



PROGRAM IN GLOBAL SURGERY AND SOCIAL CHANGE

Harvard Medical School

FACULTY LAB PACKET 2023 - 2024

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THE RIVIELLO LAB @ PGSSC

Strengthening surgical delivery through education, quality improvement, and capacity development

Robert Riviello MD, MPH

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About Me

I am a trauma, burn, and general surgeon at Brigham and Women's Hospital (BWH). I serve as the Deputy Director of the PGSSC and am tasked to ensure that our partnerships are collaborative and equitable. The focus of my academic work is building surgery and research capacity in Rwanda and in the region, including 8 years as U.S. surgical faculty liaison for the Rwanda Human Resources for Health program, where I developed close working relationships with the Ministry of Health, University of Rwanda, and University Teaching Hospital-Kigali (CHUK). I now serve as the chair of the department of surgery for the University of Global Health Equity in Rwanda, founded by Partners in Health. This role keeps me deeply tied to Rwanda's efforts to develop clinical capacity and professionalism. At BWH, I am the Director of Global Surgery Programs at the Center for Surgery and Public Health (CSPH), a national leader in surgical health services research where we are engaged in research and capacity-building efforts in surgical safety, surgical and trauma systems, and burn injuries.

Projects

University of Global Health Equity

UGHE is a relatively new university with its main campus in northern Rwanda and headquarters in Kigali, Rwanda. Under the inspiring leadership of Agnes Binagwaho, Paul Farmer, and Abebe Bekele it aims to develop healthcare professionals and leaders to build a strong, resilient surgical system that can provide consistent, affordable, high-quality care. PGSSC-UGHE fellows will engage in a broad scope of work including implementing and improving the surgical curriculum for UGHE medical students; serving as a liaison for other PGSSC RAs, fellows, and faculty; engaging in research, innovation, and simulation-based education through the Center for Equity in Global Surgery (CEGS).

The CEGS was formally launched in February 2022. The Center serves as a solution to the imbalance in access to SAO care through the action of five key pillars; fellowship, research and innovation, education and training, policy, advocacy and financing, and global convenings. The CEGS is a natural partner for PGSSC activities and we are just beginning to explore all the synergistic possibilities.

Positions are largely on-site in Rwanda. These positions work closely with Hedt-Gauthier Lab in terms of Rwanda-based research and the TIGER lab in terms of simulation development at UGHE.

Expected Dates: August 2022-July 2025 Skillsets Involved: Grant writing, curriculum design/implementation/assessment, teaching mentoring UGHE students, engaging the broader Rwanda and ECSA surgical community

Collaborators: Abebe Bekele (UGHE), Bethany Hedt-Gauthier (PGSSC), Geoff Anderson (PGSSC)

Non-Technical Skills for Surgery (NOTSS)

Half of surgical deaths and complications stem from errors of nontechnical skills in surgery – situation awareness, decision-making, communication/teamwork, and leadership. The NOTSS framework is an assessment tool for intra-op performance of these cognitive and social skills, which facilitates teaching, learning, assessing, and improving. The NOTSS framework and teaching videos have been contextualized to the Rwandan setting. The next wave of work includes – intra-disciplinary integration of the content, a transformation of the material to a web-based platform to allow for scale and scaling via critical partners – teaching hospital hubs, and colleges in the African continent.

Expected Dates: August 2022-July 2025 Skillsets Involved:

Collaborators: Egide Abahuje (the University of Rwanda / Northwestern Un); Steve Yule (Univ of Edinburgh)

Trauma / Burn System Development in Rwanda

There is a growing coalition, led by the MOH of Rwanda and the University of Rwanda faculty leadership, to support the development of trauma systems, leaders, and research in the country.

