

## Letter to the Editor: COVID-19 & Neurosurgical Training in Low- and Middle-Income Countries



On June 11, 2020, the World Federation of Neurosurgical Societies (WFNS) Global Neurosurgery Committee (GNC) and Young Neurosurgeons Forum (YNF) discussed the effects of coronavirus disease 2019 (COVID-19) on training in low- and middle-income countries (LMICs). During this event, the leadership of the WFNS and stakeholders of global neurosurgery identified challenges and proposed solutions to the issues faced by trainees during the pandemic. We recount the problems and action items that were identified during the meeting.

Each year, 23 million patients develop neurosurgical conditions, and 78% of them live in LMICs.<sup>1</sup> LMICs have <56% of the specialist neurosurgical workforce and require an additional 23,300 neurosurgeons to meet local neurosurgical demands.<sup>1,2</sup> Few LMICs have sufficient capacity to make up for the local workforce deficit; thus, neurosurgeons from all over the world are working to find sustainable solutions.<sup>3</sup> This movement has given birth to the field of global neurosurgery—"an area for study, research, practice, and advocacy that places a priority on improving health outcomes and achieving health equity for all people worldwide who are affected by neurosurgical conditions or need neurosurgical care."<sup>4</sup> To coordinate the efforts of global neurosurgeons, the WFNS has created an ad-hoc committee: the WFNS GNC.<sup>5</sup>

In addition to the difficulties already faced in providing neurosurgical care in LMICs, the current COVID-19 pandemic has further strained healthcare resources, especially for those in low-resource settings.<sup>6</sup> To understand the effects of the pandemic on training and propose solutions to the issues identified, the WFNS GNC and the WFNS YNF co-hosted a webinar. The webinar was held on June 11, 2020, and titled "COVID-19 & Neurosurgical Training in Low- and Middle-Income Countries: The Global Neurosurgery Perspective."

### THE WEBINAR

The webinar featured: Franco Servadei (WFNS President), Miguel Arraez (WFNS Foundation Chair), Isabelle Germano (WFNS Education Committee Chair), Robert Dempsey (Foundation for International Education in Neurological Surgery Chair), Mahmood Qureshi (Continental Association of African

Neurosurgical Societies President), Abdessamad El Ouahabi (WFNS GNC Co-Chair), William Harkness (Intersurgeon Co-Founder), Ronnie Baticulon (WFNS YNF), and Jeff Ntalaja (Continental Association of African Neurosurgical Societies Vice-President). The co-hosts were Kee Park (WFNS GNC Co-Chair) and Ignatius Esene (WFNS YNF Co-Chair).

The following are key messages from the presentations:

1. COVID-19 has had a significant effect on medical education and surgical training and is likely to do so for the foreseeable future owing to restrictions on gatherings, restrictions to local movement, and the reduction in overseas travel.
2. We must ensure that our graduates in LMICs are supported with equipment and continuing education to allow them to establish successful practice within their healthcare system.
3. Education in neurosurgery is a bidirectional exchange of knowledge, which is essential for success.
4. Digital technology is playing an increasing role in education and continuing professional development, which has been accelerated by the pandemic.
5. Collaboration is the key to successfully improving education in global neurosurgery.
6. It is the responsibility of neurosurgeons to lead the process to ensure an adequate neurosurgical workforce in their respective countries.

More than 500 attendees registered on Zoom, and an additional 200 followed the live streams on Facebook and YouTube. Additionally, the audience followed and commented about the webinar on Twitter with the hashtag #GlobalNeuroAndCovid (378,520 impressions and 120,701 reaches; **Figure 1**). Notably, 32.1% of participants were women, from Southeast Asia and Africa (87.5%), and either neurosurgeons or residents (87.5%; **Figure 2**).

