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Correspondence

Impact of COVID-19 on surgical residency programs: A glass half-full reflection



ARTICLE INFO

Keywords

Surgery residency programs
 COVID-19
 Pandemic
 Research publications
 Curriculum design
 Surgical residency

Dear Editor,

The COVID-19 pandemic has affected almost every aspect of the healthcare system. On March 20, 2020, the Argentinian Government implemented the “Stay-at-home” policy along with social distancing measures. While the rapid expansion of COVID-19 has exacerbated the workload of most clinical specialties, surgical specialties have shown a significant decline in their activity [1].

We evaluated the impact of the pandemic on our general surgery training program by collecting data of resident’s surgical activity during the period April–October 2018 (G1) and 2019 (G2) and compared it to the surgical activity during the same period in 2020 (G3) in the course of COVID-19 quarantine. During “Stay-at-home” national policy, our department discontinued all non-emergent activities and elective surgical procedures for benign disease. Surgical procedures were stratified in elective and emergent cases, and the complexity of operations was classified as minor, intermediate, and major according to the NICE guidelines [2]. Research publications in peer-reviewed journals were also assessed during the same period.

During COVID-19 quarantine, a significantly decrease in the surgical activity was noted. There were 1,013, 965, and 432 cases done by residents in G1, G2, and G3 respectively. This decrease was observed in both emergent (G1: 215 vs. G2: 235 vs. G3: 156, $p < 0.0001$) and elective (G1: 798 vs. G2: 730 vs. G3: 276, $p < 0.001$) cases. When stratifying the procedures by complexity, we observed a decreased in minor (G1: 381 vs. G2: 384 vs. G3: 151, $p = 0.04$), intermediate (G1: 585 vs. G2: 540 vs. G3: 274, $p = 0.04$), and major operations (G1: 47 vs. G2: 41 vs. G3: 9, $p = 0.04$) during quarantine. On the other hand, residents’ research publications increased significantly during the COVID-19 pandemic. To further depict how the number of surgical cases and research publications were affected by the pandemic, residents’ activities during the period 2015–2020 are shown in Fig. 1.

In line with our findings, previous studies have shown a substantial reduction in both elective and emergent cases. In addition, during the pandemic most patients presented with more advanced disease (e.g. perforated appendicitis, complicated hernias) and more often attending surgeons were required to resolve these cases [1]. Furthermore, when

operations were performed on a COVID-19 patient at the beginning of the pandemic, we preferred to have only staff surgeons at the operating room in order to accelerate times and protect residents. For all these reasons, the number of procedures performed by trainees decreased dramatically.

The competence of a surgeon relies in both technical and cognitive skills. However, historically general surgery residency programs have focused on the technical aspect. Currently, many Departments of Surgery intend to shape academic surgeons, balancing technical and academic knowledge of their trainees. The COVID-19 pandemic may have actually helped this purpose. In fact, a national survey of 1102 general surgery residents across United States found that almost 50% of trainees increased time spent on research and reading during the pandemic [3]. Some residency programs have taken this unique opportunity to implement a research curriculum. For example, a system in which residents and research mentors have a video conference weekly to develop a research plan and supervise the activity has been recently described [4].

Developing competency in research demands time, and often the high workload and extending working hours of surgical residents in a regular year prevent doing research activities. In our residency program, despite surgical training in the operating room was negatively impacted by the pandemic, there was a significant increase in research publications and activities conducted by trainees. After this intense “research training”, residents will definitely have higher chances of integrate research in a regular clinically busy year in the upcoming future.

This pandemic has unintentionally encouraged residency programs to develop alternative teaching methods to prevent impairing residents’ learning opportunities. Interestingly, some web-based learning processes have shown to perform better than traditional teaching methods. Although clinical training in operations cannot be replaced, academic activities such as webinars, video-base education, research, and remote learning platforms can and should be emphasized in current times. All these will eventually become useful teaching tools along with clinical training in the near future. In addition, simulation-based training with high fidelity simulators should be fully embraced in order to develop and enhance surgical skills in a safe and standardized environment [5].

<https://doi.org/10.1016/j.ijso.2021.105958>

Received 11 March 2021; Accepted 22 April 2021

Available online 27 April 2021

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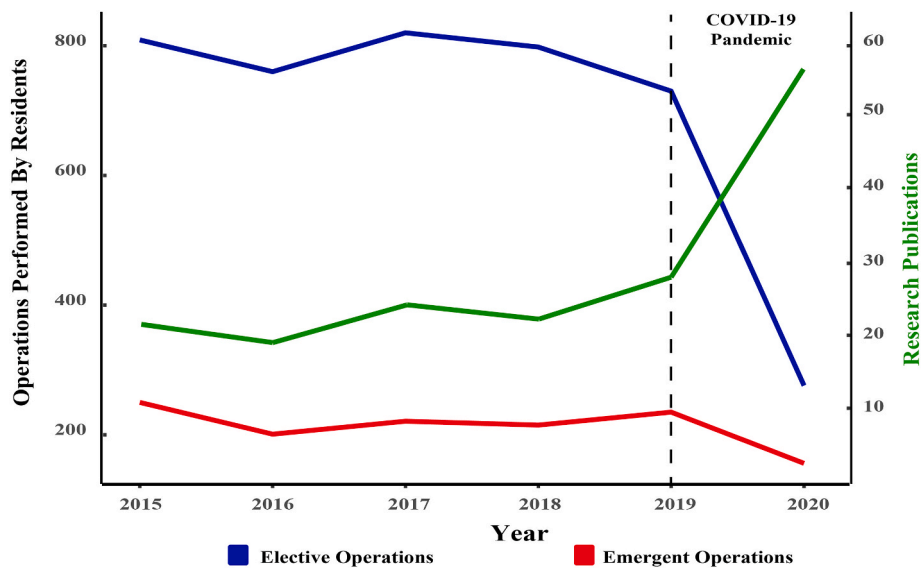


Fig. 1. Emergent and elective cases performed by trainees along with research publications between April and October from 2015 to 2020.

Overall, the COVID-19 pandemic has severely affected general surgery training by reducing the number of cases performed by trainees. However, it has also served to foster academic skills and simulation activities in many residency programs. In addition, the ongoing digital transformation of the education was abruptly accelerated by the pandemic. Therefore, this pandemic has given us a unique opportunity to improve the educational model of future surgeons. Further development of research capacities and embracement of alternative learning strategies acquired during the pandemic will help restructuring residency programs in order to train better surgeons.

Funding

Cristian A. Angeramo and Francisco Schlottmann have no conflicts of interest, financial ties or funding/support to disclose.

Provenance and peer review

Not commissioned, internally peer-reviewed.

Data statement

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Sources of funding

None.

Ethical approval

Exempted by IRB of Hospital Alemán of Buenos Aires.

Research Registration Unique Identifying Number (UIN)

Name of the registry:

Unique Identifying number or registration ID:

Hyperlink to your specific registration (must be publicly accessible and will be checked):

Author contribution

All authors contributed on data collection, study design, data analysis and writing.

Guarantor

Angeramo Cristian Agustin and Schlottmann Francisco.

Declaration of competing interest

None.

Acknowledgments

None.

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