SPECIAL ARTICLE

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Victoria's perioperative response to the COVID-19 pandemic

Introduction

In late February and early March 2020, Victoria, like every state and territory in Australia, was faced with the prospect of the coronavirus disease 2019 (COVID-19) pandemic overwhelming healthcare resources in hospital emergency departments, wards and intensive care units. A Health Service Pandemic Leadership Team (HSPLT), chaired by the Secretary of the Department of Health and Human Services (DHHS), was established to mobilize leadership and obtain the best advice from across the Victorian health system.[1] Limited resources of particular concern included sufficient appropriately trained medical and nursing staff, mechanical ventilators, intensive care unit beds and the correct personal protective equipment (PPE). On 8 March 2020, there were just 12 cases in Victoria, all related to overseas travel. The World Health Organization somewhat belatedly declared COVID-19 to be a pandemic on 11 March.[2] A state of emergency was declared by the Victorian Premier, Daniel Andrews, on 16 March.[3] Then, Victoria had reported 71 cases.

By Monday, 23 March, there were 355 cases (Fig. 1) and based on the modelling at that time the decision was made to cease non-essential elective surgery to preserve vital resources. A joint statement from four Australian and New Zealand colleges representing surgery, anaesthesia, ophthalmology, obstetrics and gynaecology[4] coincided with an announcement by the Prime Minister that non-essential elective surgery should cease on 25 March, although an extension of 1 week was allowed in private hospitals. Thereafter, in April and May, Victorian private hospital capacity was subsumed by DHHS, with Commonwealth and State government guarantees to cover any shortfall in revenue suffered by them.

To assist an optimal response to the looming pandemic, the HSPLT established a Clinical Leadership Group representing all specialties under the Chief Executive of Safer Care Victoria (SCV) (Fig. 2). This group which first met on 25 March included a surgeon, chair of the Victorian Perioperative Consultative Council (VPCC), and an anaesthetist nominated by the Australian and New Zealand College of Anaesthetists (ANZCA), also a member of VPCC. Recognizing the need for an even more diverse, but detailed, specialist engagement, a number of clinical expert committees were established to provide advice and/or suggest solutions.

This perspective has been written to describe the Victorian perioperative response to COVID-19, what was effective, the principles we followed and what we have learned that will facilitate our responding to any surges or similar pandemics in the future.

Victorian perioperative response to the COVID-19 pandemic

A nine-member expert working group was formed to represent the perioperative sector, under the chairmanship of the VPCC and comprised five surgeons, two anaesthetists, a representative of the Australian College of Perioperative Nurses and the Chief Medical Officer of SCV. It reported directly to the clinical leadership group and HSPLT. One of the surgeons was chair of the Royal Australasian College of Surgeons Victorian Regional Committee (VRC) and this facilitated engagement with VRC's specialty representatives. One of the anaesthetists was the safety and quality representative on ANZCA's VRC. From 2 April, perioperative meetings were held weekly, or more often when required. Logistic support was provided by three staff of SCV, redeployed to meet the demands of the organizational response to the pandemic.

The VPCC had been established by Victoria's Minister for Health in October 2019 to fulfil some of the outstanding recommendations of Targeting Zero, the Duckett report,[5] and provide a multidisciplinary approach to safety and quality in the Victorian perioperative sector,[6] under the protection of Victoria's Public Health and Wellbeing Act.[7]

In response to the pandemic, from late March, the VPCC and its subcommittees focused their attention on the impact of COVID-19 on the perioperative sector. The pace of events and the number of issues required weekly virtual meetings until early June. To ensure good communication and interaction with surgical leaders in the health services, VPCC established a 'Surgical Director' Committee for the first time, bringing together the Directors of Surgery of public and private hospitals. The Surgical Directors met weekly via videoconference, whilst a similar Anaesthesia Director Committee met monthly. The regular advice and everyday experience of the Directors was invaluable in understanding the variability and complexities in COVID-19 management across the state, and consistently enacting DHHS recommendations and updates.

