

## **Aesthetic Surgery Practice Resumption in the United Kingdom During the COVID-19 Pandemic**

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Disclosures: Dr Sankar is Chief Medical Officer (Clinical Governance Lead) for The Harley Medical Group (Birmingham, UK). The other authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Funding: The authors received no financial support for the research, authorship, and publication of this article.

## **Abstract**

**Background:** The global COVID-19 pandemic has significantly impacted all aspects of healthcare, including the delivery of elective aesthetic surgery practice. We carried out a national, prospective data collection of the first aesthetic plastic surgery procedures carried out during the COVID-19 pandemic in the United Kingdom.

**Objectives:** Our aim was to explore the challenges aesthetic practice is facing and to identify if any problems or complications arose from carrying out aesthetic procedures during the COVID-19 pandemic.

**Methods:** Over a 6-week period from June 15<sup>th</sup>-August 2<sup>nd</sup>, 2020, data was collected using a proforma for aesthetic plastic surgery cases. All patients had outcomes recorded for the audit period of 14 days post-surgery.

**Results:** Our results demonstrated that none of the 371 patients audited whom underwent aesthetic surgical procedures developed any symptoms of COVID-19-related illness and none required treatment for any subsequent respiratory illness.

**Conclusions:** We found no COVID-19-related cases or complications in a cohort of patients who underwent elective aesthetic procedures under strict screening and infection control protocols in the early resumption of elective service.

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The global COVID-19 pandemic has significantly impacted all aspects of healthcare, including the delivery of elective aesthetic surgery practice<sup>1</sup>. As of June 21<sup>st</sup>, 2021, there are now over 178 million confirmed coronavirus cases worldwide, with 3.8 million deaths as a result of COVID-19<sup>2</sup>. In the United Kingdom (UK), the National Health Service (NHS) has responded by adapting healthcare delivery to maximise use of resources and limit viral spread<sup>3</sup>. The response has been frequently amended following increased scientific understanding of the virus and the continually evolving pandemic<sup>4</sup>.

In the UK, the Federation of Surgical Speciality Associations classified all surgical procedures into clinical priority levels graded from 1 - 4 at the onset of the pandemic<sup>5</sup>. The priority 4 category encompassed procedures that could be deferred more than 3 months. Since all aesthetic procedures fell into the latter group, a moratorium was imposed on elective and aesthetic surgical practice across the UK and Ireland until June 2020<sup>5</sup>. Due to contingency planning, the private sector was reconfigured to accommodate patients with COVID-19 infections, emergency cases and urgent oncology care from March 2020<sup>6</sup>. This has inevitably resulted in an increasing backlog of elective surgery and outpatient appointments<sup>7</sup>.

When the lockdown restrictions were lifted and aesthetic plastic surgeons in the UK contemplated resumption of activity, there were widespread concerns regarding their personal safety as well as that of their patients and colleagues<sup>8</sup>. Significant efforts were made by regulatory and international societies to develop guidelines and position statements for aesthetic practice during the pandemic from British Association of Plastic, Reconstructive and Aesthetic Surgeons (BAPRAS), British Association of Aesthetic Surgeons (BAAPS), International Society of Aesthetic Plastic Surgery (ISAPS), United Kingdom Association of Aesthetic Plastic Surgery (UKAAPS) and a newly formed organisation: Consortium of Aesthetic Plastic Surgery Clinic Owners (CAPSCO) to support practice during the COVID-19 lockdown<sup>9-11</sup>. However, there was no assurance that following these recommendations would be sufficient to protect patients and staff. There has also been much debate amongst plastic surgeons regarding the moral and professional dilemma of whether it is appropriate to carry out aesthetic surgery during the pandemic<sup>12</sup>.

Results from studies conducted during the early stages of pandemic demonstrated concerning rates of peri and post-operative mortality in patients undergoing surgical procedures<sup>13</sup>. The patient cohorts and procedures undertaken in these studies were not representative of either elective plastic surgery patients or elective aesthetic procedures. There is a paucity of data examining the post-operative outcome of patients undergoing elective procedures during this crisis and the higher reported mortality results may be linked to the learning curve associated with a new disease, its treatment and outcomes as well as involving very different patient cohorts and

procedures. A recent national audit on the effects of COVID-19 on UK free flaps, pedicled flaps and tissue replantations demonstrated significantly lower levels of morbidity and mortality in patients undergoing major reconstructive surgery when judicious infection control measures such as personal protective equipment (PPE) and COVID-19 testing were in place<sup>14</sup>.

