

common valvular heart conditions. It discusses the debate and uncertainty of the role of coronary artery bypass graft surgery during the pandemic. Some recommendations, such as the importance of multidisciplinary team discussion, are surely here to stay. Others, for example recommending a CT of the chest in asymptomatic patients who test COVID-19 negative, are probably impractical or even contraindicated. In the rest, such as whether personal protective equipment affects operating room performance, data will emerge to reinforce or modify them.

At this time of global crisis, national and international associations of cardiac surgeons are co-operating, learning,

leading, and sharing information on an unparalleled scale. In many ways we are “feeling our way in the dark.” Although useful guidance is provided by the study of Benedetto and colleagues,¹ the greatest reassurance is the confidence shown by so many senior surgeons that normal cardiac surgery practice will return when the pandemic is over.

Reference

1. Benedetto U, Goodwin A, Kendall S, Uppal R, Akowuah E. A nationwide survey of UK cardiac surgeons' view on clinical decision making during the COVID-19 pandemic. *J Thorac Cardiovasc Surg.* 2020;160:968-73.

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Commentary: Performing cardiac surgery in the coronavirus disease 2019 (COVID-19) era: What is the new normal?

Siamak Mohammadi, MD, FRCSC, and
Dimitri Kalavrouziotis, MD, FRCSC



Siamak Mohammadi, MD, FRCSC, and Dimitri Kalavrouziotis, MD, FRCSC

The global impact of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and the coronavirus disease 2019 (COVID-19) pandemic crisis has significantly changed the landscape of cardiac surgical practice. There is a sense of urgency that is all the more intensified given the many unanswered questions surrounding virus transmission. Furthermore, the cardiac surgeon's primary responsibility is to assure patient safety and excellent outcome. There remains a huge gap between the different aspects of this biopsychosocial viral crisis and our current knowledge.

CENTRAL MESSAGE

The optimal preoperative assessment and intraoperative approach to the cardiac surgical patient in the COVID-19 era remain unknown, although information from surveys may be useful.

In this issue of the *Journal*, Benedetto and colleagues¹ analyzed the data gathered from a national survey of senior cardiac surgeons across the United Kingdom regarding what needs to be changed in the perioperative approach to the adult cardiac surgery patient during the COVID-19 pandemic. The authors emphasized that expert opinion may help health authorities achieve some interim recommendations while awaiting more robust data. A total of 86 of 198 senior cardiac surgeons of the Society for Cardiothoracic Surgery in Great Britain and Ireland from 35 institutions completed a Web-based questionnaire of 12 items.

From the Department of Cardiac Surgery, Quebec Heart and Lung Institute, Quebec City, Canada.

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Address for reprints: Siamak Mohammadi, MD, FRCSC, Department of Cardiac Surgery, Quebec Heart and Lung Institute, 2725 chemin Sainte-Foy, Quebec City, Quebec, Canada G1V 4G5 (E-mail: siamak.mohammadi@fmed.ulaval.ca).

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The questions covered essential aspects of the perioperative care of patients undergoing cardiac surgery during the COVID-19 era, including patient screening, operating room adaptation, changing surgical indications, and even the future of cardiac surgical practice. A strong consensus (predefined as an opinion shared by at least 60% of responders) was achieved in 4 of the 12 survey elements: (1) a screening test including both upper respiratory tract SARS-CoV-2 reverse transcriptase polymerase chain reaction (RT-PCR) and thoracic computed tomography (CT) need to be performed for all nonsalvage patients; (2) personal protection equipment (PPE) should be used in every operation regardless of the patient's COVID-19 status; (3) SARS-CoV-2 exposure will be associated with increased mortality in cardiac surgical patients; and (4) multidisciplinary decisions are needed before taking a patient to the operating room. The majority of surgeons also agreed that current surgical indications may need to be re-evaluated for certain cardiac surgery pathologies. The authors concluded that the results of this survey¹ may provide a useful tool to guide cardiac surgical practice until more solid evidence is available.

