remediation as needed. Another useful adjunct, coaching, provides a means to extract additional meaning and learning from a surgical case, using specific feedback mechanisms like video assessments to help a resident improve beyond the value of serving as primary surgeon.^{4,5}

Historically, we have been suspicious of anything other than traditional, attending-supervised surgical education, but we need to be better. As educators, we are responsible for preparing our resident for eventual independent practice. But residency is only “end of the beginning.” Adding additional years of residency to an already-grueling 7 to 10 years is unlikely to improve readiness. The most critical time is the first 3 to 5 years after residency, when most young surgeons accumulate experience in complex repairs as primary surgeon, hopefully in a mentored environment. We need to explore strategies that allow our residents to start their careers but still be supported and mentored. We have an opportunity in the next few years to modernize

our resident education, expand the toolbox, and incorporate innovative methods to help the resident get the most out of their training.

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Commentary: Getting along?

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I would like to congratulate Cleveland and colleagues¹ for their excellent article on the subject of resident training and education in congenital heart surgery. This is a timely subject given the ever-increasing tension between providing residents with experience and education while under intense scrutiny on clinical outcomes and the pressure for public reporting. The authors describe the approach that they have developed for their ACGME congenital cardiac surgery training program. The analysis spanned 10 years and summarized data for 3406 surgical

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CENTRAL MESSAGE

Residents can be trained for a career in congenital heart surgery, but can you find them a job?

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Disclosures: The author reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Dec 28, 2020; revisions received Dec 28, 2020; accepted for publication Dec 29, 2020; available ahead of print Jan 9, 2021.

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J Thorac Cardiovasc Surg 2022;163:263-4

0022-5223/\$36.00

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<https://doi.org/10.1016/j.jtcvs.2020.12.137>

cases. The headline conclusion was that cases performed by the resident as “surgeon” did just as well as the cases performed by the attending surgeons. I have a few points of commentary.

The first is that we are currently graduating approximately 10 residents per year from the ACGME-accredited congenital training programs. However, a work force study

performed 10 years ago suggested that the demand for new congenital heart surgeons would be only 6 or 7 per year.² This was based on the growth of the population and predicted retirement of senior surgeons. There is an obvious disparity between the number of new graduates and job opportunities. The overwhelming majority of these residents are outstanding, and so the fact that many of them will not be able to find a position is concerning. There will be no relief in sight for these individuals, as the next year a whole new crop of residents will be churned out, competing for the limited number of positions.

A related issue is that of the 6 or 7 job opportunities available per year, roughly one-half are filled by residents who did not train in an ACGME-accredited program. We can only speculate as to why there might be a stronger preference for non-ACGME-trained versus ACGME-trained surgeons (eg, differences in pay scale). The net result is that the number of professional opportunities available for ACGME-trained residents is far less than anticipated. The preference for hiring nonaccredited residents is almost certainly not related to merit, and so one can do a great job of training residents, but if this is not the criterion on which they are selected, then it doesn't matter. The hiring of non-ACGME trainees effectively degrades the value of training in an ACGME-accredited program. Some of the best I-6 residents that I have worked with have decided not to pursue a career in congenital

heart surgery due to the (perceived) limited opportunities. I worry that this will eventually have an untoward consequence on our field.

Finally, I would be remiss if I did not mention the significant change in "culture" that has taken place in recent years. There is now an increasing emphasis on multidisciplinary collaboration and teamwork. Surgical residents are being evaluated based on their ability to "get along well with others." While this may be an admirable trait, when I think of the surgeons who have made great contributions to our field over the past several decades, they were rebels and nonconformists. They hardly put civility as their foremost goal. It is very likely that the traits that lead to innovation are in fact mutually exclusive with the current emphasis on ultra-conformity. It is not that I am pining for the good old days, but I wonder where the innovations will come from when the innovators have been culled out because they got low marks on getting along.

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