Collaborators: American College of Surgeons, UGHE, Univ Michigan, Univ Utah, others

Region/Countries

Rwanda, East/Central/Southern Africa (ECSA)

THE STAB LAB @PGSSC

Systems for Trauma and Blood and Global Surgery

Nakul Raykar, MD, MPH

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About Me

I am the Fellowship Director at the PGSSC and a trauma surgeon at Brigham and Women's Hospital. From 2013-2016, I was a Research Fellow in the PGSSC and had the opportunity to participate in much of The Lancet Commission on Global Surgery. I'm now focused on 'global surgery' after The Lancet Commission on Global Surgery, trauma systems, and novel strategies for blood transfusion in the world's lowest resource areas. The Global Surgery STAB Lab has critical partners in Guatemala, Chile, Kenya, and India. Dr. Nobhojit Roy and Dr. Anita Gadgil from The World Health Organization Collaborating Centre (WHO-CC) for Surgical Care Delivery in LMICs (Mumbai, India) are co-faculty in the lab. PGSSC trainees will engage in a broad range of projects that includes quantitative, qualitative, systematic review, and modeling methodologies. We work with partners ranging from medical students to full professors of surgery in their respective countries. In addition to primary projects, trainees in this team will have plenty of opportunities (and are encouraged) to support manuscript development and writing by our global partners.

Projects

Novel Strategies for Blood Transfusion in Low Resource Settings – Kenya and India

There is a massive shortage of blood available for transfusion in the world's poorest settings. You cannot build a surgical system if you do not have blood! In 2021, GS STAB Lab received a \$100,000 grant from the Stepping Strong Foundation to study the feasibility of implementing a military innovation, walking blood banks, in a low-resource, civilian context. In 2023-2024, we will advance collaborations and launch studies advancing intraoperative autotransfusion and drone delivery for blood and qualitative studies surveying directors of transfusion medicine in LMICs on perspectives to improve the system. Learn more: surveying directors of transfusion medicine in LMICs on perspectives to improve the system.

Learn more: <https://steppingstrong.bwh.harvard.edu/stepping-strong-innovator-nakul-raykar-md/> and <https://www.radcliffe.harvard.edu/opportunities-for-researchers/2023-exploratory-seminars/innovative-blood-transfusion-strategies-for-blood-deserts-in-low-and-middle-income-countries>

Connecting the Global Surgery Frontline with Communities-of-Practice - *New for 2023*

Collaborating with partners at the World Health Organization Geneva and The George Institute India, and using a grant from private philanthropy, we are creating a platform for professional development, clinical support, research collaboration, and advocacy and policy generation connecting rural, frontline practitioners of surgery, anesthesia, obstetrics, and trauma. Initial hubs are being established in South Asia, Africa, and South America.

Ideal Skillsets: Organization and operations, implementation science research, writing for advocacy

Strengthening Trauma Systems

Trauma Systems Comparison Project How does a trauma patient fare based on where they present to a hospital in the world? By comparing patient outcomes, we can learn which aspects of trauma systems contribute the most toward high-quality outcomes. We work extensively with one of the few multicenter trauma registries in an LMIC (TITCO Dataset, India), a high-quality registry in Guatemala, and a HIC with a developing trauma system in Chile. You will have the opportunity to practice quantitative analysis skills.

CrashSavers Trauma / Hemorrhage Control Simulator

Bleeding is the number one preventable cause of death in trauma! How can we minimize bleeding after trauma and before a patient gets to the hospital? Part of an MIT Solve/Nesta/Intuitive \$750,000 grant to develop a low-cost hemorrhage control simulation for Guatemala pre-hospital providers. We are teaching packing, pressure application, tourniquets, and foley catheters. Learn more: <https://globalsurgicaltraining.challenges.org/crashesavers>

Region/Countries

India, Kenya, Guatemala, Chile

THE TIGER LAB @PGSSC

Trauma, Implementation science, Global surgery, and Equity Research



Dr. Geoffry Anderson, MD, MPH

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About Me

I have several roles within the Harvard system including a trauma surgeon at Brigham & Women's Hospital (BWH) where I am actively clinically performing trauma surgery, and emergency general surgery and work as an intensivist in the surgical and cardiac surgical ICUs. I also work nights at the Massachusetts General Hospital. Core faculty at the Program in Global Surgery and Social Change (PGSSC) where I serve as the associate fellowship director. Faculty at the Center for Surgery and Public Health (CSPH) and Associate program director for research for the general surgery residency at BWH.

