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COVID-19 and the anaesthetist: a Special Series

EDITORIALS

The value of anaesthesiologists in the COVID-19 pandemic: a model for our future practice?

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The coronavirus disease 2019 (COVID-19) pandemic places healthcare systems under extreme pressure. As the infection spread, the number of infected patients requiring hospital admission was often overwhelming, displacing care for other groups. Many required ICU admission.[1] In places, the (expected) number of patients requiring ICU admission far exceeded the number of ICU beds and care providers normally available. Hospitals therefore doubled or tripled their ICU capacity by decreasing or halting elective surgery and establishing ICU beds in empty operating rooms and PACUs.[1]

Anaesthesiologists' roles in responding to COVID-19

Historically and currently, the majority of physicians practicing intensive care have trained in anaesthesia and a high proportion continue some anaesthetic practice. Whilst monospecialty intensivists form an important component of the ICU workforce and are well represented in specialty leadership, their numbers are small. Therefore, anaesthesiologists, usually redeployed from the operating rooms, have provided most of the medical care in temporary COVID-19 ICUs.

The leading role of anaesthesiologists in the care of COVID-19 patients makes sense. Most patients admitted to the ICU require invasive mechanical ventilation after tracheal intubation.[1] Because procedures with aerosolisation create the highest risk of COVID-19 infection, they should be performed by the most experienced care provider. Since anaesthesiologists are particularly experienced in airway management, intubations in COVID-19 patients are performed by them, putting them at risk of viral transmission.[2,3] Moreover, even with increased ICU capacity, in some hospitals the number of patients requiring mechanical ventilation may exceed the number of beds and ventilators, and anaesthesiologists are commonly responsible for transferring critically ill patients between hospitals. Finally, COVID-19 patients on non-ICU

wards may develop respiratory insufficiency very rapidly. Anaesthesiologists are able to support their generalist colleagues in the care of these patients through ICU outreach and remote vital signs monitoring.[4]

Thus, the COVID-19 pandemic has showcased the skills of anaesthesiologists as team workers, consultant physicians for the critically ill, and as medical managers, strategists, and leaders.[5] Unusually, our specialty has caught the public eye including the appearance of an anaesthesiologist on the cover of an April 2020 issue of *Time* magazine. However, before we become too pleased with ourselves, we should reflect on our specialty's journey and develop strategies for our future development.

Anaesthesiologists beyond the operating room

Although anaesthesiologists dominated the emergence of intensive care,[6] a significant proportion of us are careful to avoid the ICU. Whether this reflects anxiety around care of the critically ill or the attractions of private practice and diminished out-of-hours working remains uncertain. As with both dinosaurs and mammals, intensive care medicine has evolved differently on different continents. The European model has always been interdisciplinary and is today profoundly competency based.[7,8] Anaesthesiologists remain at the centre, but do so as part of a specialist intensivist community which is well organised and confident. In the USA, few anaesthesiologists train in or practise critical care and surgical leadership of ICU management is commonplace, although an intensivist model may improve outcomes whilst reducing costs.[9] Issues of control, of patient care, and the income that the care generates, may contribute to expectations of surgical autonomy. In 2008 the American Board of Surgery stated confidently 'Surgical critical care is a specialty of surgery…' (www.absurgery.org). At the turn of the millennium, a special article in *Anesthesiology* warned 'Today the American critical care anesthesiologist is an endangered species, overshadowed in numbers and political clout by colleagues from pulmonary medicine and surgery.'[10] The authors went on to advocate '… substantial reengagement in the practice of Critical Care Medicine'. Five years later, in 2005, the ASA task force on paradigms of anaesthesia practice in 2025 proposed that 'No doubt, health care delivery systems, and hospitals in particular, will favor the specialty that provides more overall value and diversity of practice paradigms.'[11] Eventually, in 2013 the ASA proposed the Perioperative Surgical Home, 'A coordinated system of perioperative care'. Although annotated to make clear that it was not intended to usurp surgical leadership, this was nevertheless a common surgical view as some subsequent commentary was less appealing to surgeons ('… a unique care environment handled by one perioperative team and coordinated by a leader. Anesthesiologists are ideally positioned to lead this new model'). Surgeons were sceptical about the benefits to routine care and worked towards 'Team-Based Surgical Care' whilst remaining carefully silent on any possibility of anaesthesiologist leadership. As a consequence, the concept has achieved limited traction (Fig. 1). In contrast, the implementation of Enhanced Recovery after Surgery (ERAS) is near universal and anaesthesiologists who run preassessment clinics, provide cardiopulmonary exercise testing and engage with prehabilitation ahead of an ERAS driven surgical episode are readily accepted as perioperative physicians. It may simply be a matter of presentation, but the Perioperative Surgical Home looked like a land-grab by anaesthesiologists. We should learn from that experience.