By early June 2020, the UK passed the peak of infection and emerged from lockdown. Hospitals and surgical facilities prepared to resume elective surgical procedures under strict protocols and guidelines<sup>15</sup>. The Cosmetic Surgery Governance Forum (CSGF) supported by BAAPS, CAPSCO and an independent aesthetic surgery provider carried out a national, prospective data collection of the first aesthetic plastic surgery procedures carried out under new regulations. Since the availability of hospital facilities for aesthetic procedures were limited, a smaller than usual number of procedures were recorded and took place in centres with allocated surgical time for aesthetic procedures.

Our aim was to explore the challenges aesthetic practice is facing and to identify if any problems or complications arose from carrying out category 4 aesthetic procedures during the pandemic. We also wanted to assess if healthcare workers or patients were placed under any undue risk or if any NHS (publicly funded) resources were utilised for private sector patients due to a complication of an aesthetic procedure.

## **METHODS**

Over a 6-week period from June 15<sup>th</sup> – August 2<sup>nd</sup>, 2020, data was collected using a proforma adopted from the COVID-19 reconstructive plastic surgery audit and adapted for aesthetic plastic surgery cases (Figure 1). Surgeons were also recruited through CSGF, CAPSCO and BAAPS networks. Because the survey did not request patient-specific information and the respondents were untraceable, institutional review board approval was not required. However, the study was registered with Ramsay healthcare and SK:N Clinics for ethical and governance oversight. The Declaration of Helsinki principles were followed for this study.

Data regarding the type of procedure, patient characteristics including co-morbidities and American Society of Anaesthesiologists (ASA) classification, the hospital or facility pre-operative protocols for self-isolation, COVID-19 testing, intraoperative PPE worn as well as outcomes such as early complications and symptoms or a positive COVID-19 test within the first two weeks after surgery were recorded. Proformas were completed by the operative surgeons and returned electronically. All patients had outcomes recorded for the audit period of 14 days post-surgery.

## **RESULTS**

### **Surgeons**

32 plastic surgeons across the UK carried out aesthetic surgery procedures on 371 patients during this period. Patients were followed up as per the responsible surgeon's protocol with outcomes up to 14 days post-surgery recorded in the audit.

### **Patient Demographics**

All patients fell within ASA 1-2 categories, with 83% of patients falling within ASA 1. The mean age of patients was 40.1 years and a median of 35 years (Table 1). The patient population was predominantly female at 85%, with only 10% of the population being male.

### **Anaesthesia**

71% of patients underwent procedures under a general anesthetic with the remaining 27% under a local anesthetic (Figure 2). Over 50% of patients had day case procedures, followed by 27% of patients who had inpatient stays and 14% underwent outpatient procedures (Figure 3).

### **Personal Protective Equipment and Quarantine Protocols**

The audit results indicated that 94% of surgical staff were provided with appropriate PPE and strict infection control protocols were followed. 75% of surgeons required 14 days of pre-operative quarantine. 13% recommended 7 days pre-operatively, whilst 9% advised fewer than 7 days.

### **COVID-19 Testing**

85% of all patients underwent COVID-19 testing prior to surgery. However, all patients who underwent procedures under general anesthetic had COVID-19 testing prior to surgery. Of the patients who underwent testing, 96% had a PCR test whilst the remaining 4% had antibody tests. Aside from COVID-19 testing, patients did not undergo additional tests in relation to a pre-assessment compared to pre-pandemic surgical preassessment.

No patients tested positive for COVID-19 preoperatively or postoperatively. 1 patient had an 'equivocal test' and subsequently had their procedure cancelled. 65% of all healthcare workers reported having COVID-19 testing pre-operatively. No members of the patient group had prior vaccinations, as the COVID-19 vaccination programme commenced in the UK on 08/12/2020 after the data collection period of the study. Furthermore, no surgical staff developed COVID-19 within the 2-week postoperative period.

