






DOI: <https://doi.org/10.5554/22562087.e1041>

The need for a joint response. Perioperative mortality in Latin America and the time for LASOS Study

La necesidad de una respuesta conjunta. La mortalidad perioperatoria en latinoamérica y el momento para el estudio LASOS

Jose A. Calvache^{a,b} , Martha Delgado^c , Luciana C. Stefani^d , Bruce Biccard^e , Rupert M. Pearse^f ^a Department of Anesthesiology, Universidad del Cauca. Popayán, Colombia.^b Department of Anesthesiology, Erasmus University Medical Center. Rotterdam, The Netherlands.^c Department of Clinical Epidemiology and Biostatistics and Anesthesiology Department, School of Medicine, Hospital Universitario San Ignacio, Pontificia Universidad Javeriana. Bogotá, Colombia.^d Department of Surgery, Universidade Federal do Rio Grande do Sul (UFRGS), Anaesthesia and Perioperative Medicine Service, Hospital de Clínicas de Porto Alegre. Porto Alegre, Brazil.^e Department of Anaesthesia and Perioperative Medicine, Groote Schuur Hospital and University of Cape Town. Cape Town, South Africa.^f William Harvey Research Institute, Queen Mary University of London. London, UK.**Correspondence:** Department of Anesthesiology, Universidad del Cauca, Cl. 5 No. 4-70. Popayán, Colombia.**E-mail:** jacalvache@unicauca.edu.co

How to cite this article:

Calvache JA, Delgado M, Stefani LC, Biccard B, Pearse RM. The need for a joint response. Perioperative mortality in Latin America and the time for LASOS Study. Colombian Journal of Anesthesiology. 2022;50:e1041.

We need more than 100 million additional surgical procedures each year in low- and middle-income countries (LMICs) to achieve safe, timely and affordable surgery at population level (1,2). As with any human system, perioperative and medical health care have inherent risks that can vary among populations, including between and within countries, specific settings, and individual providers. Indeed, increasing the volume of surgical activity includes expecting an increase in complications and deaths after surgery, especially in fragile perioperative health systems (3).

Perioperative mortality has declined significantly over the past 50 years, with the greatest decline in developed high-income countries, (4) but there has been a paucity of epidemiological research to describe perioperative mortality and complications after surgery, especially in LMICs (5). Latin America includes 33 countries and 14 territories, with a huge diversity in socio-cultural factors, ethnicity, geography, and political systems. These in turn, lead to widespread differences in healthcare provision and the population of patients who require surgery. As an example, Colombia is a predominantly urban country (76% of the population) of over 48 million inhabitants (6) with a widespread variability in the surgical systems across the country. Urban settings show top-quality hospitals and educational programs while rural

remote locations have a deficient, fragmented, and disorganized healthcare provision (5). Recent studies have recognized the critical importance of social deprivation and population inequities as risk factors for poor patient outcomes after surgery, (7,8) including timely and affordable access to elective surgical care (9).

The availability of objective and robust data allowed clinicians, researchers, and healthcare policymakers to focus on the issues of greatest importance to our patients and contextualize our populations in terms of needs, and availability of surgical services. Nevertheless, in LMICs the large size of the surgical population makes longitudinal epidemiological studies difficult or impossible to be conducted. Routine national datasets are either unavailable or not accessible, and there is little or no research delivery workforce to collect source data. In addition, several barriers to promoting collaborative research have been identified including language barriers, the frailty of health care systems, inappropriate data registries, limitations with approvals from ethical committees and individualism and selfishness in research (10). However, previous collaborative studies during the COVID-19 pandemic were successfully conducted (CovidSurg, CovidSurg-Cancer, CovidSurg Week and CovidSurg 3), including many Latin American countries with a very important number of hospitals, professionals and

patients involved (11). Recent experiences were conducted by advancing in wide collaborative research strategies aimed to deliver rapid benefits from robust data to communities (12).

In recent years, we have seen an increase in large national and international well-designed epidemiological studies of surgical populations (13-16). Studies have addressed study design problems by engaging frontline clinical staff in data collection by using a pragmatic approach. The European Surgical Outcomes Study (EuSOS) was the first of these large prospective international epidemiological studies of non-cardiac surgical patients (13). Then, the International Surgical Outcomes Study (ISOS) provided more detailed data describing patient outcomes after elective surgery in 27 countries of varied economic status around the world (14). Later, the African Surgical Outcomes Study (ASOS) (15) included 25 countries in Africa and showed that patients were twice as likely to die after surgery when compared with the global average in ISOS, despite being younger with fewer comorbid diseases and undergoing fewer complex surgeries.

Now it is time to go to Latin America! In a similar approach than during the COVID-19 pandemic (17) a new call to Latin America is ready! You are more than welcome to joint efforts from each hospital with surgical capabilities in any Latin American country. The Latin American Surgical Outcomes Study (LASOS) will employ the same seven-day cohort study design allowing us to generate equivalent data to compare with previous studies in other parts of the world (16). We will explore social-economic factors at the hospital level, taking account of the profound diversity of health systems (public vs private) in most Latin American countries. Also, we will address the important and still not sufficiently explored question of ethnicity and its relation to surgical health outcomes, a priority issue in a continent with structural inequalities.

