

The Global Neurosurgery and the WFNS

Franco Servadei, MD, Ph.D.^{1,2}, Maria Pia Tropeano, MD,³

¹Humanitas University, Dept of Biomedical Science, 20090, Milano, Italy

²World Federation of Neurosurgical Society, Nyon Switzerland

Correspondence

Franco Servadei, MD, Ph.D.

Humanitas University, Dept of Biomedical Science, 20090, Milano Italy.

World Federation of Neurosurgical Society, Nyon Switzerland

Email: franco.servadei@gmail.com

In 2015, the Lancet Commission on Global Surgery highlighted surgical care disparities worldwide [1]. No one could ever imagine that Global Neurosurgery would become a real movement, a source of inspiration for others surgical specialties [2]. Over the years, Global Neurosurgery allowed the realization of a collective awareness of surgery as a global health priority.

The Neurosurgical community accepted the challenge of delivering timely, safe, and affordable neurosurgical care to all who need it. Multiple efforts have been made to address this need to promote national surgical policies, improve surgical education and training, build quality research, and advocate for the surgical workforce. The critical factor has been the relationship between the World Health Organization (WHO) and the World Federation of Neurosurgical Societies (WFNS). Since 1955, the WFNS has promoted global improvement in neurosurgical care, building neurosurgical capacity through education, training, technology, and research.

The goals are ambitious. By creating international partnerships, the WFNS has established multiple training programs in neurosurgical centers in Africa and other countries with limited facilities, allowing residents to work first in the host countries to learn and improve their skills and return to their country of origin [3,4,5]. Furthermore, the WFNS is working on sustainable surgical programs within Low- and Middle-income countries (LMICs) using digital technology [6]. Internet availability allows fast and easy access to digital resources, and digital education has become an emerging tool to bridge the gap between surgeons from High-Income Countries (HICs) and LMICs.

Online learning modules and setting up simulation laboratories played a pivotal role for neurosurgical trainees in LMICs during the Coronavirus Disease 2019 (COVID-19) pandemic. In these challenging times, digital education allowed us to acquire systematic knowledge and develop practical skills. The COVID-19 pandemic stretched the resources of the already fragile surgical systems in LMICs. To limit the impact of the current COVID-19 pandemic, multiple programs have implemented physical distancing to reduce in-person interactions [7, 8]. On June 11, 2020, the WFNS discussed the effects of COVID-19 on training in LMICs. During this event, the WFNS and stakeholders of global neurosurgery's leadership identified challenges and proposed solutions to trainees' issues during the pandemic. The key messages from this meeting were the bidirectional exchange of knowledge in neurosurgical education, the need to restructure the training programs, and the increasing digital technology role.

No intervention is possible without available data; therefore, if we need to improve the quality of care for neurosurgical patients in LMICs, it will be fundamental to develop better and consolidate their research capacity. In a previous work [9], the authors showed an apparent underrepresentation of LMICs in the neurosurgical data and, more specifically, in the high-impact neurosurgical journals.

This data is even more disheartening when we consider that these countries face the most significant burden of some diseases, such as traumatic brain injury (TBI) [10] and traumatic spine injury (TSI) [11]. Data on epidemiology, treatment, follow-up and rehabilitative plans are necessary to direct the allocation of public health resources or comprehensively understand what needs to be done to help LMICs achieve the best outcomes. Even in this case, working together is the way, and various collaboration methods are already in place. The new Journal of Global Neurosurgery embodies this idea: equitable access to research and research capacity for all neurosurgeons by empowering researchers from LMICs. Much has been achieved, much still needs to be done.

REFERENCES

1. Meara JG, Hagander L, Leather AJM. Surgery and global health: a Lancet commission. *Lancet*. 2014; 383:12-13.
2. Vervoort D, Park KB, Swain JD: Global cardiac surgery: lessons learned from the global neurosurgery movement. *Heart Asia* 11: e011125, 2019
3. Kahamba J, Assey A, Dempsey RJ, Qureshi M, Hartl R: The second African Federation of Neurological Surgeons course in the East, Central, and Southern Africa Region held in Dar es Salaam, Tanzania, January 2011. *World Neurosurg* 80:255–259, 2010
4. Leidinger A, Extremera P, Kim EE, Qureshi MM, Young PH, Piquer J. The challenges and opportunities of global

- neurosurgery in East Africa: The Neurosurgery Education and Development model. *Neurosurg Focus*. 2018 Oct;45(4): E8. doi: 10.3171/2018.7.FOCUS18287. PMID: 30269584.
5. Mangat HS, Schöller K, Budohoski KP, Ngerageza JG, Qureshi M, Santos MM, Shabani HK, Zubkov MR, Härtl R, Stieg PE. Neurosurgery in East Africa: Foundations. *World Neurosurg*. 2018 May; 113:411-424. doi: 10.1016/j.wneu.2018.01.086. PMID: 29702965.
 6. Nicolosi F, Rossini Z, Zaed I, Koliass AG, Fornari M, Servadei F. Neurosurgical digital teaching in low-middle income countries: beyond the frontiers of traditional education. *Neurosurg Focus*. 2018 Oct;45(4): E17. doi: 10.3171/2018.7.FOCUS18288. PMID: 30269582.
 7. Alhaj AK, Al-Saadi T, Mohammad F, Alabri S. Neurosurgery Residents' Perspective on COVID-19: Knowledge, Readiness, and Impact of this Pandemic. *World Neurosurg*. 2020 Jul;139: e848-e858. doi: 10.1016/j.wneu.2020.05.087. Epub 2020 May 16. PMID: 32426064; PMCID: PMC7229445.
 8. Kanmounye US, Esene IN. Letter to the Editor "COVID-19 and Neurosurgical Education in Africa: Making Lemonade from Lemons". *World Neurosurg*. 2020 Jul; 139:732-733. doi: 10.1016/j.wneu.2020.05.126. Epub 2020 May 21. PMID: 32446982; PMCID: PMC7241362.
 9. Servadei F, Tropeano MP, Spaggiari R, et al. Footprint of reports from low- and low- to middle-income countries in the neurosurgical data: a study from 2015 to 2017. *World Neurosurg*. 2019;130:e822-e830.
 10. Tropeano MP, Spaggiari R, Ileyassoff H, et al. A comparison of publication to TBI burden ratio of low- and middle-income countries versus high-income countries: How can we improve worldwide care of TBI? *Neurosurg Focus*. 2019;47: E5.
 11. Tropeano MP, Spaggiari R, Ileyassoff H, Mabunda DJD, Anania CD, Costa F, Fornari M, Sharif S, Zileli M, Park KB, Servadei F. Traumatic Spine Injury: Which Discrepancy Between the Research Output and the Actual Burden of the Disease? *World Neurosurg*. 2020 Oct;142: e117-e125. doi: 10.1016/j.wneu.2020.06.131. Epub 2020 Jun 24. PMID: 32592959.