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## Global surgery and global health: One size does not fit all

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### Abstract

Global surgery is interpreted differently and may lack an in-depth understanding which is further complicated by socio-economic culture. Global surgery and global health have become a part of health care service following the report of the Lancet Commission. Sustainability, ethical principles, and decolonization are some of the important ongoing issues for recipient societies. Incorporating societal dimensions, socio-cultural values, patients' needs, and affordability requires a tailored approach and not blindly pursuing the best technology. The recent COVID-19 has exposed the unethical practices and inequity in terms of equitable healthcare, vaccine rollout and its access, and an unprecedented high mortality rate observed in some societies. Surgery has been a neglected stepchild of global health, in addition, global surgery must not be a slave of technology simply for the promotion of the 'gold standard'; especially corporate-led commercialized services because a sustainable and effective surgical service at a reduced cost is desirable for all, be resource-rich or poor. Global surgery and global health include health security and universal health coverage. Stakeholders of global surgery need to be aware that 'one size does not fit all' and should be encouraged to consider the diverse conditions.

**Keywords:** Decolonization, globalization of surgery, global surgery, global health, research publication, sustainability

## Understanding Global Surgery

Global surgery (GS) is interpreted differently, and most health professionals may lack an in-depth understanding of it and its pathways. Surgeons and GS need to look beyond the operation theater and “curing by cutting” (CbyC) dictum because of the complexity of society and social determinants of health (SDOH), i.e. the five key domains of non-medical factors (Economic Stability, Education, Health and Health Care, Neighborhood and Built Environment, and Social and Community Context) that influence health outcomes, including the outcome of surgical services.<sup>1-3</sup> The understanding of global surgical services as part of health care has progressed following the report of the Lancet Commission on Global Surgery (LCoGS) in 2015, especially in low- and middle income countries (LMIC).<sup>4</sup> There was progress with rapid implementation of the LCoGS by stakeholders but there was a lack of indicators to compare the outcome across time or in different settings of SDOH and human development index (HDI).<sup>5</sup> The resources should be feasible and sustainable with respect to the key ethical principles, which involves local expertise, adaptation to a local context, and resources to achieve true globalization for equitable access to surgery service delivery and decolonization of GS.<sup>6,7</sup> The GS (&GH) is aimed to support the underprivileged but needs to be sensitive to the implication and challenges of colonial hegemony and the exclusion of active involvement of local expertise/organization in the production and implementation of knowledge. The prioritization of wealth over health models of the Global North may harm the honor and self-esteem of the recipients in LMIC. The evolution of global health from the colonial era of tropical medicine used to control and exploit the colonized population of their resources, data, and discoveries, has continued through parachute-research and publication (i.e. landing in an LMIC, making use of the local resources and publishing a paper in the prestigious journal at home often not including local author).<sup>7-9</sup> The recent COVID-19 vaccine apartheid is an example of

persisting inequalities of global health rooted in colonialism and a neocolonial mind-set.<sup>10</sup>

Access to surgical services, resources, and workforce are important considerations. These considerations and the volume of surgery, their perioperative outcome, and follow-up have financial and social implications. The reports showed that only 1/4<sup>th</sup> of the countries globally can provide timely access to the majority (80%) of their population residing within 2 hours of surgical facilities for essential surgeries.<sup>11</sup> The “surgery: neglected stepchild of global health, and anesthesia: the invisible friend of the neglected stepchild” must get proper attention if the Sustainable Development Goal 2030 (SDG) is to be achieved, for eliminating poverty (SDG 1), and reduce inequalities (SDG 5 and 10), to name a few.<sup>11</sup>