## **Procedures**

The type and frequency of procedures performed during this period is listed in Table 2. A total of 371 patients undergoing elective aesthetic procedures were recorded in the study. Since numerous patients underwent multiple procedures in one sitting, Table 2 demonstrates the total frequency of procedures recorded during the audit period. Patients principally underwent procedures on the trunk (57%), head and neck (30%) and abdomen (8%). 91% of procedures fell under the category 4 in regard to clinical priority. The most commonly performed procedures included breast augmentation (27.8%), removal/change of implants (12.7%), breast reduction (8%) followed by rhinoplasty (7.2%) (Table 2). As expected, a significant reduction of the total number of surgical procedures was seen in restart of practice post-pandemic compared to the usual level of activity.

## **Postoperative Complications**

Our results demonstrated that none of the 371 patients audited whom underwent aesthetic surgical procedures developed any symptoms of COVID-19-related illness and none required treatment for any subsequent respiratory illness. Fifteen patients (4%) had minor complications reported including minor wound breakdown, cellulitis requiring oral antibiotic treatment, breast erythema and seromas. 3 (0.8%) additional patients in the study group returned to theatre for non-COVID-19 related surgical complications (all had haematomas). There were no deaths, intra or post-anaesthetic complications nor any significant postoperative complications reported in the patient cohort.

Fifteen minor complications were recorded including postoperative infections requiring treatment with oral antibiotics or minor wound breakdowns. Importantly, there were no immediate patient post-operative complications related to COVID-19.

## **Facilities**

A total of 30 facilities were utilised. 94% of patients had their procedures undertaken in 24 independent private hospitals. The remaining 8 facilities used were corporate hospital chains.

## **DISCUSSION**

The COVID-19 pandemic has transformed the delivery of healthcare worldwide with significant repercussions on the provision of elective aesthetic practice. It is imperative that pandemic is controlled to reduce the spread of the COVID-19 SARS-2 virus<sup>16</sup>. However, it is evident that we cannot indefinitely postpone elective activity. Our first duty is to 'do no harm' and as plastic surgeons, we are all aware of the myriad benefits that aesthetic surgery confers on our patients.

Therefore, we must advocate on their behalf, and it is incumbent on us to resume care of our patients in a timely but safe manner<sup>17</sup>. It is therefore necessary to critically assess how we resumed elective activity and to appraise our protocols and outcomes.

Although significant concerns were highlighted by emerging studies into the clinical impact of COVID-19 infection on surgical mortality, it was initially unclear in terms of the applicability of reported outcomes to plastic surgery patients<sup>13</sup>. However, it is important to note that COVID-19 illness was initially poorly understood in terms of its pathophysiology, clinical course, and its impact on surgical outcomes<sup>18</sup>. Several subsequent studies, in contrast to initial reports, have reported minimal risk of COVID-19 infection or complications after elective surgery<sup>19-21</sup>.

The result of this audit provides reassurance and evidence to the surgical hospitals, facilities, and plastic surgeons that aesthetic plastic surgery procedures can take place safely akin to other elective surgeries during this pandemic. Furthermore, the risk profile is considered generally lower in elective aesthetic plastic surgery due to an overall low pre-morbid status of the patients, lower ASA categories, shorter duration of surgery and the prevalent use of local anaesthetic as is demonstrated by the patient demographic of this cohort<sup>6</sup>. We also note a high number of rhinoplasties in our study, which is considered a high-risk operative site and an aerosol generating procedure<sup>22,23</sup>. With no reported cases of postoperative COVID-19 infection, no hospitalizations nor any deaths, our prospective and national audit data adds to the growing literature which suggests that aesthetic plastic surgery can be performed safely when stringent protocols and policies are followed<sup>20-21</sup>.

Our audit results have been echoed by other large-scale studies conducted in elective cohorts during the peak of the first wave of COVID-19 infections (March to April 2020). Couto et al. demonstrated in their retrospective study of 300 consecutive outpatient elective ambulatory surgery cases, including 75 aesthetic and reconstructive procedures, that with the use of strict pre-operative screening and patient selection protocols, plastic surgery procedures could be safely performed during the pandemic<sup>20</sup>. The authors also reported no COVID-19-related complications in neither the patient nor staff cohort. Although the authors did not state their preoperative isolation protocols, this study provides additional evidence that elective surgery can be carried out safely with screening and infection control protocols in place.

Teitelbaum et al, carried out a similar survey-based study investigating the safety of outpatient plastic surgery in Los Angeles County during the first 2 months of elective plastic surgery resumption (May to July 2020) after the moratorium was lifted on elective surgery due to the COVID-19 pandemic<sup>21</sup>. This study had a good response rate and data from 5663 surgeries were reported. It is reassuring to see that a similar safe resumption of plastic surgery was also observed in

this large study. Interestingly, of the 7 (0.13%) patients who had tested COVID-19 positive in the 2 weeks following surgery, all had a mild clinical course with no hospitalization required.

