

Editorial

Should we be re-starting elective surgery?

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The short answer is yes. Safe surgery is essential for the management of non-communicable diseases and underpins 9 out of 13 targets from Sustainable Development Goal 3 (Good Health and Wellbeing). The knock-on effects of the SARS-CoV-2 pandemic to surgical services will inevitably lead to a decline in population health: 28 million elective operations were cancelled during the first three months of the pandemic, which may now be as many as 115 million [1]. This is an issue for both lower and higher income countries, as delivery of surgery around the world has been shown to lack resilience to external pressures.

In this issue of *Anaesthesia*, Kane et al. have demonstrated that only 1.4% (7/535) of patients undergoing urgent elective surgery during a lockdown developed SARS-CoV-2, with one postoperative death [2]. They showed how a single hospital with an established COVID-19-free surgical pathway and selected patients can achieve good outcomes even during periods of high community SARS-CoV-2. Taken in isolation, this small series suggests that elective surgery could restart en-masse, immediately. However, large-scale datasets will be useful to support clinical decisions globally.

Although self-designated as a 'hot site' single-centre study, Kane et al. did not describe local community incidence at the time of the study nor its variation over time. Community SARS-CoV-2 rates can have a direct influence on in-hospital rates, which could have influenced the results. Kane et al. described a well-defined cold pathway which

included several layers of risk mitigation strategies, which led to a benefit for patient safety. However, these are likely to have been a well-selected group of patients, so generalisability to higher risk patients is uncertain and caution is advised.

It is important for surgical teams to recognise how Kane et al.'s findings, alongside other single-centre case series of selected elective surgery, fit together with the original CovidSurg paper. The CovidSurg Collaborative published early global experience of operating on patients with a peri-operative SARS-CoV-2 infection [3]. It showed an overall high mortality, at 23.8% (268/1128), which remained high across virtually all sub-groups. The mortality rate was 19.1% in elective surgery and 26.0% in emergency surgery, demonstrating the excess risk in this cohort. It is crucial to understand that all the patients included in CovidSurg study had a peri-operative SARS-CoV-2 infection, of whom 51.2% developed a pulmonary complication. It is possible that their baseline risk was higher than that of most surgical populations, although mortality was high even in some lower-risk groups (e.g. older patients undergoing minor surgery). The SARS-CoV-2 related mortality in Kane et al.'s paper (14.3%, 1/7) was not inconsiderable.

CovidSurg illustrated the effects of unrestricted surgery with variable pre-operative testing regimes, an absence of mandatory pre-operative isolation, and low physician awareness of the severity of peri-operative SARS-CoV-2. Across international settings, that led to high mortality rates.

Kane et al.'s paper, and others like it, show the effects of far more selective surgery in patients with lower baseline risks and controlled hospital environments. They are not directly comparable but do tell different parts of the same story. As CovidSurg data matures and we continue analyses, we are likely to demonstrate a falling month-on-month mortality in patients with SARS-CoV-2. Surgeons and anaesthetists are likely to have got better at identifying high-risk patients who would benefit from non-operative treatment and identifying lower-risk patients for elective surgery.

Kane et al. did not address if COVID-19-free pathways need to be maintained when community SARS-CoV-2 rates are low, which has cost and volume implications. The CovidSurg Cancer study has reported the effectiveness of COVID-19-free surgical pathways, for elective cancer surgery across multiple countries and settings [4]. Such multicentre evidence will be needed to set up COVID-19-free pathways globally, as they are resource-intensive to set up and maintain. Completely COVID-19-free hospitals will be scarce. Infected patients and staff are likely to mix with cold pathways even if only temporarily, making in-hospital transmission of SARS-CoV-2 a constant risk. There is urgent need for strong evidence supporting preventive measures to mitigate against the consequences of a peri-operative diagnosis of COVID-19 for surgical patients, across all settings. The PROTECT-Surg randomised controlled trial (ClinicalTrials.gov identifier NCT04386070) is being set up across seven countries to test drug measures, aiming to

prevent postoperative pulmonary complications in multiple settings. Its adaptive design will begin by evaluating hydroxychloroquine and antiretrovirals, before adding in newly proposed agents.

Rapid scale-up of surgery is needed to prevent the backlog increasing, but surgical services between now and 2030 need to be safe, sustainable and resilient to pressure. The first CovidSurg paper showed that specific sub-groups of patients were at a higher magnitude of risk than others. For example, even with a SARS-CoV-2 infection, surgery in patients aged under 50 years was largely safe (Fig. 1). This data can help patient selection for surgery as community SARS-CoV-2 incidence fluctuates over time. Surgery during SARS-CoV-2 peaks could continue for young or elective sub-groups of patients with low risk of SARS-CoV-2 infection and complications. Risk stratification will be key to inform surgeons and patients' decisions in the future waves. The CovidSurg Collaborative is developing a machine-learned risk stratification tool based on patient and disease characteristics. This information and tools might allow to ramp-up a wide range of elective surgery when community rates fall or to continue day-case and lower-risk elective surgery when rates increase and local lockdowns come into effect. Complex and careful decisions will need to be made on an individual level, as avoiding surgery in high-risk patients needs to be balanced against the effects of delays in treatment. The consequences of such delays are yet to be fully understood.

