Anaesthesia and critical care: guidance for Clinical Directors on preparations for a possible second surge in COVID-19

21 September 2020

Introduction

At the time of publication of this document, SARS-CoV-2 infection rates have been increasing throughout Europe and now in the UK. The reproduction number (R) has risen to above 1.0, indicating that an exponential rise in cases is occurring. National restrictions of social meetings have been reintroduced and lockdown restrictions are being imposed on a local basis in many parts of the UK. Hospital admissions due to COVID-19 have begun to increase. In July, the Academy of Medical Sciences’ report ‘Preparing for a challenging winter’ theorised that COVID-19-related deaths in the UK between September 2020 and June 2021 could exceed 100,000. However, even a much smaller surge combined with winter pressures might significantly challenge NHS capacity and resources.

The NHS, its hospitals and clinicians have a responsibility to plan for a significant increase in hospitalisation of patients with COVID-19 and a greater demand for critical care beds and the provision of non-invasive ventilation (NIV) and continuous positive airway pressure (CPAP) treatment. These demands will impact on the NHS’s ability to deliver planned surgical services and to care for patients with illnesses other than COVID-19. This document is not a detailed and comprehensive checklist of preparations but rather aims to set out key principles that clinical leaders in anaesthesia and critical care should consider during planning.

During the first surge, the NHS undertook a number of actions, including:

- Centrally mandated cessation of planned investigations and procedures.
- Transfer of urgent planned surgical and other NHS care to independent hospitals.
- Rapid implementation of ICU surge capacity in areas with appropriate existing resources, often operating theatres and Post-Anaesthesia Care Units (PACUs, Recovery Rooms).
- Reallocation of anaesthetic equipment to critical care areas, e.g. anaesthetic machines and infusion pumps.
- Transfer of large numbers of staff working in planned surgery pathways to critical care duties.
- Changes to the job plans of medical staff, e.g. cancellation of study and annual leave, residency while on call, suspension or reallocation of Supporting Professional Activities (SPAs), and increased working hours.
- Centrally mandated suspension of training programmes and trainee redeployment to clinical work.
- Cross-skilling across professions and specialties to support critical care delivery.

NHS England & NHS Improvement (NHSEI) have made it clear that the anticipated response to a second surge will be different. Central to their current plans is the return of almost all non-COVID-19 clinical activity. At the end of July, Sir Simon Stevens set an ambitious target for October 2020 of 90% of 2019’s activity for overnight elective surgery and outpatient/day-case procedures, without using independent hospital capacity. Although there have been different approaches by the leadership of the NHS in the devolved nations, they have the same goal of forward planning with support for mutual aid during a second surge. Meanwhile, definitions of patient pathways with low, medium or high-risk of COVID-infection have led to the creation of physical pathways within hospitals that seek to protect surgical low-risk patients from exposure to SARS-CoV-2, while also protecting vulnerable healthcare workers (HCWs). In July, the National Institute of Health and Care Excellence (NICE) reduced the period of self-isolation required by patients before attending for planned surgery to ‘up to three days’ and Public Health England recommended Standard Infection Prevention and Control Precautions (SICPs) in place of Transmission-Based Precautions (TBPs) in low-risk patient pathways: these changes will improve access and accelerate the delivery of planned care, although we have cautioned that increases in local prevalence may need to lead to reconsideration of these changes.

It is therefore clear that changes to accommodate any second surge will, in order to preserve planned NHS clinical activity, need to differ from those made during the first surge. Clinical Directors (CDs) in critical care and anaesthesia will have to liaise closely with each other and with their counterparts locally, regionally and nationally – and within Integrated Care Systems (ICSs) - if both emergency and planned care is to be provided on an equitable basis within and between regions. Critical care Operational Delivery Networks (ODNs) are now well established and have close links with regional medical teams, but such networks are not well developed in anaesthesia. It is important that CDs in anaesthesia establish effective communication channels that allow them to liaise with colleagues across the NHS.

We recommend that clinical leaders in hospitals continue to develop and stress-test staged plans for changes that can be made to increase the availability of critical care facilities while protecting, as far as is possible, planned surgical activity and – importantly – preserving training and promoting the mental and physical health of HCWs.

