



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.



## The need to develop specialized surgical centers: the evidence that surgical diseases cannot wait

Dear Editor,

The COVID-19 pandemic demonstrates the deficiencies that exist around the world with respect to specialized surgical care. Recently, a study was published where the authors compared the surgical outcomes and changes generated during the pre-pandemic, pandemic and post-pandemic periods in the emergency surgery department, observing an increase in surgery time, an increase in incidence of postoperative complications (37.5 %) and an increase in mortality (31.3 % vs. 7.5 % post-pandemic;  $p < 0.0001$ ) in the pandemic period when compared to the pre- and post-pandemic periods (9.1 % and 12.5 %, respectively;  $p < 0.001$ ) [1]. We consider it necessary to comment on these results, and the need to propose as one of the main objectives of global surgery in the short term the incorporation of specialized surgical centers in healthcare systems, especially in low and middle-income countries.

Studies on the burden of disease have been estimated to be approximately 2 billion people who lacked access to surgical services [2]. These needs were intensified mainly in marginalized populations and rural areas of low- and middle-income countries [2]. Barriers to adequate surgical care result in high costs to healthcare systems and generate serious repercussions as reflected in indicators of morbidity, mortality and disability [3]. In the COVID-19 pandemic, these needs become more evident, thanks to the confinement, the disruption in the flow of COVID-19 and non-COVID-19 patients, and the economic impact [4]. Doglietto et al. [4] conducted a cohort study where they evaluated 30-day mortality and complications in COVID-19 positive and negative surgical patients, observing that this disease was significantly associated with increased risks of dying (OR, 9.5; 95 % CI, 1.77–96.53) and suffering from pulmonary (OR, 35.62; 95 % CI, 9.34–205.55) and thrombotic (OR, 13.2; 95 % CI, 1.48–∞) complications when compared to negative patients with this infection [4]. These results allow us to affirm that the management of surgical patients under catastrophic conditions such as a pandemic should be carried out in specialized centers, where only patients with surgical pathologies are treated in order not to combine the care of infected and non-infected groups, and also to provide a service that guarantees access to quality service, regardless of whether an economic factor is a barrier.

However, the surgical patient's integral approach should not only be confirmed to the acute phase of disease, but should also extend to short-term follow-up and rehabilitation [5]. Platt et al. [5] conducted a systematic review on the economic impact of surgical diseases on the family and the patient in low-income countries, and found that when there was no financial support for healing and rehabilitation of surgical patients, the risks of complications such as surgical site infection and re-hospitalization increased [5]. Ortega-Sierra et al. [6] expressed the need to modify surgical units to create strict follow-up units for patients as a strategy to identify needs and complications early [6].

The shortcomings of surgical care in developing countries and the

burden of diseases have been a topic of debate since the beginning of the last decade [7–9]. However, significant progress has not been made in ensuring access to quality surgical healthcare services, which becomes especially evident during the period of the COVID-19 pandemic. Delays in surgical care, appointment scheduling, accurate diagnosis and timely referral are among the main difficulties that generate a large number of Disability Adjusted Life Years (DALYs) [10]. Designing and establishing specialized surgical centers for care of acute and non-acute surgical diseases is a strategy that will improve patient flow, promote better overall outcomes and reduce morbidity and mortality rates. Likewise, it can be the solution to adequate and responsible management of surgical pathology in future pandemics, where better infrastructures, resources, social organizations, clinical practice guidelines and specific monitoring for improved control of surgical pathology are ensured.

### Please state any conflicts of interest

None.

### Please state any sources of funding for your research

None.

### Please state whether ethical approval was given, by whom and the relevant Judgement's reference number

It is not necessary.

### Research registration Unique Identifying number (UIN)

1. Name of the registry: Not applicable.
2. Unique Identifying number or registration ID: Not applicable.
3. Hyperlink to your specific registration (must be publicly accessible and will be checked): Not applicable.

### Author contribution

All authors equally contributed to the analysis and writing of the manuscript.

### Guarantor

Ivan David Lozada Martinez, Medical and Surgical Research Center, University of Cartagena, Cartagena, Colombia. Email: [ilozadam@uni-cartagena.edu.co](mailto:ilozadam@uni-cartagena.edu.co).

<https://doi.org/10.1016/j.ijso.2021.106036>

Received 22 July 2021; Accepted 26 July 2021

Available online 30 July 2021

1743-9191/© 2021 IJS Publishing Group Ltd. Published by Elsevier Ltd. All rights reserved.