Inclusive policies enhance the outcome of the surgical system to benefit the diverse population.<sup>12</sup> Social justice, or rather injustice, present in social structure globally has continued to impact healthcare in terms of access, equality, and equity. The mindset of the managerial and policy level has failed to bridge the gap between ‘have and have-not’ because of favoring ‘like us’ when the policies are devised for implementation across the globe. Knowledge translation (KT) and sharing expertise require appropriate methods to help bridge the gap, build trust and increase cohesion for surgery in the global context. The mindset of ‘I am better than you’ must be avoided. Incorporating patients’ needs, lifestyles, culture, social values, and affordability must be addressed for optimal surgical outcome. Empathizing by putting oneself in the ‘patient’s shoes’ requires a tailored approach to the needs of patients, community, and region. Blindly pursuing the world’s best technology is futile, which must be seen in the context of local resources, accessibility, sustainability, and the need of the community.<sup>13</sup> The COVID-19 pandemic has exposed the unethical practices and inequity prevalent in the healthcare services that came out in open; for example, in terms of equitable healthcare, vaccine rollout and its

access, and unprecedented high mortality observed in the resource-rich societies.<sup>14-16</sup>

### Global Surgery in recipient view

Global surgery should not be a slave of technology for the promotion of the 'gold standard' given by corporate-led commercialized services. The medical equipment donation to LMIC should take into consideration local infrastructure, local priority, maintenance capabilities, consultation, and careful planning for usability and sustainability keeping in mind the careful use of resources. The assumption of 'normal' must be seen for their purpose of diagnosis, screening, or surveillance, which became a lesson to be learned during the testing for COVID-19 in terms of access, equality, and equity.<sup>17-19</sup> Utilization of research findings, an interesting observation for oxygen saturation and subsequent oxygen supplement revealed that the pulse-oximeter reading of 92-96% oxygen saturation was only 88% on arterial blood gas among patients with darker skin (and may have falsely guided oxygen supplementation) compared to lighter skin.<sup>20</sup> Such discrepancies may be the result of the recruitment of participants during the development of devices (pulse oximeter and other drugs/devices). Surgeons and health professionals must be aware of the importance of evidence generation and their utilization in diverse socio-economic culture globally. All stakeholders should be aware that 'one size does not fit all' and that 'normal' and 'gold-standard' should be seen in a global context.

Surgeons are typically used to adequate resources during their academic surgical training in university hospitals. This must be translated into the community for the availability and local need of the society which may differ significantly outside the boundaries of the university hospital. Working in limited-resource settings enables health professionals, especially surgeons, to internalize the delivery of safe and effective procedures in the given setting.<sup>21,22</sup> Laparoscopy and robotic surgery are only a

few examples when implementing the 'gold standard' because most health service centers in LMICs struggle for even a functional operation theater and resources. These factors require adaptive strategies when GS is considered by global surgeons. The 'poultry-farm' strategies with a well-controlled environment and resources for timely food, water, and air-conditioning will fall short in implementation when applied to the 'chicken raised in an open natural environment with diverse conditions'.

### Sustainability of global surgery in the era of digital information and technology

The availability of digital information and big data has broadened the dimension of health education and clinical decision-making. Continued medical education and being up-to-date by utilizing digital information available online is helpful not only for surgeons, but also for healthcare organizations, and policymakers.<sup>23</sup> For surgeons, knowledge sharing and collaboration are further facilitated by the use of academic social networks (ASNs) profiles, for example, ResearchGate, Google Scholar, ORCID, etc.<sup>24</sup>

Maximizing the outcome of surgery is a challenge for the surgeons and the team in considering the 'care loop'. The loop considers the journey of patients from their diagnosis to surgery, hospital care, and adaptation after discharge. Integration and adaptation of knowledge and technology require translation for optimal surgical outcome. Global surgery conceptually goes beyond the surgery, to include accessibility and postoperative outcomes. This requires collaborations among local healthcare providers, administrators, policymakers, and international bodies.<sup>25</sup>

A sustainable and effective surgical service at a reduced cost is desirable for all, be resource-rich or poor. Global surgery should transfer knowledge and services to the desired community so that the community does not become a victim of high-tech

colonialism, especially in the LMICs and accordingly, the program should distance itself from surgical colonialism. The recent development of commercialization of health services, without the consideration of equitable delivery of surgical services dependent on technology alone, not only burdens the LMIC but is also a form of neo-colonialism. Healthy collaboration among surgeons and academics in the global surgery initiative has many roles in capacity built for quality surgery services that are accessible and affordable.<sup>13,22,26</sup>

