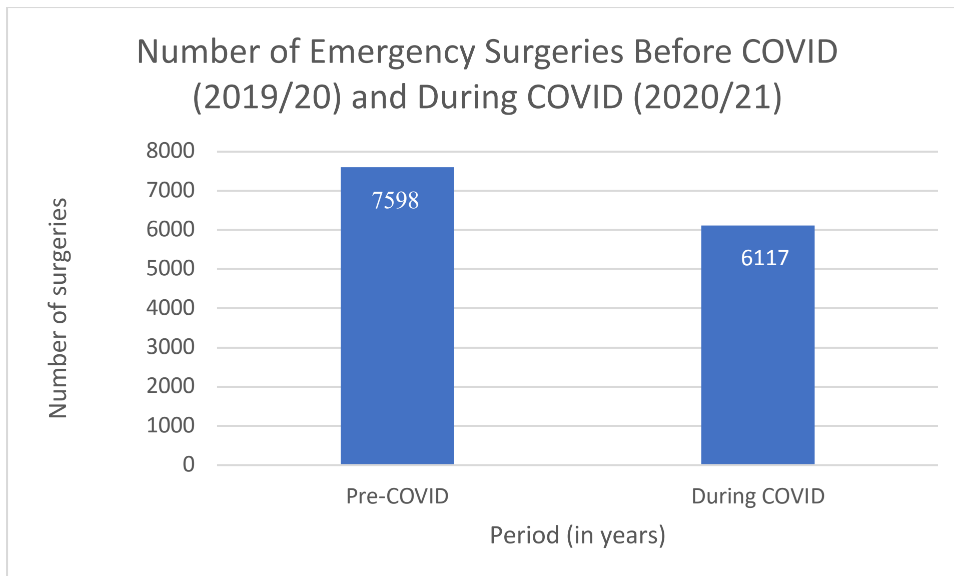

Figure 1: Number of surgeries before COVID-19 compared to different levels of lockdown

There was a significantly higher number of surgeries before the pandemic. The mean number of surgeries during the pandemic was significantly less compared to the pre COVID-19 period ($p<0.001$). There were no statistically significant differences in the number of surgeries between the different levels of lockdown. The patterns of increases and decreases fluctuate between the levels. From level 5 to level 4, the number of surgeries decreases, by 29 (6.7%) despite the lifting of restrictions and further decrease by 40% (from 1245 in level 3 to 736 in level 2) between level 3 and level 2. From level 2 to level 1, there is a 119.0% increase (the number of procedures increases from 736 to 1612). Lastly, from level 1 to level 3 there is a 55.5% decrease.

While there were reductions in number of surgeries performed, these were not the same across all disciplines. Some conditions declined, while others increased. The highest decreases were observed in transplants, urology and trauma emergency operations that had a 55.4%, 44.4% and 41.1% decreases, respectively. The number of cardiothoracic, ENT, HBP, UGI and maxillofacial procedures increased. The largest increases were observed in HBP, ENT and UGI with increases of 103.2%, 37.1% and 33.3%, respectively. Figures 2 show the number of surgeries performed before and during the pandemic.