At the PGSSC I am the director of TIGER lab. At TIGER lab we have several USA-based projects that focus on addressing the social determinants of health as they relate to people who have experienced traumatic injuries. We want to understand how trauma is experienced differently by the most vulnerable in American society so that we can study and advocate for ways to improve their long-term outcomes. The global surgery work of TIGER lab occurs in Rwanda and is based at the University of Global Health Equity (UGHE) and in Ukraine. The UGHE has recently launched the Center for Equity in Global Surgery (CEGS) where I serve as faculty. The Rwandan projects are growing and currently focus on surgical education, simulation, and capacity development. In Ukraine, we are helping to teach Advanced Trauma Life Support (ATLS) to physicians on the front lines in cities across the country.

PGSSC fellows and RA's will get the chance to work on a variety of projects and utilize a whole host of methodologies including education research, modeling with the help of large databases, policy development, writing editorials, systematic reviews, and manuscript and grant writing. There are no location requirements but trainees are typically based in Boston or Rwanda.

Projects

Health system strengthening as seen during COVID Scoping Review

A systematic review of articles that describe how surgical and anesthesia staff/stuff/systems were used to assist with the COVID response. This will help to make the argument that a strong surgical system results in a robust healthcare system.

Expected dates: June 2021 – June 2023

Skill sets involved: systematic reviews

Simulation Lab Models

We are creating low-cost, local simulation models for UGHE in Rwanda. These models include those used for breast biopsies, chest tube placements, pericardiocentesis, and primary trauma survey/ATLS interventions. These models are currently focused on Rwandan medical students with plans to expand to residents and make UGHE a regional simulation hub.

Expected dates: June 2021 – April 2025

Skill sets involved: surgical education, simulation, materials science

Collaborators: UGHE sim lab, STRATUS lab

STARTLE

We have developed a cadaver-based trauma course for low-resource settings. We have taught this course in Uganda and Haiti and now are working on bringing the course to Rwanda.

Expected dates: Jul – Sept 2023 (first course, then annually)

Skill sets involved: surgical simulation, operative trauma skills, education

Collaborators: UGHE, University of Rwanda

GSW and SDH systematic review

We are performing a systematic review of all papers that examine the social determinants of health-related firearm injuries. We hope to summarize what is known about this topic and highlight areas that have been neglected and need further research.

Expected dates: Jan 2022 – Jan 2024

Skill sets involved: Systematic reviews

Non-English-Speaking Trauma Survivor (NEST) Pathway

We have created a batch of 5 interventions to improve the post-discharge course for Spanish-speaking trauma survivors from MGH and BWH. 1. Routine screening for social determinants of health and risk for mental health symptoms. 2. Patient education materials. 3. Map of locally available resources. 4. Hired a community health worker. 5. Purchased a medical translation app for patients.

Expected dates: June 2021 – Jan 2025

Skill sets involved: Spanish language, quality improvement,

Collaborators: Trauma and psychiatry at MGH and BWH, CSPH

Financial toxicity for victims of trauma

We are interviewing all patients discharged from MGH, BWH, and BMC at 6 and 12 months after their trauma to ask a variety of questions about the financial hardships that have happened since their trauma. We hope to show that trauma is a chronic disease with real financial complications that are long-lasting for patients. We plan to use the data to develop a screening tool that can be used at the time of discharge to identify patients who are at high risk of financial complications. We are also linking financial toxicity to poor long-term outcomes in other domains of health. Ultimately, we will use this information to plan interventions like temporary income replacement and changes to insurance policies to help improve the lives of our trauma survivors.

Expected dates: Jan 2022 – Jan 2025

Skill sets involved: quantitative analysis, medical insurance and financing, financial toxicity

Collaborators: FORTE at BWH, BMC, MGH

FORTE

Functional Outcomes and Recovery after Trauma Emergencies. We interview all patients discharged from MGH, BWH, and BMC at 6 and 12 months after their trauma and ask about all their domains of health – physical, mental, financial, social, etc. These data are helping us to understand trauma as more of a chronic disease. We use patient-reported outcome measures (PROMs) to understand what is really important from the patient's perspective. These data will be used to design interventions to improve long-term trauma outcomes.