In broad terms, we suggest that local clinical leaders consider the following stages within such a Staged Resurgence Plan (SRP). These plans could refer solely to one hospital or could be shared with ODNs and ICSs to allow coordinated capacity expansion:

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1Information on local prevalence can be found here. Please note that access to this link requires registration by your employing organisation.

2The RCoA maintains a Clinical Directors’ Network that gives CDs access to regional WhatsApp groups and an online forum. Go here for information and access.
Individual hospitals may wish formally to outline steps to be taken at each of the stages SRP1 – SRP5. For steps SRP2-5, hospitals should have plans aligned with local and regional critical care networks, and stages SRP3-5 will likely involve mutual aid between these networks. Formal liaison between departments of anaesthesia and ICSs is likely to be necessary at the same time to ensure equity in the delivery of surgical care. If independent hospitals are used again for NHS activity, this liaison should include them. In planning responses to increasing COVID-19 activity, it is important to remember that although critical care was prioritised over planned surgical services in the first surge, hospitals will need to take a different approach during any second surge: critical care and surgical activity must be prioritised equally during SRP1-4 and, when possible, during SRP5.

The following aide memoire of issues to consider in developing SRPs has five sections: the Four S’s (Space, Stuff, Staff, Systems), and Training. There is considerable interdependence between these five sections, and the key link between them all is staff. Without sufficient numbers of trained and healthy staff, space, stuff and systems are of little value to patient care.

Clinical leaders in anaesthesia and critical care are both referred to as Clinical Directors (CDs) in this document, although it is accepted that in many hospitals different titles may be used.

**Space**

*Principles*

Critical care surge plans should have been revised to avoid placing early reliance on locations that are key to planned surgical pathways. Anticipatory planning and a longer lead time for making the necessary physical changes to other clinical areas should make this possible.

In stages SRP1-3, delivery of enhanced postoperative care for COVID-19 low-risk pathway patients in non-critical care locations should be considered to support cohorting in critical care areas and to maximise critical care capacity. Enhanced care should ideally be delivered in locations separate to planned surgical pathways, e.g. repurposed mothballed wards. Delivery of enhanced care of this sort will depend upon the availability of staff with appropriate training and expertise.

At SRP5, it may become necessary to use some locations within surgical pathways as ‘super-surge’ accommodation. We recommend that this be regarded as a temporary and unsustainable measure because of its impact on planned procedures, and it should trigger early decompression of affected hospitals through NHS mutual aid and regional patient transfer. The use of independent sector and Nightingale facilities during future surges is outside of the remit of this document but may need to be considered by the NHS.
Suggested considerations

- CDs in anaesthesia and critical care, working with colleagues in estates and operational teams that link with ICSs and regions, should agree ideal and minimum locations necessary to conduct planned surgical care and determine which of these locations are ‘ringfenced’ and therefore as protected as possible from critical care expansion.
- Operating theatres and anaesthetic rooms were found to provide suboptimal environments and equipment for critical care in the first surge. Their use may adversely affect patient outcome. Ideally, they should not be used in calculations of maximum critical care bed capacity.
- The use of paediatric critical care facilities for adult care is unlikely to be feasible, given that the second surge is likely to coincide with winter pressures.
- Areas such as PACUs should be included in critical care capacity planning only in SRP4-5.
- Work with estates departments to prepare for conversion of identified locations to surge ICUs. Consider gas supplies, water, power, ventilation, storage, patient and staff flows, don/doff areas, rest areas, etc. These surge ICUs may differ markedly in location and scale from those used for the first surge.
- Work with Infection Prevention and Control teams to check that increased admission of COVID-19 patients and ICU surge capacity do not compromise the security of surgical low-risk pathways and the staff who work in them.
- Work with managers and other clinical specialties to develop and implement plans for Enhanced Care for appropriate surgical cases.
- Work with Trust, ICSs and regional planners to ensure that local surge capacity estimates are realistic and include staffing considerations.
- Support and facilitate training programs for colleagues who may need to be redeployed.
- Ensure the robustness of communication systems with local colleagues in all specialties, and with local, regional and national critical care networks and patient transfer systems.

