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COVID-19 and the Impact on Surgical Fellows: Uniquely Vulnerable Learners



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Introduction The COVID 19 pandemic has affected education at all levels. Surgical fellows have faced unique challenges.

PROBLEMS: The authors address aspects of Canadian surgical fellowships that have been impacted by the pandemic. These include case volumes, training objectives, funding models, burden of stress and research productivity.

SOLUTIONS: Solutions are proposed including varying the mix of cases to meet objectives, pursuing alternative finance structures and leveraging technology for both research and advancing surgical technique.

CONCLUSION: These solutions are offered to help mitigate the effects of future pandemics for both current and future surgical fellows. (J Surg Ed 78:375–378. © 2020 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

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COVID-19 has had global consequences, with distinctive impact on learners. Elementary and secondary schools were closed.¹ Universities cancelled in-person lectures.² Medical education was likewise impacted.³⁻⁵ Leaders of undergraduate medical education, as in the 2003 SARS epidemic, suspended clinical training.^{6,7} Leaders of post-graduate medical education (PGME) cancelled in-person teaching and surgical residents faced a major reduction in volume. The impact on fellows has received less attention, although arguably these relatively short training periods are disproportionately affected.

COVID-19 is unlikely to be the last pandemic. Program directors must plan and prepare for a second

wave of COVID-19 or a future similar state. This perspective serves as our “reflection-in-action,”⁸ to stimulate a future mitigation strategy to protect surgical fellowship training.

WHAT IS UNIQUE ABOUT SURGICAL FELLOWSHIP TRAINING?

Surgical fellowships offer opportunities to finesse techniques in particular areas or gaps from PGME training. For instance, in plastic surgery, limited exposure to melanoma care, including multidisciplinary tumor boards, sentinel node biopsy, and node dissections, may not equip the surgeon to provide specialist care. Fellowships are typically short, often 6 to 12 months. Additionally, fellowship is often when permanent employment is sought, with the fellowship serving as an extended interview.⁹

HOW HAS COVID-19 IMPACTED CASE VOLUMES FOR SURGICAL FELLOWS?

Surgical fellowships vary in the proportion of elective cases. In plastic surgery, fellowships can focus on elective cases, including breast reconstruction, while others focus on acute hand trauma or melanoma. In preparation for a pandemic surge, elective surgeries in Alberta were delayed in March 2020. Cancer and trauma cases continued with increased wait times, while nearly 400,000 elective surgeries Canada-wide were delayed.¹⁰ Despite reinstating elective day surgeries in May, the Alberta relaunch phase was slow and measured. With case reductions, fellows faced diminishing caseloads proportionate to the degree of urgency of their specialized training. Varying degrees of case loss have occurred at our institution. For example, arthroplasty fellows, who previously operated 4 days a week, did not operate for a 6-week period. Reconstructive surgery

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fellows saw flap volumes decrease by half, from 15 to 8 flaps per month, owing to the loss of microsurgical breast reconstruction cases during the peak of the pandemic. Case volume reduction was generally not compensated with other scholarly activities primarily due to the stress and emotional impact evoked by this unique and unanticipated alteration in training.

Solutions

In anticipation of a pandemic, diversification of training objectives for incoming fellows must be considered. Although highly specialized experiences are often desired by trainees, program directors could ensure there is a mix of urgent and elective cases to safeguard operative exposure throughout a pandemic. This could involve expanding the pool of fellowship preceptors and creating rotations with increased acute case volume.

Even if the fellowship is primarily clinical, emphasis on research and teaching is important. From the outset, fellows should become involved in research and teaching scholarship programs. Therefore, if clinical volume is reduced, fellows can reap gains from their subspecialty publications and teaching. Leaders of PGME plastic surgical education in Canada showed innovation, rapidly arranging nationwide virtual teaching led by specialists and often fellows. These sessions added value to fellows' training experiences by allowing synthesis of their expert level knowledge.

HOW HAS COVID-19 IMPACTED FELLOWSHIP TRAINING OBJECTIVES?

Due to short duration, of fellowships versus a 5-year residency, reduction in surgical cases has a proportionately larger impact. Minimum case requirements are standard for US fellowships, but this is not the norm in Canada. Therefore, Canadian fellowships are offered at high volume centers to allow fellows to see unique outlier cases. Fellowship programs can work with leadership for contingency plans during training disruptions. Training extensions could help ensure learning objectives are met. The nature and necessity of these extensions should be discussed on an individualized basis. There may also be a role for mandatory achievement of training objectives. However, this will require forethought to manage overlapping fellows and navigate the natural tension between fellows and residents competing for surgical time.