Most technology and devices used in LMICs are designed by and used in high-income countries. They result in a majority (3/4<sup>th</sup>) of them being out of context and non-functional, which continues to fuel the 10/90, for example, South Africa with its colonial and apartheid history is the most unequal country in the world with dual economy highlighting the 'frugal innovation' and health service delivery.<sup>27,28</sup> The future of global health with a racist and colonial history requires a paradigm shift to promote shared humanity with inclusiveness.<sup>29</sup>

Surgery has slowly gained recognition as a component of global health as surgical conditions account for over one-third of the burden of diseases worldwide affecting all age groups, gender, and community. Therefore, high-income countries and academic surgery centers have a bigger role to play beyond 'tourist surgeons and medical electives' for a healthy and ethical global surgery development. It should match the service and technology to local needs so that unwanted death and disability may be prevented, and inequities in surgical fields are addressed both at the global and local level.<sup>26,30-33</sup>

### **Research, publication, funding, and globalization of surgery**

Focusing on research capacity-building and encouraging contributions by local partners will lead to a stronger, more cohesive global surgery community. Global health has put too much focus on branding surgery as expensive,

requiring advanced technology and manpower. This is beyond the reach of LMIC making it the "neglected stepchild of global health" since 3-decades when the world health assembly met on primary health care and health systems deliberation in 1979.<sup>34-36</sup> The ten-point declaration adopted at the International Conference on Primary Health Care, a meeting in Alma-Ata in 1978 was a major shift in public health with emphasis on primary health care for a healthy world as 'health for all by utilizing the world's resources'.<sup>36</sup> Since the establishment of the Lancet Commission on Global Surgery (LCoGS) in 2015, the publications on 'global surgery' had nearly 80% of all first and last authors from high-income countries (HICs) and 40% of the articles lacked authors from LMIC. The LCoGS 2015 estimated that between 2015 and 2030, LMICs will have an economic loss of USD 12.3 trillion because of a lack of access to safe, affordable, and timely surgical and anesthesia care; and yet, the number of publications on economics and financing is scarce, especially for the national surgical, obstetric, and anesthesia plans (NSOAP), which is further compounded by the lack of commitment from donors to meet the Universal Health Coverage (UHC) and United Nations Sustainable Development Goals (SDG).<sup>3, 35,37-40</sup> Surgical care as a cost-effective intervention to address the global disease burden was included in the publication by the World Bank Group and was further highlighted by the LCoGS as a public health requirement with a safe, affordable, and timely implementation of NSOAP, and genuine global partnerships to provide surgical care for all.<sup>35,37,41</sup>

Interestingly, the inequity in the dissemination of findings and policy drafting on global surgery and global health during the conferences are poorly represented for and by LMIC due to systemic barriers like poor acceptance of research work, visa restrictions, and costs for the attendees from the poor world.<sup>42</sup>

Generating knowledge and its application has continued to be influenced by powerful

funders, mostly linked with profit indirectly because they fund the research through influential organizations like the WHO Foundation (funding Framework of Engagement with Non-State Actors- FENSA), CDC Foundation (chartered by Congress is a private, nonprofit organization, unlike the CDC which is a federal agency) and the NIH International Life Science Institute; for example, Coca-Cola's research impacted the work on diet and sugar taxes, and NIH National Institute of Alcohol Abuse and Alcoholism study unduly favored the industry, and many more.<sup>43,44</sup> Global health policy should include health security and universal health coverage for all in a global context, and this became more evident during the COVID-19 pandemic exposing the gaps in the fragmented health system and public health from the poorest to the wealthiest nations.<sup>45</sup> Global health has neglected surgical services in the poorer world, and also to those who cannot afford to pay even within the countries where surgery is available in most of the urban areas. The importance of surgical services as a public health issue is still not given enough priority for the Sustainable Development Goals (SDGs) that was adopted in 2015 by the international community comprising of 194 countries and the WHO.<sup>46</sup> Surgical services and global surgery is a part of global health for equitable access and service delivery of universal health coverage globally.