Stuff

Principles

Expansion of critical care bed capacity should rely as little as possible on the reallocation of equipment, drugs, disposables and personal protective equipment (PPE) used in planned surgical pathways. The repurposing of anaesthetic equipment for critical care proved to be clinically unsatisfactory in the first surge and may lead to suboptimal care.

Critical care equipment allocation is already being prioritised by NHSEI and regional teams, including delivery of additional ICU bed ‘packages’ of ventilators and infusion pumps, and addressing renal replacement provision. Clinicians should familiarise themselves with this process and ensure that dedicated critical care equipment is available to match the variations in capacity demand, and that staff are trained and familiar with the equipment.

Close liaison should be continued with regional pharmacy and equipment supply chains to ensure adequate stocks and supply of drugs, disposables and PPE to match the demand in each SRP stage. It is critical that all HCWs continue to have access to appropriate PPE when treating patients during the COVID-19 pandemic, and that any variation in PPE use is not based on the lack of availability.
Suggested considerations

- Critical care and anaesthesia CDs should work with their nursing and directorate management counterparts - locally and within the region - to agree the equipment, drugs, disposables and PPE that should ideally be kept available in stock for planned surgical care in each SRP stage, with identification of which material should and should not be prioritised for critical care at each SRP stage.

- Anaesthesia and critical care CDs should work with senior hospital management and regional NHS supply chains to ensure that the reserves and supplies of drugs, disposables and PPE as agreed above are available. This requires understanding and acting on realistic lead times for equipment provision. The plan should ensure that stock levels for a given stage of the SRP are achieved in a timely manner, i.e. before that SRP is reached, such that equipment ordering may be triggered by reaching an SRP stage one or two below the current stage.

- Availability of PPE for surgical pathways should match the likely need. Currently, TBPs are not required for surgical low-risk pathways, but this may change if local COVID-19 prevalence increases, as is likely in higher SRP stages, such that airborne precautions will become necessary again for all general anaesthetics and critical care, as low-risk and medium-risk pathways effectively merge. Variation in PPE use for individuals who are at higher risk of harm from COVID-19 may be appropriate, as described in our document on shielding and higher risk staff.

- As demand for drugs commonly used in critical care and anaesthesia, such as propofol and neuromuscular blocking drugs, increases in higher SRP stages, decisions will need to be made about the allocation of these drugs equitably to achieve the safe delivery of both surgical and critical care. The feasibility of the use of alternative drugs should be considered in both locations. These issues were encountered during the first surge in COVID-19 cases, and the resources for the management of these eventualities are still available on the COVID-19 hub website.

- Anaesthesia and critical care CDs should establish and maintain close liaison with hospital procurement, operational managers, other specialty clinical leaders, and regional medical teams to ensure that local surges are appropriately managed through NHS mutual aid. There should be established and well-rehearsed lines of communication to identify and escalate discrepancies in capacity, equipment and staffing to regional medical teams in order to enable sharing of equipment or decompression of sites. Transportation teams and transfer processes for patients and equipment should be put in place by senior hospital and regional managers. Current regional activity for the provision of ventilator/infusion pump/renal replacement packages, and other key consumables, should be monitored for adequacy.

Staff

Principles

Critical care and anaesthesia CDs should work with the clinical leaders, colleagues and managers in surgical and medical services, and human resources departments to agree a staged approach to staff redeployment that accommodates surges in medical and critical care activity while preserving planned surgical activity as much as possible and for as long as possible. This will require advanced planning, cross-skilling and an agreed, staged involvement of non-critical care staff in established and expanded critical care facilities. As local and national prevalences of COVID-19 increase, some staff members who are at higher risk of harm from COVID-19 may need to change their working patterns...
and/or location. This may impact up to 10% (or more in some hospitals) of the workforce and should be factored into staffing plans. Staff absences due to illness or self-isolation may further deplete staff numbers and should be considered when planning.

COVID-19 prevalence in hospitals is not necessarily the same as that in the local community, as the outbreaks amongst HCWs in hospitals in Weston-Super-Mare and Tameside have shown. Clinical leaders should develop plans for outbreaks and the need to provide mutual aid if departments within hospitals have to limit activity. COVID-19 testing of HCWs is a key part of protecting the health of both staff and patients for whom they care. CDs should ensure compliance with testing protocols determined by local and national guidance. Hospitals should further promote and support staff health and availability with influenza vaccination and the ready availability of physical and psychological wellbeing support systems.

