



The Lancet Commission on Global Surgery as a global health educational framework

Pierrette Ngutete Mukundwa^{1*}, Amy T. Fulton^{2*}, Barnabas Alayande¹, Abebe Bekele¹, Emily R. Smith², Henry E. Rice²

Correspondence: Pierrette Ngutete Mukundwa, Centre for Equity in Global Surgery, University of Global Health Equity, Kigali, Rwanda. **Email:** pmukundwa@ughe.org

Abstract

Training the next generation of leaders in global surgery includes equipping learners with skills in collaboration, research, policy, and health system management. Since 2021, the Duke Global Health Institute and the University of Global Health Equity in Rwanda have co-taught a course in *Global Surgical Care* for learners from around the world. This review discusses our use of the *Lancet Commission on Global Surgery (LCoGS)*, exploring it as both a foundational reference text and an organizing framework for teaching core issues in global surgical care. The LCoGS guides the selection of important topics including surgical disease burden, infrastructure, workforce, and economics. Through the semester, students use these concepts in team-based applications, culminating in the development of a National Surgical, Obstetric, and Anesthesia Plan (NSOAP) for an assigned country. The LCoGS provides a valuable foundation for teaching global surgical priorities and analytic approaches, and provides guidance to support advocacy, ethics, and contextualized implementation initiatives for training emerging global surgical leaders.

¹Centre for Equity in Global Surgery, University of Global Health Equity, Kigali, Rwanda

²Duke Global Health Institute, Duke University, Durham, NC, USA

*Joint first authors

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Introduction

Improving access to high-quality surgical care around the world requires the training of health professionals with clinical skills coupled with the necessary interdisciplinary research, management, and leadership skills to improve health systems. To train the next generation of leaders in global surgery, we co-designed a global health seminar between the Duke Global Health Institute and the University of Global Health Equity in Rwanda in 2021¹. The course aims to address issues surrounding the delivery of surgical care across social, policy, economic, and clinical themes, particularly in low- and middle-income countries (LMICs). Students are from around the world, including graduate and undergraduate students in global health, other graduate disciplines, and

clinical trainees.

Our seminar meets for 2.5 hours a week over 11-12 weeks, with each week structured around a topic from the main summary report of the *Lancet Commission on Global Surgery (LCoGS)* titled “Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development”². Approximately 50 learners make up the course; learners are further organized into small “country groups” of 3 to 7 students. Team-based research assignments focus on various topics around surgical care in a specific LMIC. These assignments conclude with the final project: development of a National Surgical Obstetrics and Anaesthesia Plan (NSOAP) for their assigned LMIC countries.



The course was co-designed by faculty from the DGHI and UGHE based on a previous course at Duke with an emphasis on equity in program design and delivery.¹ Projects and course topics were designed to allow for the exchange of ideas from both learners and instructors across high-income countries (HIC) and LMICs. Equity frameworks, such as the Hartman Fair Trade Learning Principles and the Monette Principles, helped to structure and evaluate the course^{3,4}. Although having learners from multiple settings led to some difficulty with connectivity, time-zone differences, and logistics of communication, overall, most learners had no perceptions of neo-colonialism within the course¹. Intentional design and ongoing evaluation have continued to make this model of equitable global surgical education feasible.

This report summarizes how the LCoGS report has been used in this course as both a foundational text and an organizing framework for teaching content in global surgery². We emphasize how the LCoGS has defined core topics to train in global surgery and serves as a model for training the required analytic methods in this field.

Course Curriculum

Although recognizing the LCoGS report is an important resource of direct content, we have found throughout this class that it is perhaps even more valuable as a theoretical foundation for key topics in global surgery. Rather than being treated as a standalone reading, the LCoGS report has been integrated along with research papers and other resources to provide learners with a shared conceptual foundation of core foundational topics in this field. These topics include areas such as burden of surgical disease, surgical infrastructure and service delivery, surgical workforce and education, and economics and financing of surgical care (Table 1). As a whole, the document provides a broad overview of priorities and essential analytic skills required for understanding challenges to the provision of surgical care across the globe.