Expected dates: Jan 2018 – Jan 2026

Skill sets: Phone interviews, quantitative analysis, large database

Collaborators: BWH, MGH, BMC, CSPH

Trauma Quality of Life Clinic

We are designing a multi-disciplinary clinic for our trauma survivors so that they can get multiple services in 1 place (mental health, physical therapy, social work, violence recovery, case management/financial services, etc). We hope that this clinic can improve the long-term outcomes for our trauma survivors.

Violence Recovery Programs and Long-Term Patient-Reported Outcomes

We are comparing the long-term, patient-reported, outcomes of survivors of violent trauma. We are comparing patients who were enrolled in a violence recovery program vs those who were not. We hope to show the value of these programs so that we can advocate for their expansion.

Expected dates: Jan 2022 – Jan 2024

Skill sets involved: Trauma-informed care, patient-reported outcomes, quantitative analysis

Collaborators: VRP programs at BWH, MGH

Safer in School

We are examining the time of day and location of pediatric patients with firearm injuries. We are comparing children who were shot in school vs outside of school. The goal is to point out that school shooting accounts for a small fraction of pediatric firearm injuries.

Expected dates: June 2021 – June 2023

Skill sets involved: Quantitative analysis, large database research

Collaborators: MGH Firearm Prevention Center

Social Vulnerability Index and Trauma Center Access

We are mapping at level 1&2 trauma centers in the USA and using geospatial mapping to show how far people from different levels of social vulnerability live from trauma centers. We are doing this for adult and for pediatric trauma centers. We hope to discover gaps in access so that we can help states plan for improved systems of transfer.

Expected dates: June 2021 – Dec 2023

Skill sets involved: quantitative analysis, geospatial mapping, large database research

Collaborators: CSPH, MGH Firearm Prevention Center.

Region/Countries

USA, Rwanda, Ukraine

THE AGASEKE LAB @PGSSC

Advancing Global Access to Surgery through Education, Knowledge and Equity

Dr. Bethany Hedt-Gauthier

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About Me

I am a biostatistician and health systems researcher, leading a series of projects with the goal of improving access to high-quality surgical care in rural district hospitals. This research is implemented in close partnership with Partners In Health/Rwanda along with colleagues at the Ministry of Health. Historically, this work has been focused on cesarean sections, but the portfolio will be broadly interesting to those wanting to gain experience in health systems research. My teams focus as much on the process of research as the products. We have adopted strategies to ensure that all collaborators are engaged, that everyone has the opportunity for professional growth, and that the focus is on priorities as identified by the project sites.

Projects

mHealth tools for community health worker-led postop follow-up

We are designing tools for CHWs to use to lead follow-up. Next year, we will continue with tool development/evaluation and prepare for a prospective follow-up in 2023/2024.

Expected Dates: August 2022-July 2024

Ideal Skillsets: Strong writing, qualitative research

Establishing a district-hospital-based surgical center of excellence

Partners In Health/Rwanda has recently designated Rwinkwavu District Hospital as a surgical center of excellence. The next few years of this project will be establishing protocols, integrating systems, and leading baseline and early evaluations of the program. This includes implementing the Safe Surgery Organizational Readiness Tool (SSORT).

Expected Dates: September 2022-ongoing

Ideal Skillsets: Protocol development, operational research

Image-based diagnostics for surgical site infections

We are exploring a set of strategies using images to support SSI diagnoses, including human and machine learning processing of images. Expected Dates: Ongoing Ideal Skillsets: Machine learning, data science Open positions: one RA or RF, with a background in AI, machine learning, etc. PGSSC Research Equity Assessments (under the Research Pillar, together with Adeline Boatin) As part of the strategic plan, the PGSSC Research Pillar will lead a review of our research to date – looking at the impact of this work and the equity in engagement with collaborators.

Expected Dates: Ongoing

Ideal Skillsets: Strong organization and writing skills

Region/Countries

Sub-Saharan Africa, primarily Rwanda.