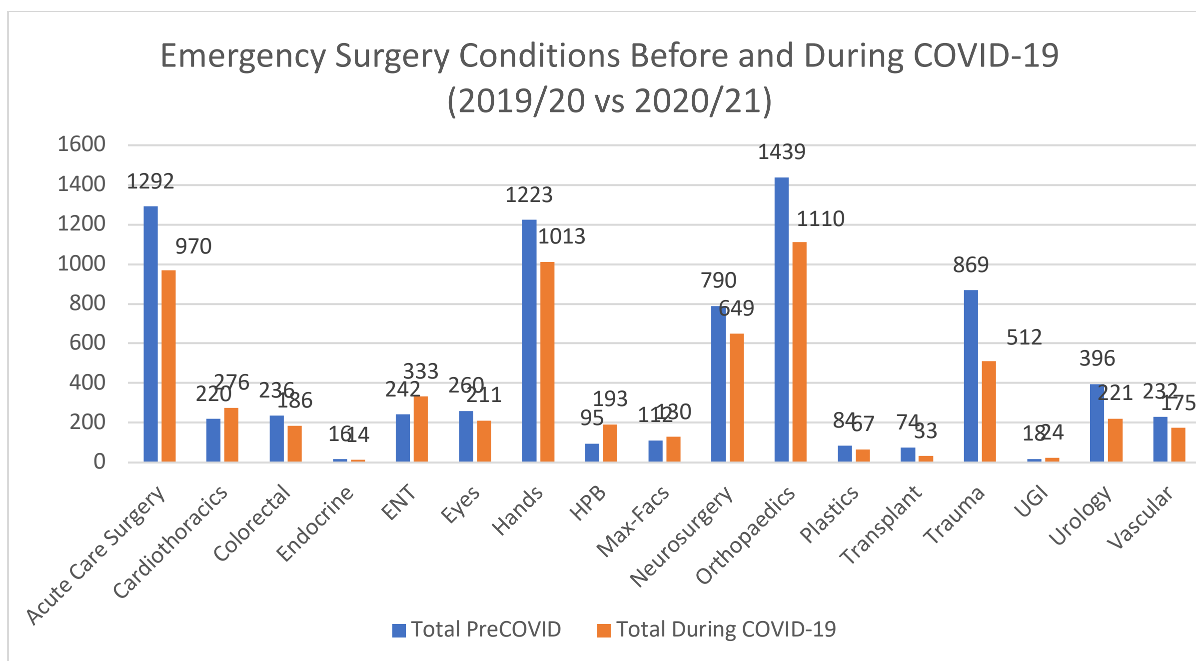

Figure 2: Number of surgeries performed across different types of surgeries Pre-COVID 19 and during COVID-19.

There was a statistically significant difference in the number of surgeries performed across the different stages of the alcohol bans. A univariate ANOVA showed that during the second partial ban, there was a significantly higher number of surgeries, ($p<0.001$). Table 3 summarises the mean number of surgeries across this period.

Table 3 Mean number of all surgeries performed across the different stages of alcohol bans

Alcohol Ban	Mean	Std. Deviation	Minimum	Maximum
Complete Ban 1	48.6	55.71	1.00	183.0
Partial ban 1	41.2	46.6	0.00	140.0
Complete ban 2	33.0	39.8	1.00	125.0
Partial ban 2	137.7	136.0	5.00	426.0
Complete ban 3	37.4	32.6	2.00	114.0
Partial ban 3	32.1	31.2	0.00	114.0

The types of surgeries performed during the different periods of alcohol bans depicted the patterns observed before COVID-19. Orthopaedic, hands and acute surgeries accounted for the largest proportion of the surgeries performed. The increases and decreases varied across different surgical specialities. From the first full ban (March to May 2020) to the first and 2nd partial ban (June to July 2020) – the numbers of emergency surgeries in thirteen out of the seventeen surgical specialities continued to decrease while they increased in three specialities. The types of surgeries that increased between the complete and partial ban were trauma (increased by 70.4%), ENT (increased by 41.1%), eyes (increased by 68.5%) and hands (increased by 3.4%). From the 2nd complete ban to the 2nd partial ban the number of emergency

surgeries in all specialities increased. Except for transplants and endocrine, the number of operations increased more that 65%. Between the 3rd complete ban and the third partial ban all emergency surgeries decrease except Hands, HPB, maxillofacial and transplants. The changes in the number of surgeries between the last partial ban and normal were minimal. Table 4 summarises the percentage changes in surgeries in different specialties performed across the different stages of alcohol bans.

Table 4: summary of percentage changes by condition over the different periods of the alcohol bans

Speciality	1st complete to 1st partial ban	2nd complete to 2nd partial ban	3rd complete to 3rd partial ban	3rd partial to normal
Acute Care Surgery	45.4	65.4	24.4	0.04
Cardiothoracic	42.9	84.2	65.1	1.00
Colorectal	70.8	75.0	0.0	0.32
Endocrine	100.0	80.0	100.0	0.00
ENT	41.5	58.2	11.1	1.97
Eyes	68.8	92.4	40.0	0.17
Hands	3.4	70.7	11.7	0.21
HPB	68.5	78.8	87.5	1.60
Maxillofacial	10.0	76.6	11.8	1.74
Neurosurgery	3.2	87.4	37.5	1.43
Orthopaedics	10.3	73.7	0.0	0.34
Plastics	40.0	94.3	57.1	10.00
Transplant	70.0	40.0	200.0	0.67
Trauma	70.5	84.7	2.0	0.92
UGI	100.0	28.6	50.0	2.00
Urology	21.2	77.3	18.5	0.68
Vascular	11.1	85.1	48.6	0.00