The local COVID-19 prevalence rates per 100,000 population at the time of the study are demonstrated in Figure 4. By 12<sup>th</sup> July 2020, infection rates were highest in London and other major cities including Birmingham, Manchester, Liverpool, Cardiff and Glasgow, which geographically mirror the location of several of the private facilities in the study (Figure 4). This also coincided with when the UK transitioned to localised quarantine measures to specific areas with rising cases. The first of these local measures was announced on the 29<sup>th</sup> of June in Leicester, then subsequently in other areas, mostly in the North of England <sup>22</sup>. However, our results did not record any positive tests neither in patients or healthcare staff from private facilities or hospitals in these regions. There was another period of reduction in elective category 4 surgical activity in the UK during a second wave of COVID-19 infections from December 2020 to March 2021 but this was not as complete or as widespread a reduction in elective surgery compared to the first lockdown period starting in March 2020.

In the UK, many plastic surgeons have amassed long waiting lists and are unable to offer or are only able to offer limited numbers of aesthetic surgical procedures due to lack of theatre capacity <sup>24</sup>. This is due to the continued utilisation of independent hospitals by the NHS, theatre allocations and case prioritisations that have taken place since the start of the pandemic <sup>25</sup>. Inevitably, a substantial period of 'catch-up' will follow with greater easing of lockdown measures, and this will require careful planning and organization. We wish to highlight that aesthetic surgery patients awaiting surgery have been placed under a substantial degree of stress due to uncertainty regarding the scheduling of their surgery. This is in addition to their original indications for surgery which alone and on their own merit confer significant patient benefits. The risk of surgery is also not higher in these patients compared to other patient groups and aesthetic patients should not be disadvantaged by the nature of the surgery that they are undertaking.

The COVID-19 pandemic has precipitated a paradigm shift in the landscape of aesthetic private practice. In the pre-pandemic era in the UK, the vast majority of private practice was undertaken by individual surgeon providers with practising privileges in corporate hospital chains. However, it is interesting to note that during the initial resumption of practice, 94% of cases were carried out in independent private hospitals. Although we do not have comparative data, this likely reflects increased access to independent facilities which enabled access for early resumption of aesthetic care in combination with reduced or no access to corporate hospital operating facilities for plastic surgeons as a direct result of the arrangements made in response to the COVID-19 pandemic.



The long term effects of COVID-19 outbreak on individual businesses and the aesthetic industry are unclear. However, it is apparent that many aesthetic surgeons share similar concerns regarding the on-going and potential consequences on their private practices, patients and long-term prospects. Due to the uncertainty regarding availability of operating facilities within the private sector, a rising number of aesthetic procedures may have to be delivered from small independent operating facilities primarily owned and run by plastic surgeons. We see this as a growing trend in aesthetic surgery practice in light of the continuing difficulty accessing corporate facilities.

The scale and speed of global vaccine development has occurred at an unparalleled rate. Vaccination programmes have commenced in the UK with prioritization of healthcare workers, nursing home residents, and high-risk individuals<sup>26</sup>. As of June 1<sup>st</sup>, 2021, 39 379 411 patients have received their first dose and 25 537 133 have been fully vaccinated (both vaccine doses received)<sup>27</sup>. Results from two large vaccine trials (Pfizer-BioNTech, Moderna) indicate an efficacy of over 90% against symptomatic and severe disease<sup>28-29</sup>. It is hoped that with further vaccine roll-out that the impact of future epidemic peaks, hospitalizations, and deaths will be reduced so mitigating the burden on the NHS and enabling greater resumption of elective procedures.

### **Limitations**

The study has some limitations, namely that it was reliant on personal reports of surgeons, and therefore may not be representative of all aesthetic surgeons working in the UK. Moreover, self-reported data is open to misinterpretation bias of the questions on the proforma and under-reporting of COVID-19 complications due to fear of loss of confidentiality. The study period was relatively short with a relatively small dataset, thus may have missed any COVID-related infections or complications occurring outside the 2-week post-operative period. Furthermore, this audit captures a snapshot of data in time as lockdown measures were eased in the UK but stringent infection controls protocols were followed. However, this may not be representative of COVID-19 incidence and changing infection protocols in the future. Overall, this audit is intended to represent a crucial first step in reassuring hospitals, facilities, and plastic surgeons on the safety of undertaking elective aesthetic surgery in the post-pandemic era.