You can contribute from wealthy university hospitals in major cities to small regional hospitals in remote regions. LASOS is led by anesthetists, surgeons, and intensivists from across Latin America and

worldwide, working together to collect data and ensure all eligible patients are recruited. At the time of this editorial, we already have 20 countries taking part. The study will run during the second semester of 2022 and local coordinators will each choose a representative data collection week for their center. If the data prove as valuable as those collected in previous similar studies, we can expect LASOS to light a path towards improved outcomes for all surgical patients in Latin American hospitals as well as an opportunity to build a large collaborative network for future research in this subject.

If you want to find out more, or to join the LASOS initiative, please visit our website for details of how to contact us: <https://lasos-study.org/>

REFERENCES

- Nepogodiev D, Martin J, Biccadd B, et al. Global burden of postoperative death. *Lancet*. 2019;393:401. doi: [https://doi.org/10.1016/S0140-6736\(18\)33139-8](https://doi.org/10.1016/S0140-6736(18)33139-8)
- Meara JG, Leather AJM, Hagander L, et al. Global Surgery 2030: Evidence and solutions for achieving health, welfare, and economic development. *Lancet*. 2015;386:569-624. doi: [https://doi.org/10.1016/S0140-6736\(15\)60160-X](https://doi.org/10.1016/S0140-6736(15)60160-X)
- Stefani LC, Hajjar L, Biccadd B, Pearse RM. The need for data describing the surgical population in Latin America. *Br J Anaesth*. 2022;S0007-0912(22)00096-4. doi: <https://doi.org/10.1016/j.bja.2022.02.029>
- Bainbridge D, Martin J, Arango M, Cheng D, Evidence-based Peri-operative Clinical Outcomes Research (EPiCOR) Group. Perioperative and anaesthetic-related mortality in developed and developing countries: a systematic review and meta-analysis. *Lancet*. 2012;380(9847):1075-81. doi: [https://doi.org/10.1016/S0140-6736\(12\)60990-8](https://doi.org/10.1016/S0140-6736(12)60990-8)
- Calvache JA. Perioperative Safety in Middle-Income Countries [Internet]. Erasmus University Rotterdam; 2019. [Cited 01 Jun 2022]. Available at: <http://hdl.handle.net/1765/115838>
- WHO and UN partners. Colombia: WHO statistical profile. *Ctry Stat Glob. Heal Estim*. 2015.
- van den Berg I, Buettner S, van den Braak RRJC, et al. Low Socioeconomic Status Is Associated with Worse Outcomes After Curative Surgery for Colorectal Cancer: Results from a Large, Multicenter Study. *J Gastrointest Surg*. 2020;24:2628-36. doi: <https://doi.org/10.1007/s11605-019-04435-2>
- Wan YI, McGuckin D, Fowler AJ, Prowle JR, Pearse RM, Moonesinghe SR. Socioeconomic deprivation and long-term outcomes after elective surgery: analysis of prospective data from two observational studies. *Br J Anaesth*. 2021;126:642-51. doi: <https://doi.org/10.1016/j.bja.2020.10.019>
- Peck GL, Roa L, Barthélemy EJ, et al. Improving global emergency and essential surgical care in Latin America and the Caribbean: A collaborative approach. *Bull Am Coll Surg*. 2019;104:24-39.
- Boccalatte LA, Modolo MM, Calvache JA, Lincango-Naranjo EP, Ataíde-Gomes GM, Lima-Buarque I, et al. Surgical multicenter collaborative studies: ¿What happen in Latin America? *Cir Cir*. 2021;89(6):733-9. doi: <https://doi.org/10.24875/CIRU.21000282>
- The NIHR Global Health Research Unit on Global Surgery. [Internet]. [Cited 01 Jun 2022]. Available at: <https://www.globalsurgeryunit.org/global-surgery-research-main/covid-19-related/>
- Li E, Bhangu A. Collaborative research in surgery: a rising tide lifts all boats. *British Journal of Surgery*. 2022;znac099. doi: <https://doi.org/10.1093/bjs/znac099>
- Pearse RM, Moreno RP, Bauer P, et al. Mortality after surgery in Europe: a 7 day cohort study. *Lancet*. 2012;380:1059-65. doi: [https://doi.org/10.1016/S0140-6736\(12\)61148-9](https://doi.org/10.1016/S0140-6736(12)61148-9)
- Pearse RM, Clavien PA, Demartines N, et al. Global patient outcomes after elective surgery: Prospective cohort study in 27 low-, middle- and high-income countries. *Br J Anaesth*. 2016;117:601-9. doi: <https://doi.org/10.1093/bja/aew316>
- Biccadd BM, Madiba TE, Kluyts HL, et al. Perioperative patient outcomes in the African Surgical Outcomes Study: a 7-day prospective observational cohort study. *Lancet*. 2018;391:1589-98. doi: [https://doi.org/10.1016/S0140-6736\(18\)30001-1](https://doi.org/10.1016/S0140-6736(18)30001-1)
- Knight SR, Shaw CA, Pius R, et al. Global variation in postoperative mortality and complications after cancer surgery: a multicentre, prospective cohort study in 82 countries. *Lancet*. 2021;397:387-97. doi: [https://doi.org/10.1016/S0140-6736\(21\)00001-5](https://doi.org/10.1016/S0140-6736(21)00001-5)
- Pérez C, Picciochi M, Martin J, Calvache JA. Global perioperative surgery research. A call to Latin America. *Colombian Journal of Anesthesiology*. 2020;49(1). doi: <https://doi.org/10.5554/22562087.e942>