

## Review of restarting elective surgical service in District general hospital post COVID 19

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### Abstract

#### Introduction:

National Health Service (NHS) has massively reduced non-urgent elective surgical service as COVID-19 hit the UK, resulting in approximately 516000 non-urgent elective surgeries being affected during the three months of March to May 2020. To cover this backlog and prevent further delay to elective surgery different approaches has been opted for resuming elective services amidst the COVID-19 pandemic. This study aims to evaluate the measures taken by our trust to restart elective surgical work which was suspended due to the COVID-19 pandemic.

#### Method:

This is a single centre, retrospective, observational study. We analysed records of the first 100 patients who underwent any type of elective General Surgical operative procedure under any type of anaesthesia since June 2020.

#### Results:

Our cohort included 51 female, and 49 male patients. Youngest patient was 19 years old and the eldest was of 86 years with mean age of 55.5. In our group, 16 patients were ASA grade 1, 57 were ASA 2, 26 ASA 3 and 1 patient was ASA grade 4. The median ASA grade among our patient group was 2. In this study shortest hospital stay was of 1 day and longest of 53 days with average stay of 5.2 days and SD of 7.6. In our cohort, 18 patients developed Grade 2 Clavien-Dindo (CD) Complications, 6 patients developed Grade 3 and none developed complications of CD Grade 4 or beyond. Repeat COVID-19 tests for all patients staying over 7 days were negative.

#### Conclusion:

In conclusion, through appropriate isolation and with adhering to trust guidelines, restarting of elective surgery in non-covid free hospital compound via separate pathways are feasible and should be reflected upon before stopping all elective surgical services in the future considering the threat of further waves of covid-19 or the new variant of the virus looks very real.

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### I. Introduction:

National Health Service (NHS) has massively reduced non-urgent elective surgical service as COVID-19 hit UK, with intention of reducing transmission risk, and relocating resources to cope with increased pressure demand during the peak period where around 7000 new cases were detected every day accompanied with 1500 COVID related deaths each day (1)(2). As the first Covid peak settled with adequate measures, most surgical department experience a massive backlog of elective surgical service. In a global scale, we are estimating about 28 million elective surgeries were cancelled or postponed during the COVID-19 peak period (3). Primarily in UK, approximately 516000 non-urgent elective surgeries were affected during the period between March to May 2020(4).

Therefore, the return of elective surgical service is deemed essential and there are different approach been opted for resuming of service amidst the COVID-19 pandemic. Through their experience, NHS, NICE and

Royal Colleges have provided guidelines, framework and checklists to be fulfilled for each hospital to restart the services (5). During the COVID peak period, most NHS trust has continue urgent cancer surgical service in conjunction with private sector which provided non-exposure clean wards, theatres and resources in these difficult time. The private hospitals also help reduce the risk with ensuring all patient adhere to isolation rule prior of their operating date, restricting visitors to enter the hospital premises and all patient will be in single en-suite facilities thus allowing adequate safe social distancing as per recommended guidelines.

In our trust, we have restarted our elective surgical service in our own hospital premises since June 2020. Since the restarting of elective service, we are unsure of the exposure risk and the implication of elective surgical patient within a COVID-19 positive hospital through a COVID-19 free pathway

**Aim:**

This study aims to evaluate the measures taken by the trust to restart elective surgical work which has been suspended due to COVID-19 pandemic.

**II. Methods:**

This is a single centre, retrospective, observational study. Our hospital Covid free pathway for elective patients are booked after the discussion and consenting of surgery via tele-clinic and patient only attended face to face clinic when there is absolute indication which would also be arranged with safety restrictions and minimal contact.

Patients who have been listed will require being self-isolated for two weeks. Around 3 days prior of surgery date, patient would attend pre-assessment clinic for surgical risk assessment and COVID-19 swab testing. On the admission date, patient would come via elective Covid free ward, which is separated from emergency surgical ward. They were also given admission questionnaires with suspected COVID-19 symptoms, including temperature, new onset cough, loss of sense of taste or smell etc. All theatres in elective list also adopted a one way direction system both for staff and patient transfer to reduce risk of contamination. All cases would require 10 minutes post intubation and extubation for current exchange prior of starting of surgery.

We included the first 100 patient who underwent any type of elective General Surgical operative procedure under any type of anaesthesia since June 2020. Elective surgical patients from other specialties like orthopaedics, gynaecology etc. were excluded from this study.

**III. Results:**

Our cohort included 51 female, and 49 male patients, youngest patient was 19 years old and eldest was of 86 years with mean age of 55.5. All patients were screened for Covid-19 during pre-assessment clinic, and all of the elective patients need to have negative screen test within 72 hours prior to admission/surgical date. The types of surgical procedures are summarized as follows:

Our elective surgical service restarted with a wide spectrum and variety of different types of surgery as shown **table-1**.

