

Restarting planned surgery in the context of the COVID-19 pandemic

A strategy document from the Royal College of Anaesthetists, Association of Anaesthetists, Intensive Care Society and Faculty of Intensive Care Medicine

Background

As a logical and necessary part of the country's response to the COVID-19 pandemic, elective surgery was suspended throughout the NHS to liberate staff and capacity for patients requiring hospital admission for treatment of COVID-19 and its complications. The Government's approach to the management of the pandemic has reached the point at which we are seeing a decline in hospital admissions, critical care bed occupancy and deaths from COVID-19. This enables the NHS to consider how best to resume planned surgical activity.

While there is considerable concern over the potentially severe impact of COVID-19 on patients who have undergone surgery, there is also a mounting expectation from clinicians, the NHS and the public to return to what is seen as a 'normal' service as soon as possible. There is also likely to be pressure to aim for supranormal levels of activity in order to 'catch up' with cases postponed during the peak of COVID-19 infection.

This document seeks to ensure that planned activity matches a realistic assessment of the ability of NHS staff and resources to deliver this activity. It is essential that when the resumption of planned surgery takes place, care is delivered safely, efficiently and in a sustainable manner, taking into account the staffing, environment and equipment needed to operate, but also the continuing impact of care of COVID-19 patients on postoperative critical care capacity.

SARS-CoV-2 is likely to be with us for many months and perhaps years. This will impact on all aspects of care delivery. The success of 'flattening the epidemic curve' means that the needs of the substantial number of patients with COVID-19 requiring hospital admission or critical care services are not reduced from previous estimates, but rather are spread over a longer period of time. The increased demands on critical care services will therefore be sustained over many months.

In addition, the persistence of coronavirus circulating in the population (and within hospitals) poses a further challenge to patient safety, staff safety and efficient perioperative care processes. The challenge of providing safe pathways through the hospital system for patients at low or high risk of COVID-19, and of protecting staff and other patients from hospital acquired infection, will demand resources and time. There will be a need for new procedures, and some form of minimum universal PPE for the foreseeable future, that were not present before the pandemic. In planning to resume planned surgical services, it is important to consider the needs of surgical patients on an equal footing with those receiving care for COVID-19 and other medical diseases.

Finally, the relaxation of lockdown will mean entering a new phase of the pandemic in the UK. There is a possibility that this or other factors may lead to a second surge in viral infection. Any increase in surgical activity may need to be reversed if this surge occurs, and planning must take this into account.

It is clear that returning to more normal levels of surgical activity will be highly challenging. It is inevitable that continuing to manage the ongoing demands of COVID-19 patients alongside resumed surgical activity will require additional investment in NHS staff numbers and the resources that these staff need to deliver those services.

Format

This document will address considerations relevant to the return to planned surgery in four broad categories: Space, Staff, Stuff (equipment) and Systems (the four S's). Within each category, preparedness for a return to activity is RAG-rated, ie **Red** (not ready for a return), **Amber** (close to being ready for a return) and **Green** (ready for a return). Readiness for a return to planned surgery will differ between regions, between different hospitals in a region and between different surgical services within a hospital. When coordinating activity within regions and hospitals, those delivering surgical services will need to be mindful of the fundamental principle that all patients across the UK should have equity of access to treatment.

Once high priority planned surgery has started, it must not be assumed that a return to pre-COVID-19 activity levels will be rapid. There must be regular review of the ability of the four S's to accommodate increased capacity without jeopardising the safety of patients and the health of staff.

Space

Before the return of planned surgical activity, efforts should be made to evacuate or relocate temporary ICUs that occupy key physical locations within the surgical patient pathway. Many hospitals have used operating theatres, Post-Anaesthesia Care Units (PACUs or Recovery Rooms) and surgical ICUs to accommodate Level 2 and 3 patients, but normal surgical activity should not resume if these remain as temporary ICUs for logistic and infection control reasons. Where such stepping down of temporary ICUs is not possible, it must be acknowledged that this is not 'business as normal', and any planning for elective surgery should be undertaken in this context. Further expansion in critical care facilities may be required in the coming months if coronavirus infection rates increase again or demand from other seasonal illness increases. Critical care bed expansion plans should ideally avoid a return to surgical pathway locations if a return to decreased planned activity is to be avoided.

Other locations that may be considered for managing planned surgery or the care of patients with COVID-19 may be considered: these include treatment centres, independent hospitals, mobile facilities and the Nightingale hospitals, and their equivalents in Wales, Scotland and Northern Ireland. These provide space but will only facilitate resumption of planned surgery if they also can provide staff, stuff and systems that are separate from and do not compromise those in the main NHS hospitals.

In the following RAG-ratings, these terms are used:

Baseline capacity Maximum critical care bed capacity before the pandemic.

Expanded capacity Maximum critical care bed capacity achieved in order to manage the increased workload associated with the pandemic.