Red – Decreases
Green - Increases

Discussion

Overall, this study found a 19% decline in the number of surgeries compared to pre COVID-19 levels. This decline was significantly less than the declines reported in international studies. Similar findings were published by O'Connell et al. from the Republic of Ireland[7], Patriti et al.[8] from Italy and Tarim et al.[9] from Turkey showing 42.8% , 25.4 % and 32.3% reduction in emergency surgical admissions. Another study from Turkey found a 60% reduction in daily visits to emergency trauma and trauma surgery during the pandemic[10]. Furthermore, a study in Spain found a 65.4% reduction in emergency surgeries over a period of three months[11]. Similarly, another study from Scotland found a reduction of 58.3% in the reduction of surgeries compared to pre COVID-19[12].

The declines observed in this study are also lower than the ones reported in other South African studies. A retrospective study that compared trauma to non-trauma admissions found that trauma-related admissions decreased by 53% while non-trauma related admissions decreased by 44%[13]. Another South African study that focused on orthopaedic admissions found a reduction of 44% in orthopaedics related admissions during level 5 lockdown compared to pre COVID-19[14]. The reasons for the differences in the reported declines is attributed to the fact that the other studies compared pre-lockdown levels to the first few months of the COVID-19 pandemic while this study tracks intermittent increases and decreases over a period of one year. While there are differences in the extent of the decline in emergency surgeries between this study and studies conducted in other settings, the overall decline in emergency surgeries is still congruent with existing literature that demonstrates a decrease in the number of procedures.

While there has been a decline in number of surgeries performed, these required additional preparation and demand more resources compared to before the pandemic due to requirements for preparation and COVID-19 protocols[15]. In addition, studies of patient groups attended to during these periods found no differences in the proportions of patients undergoing surgery, patient demographics and length of stay[12]. This suggests that despite the declines in numbers, the demand for resources, and the need for facilities to prepare may still be at pre COVID-19 levels. While it was beyond the scope of the current study to explain the declines in hospital visits, previous studies suggest that the reduction in the number of cases was due to guidelines that reduce the capacity for elective and non-COVID emergency patients[16], patients being treated non surgically, and patients not presenting in emergency wards due to fear of infections[17]. Although there were intermittent increases and decreases with changing COVID-19 restrictions, these changes were not statistically significant, this is expected given that the number of surgeries remains significantly lower than pre COVID-19 levels even when lockdown restrictions were lifted.

While the number of surgeries declines, the pattern of conditions or types of surgeries done did not change significantly, orthopaedics, hands and acute surgeries were the leading indications for surgery before COVID-19 and across different levels of lockdown. This suggests that the decline in numbers may not be indicative of changes in the disease profile but reduced patient loads. Furthermore, the increases and decreases varied across different conditions. The highest decreases were observed in transplants, urology, and trauma emergency operations while increases were observed in cardiothoracic, ENT, HBP, UGI and maxillofacial procedures. The differences in the pattern across surgeries may be related to hospital to prioritising certain conditions such as symptomatic cancer and trauma patients. A multi-centre South African study on how surgical practices during the first phases of lockdown found that 71% of hospitals continued cancer operations[18].

When it comes to alcohol restrictions, the overall levels of decline are similar to the ones observed in the analysis of different levels of lockdown. However, the types and changes in numbers of procedures done according to the different conditions varied. When the alcohol complete ban was lifted for the first time, the number of emergency surgeries for a majority of conditions continued to decline despite a change in the restrictions except ENT, eyes, hands, and trauma. During that phase the biggest change was a 70% increase in trauma related admissions when the complete ban was lifted. This is congruent with findings of a number of studies in South Africa which found trauma presentations in South Africa to be significantly less during periods of the lockdown that had alcohol bans[19,20]. The trend of increases in trauma cases continues between the 2nd complete ban and the 2nd partial lockdown. This finding

is congruent with findings of a single centre study that found the number of trauma volume to have increased by 250% during the 2nd partial lockdown[21]. Overall, all studies of patients load show significant increases in trauma cases during periods of partial alcohol bans[19, 22]. This highlights the burden of alcohol related trauma incidents in South Africa. Interestingly, the number of emergency surgical procedures performed did not all increase between the third complete ban of alcohol and its lifting to partial restrictions, in fact the numbers of emergency operations decrease for all conditions except, hands, HPB, maxillofacial, UGI and transplants. For most of the intermittent banning and lifting of alcohol sales these conditions did not follow the same trends.