## Conclusion

Surgical services must be a part of overall healthcare service, taking into consideration the burden of disease, utilizing innovative intervention for optimal healthcare service delivery, and the outcome of surgery. All stakeholders of global surgery need to be aware that 'one size does not fit all' and should consider the diverse conditions. It requires a healthy collaboration for the transfer of knowledge and research evidence with a focus on the ethical and equitable delivery of global surgery services.

## Conflict of Interest

None

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## Author Contribution

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## Reference

1. WHO | Social determinants of health [Internet]. [cited 2022 Aug 4]. | [Weblink](#) |
2. Social Determinants of Health | NCHHSTP | CDC [Internet]. 2022 [cited 2022 Aug 4]. | [Weblink](#) |
3. Fowler Z, Dutta R, Kilgallon JL, Wobenjo A, Bandyopadhyay S, Shah P, et al. Academic output in global surgery after the lancet commission on global surgery: a scoping review. *World J Surg.* 2022 Oct;46(10):2317-25. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
4. Meara JG, Leather AJ, Hagander L, Alkire BC, Alonso N, Ameh EA, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *Lancet.* 2015 Aug 8;386(9993):569-624. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
5. Davies JI, Gelb AW, Gore-Booth J, Martin J, Mellin-Olsen J, Åkerman C, et al. Global surgery, obstetric, and anaesthesia indicator definitions and reporting: An Utstein consensus report. *PLoS Med.* 2021;18(8):e1003749. | [DOI](#) | [PubMed](#) | [Google Scholar](#) |
6. Botelho F, Gripp K, Yanchar N, Naus A, Poenaru D, Baird R, et al. Decolonizing Global Surgery: Bethune Round Table, 2022 Conference on Global Surgery (virtual), June 16-18, 2022. *Can J Surg J.* 2022;65(4 Suppl 1):S1-18. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
7. Chawla B, Lindert J, Sharma D. Post-decolonisation: Global Health and Global Surgery's Coming of Age. *Indian J Surg.* 2022 Apr 1;84(2):259-61. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
8. The Lancet Global Health. Closing the door on parachutes and parasites. *Lancet Glob Health.* 2018 Jun;6(6):e593. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
9. Khan M, Abimbola S, Aloudat T, Capobianco E, Hawkes S, Rahman-Shepherd A. Decolonising