Written advice provided between March and May addressed issues ranging from the cessation of non-essential elective surgery; the restoration of limited elective surgery; a perioperative screening checklist for COVID-19;[8] preoperative testing prior to surgery; PPE guidelines and burn rates; the availability of negative pressure theatres; standards for morbidity, mortality and clinical governance reporting in perioperative care; and future reform in the health sector.

Personal protective equipment

From February to May, PPE was a major issue of concern to the sector. Potential shortages of PPE, exacerbated by uncertain resupply due to competition for stocks on the international market, created widespread angst amongst health workers, including

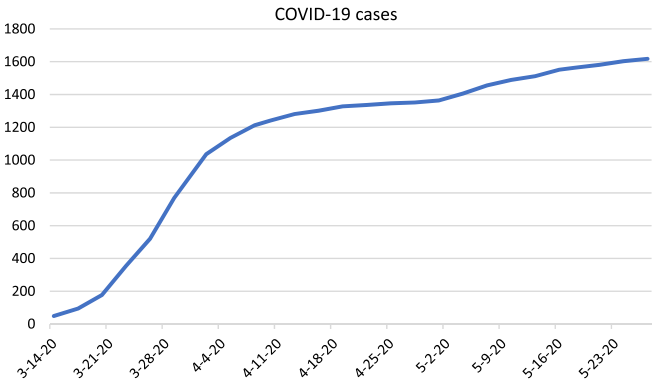

Fig 1. Severe acute respiratory syndrome-2 COVID-19 new cases reported in Victoria from March to May 2020 (redrawn from https://www.covid19data.com.au/). In late March, new cases were doubling every 3–4 days; Victoria reported 100 cases on 19 March and had over 1000 cases on 2 April. The curve started to flatten thereafter. Further clustered outbreaks occurred in May. COVID-19, coronavirus disease 2019.

anaesthetists, surgeons, nurses and theatre staff. Anaesthesia and surgical teams feared being placed at risk whilst conducting urgent or emergency surgery, particularly during aerosol-generating procedures (AGPs), including intubation and extubation. There were reports from the Northern Hemisphere of many healthcare contracted infections, with a number of deaths amongst healthcare workers, including frontline nurses and surgeons.[9]

One of the big challenges was determining the availability of PPE; what advice the surgeons, anaesthetists and nursing staff were receiving; how this was being interpreted; and what compliance and consistency with recommendations across the state was being achieved. What constituted an AGP was a hot topic of debate in February and March. Although there were no confirmed cases knowingly contracted through gastroscopy, this was initially considered a high-risk AGP due to the proximity of the oropharynx and oesophagus to the nasopharynx. Many health services adopted N95 masks and aerosol and contact precautions for all endoscopy cases at this stage based on the presence of viral RNA, probably in retrospect not infective, being identified in faeces, blood and bile. It was feared that laparoscopy might also be an AGP.[10] International colleges and their specialist societies wrote guidelines based on their expert review of the evidence.[11] We reviewed multiple guidelines from the UK, Europe and USA, or stored on the Royal Australasian College of Surgeons COVID-19 information hub.[12] Early on, when Victoria experienced with doubling times of less than a week (Fig. 1), the recommendations of the USA, European and UK bodies to alter best practice were being seriously considered. For example, in abdominal surgery, switching from laparoscopic to more open approaches, a recommendation within the Australian context that might have resulted in harm. At the end of March, General Surgeons Australia were swift with their advice to continue laparoscopic surgery as normal,[13] just as it was appreciated that treating acute appendicitis without surgery would lead to a more protracted recovery and longer stay in hospital, something to be avoided when it was expected the wards might fill soon with COVID-19 cases. Consultation with the authors of General Surgeons Australia's advice and other Victorian experts enabled us to recommend continuing with known best practice to use laparoscopy where appropriate, to perform appendicectomy for acute appendicitis and to continue to treat the majority of patients with acute cholecystitis or gall stone pancreatitis with a laparoscopic cholecystectomy during their acute admission.