### **CONCLUSION**

We found no COVID-19-related cases or complications in a cohort of over 300 patients who underwent elective aesthetic procedures under strict screening and infection control protocols in the early resumption of elective service. We also recommend routine pcr COVID-19 testing pre-operatively for all aesthetic surgery patients undergoing general anaesthetic procedures or

significant local anaesthetic procedure, eg, facial surgery while COVID-19 infections remain at pandemic levels.

Plastics surgeons have shown the ability to adapt and reinvent their practices to ensure safe delivery of aesthetic procedures during pandemic. As the aftermath of pandemic becomes clear, we must work together to advocate for our patients and the future of our specialty in an evolving landscape. The scope of aesthetic practice can be extended safely with sufficient protective measures.

### **Acknowledgements**

We would like to thank all the contributors who have kindly provided data to enable this study (Appendix, available online at [www.aestheticsurgeryjournal.com](http://www.aestheticsurgeryjournal.com)). We'd also like to thank Ramsay Healthcare UK and the SK:N clinics, who were the registered leads overseeing the audit.

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**Figure Legend**

**Figure 1.** Data collection proforma.

**Figure 2.** Anesthetic modalities.

**Figure 3.** Type of elective surgical admission.

**Figure 4.** A comparison of geographical location of private hospital/facilities in the study and COVID-19 prevalence rates in July 2020 in the United Kingdom.

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**Table 1.** Patient Demographics

Characteristics (n-371)	Number (percentage)
Age	
Mean	40.1 years
Median	35 years
Range	15 – 84 years
Gender (n)	
Male	36 (9.7%)
Female	320 (86.5%)
Missing	14 (3.8%)
Co-morbidities	
Malignancy	1 (0.27%)
Diabetic	8 (2.2%)
Hypertension	8 (2.2%)
Asthma	1 (0.27%)
Kidney disease	0
Cerebrovascular disease	0
Cardiovascular disease	0
Ethnicity	
White	316 (85.4%)
Others	36 (9.7%)
Not available	18 (4.9%)
Types of anesthesia	
Not available	5 (1.35%)
GA	261 (70.5%)
LA	101 (27.3%)
LA with sedation	3 (0.81%)
Type of admission	
Not available	17 (5.1%)
Day case	177 (53.5%)
Inpatient	90 (27.2%)
Outpatient	47 (14.2%)
ASA grade	
I	308 (83.2%)
II	62 (16.8%)
III-V	0
Site of surgery	
Head and neck	112 (30.2%)
Trunk	211 (57.0%)
Upper limb	6 (1.6%)
Lower limb	5 (1.35%)
Abdomen	31 (8.3%)
Genital	5 (1.35%)
Priority of surgery	
1b	1 (0.2%)
2	11 (2.97%)

3	20 (5.4%)
4	338 (91.5%)
Complications	
Return to theatre	3 (0.9%)
Minor complication	15 (4.05%)
Mortality	0
HCP developed COVID within 2 weeks	0
PPE used as per guidelines	
Yes	350 (94.5%)
No	3 (0.8%)
Data unavailable	17 (4.5%)

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**Table 2.** Frequency of Type of Aesthetic Surgical Procedure Performed

Type of procedure	Frequency (percentage)
Breast augmentation*	111 (27.8)
Removal/exchange of implants*	51 (12.7)
Breast Reduction*	32 (8.0)
Rhinoplasty*	29 (7.2)
Blepharoplasty	24 (6.0)
Mastopexy*	22 (5.5)
Other*	22 (5.5)
Abdominoplasty*	18 (4.5)
Excision of Lesion	15 (3.7)
Facelift*	14 (3.5)
Pinnaplasty	14 (3.5)
Liposuction*	10 (0.02)
Gynecomastia*	6 (0.015)
Cheek dimple creation	5 (0.012)
Curettage of lesion	5 (0.012)
Labiaplasty	5 (0.012)
Lip lift	5 (0.012)
Lipofilling*	3 (0.007)
Brow Lift*	3 (0.007)
Necklift*	3 (0.007)
Nipple Reduction	2 (0.005)
Total	399

\*indicates patients who underwent combined procedures.