Most (63.2%) had reported a significant change in their training as a result of the pandemic. The participants reported that the WFNS could help them train better in the post-COVID-19 era if it sponsored online courses (62%), virtual dissection laboratories

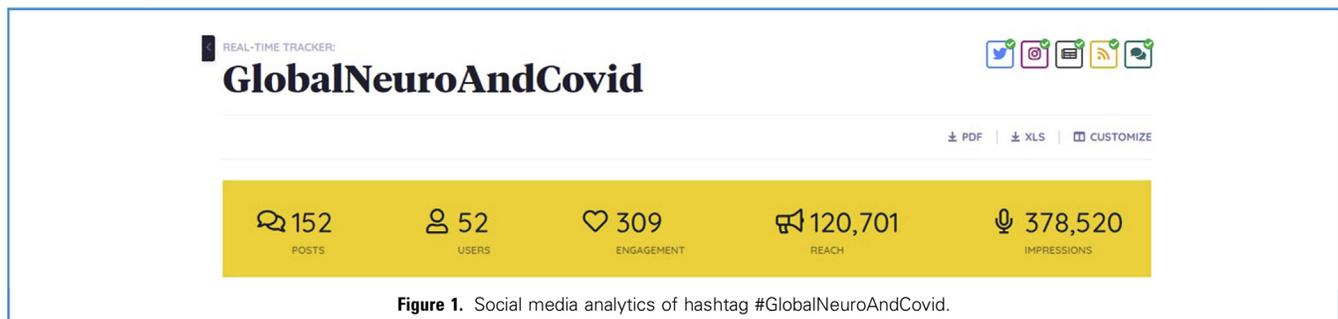
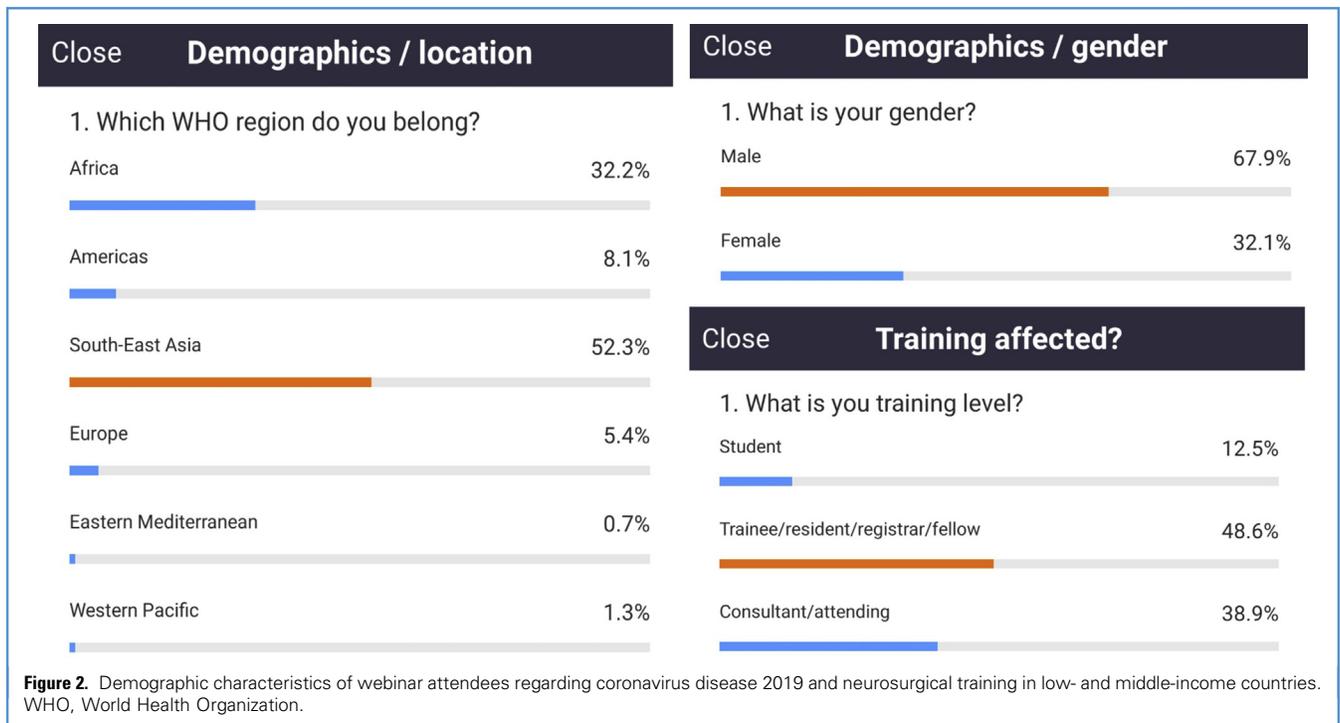


Figure 1. Social media analytics of hashtag #GlobalNeuroAndCovid.