At the beginning of April, a multidisciplinary PPE taskforce was established, chaired by the Chief Medical Officer of SCV, and included surgical and anaesthesia representation. There was a considerable variability of practice in different hospitals around AGPs until consistency was achieved between National, ANZCA[14] and DHHS PPE guidelines on 23 April.[15] This was the moment in the pandemic when droplet and contact precautions could again be recommended for low-risk cases with confidence, even for AGPs, given the incidence curve was flattening. Both public and private health services promptly aligned their practice to this guideline. The PPE taskforce, with line of sight on stock levels, orders and resupply, and the perioperative sector providing more data on burn rates as elective surgery ramps up, will be essential to ensure matching of supply and demand against various phases of the pandemic through the coming months. By the end of May, almost 60 health services had provided PPE utilization rates for over 200 procedures, so Victoria was in a position to plan for the restoration of elective surgery with a better understanding of how many PPEs were being utilized and the variability of use between hospitals.

Restoration of elective surgery

A restoration of an extra 25% of elective surgery volume was announced from 27 April,[6] and this was increased to 50% from mid-May. There are now plans to restore all elective surgery in stages through June and July, pandemic surges allowing.[16,17] In the financial year 2018–2019, Victoria admitted almost 200 000 patients to public hospitals for surgery, representing a quarter of Australia's elective surgery.[18] Public hospitals perform only one-third of elective surgery being done in the state, the other two-thirds being done in by the private sector.[19] The COVIDSurg Collaborative modelling reported that 67 149 cases per week across Australia were not being done during the elective surgery shut down.[20] This would suggest that some 17 000 elective procedures were not done in Victoria each week in responding to the pandemic and may represent a combined backlog of over 100 000 cases for the public and private sectors. More data are needed from Victorian hospitals to confirm this figure.

Lessons learned and opportunities for the future

At the time of writing in early June, the incidence curve is flat, and some social distancing restrictions are being relaxed. This relaxation involves a careful devolution of the modified arrangements from surge readiness towards business as usual. Social distancing remains critical. So, we live with a 'new normal' rather than truly 'business as usual'. Although there are uncertainties, and some (hopefully localized) outbreaks to be expected, Victoria and the perioperative sector are now well placed to respond to whatever the future holds. As we are now resigned to the fact that we need to live with COVID-19, we have learned important lessons.

Victoria has learned how to respond to an epidemic and to engage the whole health sector in providing rapid and expert advice. It took 2 weeks in mid- to late-March to form the perioperative and other representative advisory groups, which could review evidence,