Figure 1

### THE EFFECTS OF COVID 19 ON COSMETIC SURGICAL PROCEDURES

Thank you for your contribution to this audit. Please can you complete one form for each patient that has undergone surgery within your unit between 15 Jun to 2 August 2020. Please email completed forms to: [t.sankar@nhs.net](mailto:t.sankar@nhs.net)

**Collaborator's Name:** \_\_\_\_\_  
**Email & Mobile:** \_\_\_\_\_  
**Hospital Name & City:** \_\_\_\_\_

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**PATIENT DEMOGRAPHICS:**  
**Gender:**  Male  Female **Category:**  NHS  Private  
**Age:**  <5  5-14  15-24  25-34  35-44  45-54  55-64  65-74  75-84  >84  
**Co-morbidities:**  
 List others below: \_\_\_\_\_  
 Hypertension  
 Malignancy  
 Diabetes  
 Cardiovascular disease  
 Cerebrovascular disease  
 Asthma/ COPD  
 Chronic kidney disease  
 BMI >30  
 Unknown  
**Smoking Status:**  Yes  No  Unknown  
**Ethnicity:**  White  Other  Unknown  
**Diagnosis:** \_\_\_\_\_  
**Anaesthetic:**  LA  LA with sedation  Regional  Regional with sedation  GA  
**Type of admission:**  Outpatient  Day case  Inpatient  
**Operation:** \_\_\_\_\_  
**Operation Date:** \_\_\_\_\_  
**ASA grade?**  I  II  III  IV  V  E  
**SITE:**  Head & Neck  Chest/Back  Upper limb  Lower limb  
 Abdomen  Genital  Buttock  Other \_\_\_\_\_  
 Did you modify the procedure due to Covid-19?  Yes  No  
 Did you undertake multiple procedures in this case?  Yes  No  
 Please provide some details: \_\_\_\_\_

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What was the **Priority level** of the surgery?  
 1a: Emergency - operation needed within 24 hours  
 1b: Urgent - operation needed with 72 hours  
 2: Surgery that can be deferred for up to 4 weeks  
 3: Surgery that can be delayed for up to 3 months  
 4: Surgery that can be delayed for more than 3 months

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**PATIENT OUTCOMES:**  
 Death?  Yes  No **Successfully discharged?**  Yes  No  
 Return to theatre?  Yes  No  
 If so, why? \_\_\_\_\_  
 Unplanned/Prolonged Hospital Stay?  Yes  No  
 If so, why? \_\_\_\_\_  
 Other Major Complication?  Yes  No  
 If so, please detail: \_\_\_\_\_  
 Other Minor Complication?  Yes  No  
 If so, please detail: \_\_\_\_\_

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**Time in Theatre** (arrival to leaving theatre)? \_\_\_\_\_ mins  
 How much longer did this theatre episode last, than normal? \_\_\_\_\_ mins  
**Surgical Time** (Skin to Skin)? \_\_\_\_\_ mins  
 How much longer did this surgical case take, than normal? \_\_\_\_\_ mins  
**Length of Stay (LOS)?** \_\_\_\_\_ days  
 How much longer was the length of stay, than normal? \_\_\_\_\_ day  
 Did the surgeon use **loupe magnification**? Yes  No   
 If yes, was a facial visor worn? Yes  No   
 Did the surgeons wear **FFP3 masks** or equivalents protective equipment while undertaking surgery? Yes  No

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**PATIENT & COVID-19**  
 Was the patient **suspected** to have Covid-19 before surgery?  Yes  No  
 Was self isolation recommended?  Yes  No  
 If so, how many days? \_\_\_\_\_  
 Was Covid-19 **testing** before?  Yes  No  
 If so, which tests: **Swab?**  Yes  No **Antibody Test?**  Yes  No **Other** \_\_\_\_\_  
 What was the results?  Positive  Negative  
 Did they **develop** Covid-19 post-operatively, within 2 weeks?  Yes  No  
 Which Covid-19 **symptoms** they have?  
 \_\_\_\_\_  
 Did they have any Covid-19 **testing** after?  Yes  No  
 If so, which tests: **Swab?**  Yes  No **Antibody Test?**  Yes  No **Other** \_\_\_\_\_  
 What was the results?  Positive  Negative  
**HEALTH CARE PROFESSIONALS INVOLVED IN PATIENT'S CARE**  
 Were any health care professional **suspected** to have Covid-19 before surgery?  
 Yes  No  
 Which Covid-19 **symptoms** they have?  
 \_\_\_\_\_  
 Did they have any Covid-19 **testing** before?  Yes  No  
 If so, which tests: **Swab?**  Yes  No **Antibody Test?**  Yes  No **Other** \_\_\_\_\_  
 What was the results?  Positive  Negative  
 How often are the tests done? \_\_\_\_\_  
 Did they **develop** Covid-19 within 2 weeks of the patients discharge?  
 Yes  No  
 Did they have any Covid-19 **testing** after?  Yes  No  
 If so, which tests: **Swab?**  Yes  No **Antibody Test?**  Yes  No **Other** \_\_\_\_\_  
 What was the results?  Positive  Negative