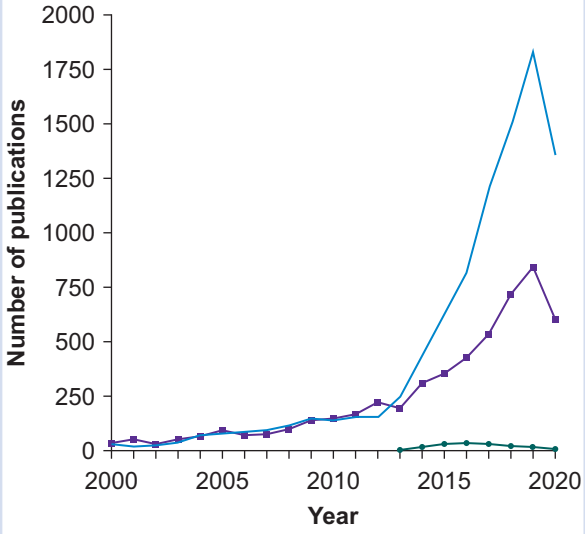

Fig 1. Publications per year, identified by PubMed search (20 July 2020), for: 'Perioperative Medicine' (plain black line); 'Enhanced Recovery After Surgery' (middle green line, squares), and 'Perioperative Surgical Home' (lower blue line, circles).

Intraoperative care

Perhaps we could fall back to the operating rooms? We would do so at our peril. Almost every aspect of anaesthetic practice is under challenge by new technologies and alternative providers. Our equipment is becoming smarter and fluids, hypnotics, analgesics, and neuromuscular blocking agents can all be delivered by closed-loop systems.[12] Laryngeal mask airways service the vast majority of spontaneously breathing patients, bypassing the traditional bag and mask skills. Videolaryngoscopes and other devices facilitate tracheal intubation and we are well on the way to deployable robotic intubation of the trachea.[13] These technologies subtract from the 'craft' dimension of the anaesthesiologist's traditional skill set. New drugs with shorter durations of action, cleaner profiles, and easier use and titration have simplified the mission, thus paralysis is easier to manage with atracurium than using curare or pancuronium. Sevoflurane is easier to use than halothane. Attempts by anaesthesiologists to restrain the use of 'their' drugs by emergency physicians[14] or nurse sedationists[15] come across as self-interested and financially motivated rather than patient-centred and evidence-based.[16] American anaesthesiologists find their operating room practice challenged by nurse anaesthetists who appear to work as safely as their medically qualified colleagues when embedded in mixed care teams.[17] Liberalisation of supervisory requirements may markedly expand nurse anaesthetists' scope of practice. Non-medical anaesthesia is well established in several continental European counties,[18] slowly developing in the UK,[19] and is routine in much of the third world. In short, the core specialty of operating room anaesthesia is under threat.

Specific skills of anaesthesiologists that add overall value

What to do? What are we left with? The pandemic has been an opportunity for anaesthesiologists to showcase their skills. These skills were used successfully in the process of distributing care in the COVID-19 pandemic, both to COVID and non-COVID patients. For the moment, we have the eye of all of the hospital and much of the general public. We have a moment (arguably a brief one…) to exploit this as an opportunity to reposition our specialty for the future. Anaesthesiologists should head towards the challenges. Giving a few millilitres of propofol for sedation during colonoscopy in healthy patients is not the work of a specialist—it can be safely managed by a nurse. Anaesthesiologists are specialised generalist physicians, with extensive knowledge of the (patho)physiology of organ systems both under normal and stress conditions, and are trained to mechanically and pharmacologically influence these systems. We should use that knowledge. Likewise, within and beyond the operating rooms we should be going the 'hard yards', working as perioperative physicians managing complex patients at each stage of their perioperative journey. Anaesthesiologists, as team players with little distance between physician and non-physician care givers, as efficient planners, and controllers, should facilitate multidisciplinary collaborations outside the operating room.

