

Attending and resident perception of the rotation was overall very positive. The addition of a resident covering call and aiding in the pre- and postoperative tasks is likely the cause of the improved lifestyle the attending surgeons reported. The attending surgeons did report an overall decrease in income. This is most likely due to the increased operative time, although all surgeons report their clinical volume did not change. The surveys were subjective so it is unknown by what amount the income decreased or if this was simply a perception by the attending surgeons. The increased exposure to surgical techniques and cases offered by the addition of new attending surgeons is likely, in part, due to the overall positive perceptions from the residents. This did result in an overall increase in duty hours for the residents. The in-service score decreased, but the decrease was not by a significant margin and could be explained by the low number of residents. The 100% response of increased patient management skills, surgical skills, and overall quality of the residency program is a strong support for the addition of a private practice rotation into a residency program.

There are multiple limitations of our study. The nature of this being such a novel study causes us to have small numbers. The private practice had only 4 attending surgeons to complete surveys. It was a retrospective study and thus patients were not equal to the time period before and after the addition of residents. This adds to the difficulty in interpreting some results, specifically operative time during the larger surgeries such as cystectomies as discussed previously. While limitations are present and must be considered, this study still presents a unique evaluation of a private practice rotation and the benefits for patients, attending surgeons, and residents.

## CONCLUSION

In conclusion, the addition of a private urology group improved case volume and resident impression of surgical training without a significant impact on duty hours or academics. Although an increase in operative times was observed, resident involvement in patient care did not have a negative impact on patient outcomes. Furthermore, patient satisfaction scores as well as attending physician satisfaction improved with addition of residents. Thus, this study shows the benefits of resident involvement and thus provides evidence for continued financial support for resident education.

## SUPPLEMENTARY MATERIALS

Supplementary material associated with this article can be found in the online version at <https://doi.org/10.1016/j.urology.2019.04.043>.

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## EDITORIAL COMMENT



Resident education is dependent on a graduated responsibility in medical and surgical decision-making. Physician visionaries Dr. Edward Churchill and Dr. William Halsted had differing models on surgical training, however, the core tenant of each man's curriculum was the ever increasing autonomy in order to graduate well-trained, independent surgeons.<sup>1,2</sup> How we get there is a continual work-in progress, and evaluating the cost-benefit of any program is important to its optimization.

The authors of this manuscript recorded both objective and subjective data to assess the impact of adding residents to a private practice group on patient care and provider quality of life. Their data validates existing data showing that the addition of resident training generally increases operative time.<sup>3-5</sup> In this study, patient complications and readmission rates were not statistically



increased with the addition of residents. The quoted article by Matulewicz showed an increase in overall complication rate, yet these seemed to largely be explained by a corresponding increase in patient and procedure complexity.<sup>4</sup> Curiously, length of stay was not mentioned in the study and it would be interesting to know how the addition of residents impacted that parameter. The reasons for the slight decrease in service scores are unclear and could potentially be a result of low numbers of residents in this study, increased workload with less study time, or clinical experience that may not reflect testing material.

Perhaps the most interesting nuance of this study is the subjective experience of all parties after the addition of resident physicians to a private practice. The overall experience of attendings, residents, and patients were either unchanged or slightly improved by the addition of residents. However, the study does not mention the number of resident or patient respondents in their study. The attendings in this study reported a slight pay decrease which is curious given that more cases were done after the addition of residents. It is unclear if the perceived pay decrease is related to residents or was an incidental finding.

The surveys used were only given at the end of the study period which introduces several possible biases which must be considered when interpreting this data. The patient's perspective is roughly estimated with a consumer report that was administered to all patients who visited the hospital during those time periods. While the authors do not clearly state how many patients responded to these surveys, it is admirable to have included a measure of patient experience.

Several factors must be considered when academic training centers are considering introducing residents into private practice environments. Certainly, the quality of the mentors must be considered as well as the clinical volume. It is certainly true that most residents will pursue private practice, and therefore incorporating this exposure in training may be beneficial as a means of preparing for private practice careers. This study indicates that the addition of academic urologic residents into a urologic private practice training environment appears to have a positive impact on the quality of life of private practice urologists, residents, and patients alike.

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## AUTHOR REPLY

We appreciate the thoughtful invited commentary (Ref to be added once known) regarding our study on resident impact on patient and surgeon satisfaction and outcomes (Ref to be added once known). Resident training approaches in the field urology continue to evolve as does the number of required procedures to learn and their associated administrative burden.<sup>1</sup> Thus it is incumbent upon surgical trainers to continue to optimize not only how we train but garner continued financial support for our surgical learners.

Patients will often ask me if residents are participating in their operation wondering who exactly does the surgery. I make a concerted effort to remind patients that indeed a team approach involving more hands and eyes at the operating table is better than fewer. Eventually, all residents must pay the piper and undergo the surgical learning curve. Which is preferable for one's family member: one in which an attending is there to prevent or control a surgical misstep immediately or one where a young inexperienced surgeon is alone in her or his first staff job?

Our study of 10 Urology residents involved with 4 private practice Urologists is novel in that it truly analyzes patient care and outcomes before and after they began working together. No statistically significant changes were seen for patients requiring an operation in mortality, readmission, and complications. Operative time did increase with resident involvement, but so did the willingness of the private practice faculty to take on complex cases. For nonoperative patients seen in the ED, the readmission rate improved from 8.9% to 2.9% ( $P = .0344$ ) after residents became involved. No significant changes were found in mortality or complications. Length of stay data was not analyzed.

Residents from the study uniformly stated that surgical training and overall quality of resident training improved when working with the private practice group. This came at the cost of increased duty hours, somewhat worse stress, and somewhat decreased time for research and study. In service scores did not change significantly. From an attending standpoint, all reported improved lifestyle and almost all reported increased job satisfaction and quality of patient care. Patient perceptions of care in the study were averaged from hundreds of Press-Ganey consumer reports obtained monthly in both halves of the study. Residents positively influenced all patient satisfaction categories examined by a mean of 47%.

In summary, our study revealed several tangible benefits by incorporating resident training into a private practice urology group. Residents and program directors alike label residents as novices or inadequately trained in the business side of medicine and practice management.<sup>2-3</sup> As surgical education continues to offer greater challenges in less time, integration of residents into a private practice training environment may positively impact both future academic or private practice urologists alike.

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