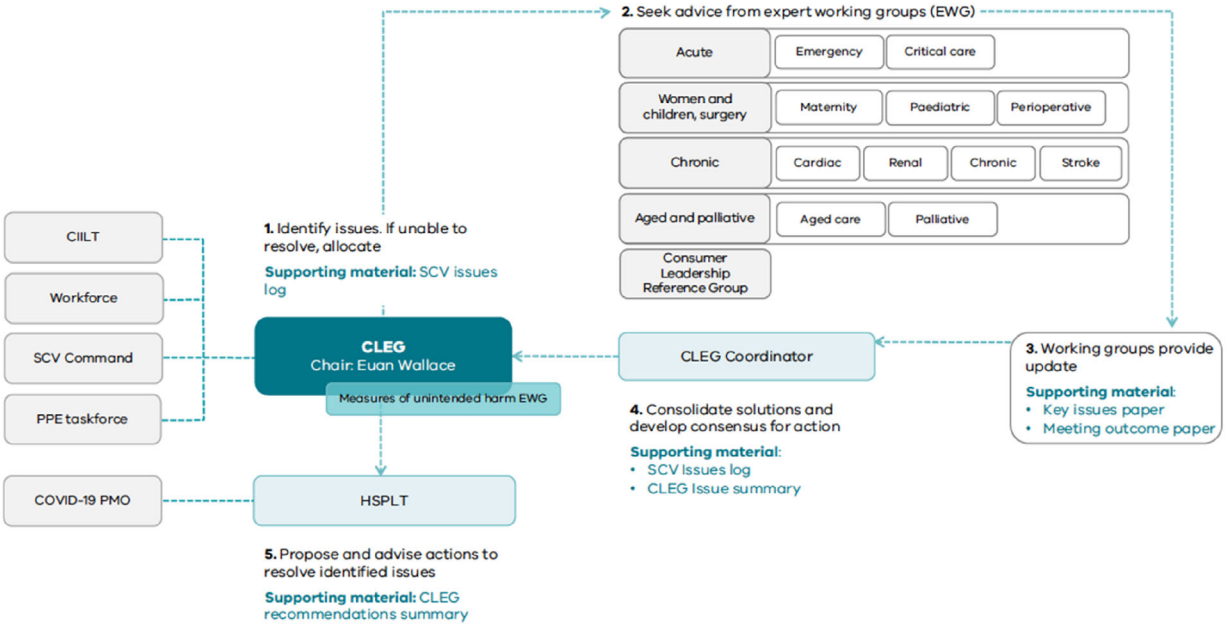

Fig 2. Organizational chart of Victorian response to COVID-19 pandemic. The alignment between EWGs relates to how logistic support was provided during the response to the pandemic. CILT, Clinical Information Liaison Team; CLEG, Clinical Leadership Expert 7 Group; COVID-19, coronavirus disease 2019; EWG, expert working group; HSPLT, Health Service Pandemic Leadership Team; PMO, Project Management Office; PPE, personal protective equipment; SCV, Safer Care Victoria.

provide expert advice rapidly, often within a few days, and also adjust that same advice as circumstances changed (Fig. 2). Consultation within and across specialties enabled a cohesive, collective and collaborative approach. Online video conferencing was remarkably effective for meetings, enabling high attendance rates without travel and ensuring social distancing of health service leaders.

We have also learned how to cohort hospitals or parts of hospitals, and to shift the more urgent elective surgery to private hospitals. There is a potential for greater collaboration between the public and private sectors in the future, particularly as we face a backlog of elective surgery, as well as for health services within newly established regional and metropolitan partnership clusters.

We also know much more about PPE, and when droplet/contact or aerosol/contact precautions are required. Initially, PPE guidelines were inconsistent and/or their interpretation led to confusion, frustration, fear and at times anger amongst medical staff. It was the Directors' group, aligned with advice from the colleges, and a multidisciplinary PPE taskforce that enabled Victorian health services to achieve a consistent approach to PPE by late April.

Experiencing the winding back, definition of what constitutes essential, and staged restoration of surgery, clinicians tend to look to their respective colleges for guidance. The colleges were certainly pro-active, effective and timely with their advice to government as well as having established helpful information hubs for the many specialty society guidelines on their websites.[12,14] Australian and New Zealand specialty societies should be proud of their contributions throughout the pandemic, and for Victoria, these certainly contributed towards achieving consensus.

The response to COVID-19 has involved considerable public and private sector collaboration at many levels, much unprecedented, but now something that will always be easier to re-enact in the future. Victoria was fortunate to have already established a multidisciplinary perioperative council that represented all perioperative specialties and could provide un-silo-ed opinion. Thus, we were able to achieve consensus as to priorities, opportunities and challenges. We could also break out into splinter groups to discuss a specific topic and then consult with a larger group (such as the Directors) to ensure any recommendations would be achievable and acceptable.

There will be opportunities for health service reform as we live with COVID-19.[21] We will likely change models of outpatient consultation, particularly for triage or review so as to embrace telehealth more enthusiastically in the future, whilst being aware of which patients really need to be seen and examined face to face. We hope to improve access to care by utilizing spare capacity through partnerships within regions and between public and private hospitals. In this respect, COVID-19 may have had a positive effect on patient experience and outcomes. In early March, perioperative care faced an uncertain future. What has been achieved represents an impressive cohesive response by the whole health sector, including its surgical, anaesthesia and nursing perioperative teams.

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Author appendix for Perioperative Expert Working Group (PEWG), Victorian Perioperative Consultative Council (VPCC), Surgical and Anaesthesia Subcommittees and Victorian Surgical Directors

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VPCC Anaesthesia Subcommittee

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Members of the Perioperative Expert Working Group, Victorian Perioperative Consultative Council and Victorian Surgical Directors Group are provided in Appendix.

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