RED

- Critical care occupancy close to expanded capacity.
- Patients in temporary ICUs in operating theatres scheduled for elective use or in other locations to be used in the surgical pathway, eg PACU or surgical ward.
- No planning for creating COVID-19-positive and COVID-19-negative patient separation in critical care facilities to accommodate planned and unexpected admissions after elective surgery.

AMBER

- Critical care occupancy reduced from expanded capacity and approaching baseline capacity.
- Other hospitals in the regional ICU network still using temporary ICU facilities, including the use of paediatric ICUs for adult patients.
- Plans for COVID-19-positive and COVID-19-negative critical care beds and pathways in development but not complete.

GREEN

- Critical care occupancy close to 85% of baseline capacity.
- COVID-19-positive and COVID-19-negative critical care bed and pathway separation enacted and effective.

Staff

During the recent peak of critical care activity for COVID-19 patients, large numbers of anaesthetic, theatre, perioperative care and ward staff have worked in ICUs. Not only must sufficient numbers of all these staff groups be free to return to their routine work activities to enable a return of planned surgical activity, but there must be an acceptance and remediation of:

- The potential for fatigue and stress resulting from shift working patterns, long hours and dealing with death.
- Accumulated time owed for Bank Holidays and annual leave.
- Sickness resulting from coronavirus or other illnesses.
- Inadequate access to educational activities compliant with normal revalidation requirements.
- Unremunerated clinical time owed for flexible working patterns under surge conditions.

Other members of staff will have been away from work being 'shielded' from the coronavirus. At present it is likely these individuals will need to remain shielded. How and when this requirement is lifted is uncertain and will likely apply on a case by case basis.

Both the above factors will impact on staff capacity for some time to come. Substantial expansion of critical care staffing may be needed to address the pandemic cross-cover requirements, release theatre and perioperative care staff and provide future resilience.

RED

- Theatre staff, perioperative care staff and anaesthetists still significantly committed to critical care duties.
- Critical care staffing ratios significantly higher than prepandemic levels and reliant on non-ICU staff.
- Out-of-hours resident on call duties being performed by consultant and SAS anaesthetists.
- Shielded and higher-risk anaesthetists not performing patient-facing activities.

AMBER

- Working patterns of anaesthetic, theatre and perioperative care staff of all professions still significantly impacted by pandemic surge conditions and recovery from these.
- Critical care staffing ratios above prepandemic levels or reliant on non-ICU staff.
- Trainee on call rotas restored but less than normal number of trainees available for work.
- Plans in place for sufficient numbers of consultant and SAS anaesthetists to be available to provide cover for planned surgical activity, but not yet fully in place.
- Planning for adequate staff numbers to restart non-theatre anaesthetic activities such as preoperative assessment, acute pain rounds and perioperative medicine activity but adequate numbers not yet available.
- Planning for returning higher-risk anaesthetists to patient-facing activities after appropriate risk assessments but not yet implemented.

GREEN

- Elective surgical pathways fully staffed by intact theatre and perioperative care staff rotas.
- Critical care staffing ratios at or near prepandemic levels.
- Trainee on call rotas restored with normal numbers of trainees.
- Sufficient numbers of consultant and SAS anaesthetists available to provide normal staffing levels for the planned surgical activity to be delivered.
- Non-theatre activities ready to be restarted.
- Higher-risk anaesthetists returned to patient-facing activities where appropriate.

Stuff (Equipment)

The pandemic has necessitated widespread redeployment of equipment used in surgical care pathways to support a critical care surge response. After any appropriate decontamination, repair and servicing, this will need to be returned to its normal location and usage before elective activity can restart.

COVID-19 infection will remain in the community for months if not years, and the personal protective equipment (PPE) needed for current and possibly increased ward and critical care management of such patients must be available before any planned surgery is recommenced.

Drugs used in critical care and anaesthesia are in short supply, and adequate stock levels for expected and potential critical care activity, and emergency anaesthetic activity, must be secured before any return to planned surgical activity.

Secure ongoing supply of disposables, PPE and drugs should be assured before increasing surgical activity.

Critical care facilities may remain significantly impacted both in general and for specific organ failures, and should be assessed on a speciality by speciality basis. For example, if local or regional renal replacement therapy (RRT) facilities remain saturated even after general ICU capability is restored, this will impact on the ability to restore planned cardiac, major vascular and high-risk general surgical work.

RED

- Equipment used in surgical pathways still in extensive use for critical care patients, eg anaesthetic machines and infusion pumps.
- Shortages of PPE and other equipment necessary for effective infection control.
- Non-availability or low stock levels of key drugs used in critical care and anaesthesia such as first-line choice of neuromuscular blocking drugs, opioid analgesics, hypnotics, sedatives, inhalational anaesthetics, inotropes and vasopressors.
- Non-availability of postoperative critical care equipment either in general ICU capacity or for specific forms of support such as RRT or non-invasive ventilation.