Strengths and limitations

This study provides a snapshot of the number of emergency surgeries performed during the COVID-19 which is important for understanding how South African Tertiary Hospital coped with the COVID-19 pandemic. This will be important for health services planning should there be another pandemic. Many of studies that describe the utilization of health services are from high income countries. This study provides evidence from a low to middle income perspective, especially given the high incidence of emergency trauma in South Africa. Notwithstanding these contributions this study was subject to a few limitations. First, the study is limited to describing the landscape of emergency surgeries during COVID-19, further research that examines the impacts of the reduced performance of emergency surgeries on clinical outcomes of patients. Secondly, this study did not examine whether the reasons for the reductions were due to hospital policies that prioritized COVID-19, patients not presenting or due to COVID-19 alcohol bans. An exploration of these reasons and the extent to which they have contributed to the reduction is crucial for informing health services planning. Lastly, the study is based on secondary data (hospital records), additional research that uses primary data such as interviewing or surveying emergency surgery staff or following patients can be useful should another pandemic occur to aid with planning and allocation of resources.

Conclusion:

COVID-19 has significantly impacted the number of surgeries performed during the pandemic at Groote Schuur Hospital. In addition, alcohol ban has also significantly impacted the pattern of surgeries performed in our institution. This overall reduction was less compared to international centres. The lesser reduction is likely due to high incidence of trauma in South Africa as well as local hospital policy to maintain a contingency plan to avoid total collapse of the surgical system.

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Ethics Approval

UNIVERSITY OF CAPE TOWN
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16 July 2021

HREC REF: 442/2021

Prof P Navsaria
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Dear Prof Navsaria

PROJECT TITLE: IMPACT OF SARS-COV2 PANDEMIC ON EMERGENCY SURGICAL SERVICES AT GROOTE SCHUUR HOSPITAL-MMED CANDIDATE-DR KOSHLEN DOOKHONY

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee for review.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

This approval is subject to strict adherence to the HREC recommendations regarding research involving human participants during COVID -19, dated 17 March 2020 & 06 July 2020.

Approval is granted for one year until the 30 July 2022.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

The HREC acknowledge that the student: Dr Koshlen Dookhony will also be involved in this study.

Please quote the HREC REF 442/2021 in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval, where necessary, before the research may occur.

Yours sincerely

Signed by candidate

PROFESSOR M BLOCKMAN
CHAIRPERSON, FACULTY OF HEALTH SCIENCES HUMAN RESEARCH ETHICS COMMITTEE
Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938
NHREC-registration number: REC-210208-007
This serves to confirm that the University of Cape Town Human Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Council for Harmonisation of Technical Requirements for Pharmaceuticals for Human Use: Good Clinical Practice (ICH GCP), South African Good Clinical Practice Guidelines (DoH 2020), based on the Association of the British Pharmaceutical Industry Guidelines (ABPI), and Declaration of Helsinki (2013) guidelines. The Human Research Ethics Committee granting this approval is in compliance with the ICH Harmonised Tripartite Guidelines E6: Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95) and FDA Code Federal Regulation Part 50, 56 and 312.

UNIVERSITY OF CAPE TOWN

FACULTY OF HEALTH SCIENCES
Human Research Ethics Committee

FHS016: Annual Progress Report / Renewal

HREC office use only (FWA00001637; IRB00001938)			
This serves as notification of annual approval, including any documentation described below.			
☑ Approved	Annual progress report	Approved until/next renewal date	30 09 24
☐ Not approved	See attached comments		
Signature Chairperson of the HREC/ Designee	Signed by candidate	Date Signed	14/8/2023

Note: Please email this form and supporting documents (if applicable) in a combined pdf-file to hrec-enquiries@uct.ac.za.
Please clarify your plan for research-related activities during COVID-19 lockdown.
Please use the latest form found on our website:
http://www.health.uct.ac.za/fhs/research/humanethics/forms

Comments to PI from the HREC
Please consider late extension for HREC 442/2021. Thesis is almost ready for submission.

