



CANADIAN SOCIETY OF
CARDIAC SURGEONS
SOCIÉTÉ CANADIENNE DES
CHIRURGIENS CARDIAQUES



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Urgent Communication from the CCS/CSCS/CANCARE Society Covid-19 ECMO Coordinated Response Team

The Canadian Cardiovascular Society (CCS), along with our affiliates the Canadian Society of Cardiac Surgeons (CSCS) and the Canadian Cardiovascular Critical Care Society (CANCARE), are concerned about the threat of novel coronavirus disease (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and the preparedness of the Canadian healthcare system, both at the provincial and national levels.

Specifically, we are concerned about limited capacity to provide life-saving advanced cardiorespiratory support, namely extracorporeal membrane oxygenation (ECMO). Our limited capacity may not only threaten our ability to respond to those patients with severe respiratory failure due to COVID-19 but will also leave other patients with cardiorespiratory failure vulnerable.

Our professional medical societies are comprised of doctors and other specialized team members with unique expertise in the use of ECMO in the treatment of life-threatening respiratory or cardiorespiratory failure. ECMO is a modified heart-lung machine (similar to the one used during open-heart surgery) that provides advanced support for the most critically ill patients, when standard mechanical ventilation (life-support) is insufficient.

The use of ECMO was instrumental in salvaging critically ill patients suffering from severe respiratory failure during the H1N1 viral pandemic of 2008, and it has been used effectively in the treatment of COVID-19 in other countries during the early waves of this pandemic. However, ECMO is a finite resource that can rapidly become exhausted in a surge context, as only a small portion of hospitals in the Canada are ECMO-capable. Furthermore, patients requiring treatment with ECMO will occupy scarce intensive care unit beds in those hospitals, almost certainly over prolonged periods — often measured in weeks.

The current pandemic of COVID-19 may require significant ECMO utilization and will inevitably create challenges with bed availability, quarantine restrictions and the ability to adequately care for these patients. Furthermore, ECMO depends upon the availability of specialized disposable equipment, whose supply could easily be overwhelmed by rapidly escalating demand. We fear that manufacturers of ECMO products may not be able to keep pace with utilization.



ECMO centres should have in place a coordinated strategy and an operational plan to prepare for a potential national epidemic, during which a portion of Canadians who are infected will require this sophisticated, labor- and resource-intensive therapy in order to survive.

We are requesting an opportunity to engage directly with the Ministries of Health and Public Safety in order to lead efforts to predict our resource needs and coordinate a timely and appropriate treatment of COVID-19 patients who may require ECMO. Additional information from other severely affected areas such as China, Italy and Iran would be similarly informative.

We (the CCS with affiliates the CSCS and the CANCARE Society) request that you consider our expert guidance on the role and limitations of ECMO in a pandemic known to cause severe respiratory failure, specifically by:

- 1) Agreeing to receive the most current data of suspected and confirmed cases and level of acuity, along with an analysis of estimated impact on health care resources. We recommend that this would require a national operations centre that coordinates activity across current traditional provincial borders. This would consist of a situational awareness ECMO support website for medical professionals to provide a live dashboard for ECMO centres and their availability to receive critically ill patients who may require ECMO support.
- 2) Considering expert guidance on methods to maximize ECMO capabilities to identify strategies to disseminate evolving knowledge about which patients appear most likely to benefit from ECMO salvage, as well as the timing of ECMO initiation.
- 3) Allowing our participation in designing a coordinated effort to transport patients *in extremis* who may be distant from hospitals capable of providing them with the care they need; and
- 4) Allowing us to maintain continuous communication with the Ministries of Health and Public Safety regarding our assessment of ECMO supplies, capabilities and predicted needs.

Our Societies have been instrumental in shaping policies regarding organ allocation and other essential elements of healthcare policy. We respectfully urge you to provide us the opportunity to contribute our unique expertise in preparing for this imminent healthcare challenge.

Respectfully submitted,

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