previously for cases of transcatheter aortic valve replacement and complex coronary artery disease,^{8,9} should also be formalized in optimizing high-risk patients' perioperative outcomes. This includes a surgical leader with an unbiased mind who is receptive to suggestions and opinions from all members of the team.

Because of the demanding surgical and technical skills that trainees require, there is less time spent undergoing formal training in the ICU; furthermore, the emergence of closed units has deterred residents from participating directly in daily ICU patient care. Trainees should therefore engage themselves in daily ICU activities, partaking in formal ICU rotations, or should consider fellowship training in the ICU (Canada) or cardiothoracic-specific surgical critical care training (United States).¹⁰ As more surgeon trainees are exposed to the ICU setting, perioperative procedural, communication, and leadership skills will be refined, leading to a higher caliber of patient-centered care. Finally, as young surgeons training in an ever-evolving field with such innovations as catheter-based strategies and minimally invasive surgery, we must strive to maintain leadership in the ICU with receptivity from our colleagues to ensure optimal postoperative care.

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EDITORIAL COMMENTARY

Cardiac critical care: Surgical trainees want and need expertise

Kanwal Kumar, MD, MSc, FRCSC, Rohit K. Singal, MD, MSc, FRCSC, and Rakesh C. Arora, MD, PhD, FRCSC

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From the Cardiac Sciences Program, I.H. Asper Clinical Research Institute, St. Boniface General Hospital, Winnipeg, Manitoba, Canada.

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Address for reprints: Rakesh C. Arora, MD, PhD, FRCSC, Cardiac Sciences Program, 369 Tache Ave, CR 3012, St Boniface General Hospital, I.H. Asper Clinical Research Institute, Winnipeg, Manitoba, Canada R2H 2A7 (E-mail: rakeshcarora@gmail.com).

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Through the past 10 years, there has been a formal call for an evolution in the perioperative care for patients after cardiac surgery.^{1,2} For example, in 2012 the *Journal of Thoracic and Cardiovascular Surgery* added a dedicated section devoted to perioperative management content.

In this issue of the *Journal*,³ Dr Toeg has provided an insightful trainee perspective

on the evolving practice of perioperative care for the contemporary cardiac surgery patient. He has identified several important issues that arise in the modern cardiothoracic intensive care unit (CTICU). Many would echo Dr Toeg's sentiment that "the immense teamwork and motivation that one experiences in the operating room can be even more powerful in the intensive care unit (ICU)." He has, however, raised a potential concern with a "closed" intensive care physician staffing model of ICU care,⁴ which may not be to the benefit of patients following cardiac surgery. The potential for the surgeon, and by extension the surgical trainee, to be left out of management plan of the postoperative patient is undesirable.

Dr Toeg provides the example of potential conflict surrounding goals of care. This issue has been identified by others as being of particular importance to older adult patient and their families.⁵ He has pointed out that discord may exist surrounding critical patient care decisions, such as end-of-life decision making. It would be worse still if this important patient-family interaction were to occur in the absence of the surgeon altogether. We agree with Dr Toeg's sentiment that communication between the surgeon and intensivist is of paramount importance in mitigating discord, although perhaps with the emphasis placed on "effectiveness" in preference to "exhaustiveness." These difficult decisions are not exclusive to only the surgeon and the intensivist and should therefore be made in a standard manner, at a standard time, and with multidisciplinary inclusivity. This would be very similar to the "heart team" concept that has been highlighted in the process for patient selection in recent clinical trials.^{6,7} This term, now being used nearly ubiquitously in the care of the cardiac patient,^{8,9} is an important concept. It is, however, somewhat nebulous with respect to who should be the key stakeholders in this team, when the team should meet in the context of the patient journey, and how the team is meant to interact to achieve consensus on decisions of care. Heyland and the members of the Canadian Researchers at the End-of-Life Network (CARENET) have advocated for and provided the conceptual framework for discussions surrounding difficult decision making, as in the example provided by Dr Toeg, to occur early in the patient care map.¹⁰⁻¹² In the case of the cardiothoracic patient, one could envision these conversations occurring in the preoperative setting to set the stage of appropriate expectations for all members of the team, as well as the patient and their families. At our institution (St Boniface Hospital, Winnipeg, Manitoba, Canada), we have developed a process for preintervention discussion (another example of a "heart team") for all "complex patients," that involves cardiology, the surgeon, the anesthesiologist, and the cardiac intensivist. The goal of this process is to reach a consensus regarding appropriate treatment options for an individual patient that can then

be effectively presented to the patient and the family in the shared decision making process. Through this process, appropriate goals and expectations are harmonized among the treating team and patients and families.

Furthermore, Dr Toeg highlights the important issue of trainee involvement. Today's typical patient often has significant comorbidities, has a higher level of frailty, and is undergoing complex procedures. As such, we agree with Dr Toeg that appropriate cardiac critical care training is essential for future cardiac surgeons. The ideal residency training model for future surgeons to be competent in both intraoperative and perioperative care, however, remains debatable. Even though "The Great White North's" direct-entry cardiac training program after medical school has been a successful model of training for almost 2 decades, Dr Toeg has identified potential barriers for the trainee to gain adequate experience to be a leader in the modern CTICU. In the last 10 years, several Canadian cardiac surgery trainees have subsequently undergone formal critical care residency training. Similarly, the American Board of Thoracic Surgery has enlarged its curriculum for training in critical care and fellowships in cardiothoracic critical care. With the development of similar training programs in the United States, this model may permit focused training on all aspects of surgery and cardiac critical care throughout the duration of residency.

In summary, although it is logical that cardiothoracic surgeons are appropriate leaders in the CTICU, they must deploy the appropriate ICU skill set to facilitate contemporary practice and coordinate the interdisciplinary team in patient-centered care. Care of the cardiac surgical patient in CTICU is increasingly complex, with many team members and moving parts, and it demands a sophisticated team with sophisticated leaders. We therefore must continue to develop formal training streams in critical care for cardiothoracic trainees such as Dr Toeg, to provide them with the education and expertise they require to do their job effectively.

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