**Suggested considerations**

- CDs in anaesthesia and critical care should reflect on the changes to staff roles and working patterns made to accommodate the first COVID-19 surge. A staged plan for a second surge should be developed based on those changes made for the first surge that were successful in delivering patient care, maximised the clinical effectiveness of the redeployed staff members, and protected staff wellbeing.
- CDs in anaesthesia should work with nursing and theatre managers to identify staff numbers and teams necessary to maintain planned surgical activity using a staged reduction and prioritisation model dependent on SRP stage.
- CDs in critical care and anaesthesia, working with medical and surgical services clinical managers, should develop staged plans for non-critical care medical staff involvement in ICUs. Cross-skilling for those who were not involved in critical care in the first surge should start as soon as possible, alongside refresher training for those who were involved in critical care in the first surge but identify a learning need.
- CDs in critical care should work with nursing and other managers to develop staged plans for the involvement of non-medical staff from non-critical care areas in critical care in the SRP stages. This may involve the ‘top-slicing’ of agreed proportions of nursing staff from clinical areas throughout the hospital. Cross-skilling and multiprofessional training for these members of staff should be established urgently if not already in place.
- CDs should be mindful of the occurrence of exhaustion, moral injury and other adverse psychological impacts on those working in critical care areas and those redeployed to these areas, as well as the impact on critical care staff of supervising and working with redeployed staff. It should not be automatically assumed that the same staff groups should be redeployed in the same manner as before, and considerations should include equity and the impact of previous redeployment on training and wellbeing.
- CDs in anaesthesia and critical care should work with Occupational Health departments to identify staff who may need to change working patterns or location because of their vulnerability if COVID-19 prevalence increases. It may be feasible to plan which individual staff members will need to alter work patterns by SRP stage. Such planning is necessary in order to ensure that the numbers of clinically available staff are sufficient to provide planned surgical and critical care activity at each SRP stage.
Alteration of critical care staffing levels at different surge stages remains a complex topic, and CDs should follow national guidance as it evolves, with adherence to published guidance on the provision of critical care services (GPICS) and anaesthesia services (GPAS) as the default.

Consideration should be given to roles that anaesthetists and intensivists usually undertake that could readily be fulfilled by others. Areas in which the anaesthetic workforce could be maximised by calling on other disciplines as the SRP stage increases might include acute pain management (particularly out-of-hours), pre-assessment and patient transfer. Training of healthcare practitioners with appropriate competencies in the transfer of critically ill patients and the establishment of regional and sub-regional transfer teams should be considered priorities. Such transfers will be of both COVID-19 patients and those whose critical illness is not related to SARS-CoV-2 infection.

Physician associate roles in both critical care and anaesthesia are well-established in many centres, and we recommend that departments further review opportunities to expand Advanced Critical Care Practitioner (ACCP) and Anaesthesia Associate roles within their given competencies, both to maximise best use of non-medical staff skillsets and to release anaesthetist and intensivist time.

Senior hospital management and human resources teams should work with all those impacted by COVID-19 care to ensure that the job plans and working arrangements of anaesthetic and critical care staff are maintained as far as possible during any second surge, to include a focus on wellbeing, rest facilities, and the preservation of annual, study and professional leave, and SPA time.

**Systems**

**Principles**

Guidelines, protocols and operating procedures used or developed during the first surge should be reviewed and, if necessary, updated in preparation for the second surge.

This document uses a framework of SRP1-5. At hospital and regional level, it should be used in conjunction with other recognised systems including Sitreps and CRITCON. The latter is a qualitative measure of unit or hospital strain that augments raw occupancy and other data. Prioritisation for admission to critical care facilities should follow recognised frameworks.

**Suggested considerations**

- Review relevant clinical management protocols from the first surge and make agreed changes if necessary. In particular, ensure clear guidance on:
  - Procedures for escalation to regional ICU networks and ICSs in times of capacity shortage.
  - Prioritisation for critical care in times of severe capacity shortage.
  - Strategies for involvement in research and the potential need for priority setting.
  - Ventilation strategies including processes for the delivery of NIV/CPAP and the timing of tracheal intubation.
  - The use of and location of delivery of NIV and high-flow nasal oxygen (HFNO) therapy.
  - Fluid management.
  - Venous thromboembolism (VTE) prophylaxis and treatment.
  - Antibiotic treatment.
  - Indications for dexamethasone.
  - Indications for remdesivir.
  - Indications for and management of renal replacement therapy.
○ Tracheostomy timing and processes.
○ Rehabilitation and follow-up after critical care.
○ Communication with families.