Each week, the course covered one of these core topics. Many of the topics explore the background and context of each of the five key messages outlined in the LCoGS report. Beyond just reading

the details behind these key messages, students examine methods for measuring improvements and discuss their views on developing interventions to improve surgical care in these areas. Throughout the course, as new global surgery themes were introduced, a return to the key messages encouraged continuity in learning. Class discussions were intentionally designed using a spiral, constructivist approach in which new, context-specific examples are consistently scaffolded onto previously established core concepts from the LCoGS report⁷.

Critically, the LCoGS also frames the key required analytic and advocacy skills to help advance global surgical care toward the future. A critical feature of education in global surgery is preparing learners to engage with the field as it continues to evolve. By emphasizing countrywide surgical plans and integration of surgery into broader healthcare systems, the LCoGS pushes students to critically assess how individual interventions or topics align with broad, long-term goals. As we return to this framework throughout the course, students are given a set of “building blocks” to understand surgical care as a changing field.

Throughout the course, student teams are tasked with developing elements of a NSOAP. In this semester-long, culminating project, they develop plans to collect data to fill identified gaps and plan interventions to address key challenges in their country. In these tasks, teams return frequently to the LCoGS report, using its suggestions to plan a research agenda, consider integration into broader health systems, and contextualize country-specific gaps in surgical care.

Teaching LCoGS Topics

We link many of the key messages, research methods, and teaching activities to the LCoGS framework.

Burden of Disease

When approaching the topic of burden of disease, we emphasize not only how to estimate the burden of surgical disease, but also that measurement of surgical need is inherently challenging and subject to uncertainty. Students are introduced to how the LCoGS approached this challenge through modeling, using an access-based framework that defines surgical access in terms of timeliness,



Table 1: Global Surgical Care Core Topics

Core Topic	Course Goals
Burden of Surgical Disease	• Review the burden of disease assessment strategies • Describe the complexity of measuring surgical conditions
Global Surgery Networks and Advocacy	• Explore Jeremy Shiffman's framework for global health networks⁵ • Identify challenges to global surgery networks and advocacy
Infrastructure	• Present overview of the surgical system and required infrastructure • Discuss reasons for delays in receiving care using the Three Delays framework^{2,6} • Identify what infrastructure (stuff, space, and systems) are critical to the provision of surgical care • Understand the complexity of health care infrastructure assessments (with a leaning towards surgical infrastructure) • Identify any theoretical underpinnings to healthcare infrastructure assessments
Safety and Quality	• Understand practice regarding healthcare quality and safety • Understand the impact of quality and safety on surgical outcomes
Innovation	• Summarize opportunities for innovation, structure, and resource needs • Summarize technology, surgical device, and mobile health consortiums • Discuss processes to improve care delivery and care delivery innovation
Surgical Workforce and Education	• Discuss reasons for the surgical workforce deficit • Define barriers to specialist surgical workforce training • Understand resources for expansion and training of surgical workforce
Economics and Financing	• Introduce micro- and macroeconomic global health tools • Establish the economic case for investment in surgical and anesthesia care in LMICs • Understand basic goals of microeconomic analyses • Understand how to measure catastrophic and impoverishing healthcare expenditures
Armed Conflict, Human Rights, and Health	• Understand the importance of historical frameworks to approach armed conflict, human rights, and health • Understand inequities in setting of armed conflict • Discuss how to identify and measure health challenges in settings of armed conflict
NSOAP Implementation	• Understand how to develop a National Surgical, Anesthesia, and Obstetric Plan (NSOAP) • Understand the challenges to implementation of a NSOAP



capacity, safety, and affordability, while also acknowledging the limitations of relying on estimated modelled data across diverse contexts. To complement this perspective, learners engage with empirical work using community-based sampling, which illustrates how facility-based data alone can underestimate surgical burden by excluding populations who never reach care⁸.

