The Association of Coloproctology of Great Britain and Ireland

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Resumption of Elective Colorectal Surgery during COVID-19

ACPGBI considerations on surgical prioritisation, patient vulnerability and environmental risk assessment

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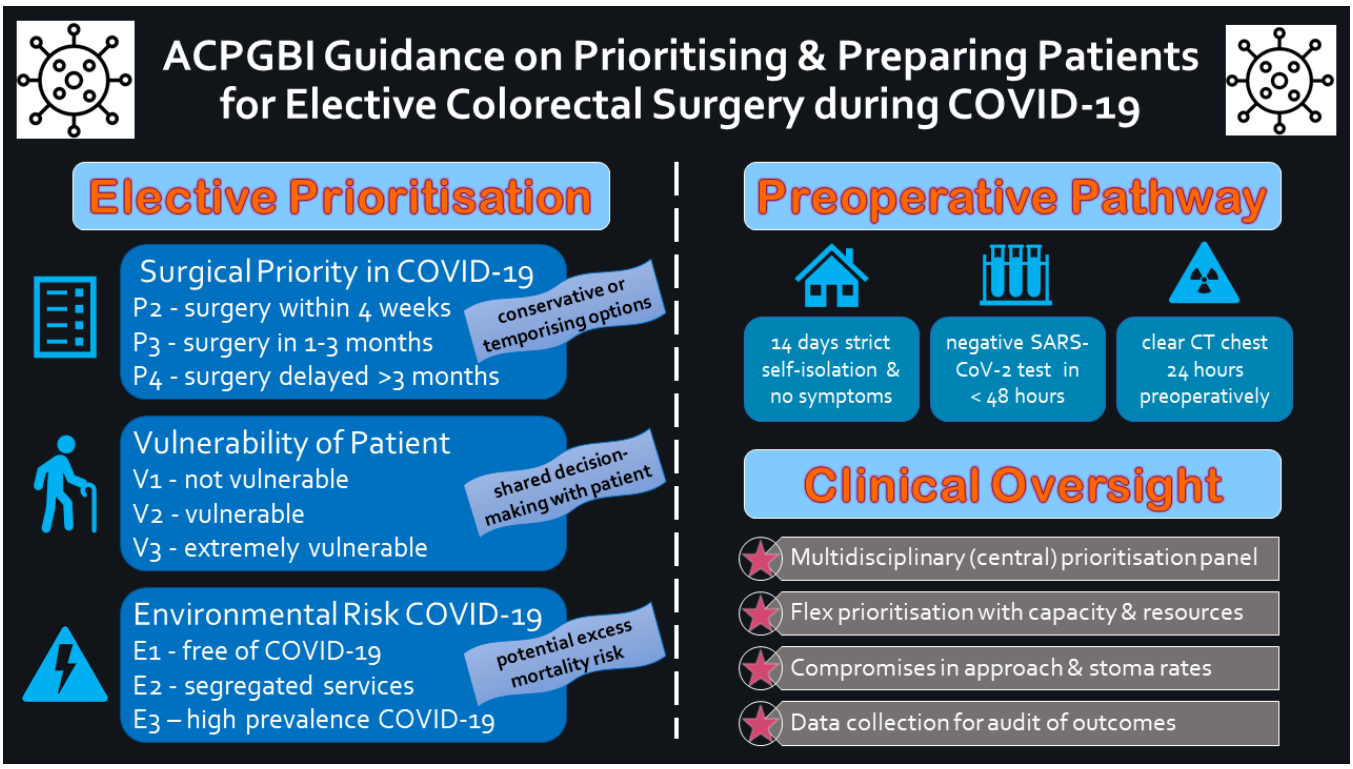

The surgical priorities during the surge and plateau phases of the COVID-19 pandemic have rightly focussed on maintaining emergency general surgical services and supporting national initiatives to create sufficient resource and facilities to care for patients with COVID-19 requiring hospitalisation and critical care support.

Rapid access cancer referral pathways have mostly transitioned during the COVID-19 surge to triage systems based on primary care or remote FIT testing, virtual clinical assessment and investigation through CT of the abdomen and pelvis. A small number of COVID-free sites have been able to offer limited access to CT colonography.

https://www.acpgbi.org.uk/content/uploads/2020/04/Joint-ACPGBI-BSG-BSGAR-considerations-on-colorectal-cancer-pathway-in-COVID-19-FINAL-9-4-20.pdf

There are significant numbers of patients whose elective surgery for colorectal cancer, inflammatory bowel disease (IBD) and other colorectal conditions has been deferred during the pandemic. While some patients may be reasonably deferred for a time, it is imperative that clinical services have an "exit" strategy for re-introduction of surgical services for elective patients with cancer in particular to meet the highest priority needs.