● Liaise with regional and national critical care networks to develop agreed plans for the interhospital transfer of patients requiring critical care. The principle of equity of access, dependent on need, to surgical, medical and critical care across the NHS should be maintained as far as possible.

● Liaise with regional and national networks to maximise the provision of staff and equipment to maintain planned surgical care and maximise equity of access to critical care. If necessary, staff and equipment should be transferred between hospitals with the appropriate agreements and safety checks.

Training

There were important and far-reaching consequences for training during the initial COVID-19 surge. Although many measures are in place to mitigate these, there are still important issues to be considered with regard to the organisation and delivery of training. These include the following areas, which are described in more detail in the Annexe:

● Any future redeployment of doctors in training must be carefully planned to minimise disruption to training and delay to progression.

● A multiprofessional passport system has been introduced that allows the documentation of skills gained in the previous surge. This information should be used to plan staffing appropriately.

● Training rotations were widely postponed during the previous surge and there is a possibility that this will be required again for patient care reasons.

● Online examinations have been established for anaesthesia, intensive care medicine and pain medicine. It is hoped that this will enable exams to continue in the event of further restrictions, but time will need to be allocated for exam preparation and for examiners to undertake their duties.

● The GMC has approved the deferral of certain training milestones, including the following:
  ○ Units of training that could not be completed due to COVID-19 may be deferred for 12 months, or 24 months in the case of intermediate cardiac, paediatric and neuroanaesthesia.
  ○ Anaesthetists in training will only need to complete the Primary MCQ in order to apply for ST3 posts, with completion of the SOE/OSCE required by the end of ST3
  ○ The Final FRCA must be completed by the end of ST5.

● Although these elements of the curriculum may be deferred within the training programme, all mandatory areas of the training programme must be completed to achieve an Outcome 6 at the end of the programme, and the award of a CCT.

● The ARCP Outcomes 10.1 and 10.2 have been introduced to recognise disruption to training caused by COVID-19. These will continue to be used whilst there is disruption to services, i.e. until at least March 2021.

● Training may be undertaken in non-NHS facilities once recognition has been granted by the GMC and Postgraduate Dean. All doctors working in such facilities should ensure that appropriate indemnity arrangements are in place to cover their roles.

The Annexe to this document contains additional information about training. Updates from the RCoA regarding training may be found here.
Annexe

Training issues

During the first stages of the COVID-9 pandemic, anaesthetists in training were widely reallocated to support patient care services, in particular to critical care. This, together with the considerable reduction in surgical activity, meant that the key challenge in mitigating the impact of these changes was to maintain progression within training programmes. This was achieved to a large extent, reflecting the considerable efforts of both doctors in training and their trainers. In particular, training was highly focussed, and centred on the mandatory learning outcomes within the curriculum.

The same principles will apply in the event of further regional or national surges. However, although there is a degree of flexibility within training programmes that can accommodate much of the previous disruption, it is possible that significant further disruptions would require extensions to training time. This would impact on morale and create significant financial cost.

Importantly, training in both anaesthesia and critical care medicine depends on external factors and, for example, changes to surgical and medical services will have consequences for anaesthetic, ICM and ACCS training. It will be important to work in partnership with other specialties to take a ‘whole service’ view of any potential changes required as a consequence of future surges in COVID-19.

Although overall guidance is provided on a national basis, most decisions about trainees and training will need to be taken at a local level in discussion with College Tutors and Training Programme Directors.

Redeployment of doctors in training

A second surge may again necessitate redeployment of doctors in training to different clinical areas within their hospital. This may be required within hospitals at a local, regional or national level. Such measures should be planned carefully, with input from local trainers and consideration of the impact on all doctors affected. The Training Programme Director should be consulted in all cases. It may also be desirable to move doctors in training from one placement to another to support patient care. In this situation, there must be agreement from the Head of School and Postgraduate Dean. Any movement must be supported by a full hospital and departmental induction.