The authors should be congratulated for their very timely study,¹ which attempts to determine what aspects of cardiac surgical care may need to be changed during this unprecedented COVID-19 pandemic. In the absence of robust clinical data and a literature that is informed mostly by case reports and small patient series, this survey of clinically active surgeons in the field may prove useful in that it identifies the issues the surgical community feels are most compelling in this rapidly evolving crisis. However, survey responses are inherently prone to significant bias, but a response rate of 43% is still commendable and speaks to the importance of this issue. Individual responses were likely dependent on the degree of COVID-19 activity in a particular surgeon's jurisdiction, the type of resources available within each surgeon's institution, local policies regarding patient and health care worker screening, as well as the configuration of specialized intensive care unit resources. A resounding message that emerges from the present survey is that most surgeons agree on the necessity of the routine use of preoperative screening for SARS-CoV-2 infection. Symptom-based screening has its utility; however, the importance of asymptomatic transmission and its devastating effects have been shown within skilled nursing facilities among susceptible patients.² The rapid spread of SARS-CoV-2 across the globe suggests that transmission from asymptomatic vectors may have been underestimated and further supports efforts for concerted preoperative screening, especially in areas of high COVID-19 burden. The survey highlights a need for enhanced screening that reflects an increasing recognition that cardiac surgical postoperative care units need to remain COVID-19 negative to maximize patient and health care worker safety. The

optimal screening test remains elusive, but the majority of UK surgeons agreed with the recommendation of a combination of upper respiratory tract RT-PCR and thoracic CT, but these measures appear to be very conservative. The universally available RT-PCR, with its short turnaround time and high sensitivity, may still be negative in patients in the early phases of SARS-CoV-2 infection³; routine thoracic CT may share these disadvantages⁴ and is further limited by low specificity, which may increase when coupled to fluorodeoxyglucose-positron emission tomography.⁵ The positive predictive value of the CT scan would be expected to be greater in a region with a high prevalence of disease.⁴ The role of routine serologic testing, although not widely available, also remains unknown, as does the interpretation of the presence of IgG antibodies as being protective against future disease.⁶ An important question that remains is whether these screening tests should be performed on every nonemergent cardiac surgery patient preoperatively or should be limited to patients in areas of high disease burden, patients exposed to individuals with confirmed COVID-19, and those who are symptomatic. Another advantage of routine screening is to avoid using cumbersome PPE, which may negatively impact the technical ability of a surgeon's dexterity and performance. Until we have more data regarding modes of COVID-19 transmission, routine use of PPE, independent of the patient's COVID-19 status, does not seem realistic, especially in the presence of limited supply. Prompt vector detection, effective patient triage, and rapid isolation of contaminated individuals are some more important steps before recommending universal PPE.

The majority of responders to the present survey also agreed that a better selection of patients by a multidisciplinary team was necessary, with surgery reserved only for specific surgical substrates and clinical presentations. The caveat here is that this may lead to a denial of cardiac surgery for many patients who are best treated by surgery, which would result in an excess of early and late cardiovascular mortality compared with those of the pre-COVID-19 era. It would be preferable to effect a major change in infrastructure by creating a hierarchy of contamination controls to decrease infectious hazards and developing a triage algorithm based on clinical urgency, for this and any future pandemic episodes.

The study of Benedetto and colleagues¹ attempts to address a highly relevant clinical issue through consensus from opinion-based data, but the real answers to these questions require more local and international epidemiologic analyses and prospective data. In the meantime, by identifying some important measures such as rapid and sensitive preoperative screening, and the importance of creating a COVID-19-free isolated area for cardiac surgery patients, this survey provides an opportunity to deliver optimal care, until an effective vaccine or treatment for COVID-19 is found.

References

1. Benedetto U, Goodwin A, Kendall S, Uppal R, Akowuah E. A nationwide survey of UK cardiac surgeons' view on clinical decision making during the COVID-19 pandemic. *J Thorac Cardiovasc Surg.* 2020;160:968-73.
2. Arons MM, Hatfield KM, Reddy SC, Kimball A, James A, Jacobs JR, et al. Presymptomatic SARS-CoV-2 infections and transmission in a skilled nursing facility. *N Engl J Med.* 2020;382:2081-90.
3. Sethuraman N, Jeremiah SS, Ryo A. Interpreting diagnostic tests for SARS-CoV-2. *JAMA.* May 6, 2020 [Epub ahead of print].
4. Ai T, Yang Z, Hou H, Zhan C, Chen C, Lv W, et al. Correlation of chest CT and RT-PCR testing in coronavirus disease 2019 in China: a report of 1014 cases. *Radiology.* February 26, 2020 [Epub ahead of print].
5. Albano D, Bertagna F, Bertolia M, Bosio G, Lucchini S, Motta F, et al. Incidental findings suggestive of COVID-19 in asymptomatic patients undergoing nuclear medicine procedures in a high prevalence region. *J Nucl Med.* 2020;61:632-6.
6. Long QX, Liu BZ, Deng HJ, Wu GC, Deng K, Chen YK, et al. Antibody responses to SARS-CoV-2 in patients with COVID-19. *Nat Med.* 2020;26:845-8.