Solutions

Case volume reduction can be mitigated with technology. Online education is prevalent in medical schools¹¹ and can be used in fellowship. Access to online teaching for procedural skills or developing courses tailored to specific surgical

topics can foster learning opportunities for fellows. Because minimizing patient contact is important in pandemics, surgical simulation laboratories are especially useful. Though the surgical simulation center at the University of Calgary closed¹² at the outset of the pandemic, leaders reopened it as soon as possible and quickly rescheduled courses with appropriate safety. In the second pandemic wave, skills labs should continued with adequate precautions and judicious use of personal protective equipment to allow surgical fellows to maintain or improve their skills.

HOW HAS COVID-19 IMPACTED THE FUNDING MODEL FOR SURGICAL FELLOWS?

One pressing concern verbalized by fellows during this crisis was financial stability, an issue shared with Canadians as evidenced by the government's COVID-19 Economic Response Plan.¹³ Funding models for fellowship programs are not uniform, ranging from surgical assist billing programs, industry-sponsored salaries, and departmental salaries.¹⁴ For fellows reliant on assist billings, the reduction in surgery was resulted in financial hardship. Many fellows enter fellowship with significant debt following post-secondary education, may have young families to support, and lack the financial resilience to withstand a substantial period of low pay. At our institution, each operative day lost resulted in approximately \$1000CAD lost in assist billings.¹⁵

Solutions

For the financial safety of fellows, fellowship programs should identify strategies for guaranteed funding, including departmental salaried positions. Industry-sponsored salaries are an alternative but risk conflict of interest. Surgical assist billing models, although lucrative, are problematic during a pandemic. Acutely, fellowship offices could supplement salaries where indicated with departmental funds. At our institution, salary caps were waived and fellows were encouraged to seek operative billings outside their scope.

HOW IS THE STRESS OF COVID-19 UNIQUE FOR SURGICAL FELLOWS?

The combination of financial strain, diminished surgical exposure, and fear of contracting COVID-19 are a recipe for high anxiety.¹⁶ Fellows often travel out of province or country for their programs, separating them from loved ones. Social distancing can also lead to further isolation. For example, 2 of the listed authors pursued out of province fellowships. Due to travel restrictions,

neither fellow was able to see their loved ones for an extended period of time, which contributed to mounting stress and alienation compounded by the changing work environment.

Stress is also amplified by the impact of the pandemic on both fellowship and permanent employment opportunities. The pandemic precluded travel for interviews and led to selection and hiring delays impacting residents and fellows alike. Uncertainty of the future caused postponements of fellowship start dates and cancellations of planned job postings. Networking opportunities integral to the job search, such as conferences, were also suspended.

Solutions

Communication, a critical tool when uncertainty exists, can help alleviate fellows' stress.^{16,17} Fellowship programs are often small with limited administrative support compared to residency programs. Timely and frequent communication guarantee fellows are informed and not forgotten. Finally, fellows need equal access to wellness resources as residents, recognizing that fellows lack a provincial governing organization.

Although it is difficult to create job related solutions during a pandemic, further emphasis on career planning could start earlier in residency. This pandemic must spark conversations regarding a new method of fellowship selection and hiring for permanent careers. Specifically, both selection committees and candidates should be willing to engage in a virtual hiring process in light of travel restrictions and social distancing guidelines. For matriculating fellows, programs could consider potential extensions while fellows pursue employment.

HOW HAS COVID-19 IMPACTED RESEARCH PRODUCTIVITY OF SURGICAL FELLOWS?

Fellows also harbor stress from the loss of research productivity, with conferences cancelled and clinical research suspended. In our institution, the annual fellowship research symposium was nearly cancelled and the resulting attempt at a virtual forum had sparse attendance.

Solutions

Research activity and support must be fostered. Local institutions maintaining virtual research days help reinforce deadlines. Specialist societies should develop virtual platforms for research presentations, such as the Canadian Society of Plastic Surgery's virtual symposium in June 2020. Current fellows have opportunities for adaptability and creativity by developing and pursuing

research questions that do not require in-person clinical encounters, while still providing meaningful research experiences.

CONCLUSIONS

The COVID-19 pandemic has disrupted medical education. Surgical fellows have a unique set of concerns, stemming from fellowships' short duration, super-specialized focus, and varied funding models. Stress was amplified by distance from family and the absence of provincial governing associations. The examples provided in this paper represent a contextualized experience and may not be generalizable. Regardless, opportunities for improvement exist, such as ensuring an appropriate mix of elective and acute cases, rethinking a stable financing model, and leveraging technology to ensure the fellow is not a forgotten learner, but rather, one who can prosper in times of crisis.

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