Patient co-morbidity has been reviewed, in our cohort 12 patients had high BMI, 28 patients had hypertension, 9 patients had previous or on-going malignancy (awaiting surgical treatment), 11 patients had insulin dependent diabetes mellitus, and 16 patients had asthma/COPD. We have summarized co-morbidity as per systemic classification in **table-2**.

We have included patient ASA grade into our analysis. In our group, 16 patients were ASA grade 1, 57 were ASA 2, 26 ASA 3 and 1 patient was ASA grade 4. The median ASA grade among our patient group is 2 (**figure 1**).

In our group shortest hospital stay was of 1 day and longest of 53 days with average stay of 5.2 days and SD of 7.6 (**figure2**). In our group we analyzed post operative complications using Clavein-Dindo (CD) system. In our cohort, 18 patients developed Grade 2 CD complication such as collection, post op infection, acute kidney injury, post-operative ileus, high stoma output etc. Average length of stay in this group was 10.2 days. 6 patients developed Grade 3 CD complications like post op pelvic collection requiring interventional radiological drainage, hematemesis requiring endoscopic intervention, extensive wound dehiscence necessitating further surgical intervention and repair. The average length of stay for this subgroup was 20.3 days. None of our patient developed complications of CD Grade 4 or beyond. All of the patients who stayed for 7 or more days in the hospital underwent repeat Covid testing after every 7 days and none of these tests returned positive.

**IV. Discussion:**

Globally, restarting elective surgical work in Covid pandemic period has been a challenge and yet essential process, due to the pressure of back log and fear of worsening patient surgical outcome secondary to service delay. It has been estimated, despite increasing 20% of previous normal surgical volume, it would take

at least minimum of 45 weeks to clear off the backlog. All this due to additional safety practices like donning and doffing of PPEs, extra waiting periods between cases, deep cleaning time in between each cases etc(6). Resuming surgical services involve constant changes of practices to adapt with Covid 19 prevention guidelines which are being regularly updated from time to time.

Table 1 demonstrated that even though some of our case load were cancer operations but significant number of these operations were in fact for benign disease. However, it is important to realise that further delays in providing certain operations for benign conditions could result in significant complications for patients leading to increased risk of morbidity and mortality. For example, patients who are awaiting to have a laparoscopic cholecystectomy for gallstone disease could develop acute pancreatitis or patients with hernia could develop incarceration or strangulation. Therefore, it is crucial to maintain a safely delivered elective service to prevent further backlog if further waves of COVID-19 hits or in case of the new variant of the virus.

In china, as the Covid outbreak initially erupted, Lee et al. Showed that general surgery and obstetric procedures have high peri-operative morbidity, involving 41% of COVID-19 positive patient requiring admission to intensive care unit and 20% of mortality rate (7). Similar large international collaborative studies were published in Lancet which have shown similar mortality rate among COVID-19 positive patient as well (8). On the other hand more recent studies been conducted in district general hospital, comparing 30 days mortality rates among patients operated before COVID-19 and during COVID-19 period failed to show any significant difference in mortality rate among two groups (9).

Figure 2 demonstrates that just over half of our patients undergoing elective surgery in fact are discharged home within the first two of days following surgery. This means that if COVID-19 protocols are followed and with careful patient selection, elective surgery can be delivered effectively and safely.

Till now, there are no wide scale studies done in UK to look into any difference in outcome between patients operated before and after Covid pandemic peak. In a large meta-analysis including over 50,000 patients, it was shown that age over 50 years, any co-morbidity and personal history of smoking were associated with severe COVID-19 infection. In another international study, Covid 19 positive patients having elective surgery had as high as 19% mortality rate peri-operatively (6). Our current surgical guidelines, request surgeons to discuss covid related risks during the process of consenting.

On top of that, the royal college of surgeons has further categorized each surgical speciality into different urgency level to triage and prioritize essential surgical procedures (10). Our hospital managed to recover the elective surgical work after the COVID-19 peak. Through appropriate selection and screening, we have managed to restart performing wide extent of surgeries from hernia repair to pelvic exenteration and patient with different level of co-morbidities and anaesthetic risk. Our study cohort reflected a wide spectrum of surgery from different sub specialities. None of our patients has developed any COVID-19/respiratory related complication during in-patient stay and none of the patients have positive swab test during admission. None the less, there remain limitation of the study; our cohort recruitment was fairly small scale sample size. Due to limiting data collection time, we were not able to include patient 30 days follow-up especially in terms of COVID-19 status after discharge.

## V. Conclusion:

In conclusion, through appropriate isolation and with adhering to trust guidelines, restarting of elective surgery in non-COVID-19 free hospital compound via separate pathways are feasible and should be reflected upon before stopping all elective surgical services in case of further peaks of COVID-19 or a new variant of this virus.

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