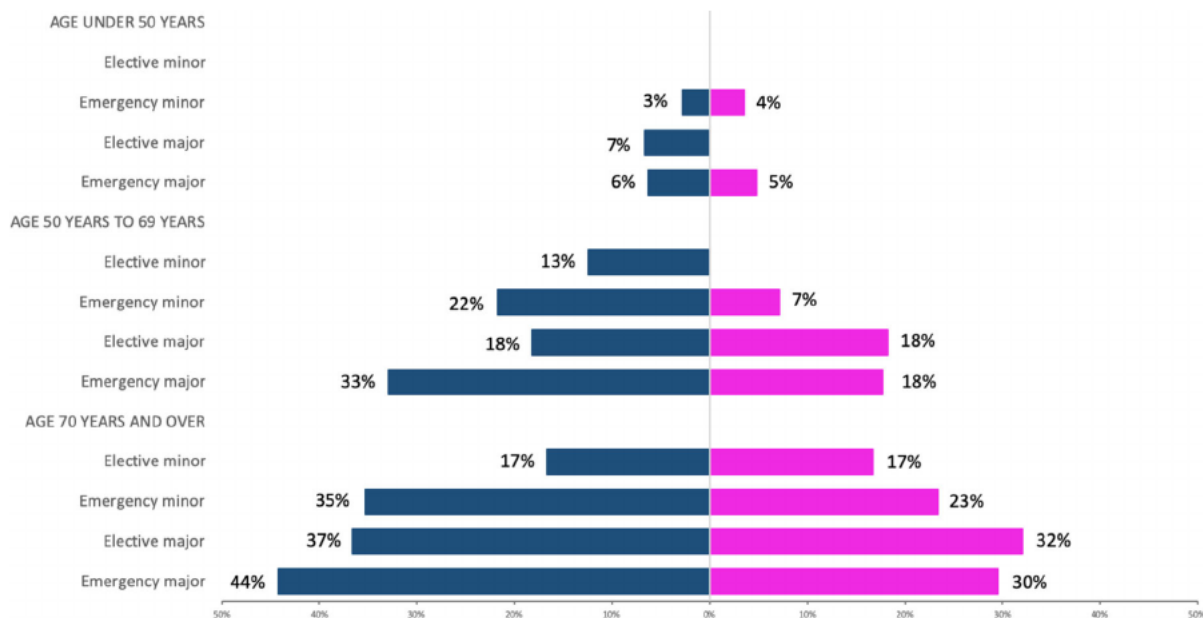


Figure 1 Thirty-day mortality rates of men (blue) and women (pink) who had a peri-operative SARS-CoV-2 infection, by age group.

Finally, the COVIDSurg week project will launch in October (www.globalsurg.org/surgweek), where specialty teams will collect all operations performed over a single-week period. This will allow immediate information on current COVID-19 rates and on the prevalence and effects of a previous SARS-CoV-2 infection (asymptomatic or symptomatic). Anaesthetists are co-ordinating multidisciplinary teams at some sites, and broad collaboration will speed up answers. A surgical-anaesthetic network that could almost immediately answer questions during the COVID-19 recovery period would be extremely powerful for patient benefit.

COVID-19-free pathways will be crucial for patient safety during the COVID-19 pandemic, as they seem to lead to low rates of SARS-CoV-2 infection rates and complications. Further preventive measures and patient level risk assessment will allow surgery to safely restart and continue during this, and future, crises.

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References

1. COVIDSurg Collaborative. Elective surgery cancellations due to the COVID-19 pandemic: global predictive modelling to inform surgical recovery plans. *British Journal of Surgery* 2020; **107**: 1440–9.
2. Kane AD, Paterson J, Pokhrel S, et al. Peri-operative COVID-19 infection in urgent elective surgery during a pandemic surge period: a retrospective observational cohort study. *Anaesthesia* 2020. <https://doi.org/10.1111/anae.15281>.
3. COVIDSurg Collaborative. Mortality and pulmonary complications in patients undergoing surgery with perioperative SARS-CoV-2 infection: an international cohort study. *Lancet* 2020; **396**: 27–38.
4. CovidSurg Collaborative. Elective cancer surgery in COVID-19-free surgical pathways during the SARS-CoV-2 pandemic: an international, multicenter, comparative cohort study. *Journal of Clinical Oncology* 2020; **20**: 1933.