Recognition of competencies gained while managing surges

A passport system has been established to enable doctors in training to document competencies gained during time spent supporting COVID-19 services. This will enable organisations to identify doctors with appropriate existing skills to provide additional support for services if required. Most anaesthetists in training will also have completed units of training in ICM that can be recognised for this purpose. These structures should enable units to make focussed changes to staffing that will minimise wider disruption of training.
Rotations during surges

Many rotations were cancelled during the first surge. This decision was taken centrally by Health Education England and the Devolved Nations Statutory Education Bodies. This aimed to ensure continuity of clinical services and to decrease the administrative burden associated with rotations, especially during lockdown. Such a step may be required again in response to a significant surge, but it would undoubtedly exacerbate the challenges of ensuring the progression of doctors in training. This situation should be avoided if at all possible. The RCoA will maintain close links with Statutory Education Bodies to try to minimise the disruption caused by any such changes in the future.

Conduct of examinations

Examinations in anaesthesia, pain and critical care medicine were cancelled between March and August 2020. The GMC requires that all aspects of postgraduate medical exams continue to be assessed. The RCoA and Faculties of Intensive Care Medicine and Pain Medicine have worked hard to establish online exams to replace all elements of their respective qualifications. It is therefore expected that exams will be able to run in the future regardless of any restrictions associated with COVID-19. In order for this to be successful, time will need to be allowed for doctors in training to prepare and for examiners to carry out their duties. This can prove difficult even outside of a pandemic surge, but efforts must be made to achieve this for training to progress at the rate needed. There is a large backlog of exam candidates, and this will place a great deal of pressure on candidates, the examination system and examiners. Prioritisation of applicants will be aimed at supporting the progression of those who are most advanced in training programmes. There are plans to increase exam capacity over the coming year and to meet the demand within 6 - 12 months, but this is dependent on avoiding further disruption.

Managing progression

The RCoA and FICM have received permission from the GMC for derogation of certain milestones within the training programme. These include:

- Units of Training in the anaesthesia programme that could not be completed due to disruption caused by COVID-19 may be deferred to the next stage of the training programme with an ARCP outcome 10.1. There must be an action plan to ensure that any missed units are completed in a timely manner, normally within 12 months, although for intermediate neurosurgical, cardiac and paediatric anaesthesia, it may be 24 months. Intermediate and higher units of training in these areas may also be combined into a single attachment with an appropriate adjustment to the duration to ensure that all intermediate and higher competencies can be completed.
- Completion of the Primary FRCA has been deferred until the end of ST3 and the Final FRCA until the end of ST5. Anaesthetists in training may apply for ST3 posts providing they have successfully completed the Primary MCQ by the time of application for February 2021 recruitment and by the time of interview for August 2021 and February 2022.
- Advanced training may be completed in eight months instead of the usual 12 months by mutual agreement, providing all competencies are achieved. However, 12 months should still be provided where possible, and extra time must be allowed if requested in order to complete a full year of advanced training.
It is important to note that all mandatory curricular requirements must be achieved in order to complete the CCT training programme successfully. This will remain the case regardless of future disruption.

**ARCP Outcomes**

ARCP outcomes 10.1 and 10.2 were introduced during the summer of 2020 to recognise disruption to training caused by the COVID pandemic. Outcome 10.1 indicates that some milestones have not been met but progression may be maintained. Outcome 10.2 indicates that extra time will be required, for instance for those with outstanding Units of Training at the end of ST7. In either case there must be an action plan outlining how the delayed milestones will be met. The four nations Statutory Education Bodies have stated that these outcomes will continue to be used whilst disruption to training and services continues.

*Undertaking NHS work in independent sector facilities*

During the first surge, many surgical services were moved from NHS hospitals to independent hospitals. If this is required during future surges, anaesthetists in training may work in these hospitals to preserve learning opportunities, providing approval has been obtained from the Postgraduate Dean. However, this should happen only for training lists, and on-site supervision must be provided at all times. Although NHS work undertaken in the independent sector is covered by Crown Indemnity, all doctors undertaking such work are urged to ensure that they have appropriate indemnity cover in place.