- global health in 2021: a roadmap to move from rhetoric to reform. *BMJ Glob Health*. 2021 Mar;6(3):e005604. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
10. Harman S, Erfani P, Goronga T, Hickel J, Morse M, Richardson ET. Global vaccine equity demands reparative justice - not charity. *BMJ Glob Health*. 2021 Jun;6(6):e006504. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
  11. Jeong JH. Quantifying Timely Access to Surgery: A Global Modelling Study. *Electron Thesis Diss Repos*. 2021 Aug; | [Google Scholar](#) | [Full Text](#) | [Weblink](#) |
  12. Cobianchi L, Dal Mas F, Angelos P. One Size Does Not Fit All - Translating Knowledge to Bridge the Gaps to Diversity and Inclusion of Surgical Teams. *Ann Surg*. 2021 Feb 1;273(2):e34-e36. | [DOI](#) | [Google Scholar](#) | [PubMed](#) | [Full Text](#) |
  13. Shah J, Mandal RD, Shah J, Shah J. Muscle-splitting mini-incision cholecystectomy under spinal anesthesia: cost-effective equitable minimally invasive surgery in laparoscopy era. *Journal of Society of Surgeons of Nepal*. 2021 Dec 14;24(1):2-9. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
  14. Thakur B, Dubey P, Benitez J, Torres JP, Reddy S, Shokar N, et al. A systematic review and meta-analysis of geographic differences in comorbidities and associated severity and mortality among individuals with COVID-19. *Sci Rep*. 2021 Apr 20;11(1):8562. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
  15. Shah JN, Shah J, Shah J. Quarantine, isolation and lockdown: in context of COVID-19. *J Patan Acad Health Sci*. 2020;7(1):48–57. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
  16. Shah JN, Samson P, Pradhan NMS, Maharjan S, Shrestha A, Shah J, et al. Breakthrough infection after COVID-19 vaccination: A threat for Nepal due to SARS-CoV-2 variants circulating in 2nd wave ravaging India. *J Patan Acad Health Sci*. 2021;8(2):38–48. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
  17. Diamond A, Lye CT, Prasad D, Abbott D. One size does not fit all: Assuming the same normal body temperature for everyone is not justified. *PLOS ONE*. 2021 Feb 3;16(2):e0245257. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
  18. Tuchman AM. One size does not fit all: an historian's perspective on precision diabetes medicine. *Diabetologia*. 2022 Nov;65(11):1907-12. | [DOI](#) | [Google Scholar](#) | [PubMed](#) | [Full Text](#) |
  19. Mina MJ, Andersen KG. COVID-19 testing: One size does not fit all. *Science*. 2021 Jan 8;371(6525):126–7. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
  20. Sjoding MW, Dickson RP, Iwashyna TJ, Gay SE, Valley TS. Racial Bias in Pulse Oximetry Measurement. *N Engl J Med*. 2020 Dec 17;383(25):2477–8. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
  21. Yule S, Smink DS. Nontechnical Skill Countermeasures for Pandemic Response. *Ann Surg*. 2020 Sep;272(3):e213–5. | [DOI](#) | [Google Scholar](#) |
  22. Shah JN. Taking specialist surgical services to the rural district hospitals at one forth cost: a sustainable 'return on investment' public health initiative of Patan Hospital, Patan Academy of Health Sciences, Nepal. *Kathmandu Univ Med J*. 2015;13(2):186–92. | [DOI](#) | [Google Scholar](#) |
  23. Au-Yong-Oliveira M, Pesequeira A, Sousa MJ, Dal Mas F, Soliman M. The Potential of Big Data Research in HealthCare for Medical Doctors' Learning. *J Med Syst*. 2021;45(1):13. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
  24. Researcher's Personal Profile on Academic Social Network Sites: Connection, Visibility, and Impact of Academic Work. *Journal of Institute of Medicine Nepal*. 2021;43(3):9–17. | [Google Scholar](#) | [Full Text](#) | [Weblink](#) |
  25. Luan A, Mghase AE, Meyers N, Chang J. Are we curing by cutting? A call for long-term follow up and outcomes research in global surgery interventions - perspective. *Int J Surg*. 2021 Mar 1;87:105885. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
  26. Ng-Kamstra JS, Greenberg SLM, Abdullah F, Amado V, Anderson GA, Cossa M, et al. Global Surgery 2030: a roadmap for high income country actors. *BMJ Glob Health*. 2016 Apr 1;1(1):e000011. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
  27. Chakravarty S. Resource constrained innovation in a technology intensive sector: Frugal medical devices from manufacturing firms in South Africa. *Technovation*. 2022 Apr 1;112:102397. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
  28. Hu F, Qiu L, Zhou H. Medical Device Product Innovation Choices in Asia: An Empirical Analysis Based on Product Space. *Front Public Health*. 2022 Apr 13;10:871575. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
  29. Pigeolet M, Al-wahdani B, El Omrani O, Enabulele O, Walumbe R, Senkubuge F, et al. The future of global health is inclusive and anti-racist. *Trop Doct*. 2022 Jan 1;52(1):3–5. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |

30. Dare AJ, Grimes CE, Gillies R, Greenberg SLM, Hagander L, Meara JG, et al. Global surgery: defining an emerging global health field. *The Lancet*. 2014 Dec 20;384(9961):2245–7. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
31. Steyn E, Edge J. Ethical considerations in global surgery. *Br J Surg*. 2019 Jan 1;106(2):e17–9. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
32. InciSioN Collaborative. International Survey of Medical Students Exposure to Relevant Global Surgery (ISOMERS): A Cross-Sectional Study. *World J Surg*. 2022 Jul;46(7):1577-84. | [DOI](#) | [PubMed](#) | [Full Text](#) |
33. Abraham MN, Abraham PJ, Chen H, Hendershot KM. What is global surgery? Identifying misconceptions among health professionals. *Am J Surg*. 2020 Aug 1;220(2):271–3. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
34. Farmer PE, Kim JY. Surgery and global health: a view from beyond the OR. *World J Surg*. 2008 Apr;32(4):533-6. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
35. Fowler Z, Dutta R, Kilgallon JL, Wobenjo A, Bandyopadhyay S, Shah P, et al. Academic Output in Global Surgery after the Lancet Commission on Global Surgery: A Scoping Review. *World J Surg*. 2022 Oct 1;46(10):2317–25. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
36. WHO called to return to the Declaration of Alma-Ata. International conference on primary health care. [cited 2022 Sep 4]. | [Weblink](#) |
37. Meara JG, Leather AJ, Hagander L, Alkire BC, Alonso N, Ameh EA, Bickler SW, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *Lancet*. 2015 Aug 8;386(9993):569-624. | [DOI](#) | [Google Scholar](#) | [Full Text](#) | [Weblink](#) |
38. Truché P, Shoman H, Reddy CL, Jumbam DT, Ashby J, Mazhiqi A, et al. Globalization of national surgical, obstetric and anesthesia plans: the critical link between health policy and action in global surgery. *Glob Health*. 2020;16(1):1–8. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
39. Reddy CL, Peters AW, Jumbam DT, Caddell L, Alkire BC, Meara JG, et al. Innovative financing to fund surgical systems and expand surgical care in low-income and middle-income countries. *BMJ Glob Health*. 2020;5(6):e002375. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
40. Reddy CL, Miranda E, Atun R. Barriers and enablers to country adoption of national surgical, obstetric, and anesthesia plans. *J Public Health Emerg*. 2021;5:18. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
41. Debas HT, Donkor P, Gawande A, Jamison DT, Kruk ME, Mock CN, editors. *Essential Surgery: Disease Control Priorities, Third Edition (Volume 1)*. Washington (DC): The International Bank for Reconstruction and Development / The World Bank; 2015 Apr 2 | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
42. Velin L, Lartigue JW, Johnson SA, Zorigtbaatar A, Kanmounye US, Truche P, et al. Conference equity in global health: a systematic review of factors impacting LMIC representation at global health conferences. *BMJ Glob Health*. 2021;6(1):e003455. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
43. Maani N, Schalkwyk MCV, Petticrew M, Ralston R, Collin J. The new WHO Foundation — global health deserves better. *BMJ Glob Health*. 2021 Feb 1;6(2):e004950. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
44. Greenhalgh S. Inside ILSI: How Coca-Cola, Working through Its Scientific Nonprofit, Created a Global Science of Exercise for Obesity and Got It Embedded in Chinese Policy (1995–2015). *J Health Polit Policy Law*. 2021;46(2):235–76. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) |
45. Lal A, Erondu NA, Heymann DL, Gitahi G, Yates R. Fragmented health systems in COVID-19: rectifying the misalignment between global health security and universal health coverage. *The Lancet*. 2021 Jan 2;397(10268):61–7. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |
46. Lubis N, Cherian MN, Venkatraman C, Nwariaku FE. Global community perception of ‘surgical care’ as a public health issue: a cross sectional survey. *BMC Public Health*. 2021 May 20;21(1):958. | [DOI](#) | [Google Scholar](#) | [Full Text](#) |