https://www.acpgbi.org.uk/content/uploads/2020/03/ACPGBI-statement-on-CRC-treatment-during-COVID-19-FINAL.pdf

https://www.acpgbi.org.uk/content/uploads/2020/04/ACPGBI-Guidance-on-Management-of-IBD-Patients-requiring-Surgical-Invtenvention-during-COVID-19-v15-4-20.pdf

Planning to deal with backlogs of deferred investigations and surgical procedures is an essential component of ongoing management of the COVID-19 pandemic to avoid a second wave of potentially preventable cancer deaths or worsening prognosis for patients with all types of colorectal disease. Initial modelling on the potential burden of delayed cancer surgery, including colonic and rectal cancer, may be found here:

https://www.medrxiv.org/content/10.1101/2020.04.21.20073833v1.full.pdf.

Considerations

Recommencement of some level of elective activity will inevitably be predicated on a balance of:

- availability of local and regional resources that may fluctuate with time
- surgical prioritisation of patients and assessment of potential for harm if delayed
- vulnerability assessment of individual patients to potentially adverse outcome in the event of acquiring COVID-19 as a nosocomial infection
- prevalence of COVID-19 infection in both patients and staff within the healthcare environment where surgery will be undertaken.

Preliminary data from the CovidSurg prospective observational cohort study (personal communication Aneel Bhangu) suggest that elective patients who develop hospital-acquired COVID-19 have a postoperative 30-day mortality of 16.2% with the two-thirds who experience pulmonary complications having a mortality rate of 23.8%. It is acknowledged that the initial data still needs peer review, may be subject to reporting bias and lacks a denominator of the elective caseload. Nonetheless, this presents a major public health challenge in providing "COVID-19 free" sites for safe elective surgery. Current terms for low risk (as there is never "no" risk during a pandemic) COVID-19 sites are "cold", "clean" and "green".

Emerging evidence on COVID-19 prevalence and outcomes, pressure on resources at local and regional level, updated national guidance, testing facilities for patients and staff, sensitivity of available tests and availability of separate or segregated sites will all need to be taken into account when interpreting these

recommendations. Our purpose here is to highlight key considerations within a framework for colorectal surgeons to re-establish local and regional elective colorectal surgery during the COVID-19 pandemic and its aftermath.

Deciding when to reintroduce elective services and at what level of activity is a public health issue. The American Intercollegiate advice on resuming elective surgery offers the following advice about timing: *"There should be a sustained reduction in the rate of new COVID-19 cases in the relevant geographic area for at least 14 days, and the facility shall have appropriate number of intensive care unit (ICU) and non-ICU beds, personal protective equipment (PPE), ventilators and trained staff to treat all non-elective patients without resorting to a crisis standard of care."*

https://www.asahq.org/about-asa/newsroom/news-releases/2020/04/joint-statement-on-elective-surgery-after-covid-19-pandemic

Prioritisation of Colorectal Surgery during COVID-19

Intercollegiate advice on relative prioritisation across all surgical specialties has been published by the British and Irish Surgical Royal Colleges:

https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/C0221-specialty-guide-surgical-prioritisation-v1.pdf

This guidance covers the elective surgical priority levels:

- P2 for surgery that should take place within 4 weeks
- P3 for surgery that should take place within 3 months
- P4 for surgery that can be delayed for more than 3 months.

Delay in treatment may still result in adverse outcomes. Good administrative tracking will be essential to ensure patients do not get "lost" in the system. Regular scheduled remote updates through clinical nurse specialists will help mitigate against harm from disease progression or clinical deterioration.

Some procedures listed in Priority level 4, such as pelvic exenteration and multivisceral colorectal cancer resections, have been assigned to the P4 category largely due to the significant requirements for critical care, blood transfusion, multiple clinical teams, long operating times and length of hospital stay incurred in providing such services, and also because most patients will have alternative treatment options such as pelvic radiotherapy or systemic anticancer treatments. If resources allow, ideally patients requiring exenteration or multivisceral resection would be better treated as Priority 3.

Salvage surgery for recurrent anal cancer has been assigned to Priority 3 as there is no other cancer treatment available for these patients and the tumour biology tends to be more aggressive than locally advanced primary or recurrent rectal cancer.

Surgery intended solely for quality of life purposes may still be reasonably deferred further during the recovery phase.