Principal Investigator to complete the following:

1. Protocol information

Date (when submitting this form)	08 August 2023		
HREC REF Number	442/2021	Current Ethics Approval was granted until	30/07/2022
Protocol title	**Impact of SARS-COV2 pandemic on emergency surgical services at Groote Schuur Hospital**		
Protocol number (if applicable)			
Are there any sub-studies linked to this study?	☐ Yes	■ No	
If yes, could you please provide the HREC Reference number for all sub-studies? Note: A separate FHS016 must be submitted for each sub-study.			

HUMAN RESEARCH ETHICS COMMITTEE
14 AUG 2023
HEALTH SCIENCES FACULTY UNIVERSITY OF CAPE TOWN

(Note: Please complete the Closure form (FHS010) if the study is completed within the approval period)

Declarations

Appendix 1: Turn-It-In Report

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Submission author:	Koshlen Dookhony
Assignment title:	Check your Assignment for Plagiarism
Submission title:	dkhkos001:Covid_19_and_emergency_surgeries_trenf.docx
File name:	0e-af63-71570a1abfe4_Covid_19_and_emergency_surgeries_...
File size:	44.28K
Page count:	11
Word count:	3,970
Character count:	22,195
Submission date:	16-Jan-2024 04:15PM (UTC+0200)
Submission ID:	2271880610

Impact of SARS-COV2 pandemic on emergency surgical services at Groote Schuur Hospital

Abstract

Background: An international survey (98 collaborators from 31 countries) on the impact of the SARS-CoV-2 pandemic on emergency surgery services revealed an 87.8% decrease in procedures. The aim of the study was to determine the impact of the Covid-19 pandemic on the number of emergency surgical operations performed at Groote Schuur Hospital, Cape Town, South Africa.

Methodology: The study was a retrospective cross-sectional study, comparing the number of emergency surgical operations performed before the COVID-19 pandemic to those performed during the COVID-19 lockdowns at Groote Schuur Hospital in Cape Town, South Africa. the data was retrieved from the Web Surgibank and Clinicom databases.

Results:
The total number of surgeries performed during the study period (April 2019 – March 2021) was 13715. The most frequently performed surgeries were orthopaedics (18.6%), hands (16.3%), acute surgery (16.5%), neurosurgery (10.5%) and trauma (10.1%).
There were statistically significant differences in the number of surgeries before COVID-19 and during COVID-19 ($p=.002$). There was a 19.5% reduction in the number of surgeries.
The mean number of surgeries during the pandemic was less compared to the pre COVID-19 period ($p<.001$). The patterns in the types of surgeries performed were similar before and during the various levels of the pandemic. There was a statistically significant difference in the number of surgeries performed across the various stages of the alcohol lockdowns. The increases and decreases varied across different conditions. From the first full alcohol ban (March to May 2020) to the first and 2nd alcohol partial ban (June to July 2020) – the numbers of emergency surgeries in thirteen out of the seventeen types of conditions continued to decrease while they increased in three conditions. The types of conditions that increased between the complete and partial alcohol ban were trauma (increased by 70.4%), ENT (increased by 41.1%), eyes (increased by 68.5%) and hands (increased by 3.4%).

Conclusion:
Covid-19 has significantly impacted the number of surgeries performed during the pandemic at Groote Schuur Hospital. In addition, alcohol ban has also significantly impacted the pattern of surgeries performed in our institution. This overall reduction was less compared to international centres. The lesser reduction is likely due to high incidence of trauma in South Africa as well as local hospital policy to maintain a contingency plan to avoid total collapse of the surgical system.

Keywords

- Covid 19

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Signature: Signed by candidate **Date: 16. 01. 2024**

Supervisor's Signature: PH Navsaria **Date: 16 January 2024**

Appendix 2: Conflict of Interest Statement

Date: 28th December 2023

To whom it concerns

Impact of SARS-COV2 pandemic on emergency surgical services at Groote Schuur Hospital

Conflict of Interest Statement
I declare no conflict of interest in preparation or subsequent publication of this material.
Yours sincerely,

Signed by candidate

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