**Declaration of competing interest**

We have no conflicts of interest to disclose.

**References**

- [1] G. Casella, L. Castagneto-Gissey, I. Lattina, P. Ferrari, A. Iodice, C. Tesori, et al., Repercussions of covid-19-related national lockdown on emergency surgery department: a longitudinal cohort monocentric study, *Minerva Surg.* (2021). On-line ahead of print.
- [2] L.M. Funk, T.G. Weiser, W.R. Berry, S.R. Lipsitz, A.F. Merry, A.C. Enright, et al., Global operating theatre distribution and pulse oximetry supply: an estimation from reported data, *Lancet* 376 (9746) (2010) 1055–1061.
- [3] S.N. Bickler, T.G. Weiser, N. Kassebaum, H. Higashi, D.C. Chang, J.J. Barendregt, et al., Global burden of surgical conditions, in: third ed., in: H.T. Debas, P. Donkor, A. Gawande, D.T. Jamison, M.E. Kruk, C.N. Mock (Eds.), *Essential Surgery: Disease Control Priorities*, vol. 1, The International Bank for Reconstruction and Development/The World Bank, Washington (DC), 2015 (Chapter 2).
- [4] F. Doglietto, M. Vezzoli, F. Gheza, G.L. Lussardi, M. Domenicucci, L. Vecchiarelli, et al., Factors associated with surgical mortality and complications among patients with and without coronavirus disease 2019 (COVID-19) in Italy, *JAMA Surg.* 155 (8) (2020) 691–702.
- [5] E. Platt, M. Doe, N.E. Kim, et al., Economic impact of surgery on households and individuals in low income countries: a systematic review, *Int. J. Surg.* 90 (2021), 105956.
- [6] M.G. Ortega-Sierra, M.D.C. Castillo-Montalvo, J.A. Manotas-Berdugo, J. G. Jiménez-Chimá, M.P. Bolaño-Romero, A commentary on "Economic impact of surgery on households and individuals in low income countries: a systematic review (*Int J Surg* 2021; 90: 105956)", *Int. J. Surg.* (2021), 105991.
- [7] M.G. Shrimme, S.W. Bickler, B.C. Alkire, C. Mock, Global burden of surgical disease: an estimation from the provider perspective, *Lancet Glob. Health* 3 (2015) S8–S9.
- [8] B. Stewart, P. Khanduri, C. McCord, M. Ohene-Yeboah, S. Uranues, F. Vega Rivera, C. Mock, Global disease burden of conditions requiring emergency surgery, *Br. J. Surg.* 101 (1) (2014 Jan) e9–22.
- [9] R. Ologunde, M. Maruthappu, K. Shanmugarajah, J. Shalhoub, Surgical care in low and middle-income countries: burden and barriers, *Int. J. Surg.* 12 (8) (2014) 858–863.
- [10] Global Initiative for Children's Surgery E.R. Smith, T.L. Concepcion, M. Shrimme, K. Niemeier, M. Mohamed, S. Dahir, E.A. Ismail, D. Poenaru, H.E. Rice, Waiting too long: the contribution of delayed surgical access to pediatric disease burden in somaliland, *World J. Surg.* 44 (3) (2020 Mar) 656–664.

Marlon Leonardo Silva-Rued

*School of Medicine, Universidad Autónoma de Bucaramanga, Av. 42 #48  
–11, Bucaramanga, Colombia*  
E-mail address: msilva@unab.edu.co.

Alejandro Ramírez-Romero

*School of Medicine, Universidad Icesi, Cl. 18 #122-135, Cali, Colombia*  
E-mail address: alejoramirez\_95@hotmail.com.

Luis Rene Guerra-Maestre

*School of Medicine, Universidad del Magdalena, Calle 32 #22-08, Santa  
Marta, Colombia*  
E-mail address: Luguemaestre@gmail.com.

Ángela María Forero-Hollmann

*School of Medicine, Fundación Universitaria Ciencias de la Salud, Cra. 54  
No.67A – 80, Bogotá, Colombia*  
E-mail address: amforerohollmann@gmail.com.

Ivan David Lozada-Martínez\*

*Medical and Surgical Research Center, School of Medicine, University of  
Cartagena, Cra. 50 #24120, Cartagena, Colombia*

\* Corresponding author.

E-mail address: ilozadam@unicartagena.edu.co (I.D. Lozada-Martínez).