The following table lists the priorities for elective colorectal procedures:

Surgical Priority Category during COVID-19	Colorectal Procedures
Priority 2	Stricturing or fistulating luminal Crohn's disease not responsive to endoscopic or medical treatment MDT directed resection or diversion for highly symptomatic colorectal cancer
Priority 3	MDT directed resection of colon cancer MDT directed resection of rectal cancer MDT directed resection of colorectal cancer liver metastases MDT directed resection of neuroendocrine tumour Salvage surgery for recurrent anal cancer Seton insertion for symptomatic anal fistula (including perianal Crohn's disease) Colectomy and proctectomy for colitis refractory to medical treatment (excluding acute severe colitis treated urgently)
Priority 4 *see notes in text above	Pelvic exenteration procedures* Multivisceral resections for locally advanced colon cancer* Transanal or rectal resection for benign rectal polyp Colonic resection for benign colonic polyp Ileoanal pouch surgery Completion proctectomy after colectomy for IBD
Consider further deferral	Uncomplicated incisional hernias Abdominal wall reconstruction Reversal of Hartmann's procedure Closure of diverting ileostomy Rectal prolapse surgery Non-urgent proctology procedures

Vulnerability of the Individual Patient

Vulnerability of the individual patient undergoing elective surgery should be assessed against the risk and consequences of acquiring nosocomial COVID-19 infection. A vulnerability score, proposed by Professor Gordon Carlson provides a framework for vulnerability scoring and has been adapted here to reflect emerging evidence about levels of respiratory support in patients with COVID-19:

- V1 indicates that a patient is unlikely to have excess mortality when compared to a fit individual under 70 years old in the event of COVID-19 infection.

- V2 is ascribed to a patient who is likely to have significant excess mortality compared to a completely fit individual under 70 years old in the event of COVID-19 infection but would probably receive respiratory support including ventilation if required.

- V3 indicates that a patient would be extremely likely to succumb to COVID-19 as a hospital-acquired infection and would not be likely to receive respiratory support or invasive ventilation during the pandemic due to either constrained resources and/or poor overall prognosis.

https://journals.lww.com/dcrjournal/Documents/Prioritizing_Access_to_Surgical_Care_During_the.99694.pdf

Environmental Risk

As the prevalence of COVID-19 infection within a healthcare environment determines the risk of nosocomial infection, consideration must also be given to the environment within which elective surgery is undertaken. Healthcare environments may be rated as:

- E1 where the entire institution is "cold" i.e. free or almost free of COVID-19 cases

- E2 where there are segregated services on the same site with an almost COVID-free "cold" facility assigned solely to elective surgery

- E3 where there is a high prevalence COVID-19 infection and so also a high level of acquiring nosocomial infection postoperatively.

Any "cold" site used for elective surgery must also have appropriately trained medical and nursing staff, adequately resourced theatre facilities and personnel, inpatient support services from laboratories, transfusion services, radiology and pathology, surgical cover arrangements and critical care resources or arrangements to manage patients who develop postoperative complications.

Patients who develop postoperative COVID-19 infection within the "cold" site will need to be transferred expeditiously for further care within a "hot" site.

Screening of all patients and staff with symptom and temperature checks before entering the building will help preserve the status of the "cold" site. Regular and repeated testing of all hospital staff will need to be instituted for the same reason to avoid inadvertent asymptomatic carriage and transmission.

Clinical and administrative staff will ideally need to be assigned to work in either "hot" or "cold" sites and will not be able to move from "hot" to "cold" without either two weeks of asymptomatic isolation or two negative SARS-CoV-2 tests taken at least 48 hours apart. Antibody testing, when available, may assist in deciding on staff allocation to separated sites. There will undoubtedly be knock-on effects on surgical staffing rotas for emergency general surgery which will still need to be protected and prioritised at "hot" sites, and not all sites will be able to achieve this level of separation.

Policies for managing staff with a positive test will need to be in place. Contact tracing will also be essential for both patients and staff if a patient or staff member becomes symptomatic during deployment in the "cold" site. Physical distancing will need to be practised in communal and, where possible, clinical areas.

Enough supplies of appropriate full PPE will be required for use in "cold" sites to maintain low rates of nosocomial infection while COVID-19 is endemic. "Cold" site supplies should not detract from availability of PPE at "hot" sites.

Preparing Patients for Elective Surgery

Patients preparing for elective surgery will need to be prepared preoperatively to minimise the risks of nosocomial infection with the following key measures:

- strict self-isolation for 14 days prior to admission
- negative preoperative screening for symptoms
- negative preoperative swab testing
- clear CT chest within 24 hours of surgery

All patients undergoing elective surgery should be advised and prepared to undertake strict self-isolation for 14 days prior to surgery. Exercise during this time should still be encouraged within the limitations of strict self-isolation. Members of the same household should also be in isolation during this period. Innovative use of telemedicine prehabilitation to encourage exercise and good nutrition may help offset the risks of potential for sedentary behaviour while maintaining self-isolation and "physical distancing".

https://journals.lww.com/annalsofsurgery/Documents/Prehabilitation%20Telemedicine%20in%20Neoadjuvant%20Surgical%20Oncology%20Patients%20.pdf

Screening questions via remote contact to exclude symptomatic COVID-19 infection should be carried out preoperatively just prior to testing.