THE JURAN & URIBE-LEITZ LAB @PGSSC

Dr. Tarsicio Uribe-Leitz & Dr. Sabrina Juran

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About Us

Dr. Uribe

I am a Senior Staff Scientist in the Department of Plastic Surgery, at Boston Children's Hospital, an Instructor in Surgery at Harvard Medical School, and affiliate Faculty at the Program in Global Surgery and Social Change, Department of Global Health and Social Medicine. My research interests are in global surgery, surgical epidemiology, and trauma systems particularly as it pertains to data analysis, advocacy, and the use of geographic information systems to visualize surgical relationships and improve access to quality surgical care for underserved populations.

Dr. Juran

I am a development sociologist, Regional Technical Advisor for Population and Development at the Office for Latin America and the Caribbean of the United Nations Population Fund (UNFPA), and Lecturer on Global Health and Social Medicine at the PGSSC. My research interest lies in building systems to reduce inequalities in access to health care, with a particular focus on diseases amenable to surgery aimed at identifying geographical and socioeconomic health inequalities at a regional, national, and subnational level by systematically studying aspects of vulnerabilities and resilience.

Projects

Support the development of National Surgical, Obstetric, and Anesthesia Plans (NSOAPs)

- Partner with the Ecuadorian Vice Presidency and Ministry of Public Health
- Call to action for diverse stakeholders to invest in surgical capacity building
- Develop regional and national innovative solutions and funding strategies for surgical system strengthening

Strengthen Research Capacity (Mexico and beyond in Latin America)

- Fostering and developing research and academic partnerships
- Collaborate with researchers at Anahuac University on national database analyses
- Partner with Compañeros en Salud (Partners in Health) to assess referral systems, barriers to care, Lancet Indicators, and results of a comprehensive household survey
- Provide mentorship and support for research projects, including idea formation, study design, and beyond

Improve evidence on access to timely, effective surgical care with a specific focus on access in the setting of climate change and natural disasters (Latin America)

- Generation of geographic data layer of health center locations across Latin America
- Quantitative, qualitative, and geospatial analyses of access to surgical care

Assessment of the Lancet Commission on Global Surgery Indicators (Latin America, United States, Germany)

Fellow and RA needs: One full-time Fellow, RC, and potential for additional part-time Fellow/RA collaboration. Functional Spanish-speaking ability is ideal.

Region/Countries

Latin America, United States, Germany

THE KEE PARK LAB

@PGSSC

Dr. Kee Park

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About Me

Hi! I am a neurosurgeon and the Director of Policy and Advocacy at the PGSSC. My projects are focused on global surgery policy & advocacy and global neurosurgery.

Projects

Global Surgery Policy and Advocacy

- Advocate for and support global and regional NSOAP development process. Mostly webinars & events.
- Country-level support in Fiji, Tonga, Vanuatu, Cook Islands, Palau, & Nepal including analysis of stakeholder interviews.
- Support the WHO Western Pacific Regional Office with the implementation of the regional action framework for safe and affordable surgery.
- Drive political commitment for surgical care in ASEAN.
- Prioritization of surgical care in PAHO.
- Advise Ecuador with surgical system strengthening and reducing the backlog of surgical cases.
- Innovative financing for or supporting global surgery. Exploring investable aspects of surgical system strengthening.
- Advocating for funds for surgical system strengthening to the US government/support countries with project proposals.
- Global Surgery Diplomacy Collaborative - coordinated advocacy efforts toward major global funders and policymakers of global health.
- Development of a consolidated framework for surgical system strengthening at district health systems.
- Surgical care is an essential component of PHC/UHC.
- Development of surgical training modules for the WHO.

Global Neurosurgery

- Support the editorial team of the Journal of Global Neurosurgery including the GNS research award.
- Support the Global Neurosurgery Committee of the World Federation of Neurosurgical Societies in implementing the global action plan.
- Global neurosurgical workforce mapping project.
- WFNS equipment program survey.
- Consensus statement on NS task shifting/sharing.
- OOP expense and FRP for neurosurgical procedures.
- Barriers to training in neurosurgery in LMICs.

