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pediatric major index cases for urology residents, although the minimum case volume requirements (30 minor, 15 major) were still being met and exceeded.<sup>1</sup>

While it is reassuring that, for the most part, COVID did not adversely affect urology resident case log volumes, this is but one part of the educational content of residency training that was disrupted during the pandemic. Rosen et al demonstrated via a questionnaire study of urology program directors that multiple aspects of training were affected by COVID including patient contact time, redeployment into other areas of the hospital, didactics, and resident wellness.<sup>2</sup> While not a primary focus of this study, previous studies have questioned the relationship between case log minimum volumes and eventual surgical proficiency and competency. In a correlative study, Cruz et al demonstrated that ACGME minimum case log volumes do not guarantee surgical competency in independent surgical practice after training and may not reflect current urologic procedural demand.<sup>3</sup> We are all striving to slowly recover from the profound effects of COVID and seek a return to normalcy, both in the world in general and specifically in this study, for urologic residency training. For those of us involved with graduate medical surgical training programs, we will need to carefully assess and balance not only volume-based case log requirements but also competency-based requirements, in order to ideally prepare graduates for eventual independent practice in the future.

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## EDITORIAL COMMENT



The COVID-19 pandemic has affected many aspects of our lives, both big and small, over the past 2+ years. During the initial wave of worldwide infections prior to a vaccine becoming available, most, if not all, hospitals in the United States temporarily halted all elective, nonemergent surgical procedures for several months. This included the teaching hospitals of Accreditation Counsel for Graduate Medical Education (ACGME)-accredited surgical residencies and presumably may have had an effect on total surgical index case volumes for trainees during this time period. In this timely study by Daily et al, the authors obtained case log data for graduating urology residents in the US before and during the COVID pandemic to compare total volumes in order to objectively assess the possible impact of the virus on trainees' surgical experience. Their results showed that there were no statistically-significant decreases in case volumes for all adult index categories and pediatric minor cases; there was a decrease in the case volumes for pediatric major index cases during COVID as compared to before COVID. It is unclear, however, whether this decline in pediatric major index cases was either clinically-significant or a direct result of COVID, since the absolute numerical differences were only in the single-digits: minor cases (6 fewer cases on average) and major cases (4 fewer cases). As the authors acknowledge, one study published a year prior to COVID had already shown a decrease in overall

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The COVID-19 pandemic has been an unprecedented event in the modern world with ramifications felt throughout healthcare, economies, global relations, and society in general. The effect on healthcare cannot be understated. Within our relatively small world of urology resident education the anxiety was palpable as many hospitals reduced the number of operations, sometimes completely stopping all elective surgeries. In some hard-hit areas, urology residents were pulled to cover other services in need of help.

Thankfully, Daily et al have demonstrated that in adult urology there was no significant difference in surgical volume for graduating urology residents before vs during the COVID-19

pandemic. This was done by analyzing the case logs of 1866 US graduating residents from academic year (AY) 2015-2016 through AY 2020-2021. Logs were aggregated as “pre-COVID” (AY 2015-16 through AY 2018-19) and “COVID affected” (AY 2019-20 and 2020-21) and compared. While there was no significant difference in the number of adult index cases logged, there was a statistically significant decrease in pediatric cases.

Whether this statistically significant decrease in both pediatric major and minor cases is clinically significant (with an absolute difference of about 6 minor cases and 5 major cases between the groups) is open for debate. As mentioned by the authors, a decline in pediatric cases has been described previously before the pandemic by Silvestre et al.<sup>1</sup> Even with these case reductions the graduating residents are averaging well above the ACGME minimums for graduation (though this data is in aggregate).

I commend the authors on a well-written paper. It tackles a subject that has been in the minds of many in surgical resident training. Despite no significant difference in the number of cases done it remains to be seen how graduating residents feel subjectively about their training and how it was affected by COVID.

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selected post graduate year appropriate cases. It provides residents with a tool to estimate their readiness for practice.

That being said, excellent urologists are not exclusively trained in the operating room. The pandemic has had profound effects on urology training in clinic, consult services, didactics, in-person hands-on training events, and sectional and national meetings. Residency program directors voiced concern that these elements of training would be negatively affected by the pandemic.<sup>3</sup> However, efforts by committed resident educators likely helped ameliorate some of the potential damage. For example, the decision to hold the national and sectional American Urologic Association (AUA) meetings online increased access for residents. Another valuable addition has been the Urology Collaborative Online Video Didactics (COViD), which brought national and international experts together to deliver broadly available remote lectures tailored to residents.

The effects of the pandemic are evident not only in training but also in trainees. Survey data from across the globe early in the pandemic showed increased anxiety, stress and, depression related to the pandemic and scarcity of personal protective equipment.<sup>4</sup> Adaptations to the pandemic helped to mitigate these effects somewhat. Retrospective data from Europe and the United States, accumulated after the initial COVID-19 waves, note improvement across multiple quality of life domains related to pandemic work hour modifications and availability of remote training.<sup>5</sup>

The pandemic has uprooted urologic residency across the full spectrum of training elements. While operative volume appears well-preserved based on graduating ACGME case logs, there have been unmeasured, possibly deleterious, effects on training outside of the operating room. Moving forward, we should aim to keep the best elements of pandemic adaptations, to provide excellent training in and outside the operating room while optimizing resident quality of life.

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## AUTHOR REPLY



The consistency of the aggregate surgical index case volume data for graduating United States urology residents from the Accreditation Counsel for Graduate Medical Education (ACGME) is reassuring. There were no significant changes in index case volumes, except for pediatric cases. The decreases in pediatric cases were quite small and factors outside the pandemic likely had some influence on this change.<sup>1</sup> We agree, case volume alone does not ensure or equate to competency. Directed feedback to residents over the course of residency should address the gap that can exist between repetition and proficiency, and there are initiatives underway to improve the quality and consistency of this feedback. Eighteen urology programs are now participating in the Society for Improving Medical Professional Learning (SIMPL) Competency-Based Medical Education (CBLE) Pilot project, with an open invitation to additional interested programs.<sup>2</sup> The objective is to provide high quality feedback for