Asymptomatic patients will need testing for SARS-CoV2 infection within 48-72 hours of planned surgery. Home testing kits would be ideal but require longer to process. Drive through facilities for 48-hour testing would be preferable over hospital attendance. Policies for managing patients with positive tests, self-isolation, deferral of surgery and repeat testing will need to be in place.

It is recognised that upper respiratory swab testing using polymerase chain reaction techniques has a false negative rate of around 25%. A normal lymphocyte count may add some reassurance but again may also be normal in the presence of infection. In view of this, and the severe consequence of developing pulmonary complications of COVID-19 in the postoperative period, use of pre-operative CT chest has been used as an adjunct to try and further screen out patients with asymptomatic COVID-19. CT chest 24 hours before surgery is now included in Intercollegiate guidance for patients undergoing upper gastrointestinal and hepatobiliary procedures. Arguably all patients undergoing major abdominal surgery should be screened in this way as it is the pulmonary complications of COVID-19 that pose the major risk rather than the normal rate of pulmonary complication associated with a specific procedure.

https://www.rcsed.ac.uk/media/564199/protocol-for-pre-op-ct-during-covid19-pandemic-pdf.pdf

Surgical Decision-Making and Enhanced Patient Consent

Given the inherent increased risks of acquiring COVID-19 infection during the pandemic, even within a "cold" environment, the increased risks of pulmonary complications, need for ventilatory support and associated mortality should be discussed with all patients in addition to the relevant standard procedural and patient-specific risks. The inability for family to visit during hospitalisation needs to be explained.

Decision-making should be shared with patients and the need for risk-averse surgery should be specifically discussed and documented, including reference the timing of those decisions in the context of the COVID-19 pandemic. Higher rates of open surgery and stoma formation are likely during this period. Patient wishes with respect to resuscitation status and wishes in the event of adverse outcomes should be sought and documented.

Surgical Approach during COVID-19

As evidence emerges that that SARS-CoV-2 is even more contagious than initially thought (https://wwwnc.cdc.gov/eid/article/26/7/20-0282_article), the choice between open and laparoscopic surgical techniques is a public health rather than surgical issue, with safety of the theatre team as important as patient safety. Open surgery with provision for plume extraction from electrocautery and other energy devices may be the safer option for all theatre staff and hospital environments while the safety of laparoscopy remains unproven in the setting of COVID-19.

Maintaining low levels of COVID-19 infection within a "cold" site will potentially lower the threshold for use of laparoscopy in circumstances where there is clear patient benefit and in the setting of adequately resourced theatres with appropriately skilled and experienced staff. The entire theatre team should wear full PPE regardless of surgical approach.

Any surgeon undertaking laparoscopy should be demonstrably familiar with best practice for safe laparoscopy in the setting of the COVID-19 pandemic. These include, but are not limited to, small port site incisions, good seals on all ports, closed carbon dioxide insufflation, matching instrument diameter to port size, application of particle filters, aspiration of pneumoperitoneum after use of energy devices and suction extraction of pneumoperitoneum at the end of the case.

Transanal procedures with "pneumo-rectum" insufflation should be treated with the same level of precaution as laparoscopy, and only carried out if essential to good patient care.

Network Approaches to Elective Care

Not all institutions will be able to establish "cold" sites for elective colorectal surgery. Some institutions will also need to retain high levels of hospital and critical care capacity to ensure ongoing management of patients with COVID-19 during future surges. Ultimately this means that there will need to institutional oversight and prioritisation of all elective surgical cases with administrative back-up.

Where possible, patients may need to be referred on to institutions with "cold" capacity. In this event, regional prioritisation boards should retain oversight of all elective patients needing surgery to ensure that all patients are treated in a timely manner, wherever possible. Responsibility and accountability for the phase of clinical care lies with the treating institution and clinician at the time of care. Transfer of patient care between institutions should be accompanied by formal referral, transfer of imaging and pathology reports, and ideally direct communication between referring and accepting surgeon. The newly assigned surgeon should have opportunity to establish a relationship with the patient in order to review fitness for surgery, explore patient wishes and preferences, and obtain informed consent. Postoperative multidisciplinary team review of histology and discussion about adjuvant treatment and surveillance will also need to be communicated back to the referring institution, together with timing of

transition of further patient care. Patients should be given contact details for the treating institution's clinical nurse specialists for postoperative advice.

Audit data should be collected and submitted to national databases on all patients treated electively during COVID-19 to ensure high quality data to inform future service provision.

Future Revisions

Given the evolving and uncertain nature of the COVID-2 pandemic, and likelihood of emerging data on all issues considered here, it is anticipated that this guidance will need to be revised at regular intervals during the coming months and years. The first planned review will take place by 30 June 2020.

Nicola Fearnhead, on behalf of the ACPGBI Executive