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bottom line and cause need for deficit funding, reduction of nonessential personnel through furloughing, and loss of future savings by retirement benefit reduction?

4. What toll did the pressure and anxiety of treating highly contagious patients have on frontline health care workers and how many had serious sequelae related to COVID-19 infection?
5. How will the reduction in case volume and change in cardiac care experience influence the training of resident physicians, the future of our profession?
6. How will we adapt our health care policies to protect in the future the most at-risk populations, including the elderly, African Americans, Hispanics, and the immunocompromised?
7. During this time of health care catastrophe and economic collapse, insurance companies continue to collect dividends without expenditures for elective inpatient or outpatient procedures. Are any of the massed contingency funds for catastrophic events that remain going to the institutions with highest COVID-19 burden and crippling expense?
8. Will a vaccine be developed and used or the concept of herd immunity be proven so that the future of the world

will appear brighter and able to return to more normal functioning?

Is it the end of the beginning or the beginning of the end? In a nation struggling to reopen, COVID-19 infections continue to rise in some areas at an alarming rate. Fortunately, deaths due to infections have not increased proportionally and we can hope that some lessons have been learned. Self-quarantining when symptoms are present, practicing social distancing and wearing face masks, avoiding large inside gatherings, and having overall respect for the health of others remain critical. Most importantly, the effects and devastation of the pandemic serve as a chilling reminder of how fragile our existence is and how inter-related global health can be. Let us hope it is the beginning of the end, but we remain on that tenuous pandemic seesaw such that we can only do our part to maximize the chances that the months to come will bring social, health, and economic wellness to all.

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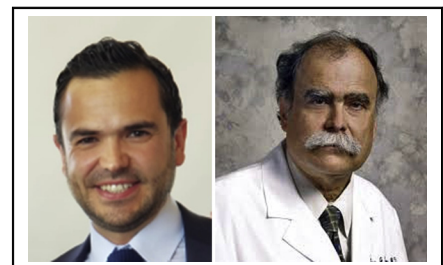
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See Article page 893.



Commentary: Cardiac surgery in North America: Facing a new normal

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CENTRAL MESSAGE

COVID-19 has caused a paradigm shift in referrals, volumes, and cardiac procedures that favors interventional procedures for CAD and TAVR for aortic valve diseases.

The coronavirus 2019 (COVID-19) pandemic profoundly affected the US health care system, leading to drastic changes in workflow to meet the challenges of the pandemic. According to the American Hospital

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Association, the pandemic resulted in a total 4-month financial impact of \$202.6 billion in losses for America's hospitals and health systems, or an average of \$50.7 billion per month.¹ Ad and colleagues,² in the first article of its kind, deal with the North American cardiac surgery experience during the era of COVID-19. They demonstrate a decrease of 45% in baseline cardiac surgery case volumes. This is independent of the institutional COVID-19 burden and deferral of nonurgent operations, which is consistent with task force and society guidance statements.² The importance and significance of the data presented in this article should be highlighted because they should not be interpreted as reflecting the impact of the decrease in operations seen by most other medical specialties. In general, elective procedures experienced abysmal decreases in volumes. In contrast, the critical role that cardiac surgery plays in the medical field was affected mainly due to its resource-intensive need for critical care and facilities. Furthermore, cardiac surgery is directly affected by the workflow of medical cardiovascular services because it is the final predator in a long food chain that makes the specialty vulnerable. Noninvasive and invasive cardiac services also experienced marked decrease in volumes that, in turn, affected cardiac surgery referrals.^{3,4} Moreover, as mentioned by Ad and colleagues² and data from other reports, patients are reluctant to seek medical care, leading to dramatic reduction in patients presenting to hospitals with myocardial infarction.³⁻⁵

Is cardiac surgery facing temporary or permanent changes in its operations? The health care system must have capability to provide high quality treatments to patients requiring cardiac care while meeting patients' expectations of short hospital stays to decrease their risk of exposure to COVID-19. Additionally, there is an imperative necessity to satisfy the health system current needs for intelligent and strategic allocation of resources. Favoring less-invasive and lower-cost procedures avoids

intensive care unit stays and shortens hospitalizations. Now more than ever, heart teams should play a critical role in the comprehensive assessment of patients with the goal of accomplishing those demands. This can be the case in patients with advanced coronary artery disease where procedures, like multivessel or high-risk percutaneous coronary artery intervention, can safely fulfill those needs.⁶ Also, in regard to aortic valves, there is shift toward transcatheter aortic valve replacement in all risk populations.⁷ These arguments weight in favor of minimally invasive procedures with rapid recovery and lower costs.

Does this signal a new normal for cardiac surgery in some areas? Time will tell, and this important article by Ad and colleagues² is the first, of many more to come, depicting the venue.

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