



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.

Letter to Editor Regarding: “Decrease in Neurosurgical Program Volume During COVID-19: Residency Programs Must Adapt”



Coronavirus disease 2019 [COVID-19] has undoubtedly placed many unprecedented restrictions on the life of current generations globally. The closure of educational institutions and the new normal of social distancing have reduced the number of people leaving their home and engaging in personal interactions. This has led to another unique challenge to medical teaching and training programs the world over. It is important to note that most neurosurgical residency programs are provided in academic hospitals, which are mainly based in urban centers.¹ For obvious reasons and because of the displacement of immigrant populations, these urban and suburban areas have been maximally affected by the COVID-19 pandemic. Apparently, this has also resulted in a decrease in trauma admissions in the hospital.² We agree with Field et al.¹ that the decrease in neurosurgical consultations for traumatic brain and spine injuries has resulted from the sudden reduction in the usage of motor vehicles. Almost all hospitals and clinics globally have reported significant reductions in the attendance at outpatient clinics and inpatient admissions, and this phenomenon can largely be attributed to the phobia regarding the COVID-19 pandemic, in addition to the restrictions imposed on the mobility of people. Reported data have shown that patients have not been seeking advice even for emergency situations, with an $\leq 42\%$ reduction in visits,³ such as angina and stroke.

This decrease in the clinical specialty workloads has affected the postgraduate teaching programs in medical schools worldwide. The effects have been adverse in several aspects, including the decreased number of clinical cases per specialty, staff reductions, cancellation of academic conferences, and the difficulty in conducting training and licensing examinations.⁴ This has also led to uncertainty regarding the completion of mandatory clinical research projects and dissertations, which are often required in residency programs. We share the concerns raised by Field et al.¹ that to address the decrease in learning resources during neurosurgery residency training and, as the authors have rightly suggested, that the residency program must be able to adapt such unforeseen circumstances.

It will be very useful if the interns could be given more number of days in neurosurgical training because they might have been exposed to a very small number of neurosurgical patients owing to the COVID-19 pandemic.¹ Patients undergoing elective cases can be tested for the COVID-19 infection, and residents could be offered to “double scrub” and perform the surgery for these cases,

as described by Field et al.¹ Neurosurgical simulation laboratories could be established, which could lead to learning and reinforcement of surgical approaches. Advanced and user-friendly virtual reality simulators with simplified imaging technology could provide the new options for neurosurgical training.⁵ We agree with Field et al.¹ that online meetings can serve as virtual conferences and can be performed using the many video conferencing platforms available. Field et al.¹ have shared an excellent framework in which they started a video conference telehealth system to initiate appropriate patient care. Their efforts have shown positive effects, and in May 2020, personal visits to their clinic had increased compared with those in April 2020.

In these challenging times, residents, trainees, program directors, and licensing bodies have been facing difficult situations and have been constantly striving to find unique solutions. The global leaders in academia should take this COVID-19 pandemic as an opportunity to formulate long-term policies and appropriate pathways to address the new challenges faced by resident training programs.¹

Bukkambudhi V. Murlimanju¹, Adesh Shrivastava², Luis Rafael Moscote-Salazar^{3,4}, Md Moshir Rahman⁵, Amit Agrawal²

From the ¹Department of Anatomy, Kasturba Medical College, Mangalore, Manipal Academy of Higher Education, Manipal, Karnataka, India; ²Department of Neurosurgery, All India Institute of Medical Sciences, Bhopal, Madhya Pradesh, India; ³Department of Neurosurgery, Paracelsus Medical University, Salzburg, Austria; ⁴Department of Neurosurgery, Universidad de Cartagena, Cartagena, Colombia; and ⁵Department of Neurosurgery, Holy Family Red Crescent Medical College, Dhaka, Bangladesh

To whom correspondence should be addressed: Bukkambudhi V. Murlimanju, M.D.

[E-mail: flutemist@gmail.com]

Conflict of interest statement: The authors declare that the article content was composed in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

<https://doi.org/10.1016/j.wneu.2020.07.019>

REFERENCES

1. Field NC, Platanitis K, Paul AR, et al. Decrease in neurosurgical program volume during COVID-19: residency programs must adapt. *World Neurosurg.* 2020;141:566-567.
2. Kamine TH, Rembisz A, Barron RJ, Baldwin C, Kromer M. Decrease in trauma admissions with COVID-19 pandemic. *West J Emerg Med.* 2020;21:819-822.
3. Hartnett KP, Kite-Powell A, DeVies J, et al. Impact of the COVID-19 pandemic on emergency department visits—United States, January 1, 2019–May 30, 2020. *MMWR Morb Mortal Wkly Rep.* 2020;69:699-704.
4. Algiraigri AH. Postgraduate medical training and COVID-19 pandemic: should we stop, freeze, or continue? *Health Prof Educ.* 2020;6:123-125.
5. Konakondla S, Fong R, Schirmer CM. Simulation training in neurosurgery: advances in education and practice. *Adv Med Educ Pract.* 2017;8:465-473.