AMBER

- Adequate numbers of anaesthetic machines and infusion pumps available but insufficient in reserve in case of damage or machine malfunction.
- Stocks of PPE and other equipment necessary for effective infection control adequate for potential increases in critical care activity and increasing surgical activity but supply chain not assured.
- Stocks of key drugs used in critical care and anaesthesia adequate but uncertain resupply through normal supply chain routes.
- Postoperative critical care capacity limited and in competition with ongoing COVID-19 requirements.

GREEN

- Minimal equipment usually used in the surgical patient pathway in use in critical care, with adequate equipment in reserve in case of damage or machine malfunction.
- Adequate stocks of PPE and other equipment necessary for effective infection control for potential critical care and planned surgical activity with assured supply chain.
- Adequate supplies of key drugs used in critical care and anaesthesia with secure supply chain identified.
- Good availability of critical care capacity and all relevant organ support modalities.

Systems

Infection control and prevention processes aimed at minimising the impact of COVID-19 will be in place for some time. These will require additional time and resources, and will mean that a return to pre-COVID-19 levels of activity will prove very difficult without additional investment in resources, facilities and staff.

Firstly, there is a need to prevent patients having major surgery while they have coronavirus except for life, limb or sight-saving procedures, as their outcomes are likely to be poor. Risks and benefits will need to be assessed on a case by case basis. Secondly, there is a need to prevent patients for surgery of any kind infecting staff when attending hospital, and to prevent staff infecting surgical patients. Thirdly, specialist surgery may need to be organised and cohorted on a regional basis in order to maximise availability of equipment, postoperative care and other resources. There may be significant public concern about attending acute hospitals, especially in hotspot areas and in the close aftermath of pandemic, and there is therefore potential merit in a 'clean hospital' approach of cohorting by site. All these factors need careful planning and may impact on timing of surgery and both anaesthetic and surgical staff deployment.

Maximising surgical activity in the presence of these processes will require streaming patient flows using patient shielding before admission and testing such that COVID-19-positive and COVID-19-negative pathways are created and used appropriately. All Standard Operating Procedures for surgical services, operating theatres and critical care will need careful review and adjustment as necessary.

Consideration might also be given to streaming members of the surgical, anaesthetic and theatre teams such that those teams doing elective work are separate to those doing emergency and on call work.

Standards of safety for patients and staff must not be compromised by a determination to increase productivity.

RED

- COVID-19-positive and COVID-19-negative pathways for surgical care not developed or implemented.
- COVID-19 testing not sufficiently available for patients and staff.
- Anaesthetic services key to supporting theatre activity not active, eg preoperative assessment, acute pain service and perioperative medicine activity.

AMBER

- COVID-19-positive and COVID-19-negative pathways for surgical care planned but not yet implemented.
- COVID-19 testing available for patients and staff, with clear policies in development for how testing can protect staff, protect patients and facilitate efficient surgical services.
- Staffing and facilities for anaesthetic services key to supporting theatre activity available.
- Policies in development for the rational prioritisation of surgical patients as theatre capacity becomes available but does not yet fully match demand.
- Policies in development for the rational prioritisation of surgical patients as critical care capacity becomes available but does not yet fully match demand.

GREEN

- COVID-19-positive and COVID-19-negative pathways for surgical care fully implemented.
- Anaesthetic services key to supporting theatre activity functioning well.
- COVID-19 testing available for patients and staff, with clear policies in place for how testing will protect staff, protect patients and facilitate efficient surgical services.
- Policies for the rational prioritisation of surgical patients as theatre capacity becomes available are fully implemented.
- Policies implemented for the rational prioritisation of surgical patients as critical care capacity becomes available.

Implementation

If any of Space, Staff, Stuff or Systems are RAG-rated **Red**, then planned surgery should not restart.

When all four are RAG-rated **Green**, it is likely that planned surgery can proceed and move towards normal activity.

When any of the four are RAG-rated **Amber**, it will not be possible to undertake normal levels of planned surgical activity and it may not be safe to undertake any.

There will be a need to have clear prioritisation of surgical procedures from multiple subspecialties as planned surgery resumes in a phased – and most likely non-linear – manner. Prioritisation will need considerable planning such that it is equitable for patients, irrespective of surgical specialty, and does not cause delay or division. Ideally, national guidance on phased surgical prioritisation should be provided.

Some hospitals may remain in **Red** or **Amber** states longer than others. For reasons of equity, plans should be made between hospitals, which may need to form surgical networks, to work innovatively and cooperatively such that the greatest good can be delivered to the greatest number of patients through timely surgery.

Managers and clinical managers of surgical, critical care, anaesthesia and perioperative care services will need to work closely together to ensure that planned surgical activity begins when appropriate and expands at a rate that is compatible with the safe provision of care. Planning will need to incorporate the potential need to de-escalate surgical activity if critical care demand rises once again.