GLOBAL REPRODUCTIVE SURGERY (BOATIN) LAB @PGSSC



Adeline A. Boatin MD, MPH
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About Me

I am an obstetrician-gynecologist at Massachusetts General Hospital focused on implementing innovative strategies to improve reproductive health outcomes in resource-limited settings. Currently, my work focuses on improving the quality of care around obstetric surgery, particularly cesarean delivery. Much of my work is based in Uganda and Ghana where I work in collaboration with Dr. Joseph Ngonzi, Dr. Henry Lugobe (Uganda), and Dr. Kwame Bonsaffoh (Ghana) as well as several other junior Faculty and OB/GYN residents in both countries. PGSSC trainees joining this team will support a range of primary clinical research embedded in quality improvement using implementation science methods, in addition to supportive secondary research methods involving systematic reviews, geospatial mapping, and healthy system mapping.

Projects

Wireless Vital Sign Monitoring for improving Peri-operative Care

This project aims to use a simple wireless vital sign monitor to improve the detection of complications immediately after cesarean delivery and allow clinicians to provide life-saving interventions when needed. This study uses a hybrid effectiveness-implementation design to assess the clinical impact of wireless monitoring and clinician adoption and integration into clinical systems. Data collection for this project is complete. There is currently a large database (>6 million observations on >1000 women) with data analysis and manuscript writing opportunities.

Skillsets Involved: Qualitative methods, quantitative data analysis, Stata or R (statistical packages) grant writing, manuscript writing.

Collaborators: Dr. Ngonzi, Mbarara University of Science and Technology, Uganda

CRADLING Study (Uganda and Ghana)

Optimizing cesarean delivery rates is a critical element of safe motherhood. This research uses a mix of methods – secondary analysis of DHIS2 data, survey, geospatial mapping, and qualitative and primary quantitative data collection at facilities across Uganda and Ghana to understand cesarean delivery usage, rate variation, and quality of care metrics around cesarean delivery in these two countries.

Expected dates: Ongoing – 2023

Skillsets involved: Survey methods, database building/cleaning, qualitative methods, geospatial mapping, quantitative analysis, Stata or R (statistical packages)

Collaborators: Dr. Henry Lugobe (Mbarara University of Science and Technology, Uganda) & Dr. Kwame Bonsaffoh (the University of Ghana Medical School, Ghana)

TUSA Study: Timeliness and Use of Safe and Appropriate Cesarean Section

In much of sub-Saharan Africa (SSA), most cesareans are done as emergencies. This timing increases the risks of complications including stillbirth, uterine rupture, iatrogenic surgical injury, and possible maternal death. This project is centered in a quality improvement initiative to interrupt the emergency cesarean cycle and create a platform for scheduled timely CS targeting women with an appropriate pre-labor indication for cesarean delivery. The project is currently centered around initiating this program at the Mbarara Regional Referral Hospital (MRRH) with plans to extend this to a district-level intervention.

Expected dates: Pilot Study planned for 2022-2021

Collaborators: Dr. Lugobe and others (Mbarara University of Science and Technology, Uganda)

Surgical Management for Postpartum Hemorrhage

This project aims to gather empirical data on the frequency of surgical intervention, the magnitude of blood product use, and human resource needs for managing postpartum hemorrhage. Data will be sourced from the MassGeneral Brigham system with the goal of ultimately using this empiric

data to inform and advocate for surgical system development to manage PPH in resource-limited settings.

Region/Countries

Uganda, Ghana

The SCOTT CORLEW LAB

@PGSSC

Dr. Scott Corlew
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About Me

I am a surgeon, trained in general surgery and plastic surgery. My background includes several years as Chief Medical Officer for Resurge International and a brief stint in hospital administration in addition to years in private practice. I direct the PGSSC SADC team as well as a few other projects as described. I have done some work in economic modeling (a field that always needs improvement!) and in workforce assessment. I also am always open to any good ideas that anyone has that might answer questions that could further the provision of surgical care in LMICs.

Projects

Team SADC

The Southern African Development Community is comprised of 16 member states and works within itself on a number of initiatives. As PGSSC Team SADC, we also work elsewhere, most prominently with the Global Surgery Foundation, and have some other projects as well. The biggest needs will be in SADC.