COVID-19, a new starting point

If anaesthesia is going to redefine its position (as it must), then it all has to be earned, none of it will be given. The failure of the 'Perioperative Surgical Home' concept attempted by the ASA is something to learn from. If surgeons and administrators are going to share leadership of perioperative care with anaesthesiologists, in its broadest sense, then it will be because we have demonstrated that it is the way to produce better quality patient care (measurably), cheaper care, faster care, and more satisfying (to all parties) care. No one else is going to do this for us.

Recently, the European Society of Anaesthesiologists announced a name change to embrace intensive care and is now in the preliminary skirmishes of a battle with the European Society of Intensive Care Medicine. (www.esahq.org/esa-news/esa-2020-general-assembly-message-from-the-presidents/). The outcome of such boundary disputes will be resolved by evidence and not by rhetoric. Intensive care was once an anaesthesiologist's hegemony, but those days are long gone. If anaesthesiologists are to call ourselves intensivists and perioperative physicians then we have to earn the right to do so by generating respect from our colleagues in medicine, surgery, and management.

The scope and versatility that anaesthesiologists have demonstrated during the COVID-19 pandemic has to become daily routine practice. We can take responsibility for healthcare delivery processes and use our broad knowledge outside operating room care and planning. In that sense, the COVID-19 pandemic should be a wake—up call. If we respond, we can stand on the shoulders of iconic anaesthesiologists such as John Snow and Bjørn Ibsen who took on responsibilities outside the operating room during the cholera and polio pandemics to define the specialty.[20]

Authors' contributions

Conception: WK
Writing of the draft: WK, MH, JRS
Revision of the manuscript: WK, MH, JRS
Approved the final version of the manuscript: all authors

Declarations of interest

The authors declare that they have no conflicts of interest.

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Prognostication in older ICU patients: mission impossible?

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The coronavirus disease 2019 (COVID-19) pandemic created a 'surge' in demand for robust criteria to be used in triage for hospital and ICU admission. We witnessed a large number of papers published and guidelines on the internet,[1–5] many with no firm connection to health authorities and usually reflecting only the view of an organisation or individual authors and scientists.

The UK is one of the few countries with a national guideline for ICU pandemic triage, issued by the National Institute for Health and Care Excellence (NICE).[6] Probably for the first time, frailty assessment was used at a national level to be the most important criterion for ICU triage. For those ≥65 yr old, the Clinical Frailty Scale (CFS) was advocated as a tool in a holistic assessment of patients, but not for those <65 yr. It is important to emphasise that a CFS ≥5, which was chosen as a threshold, was not absolute, and critical care could still be provided if it was considered appropriate. These triage guidelines were never intended to be an individual prognostic tool, but rather to identify groups of patients most likely to profit from intensive care in a situation where demand was higher than available resources. The alternative could be a chaotic process, with patients prioritised using a 'first come first served' approach,[7] and triage criteria might be implemented locally as in fact happened in many hospitals during the initial COVID-19 pandemic surge in Europe.[8]

It is important to use robust criteria for pandemic triage, and not surprisingly frailty was chosen above other criteria such as age alone, comorbidity, or even severity of disease. In the past 5 yr, a large body of evidence has been published on using frailty in prognostication for older ICU patients.[9] In Europe, two large prospective studies in very old ICU patients recorded frailty before admission using the CFS.[10,11] Both studies confirmed that frailty was one of the most important explanatory variables for outcome, including survival, in particular beyond ICU discharge. The study by Guidet and colleagues[11] confirmed the principal role of the CFS as a comprehensive descriptor of a patient's resilience as neither comorbidity, cognition, nor activities of daily living offered additional discriminating power to the analysis. In a pandemic this may be a desired feature of a tool used for triage, especially if it simplifies the process. The information needed to perform the CFS can also be retrieved reliably in retrospect[12] or be retrieved from medical records.

In this issue of *British Journal of Anaesthesia*, a study by Darvall and colleagues[13] from Australia and New Zealand challenges the part of the NICE triage guidelines that advises using CFS ≥5 as indicative of sufficient frailty, and hence patients are given less priority for intensive care admission. The authors use a comparative cohort of adult ICU patients ≥65 yr admitted with pneumonia. In their database, CFS was scored at admission (but was not mandatory), and they found that only the two highest scores, CFS 7 and 8, were significantly associated with mortality. They concluded that a NICE threshold of CFS ≥5 is too low and should not be used.

How solid is this conclusion? There are several important differences between their study group and COVID-19 patients treated for acute respiratory failure. First, it is far from evident that non-COVID-19 pneumonia is similar to the pulmonary failure seen during the present pandemic.[14,15] Both their ICU

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