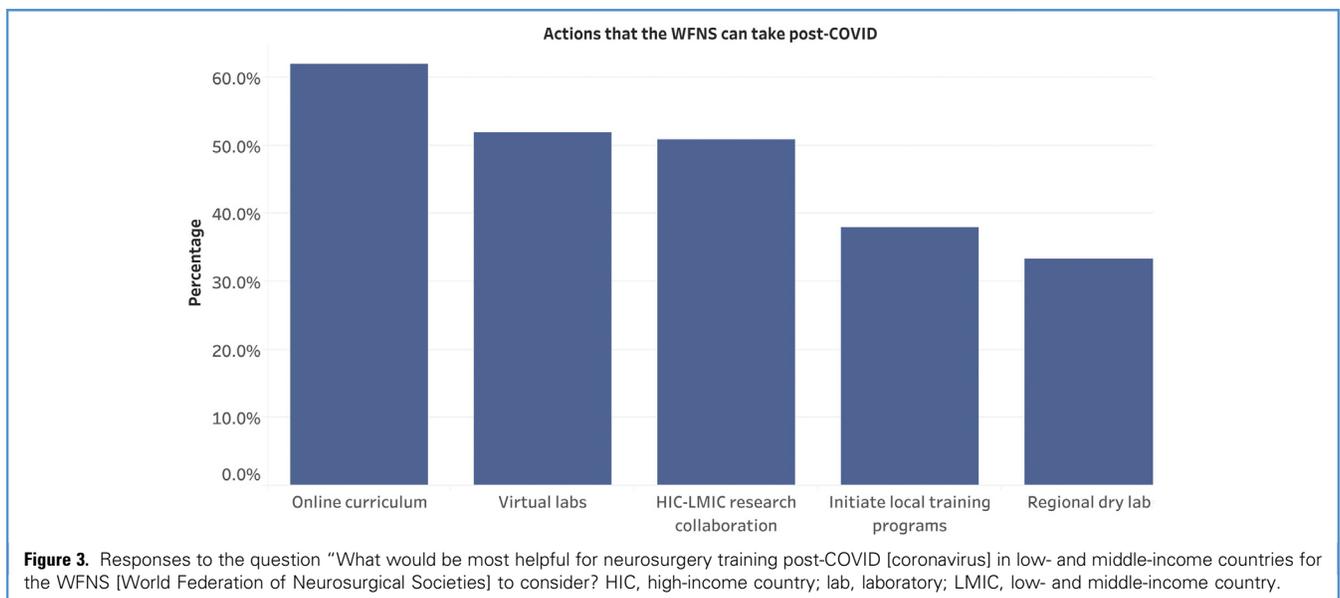


(51.9%), and research collaborations with high-income country institutions (50.9%; [Figure 3](#)).

### ACTION ITEMS

Three recommendations surfaced from the discussions:

- i. Harmonization of the present “several randomly organized webinars by various WFNS committees” to create a coherent and essential curriculum suitable for LMIC trainees and accepted by national accreditation authorities. In that regard, the WFNS might consider issuing certificates that could be recognized by local authorities.



2. Reinforcement of twinning programs with more organized collaborations between high-income countries and LMICs,
3. The development and validation of novel educational and training tools such as virtual meetings, virtual laboratories, and surgical simulation using augmented reality.

## CONCLUSIONS

Although the current COVID-19 pandemic has had a sudden and negative effect on the ability to train neurosurgeons, especially in LMICs, the increased use of social media and virtual platforms (in our case, Zoom) is markedly improving the interactions between the leadership of the WFNS and neurosurgeons around the globe. The feedback from the audience will serve as a reliable driver of how the WFNS will respond to the pandemic vis-a-vis training. The WFNS leadership has been quick to adapt to the pandemic and has proactively encouraged the use of virtual platforms for its activities. We clearly see untapped potential in these platforms and look forward to maximizing the potential for the benefit of all who need neurosurgical care.

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*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.2020.07.018>.

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