Infrastructure

Similarly, in addressing the topic of surgical infrastructure, we use examples from the LCoGS to understand how infrastructure underpins overall surgical system performance. Drawing on the LCoGS report, the session provides an overview of surgical infrastructure required to deliver safe and timely care using the Three Delays framework. This theoretical foundation is complemented by a guest lecturer with experience conducting infrastructure assessment in an LMIC setting. Building on these insights, students participate in a group activity in which they design a hospital-based infrastructure survey applicable across multiple countries, focusing on key domains such as human resources, equipment and supplies, and institutional processes. Where country-level data were available, students summarized existing infrastructure capacity and identified gaps relative to desired standards, reinforcing the application of infrastructure assessment to real-world planning contexts.

Workforce and training

In line with the LCoGS emphasis on health care workforce challenges, we train learners in methods to measure global disparities in the surgical, anesthesia, and obstetric (SAO) workforce. Students explore both global inequities and maldistribution within countries, with specialists concentrated in urban areas, and examine task shifting and task sharing as pragmatic strategies to expand access in workforce-constrained contexts.⁹ This content is complemented by a guest lecture on the historical and contemporary development of surgical education in LMICs, which traces colonial legacies that shaped early training models, and examines the shift from extracontinental training toward intracontinental, regional, and national training pathways that have improved workforce retention. To apply these

concepts, students conduct a group-based surgical workforce assessment for assigned countries, analyzing workforce density, specialty, and geographic distribution, training pathways, and national task-shifting policies, and propose strategies to support workforce planning.

Economics and Financing

The course highlights the substantial economic and social losses caused by untreated surgical conditions in line with the LCoGS report. We train students in macroeconomic theory and models to assess the impact of surgical disease on economic productivity and long-term macroeconomic losses. Similarly, we emphasize the microeconomic impact of surgical care on out-of-pocket expenditures, catastrophic health expenditure, and poverty trajectories. Students are taught that the economic burden of surgical disease extends well beyond direct medical costs, encompassing long-term financial strain, lost productivity, and depletion of assets¹⁰. Taken together, these findings underscore that access to surgical care is not only a health imperative but also a critical poverty-reduction and economic protection strategy, reinforcing the case for including surgery within universal health coverage and national health planning.

Limitations of the LCoGS as a Global Surgery Educational Framework

Although the LCoGS report serves as a critical reference throughout the course, its use as an educational framework has several limitations. The Commission's emphasis on high-level indicators, although valuable for global advocacy and benchmarking, may oversimplify complex local realities and mask within-country variation. As highlighted in the Utstein group analysis, the original LCoGS report indicators lack the granularity needed to fully capture surgical system performance, particularly with respect to data quality, facility-level functionality, and contextual differences across settings¹¹.

In addition to the LCoGS report, recent reflections by Nepogodiev et al. (2025) emphasize that progress since the 2015 Commission has been uneven and constrained not only by measurement challenges but also by gaps in financing, governance, and implementation¹². From an



educational perspective, the LCoGS report places relatively limited emphasis on grassroots advocacy, ethical challenges, community engagement, political economy, and emerging tools such as social media. These limitations underscore the importance of complementing the LCoGS report with additional perspectives that emphasize local action, advocacy, ethics, and implementation pathways, ensuring that learners are equipped not only to interpret global metrics but also to translate evidence into contextually grounded surgical policy and practice.

Conclusion

The *Lancet Commission on Global Surgery* report serves as a model framework for teaching key issues and research skills in this quickly evolving field. The information presented provides a set of guiding principles that shapes how students can learn the required skills to impact global surgical care across the past, present, and future.

As global surgery continues to evolve as a field central to health equity and health systems strengthening, educational models that equip learners with shared frameworks, critical thinking and analytic skills, and policy-relevant tools are increasingly important. This course demonstrates how the *Lancet Commission on Global Surgery* can be effectively used as both a foundational text and an organizing framework to train the next generation of global health and surgical leaders. By combining evidence-based content, training in interdisciplinary analytic skills, and applied learning activities, the course prepares learners to critically engage with surgical challenges across diverse contexts. Such educational approaches are essential for building capacity to advance equitable, sustainable, and context-responsive surgical care globally.

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