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left ventricular function of both groups were comparable, we assume sepsis as the main cause of high inotropic need.

The comment on microbiological profile is very interesting. Intraoperative hemoabsorption was more often used in patients with *Staphylococcus* spp (47% versus 21%, $P = .04$) and less often in patients with *Enterococcus* spp (0% versus 14%, $P = .03$) and negative cultures (17% versus 43%, $P = .03$). It is correct that antibiotic levels are affected by hemoabsorption.³ The effect of hemoabsorption on antibiotic levels should not be a concern, as long as hemoabsorption is limited to the operation. It becomes relevant in patients receiving preoperative and postoperative hemoabsorption therapy. In light of the absence of clinical studies, drug monitoring and dose adjustment accordingly is advised.

The primary endpoints were the incidence of postoperative sepsis and sepsis-related death. The differences between the hemoabsorption and control group on the incidence of these endpoints were significant. Träger and associates⁴ reported similar results in their case series. However, the population included was very heterogeneous due to various entities. Further research should focus on patient selection and timing of therapy application.

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References

1. Bustamante-Munguira J, Herrera-Gómez F, Figuerola-Tejerina A. Is hemoabsorption a really necessary treatment in endocarditis surgery? (letter). *Ann Thorac Surg.* 2020;110:2106.
2. Haidari Z, Wendt D, Thielmann M, et al. Intraoperative hemoabsorption in patients with native mitral valve infective endocarditis. *Ann Thorac Surg.* 2020;110:890-896.
3. König C, Röhr AC, Frey OR, et al. In vitro removal of anti-infective agents by a novel cytokine adsorbent system. *Int J Artif Organs.* 2019;42:57-64.
4. Träger K, Skrabal C, Fischer G, et al. Hemoabsorption treatment of patients with acute infective endocarditis during surgery with cardiopulmonary bypass—a case series. *Int J Artif Organs.* 2017;40:240-249.

Necessity Is the Mother of Innovation—The Time to Collaborate Is Now

To the Editor:



We applaud the work by Lewis and colleagues,¹ reported in *The Annals of Thoracic Surgery*, on the educational efforts instituted within their program to address the challenges faced by cardiothoracic surgical trainees during the coronavirus disease 2019 (COVID-19) pandemic.

While we become flexible and innovative in educating and evaluating our trainees, the importance of the online National Thoracic Surgical Curriculum² becomes more apparent than ever. The beneficial impact of the Curriculum has been shown, with cardiothoracic surgical trainees who used the Curriculum more frequently exhibiting greater improvements on in-training examination scores.³ Furthermore, the comprehensive Curriculum provides not only e-learning content, but also structure and objective data that educators can use to standardize and document trainee proficiency.

Alternative forms of educational material should be used, including online open-access videos, webinars, social media,⁴ and other digital platforms. Lewis and colleagues¹ rightly point out that telemedicine does not require cessation of learning from ambulatory scenarios; trainees should discuss teaching points with faculty. Similarly, a lack of operative cases does not require cessation of technical training; trainees can engage in simulation with feedback through teleproctoring. For trainees redeployed to alternative duties, a lack of time on service does not require cessation of learning because this is an opportunity to enhance critical care skills. Finally, although it is important to ensure continuity of education, it is essential for educators to be mindful of the impact that a pandemic may have on trainee safety, mental health, and well-being.

Ultimately, more than ever, there is a need for a centralized approach to the adoption of a multi-institutional educational curriculum with sharing of resources to transcend geospatial and temporal limitations. This new learning environment provides an opportunity to develop novel education strategies and leverage existing online curricular platforms to create novel multi-institutional endeavors, thus supporting the premise of the Thoracic Education Cooperative Group (TECoG)⁵—that with multi-institutional efforts, we can accomplish more. Now is the time for our community to unite and leave behind the limitations imposed by institutional silos for the educational benefit of our trainees and specialty.

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References

1. Lewis EE, Taylor LJ, Hermesen JL, McCarthy DP, Fiedler AG. Cardiothoracic education in the time of COVID-19: how I teach it. *Ann Thorac Surg.* 2020;110:362-363.
2. Antonoff MB, Verrier ED, Allen MS, et al. Impact of Moodle-based online curriculum on thoracic surgery in-training examination scores. *Ann Thorac Surg.* 2016;102:1381-1386.
3. Antonoff MB, Verrier ED, Yang SC, et al. Online learning in thoracic surgical training: promising results of multi-institutional pilot study. *Ann Thorac Surg.* 2014;98:1057-1063.
4. Luc JGY, Varghese TK Jr, Antonoff MB. Participating in a TweetChat: practical tips from the Thoracic Surgery Social Media Network (#TSSMN). *Ann Thorac Surg.* 2019;107:e229-e233.
5. Antonoff MB, Nguyen S, Nguyen TC, Odell DD. Conducting high-quality research in cardiothoracic surgical education: recommendations from the Thoracic Education Cooperative Group. *J Thorac Cardiovasc Surg.* 2019;157:820-827.e1.

We Are Great When We Collaborate



Reply
To the Editor:

We thank Luc and Antonoff¹ for their thoughtful comments on our study.² The true silver lining of COVID-19 is the rapid