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**PPE**  
 Did PPE provision in theatres meet **national standards**?  Yes  No  
 Did PPE provision in pre & post-operative dressings/outpatient clinics meet **national standards**?  Yes  No  
\* Government guidelines: <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe>

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**ANY OTHER COMMENTS OR INNOVATIONS - Please email or detail below:**  
 \_\_\_\_\_

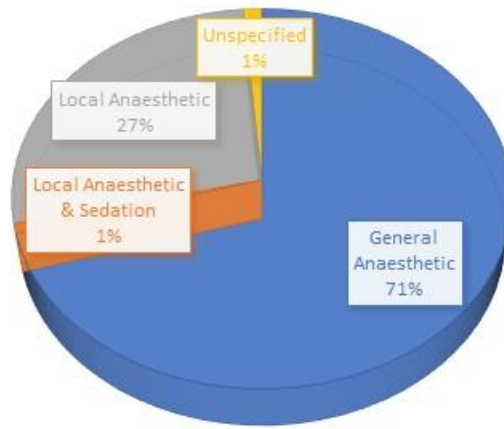
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**THANK YOU**  
 We would like to thank you for your kind contribution. You will be acknowledged appropriately in any resulting publications. The data collected will only be analysed as grouped data and no individual, clinics or hospitals will be identified.



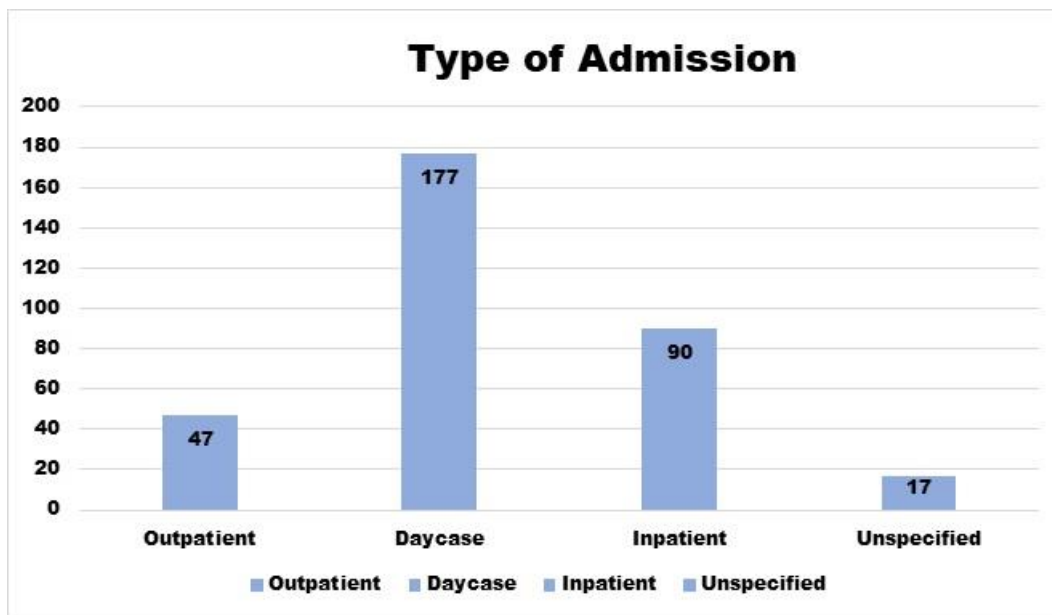
Figure 2

Type of Anesthesia



Accepted Manuscript

Figure 3



Accepted Manuscript