SADC

- University of Cape Town (UCT) – We work with the Global Surgery division of the University of Cape Town, headed by Dr. Salome Maswime and including Drs. Graham Fieggen, Rowan Duys, and others. We are currently working on a surgical workforce project involving two small hospitals in southeastern SA. We also work with them on an outstanding course in global surgery aimed at health executives that takes place from January to June, with one week in which the participants are in-person at UCT.
- Zambia is still working to assess its NSOAP, and we have been the main driving force behind moving that forward. The country also requires help in developing the new NSOAP - Zambia's current NSOAP was 2017-2021, and the country is still developing the new version, planning on revising as indicated from the first five-year plan. Dr. Makasa now (finally) has two Fellows there at UTH in Lusaka to help with all of this, which will enable our Fellows to be more productive at a higher level in that environment. Ideally one of our Fellows will spend at least three months onsite there.
- Zimbabwe is close to getting their NSOAP to the implementation phase, and I think we could be instrumental there. Must admit they have moved along reasonably well so far without us, but based on their use of our tools from the NSOAP Manual, and website, and work on other NSOAPs in the region we could have been and still could be helpful.
- Namibia is not as far along as Zimbabwe, and we have been quite helpful so far in working with the Ministry team that is spearheading this initiative. This will need to continue.
- The Technical Experts Working Group (TEWG) of SADC, headed by Prof. Emmanuel Makasa, is a key entity, as it brings together representatives from all 16 countries. It currently is suffering a bit from lack of input, as we have been stretched and Makasa has been stretched. With our help, this can (and definitely needs to be, if the rest of SADC is to continue to make progress toward appropriate surgical care) be expanded and continue to be a springboard for ongoing surgical development work in other SADC countries.
- As part of the TEWG work, we work with Prof. Makasa to develop the key documents required for the SADC Secretariat prior to the annual fall mtg of the SADC Ministers. It is hoped that at least 1-2 of us will be able to attend that mtg this year.

- Wits – we work largely with Prof. Makasa on a number of things and could take on more with the bandwidth to do so. Most recently we have developed a tool to assist a committee on which he sits (with Drs. Roy, Abebe Bekele, and others) to drive the member state reporting on Resolution 68.15 at this year's WHA.
- The Barriers to the NSOAP development project (Rashi Jhunjunwala originated this project) continue to move forward but will continue to require some work to wrap up what is being learned. It also lends itself to the ongoing investigation of these barriers, and perhaps could be replicated to include another region or countries in the next phase.
- A Pandemic Preparedness project (Manon Pigeolet originated this project, and it is now overseen by Kate Obayagbona) continues, although I think will be wrapped up by summer (we will see).
- DRC has assembled a trove of data that is the beginnings of NSOAP development and has an energetic and pleasant local champion on this. We are currently analyzing those data, and this project will likely continue and evolve over the next couple of years.
- We continue to be available and I think instrumental in SADC representation to WHO, facilitated by Prof Makasa. This generates episodes of work periodically, and I think our doing this helps the region as well as our credibility there. It seems to fall into the realm of our Collaborating Center TOR.

GSF:

- We have a close relationship with UNITAR and the Global Surgery Foundation. Both are headed by Dr. Geoff Ibbotson, a general surgeon from Canada who spent a number of years working in Nepal before taking this position in Geneva. Three of our Fellows are spending time onsite in Geneva this year. There are always a variety of opportunities in this relationship.
- We are currently focused on working with MoHs in Rwanda and Zambia to increase the care of cervical cancer as a focal point for expanding the implementation of the NSOAPs.
- There also is an ongoing effort to help Nepal with their NSOAP, working with the MoHP and the Nick Simons Foundation. GSF has been a key player in this. That is essentially suspended right now, as we do not have the bandwidth to move it forward and the Nepalese drivers of this do not either. It was ready to be assembled several months ago with the right person (realistically from our side) to drive it but fell victim to the Covid pandemic; now it will require a bit of resurrecting. The Nepalese are and have been quite willing and eager, but do lack resources.

THE CRAIG MCCLAIN LAB

@PGSSC Global anesthesia

Craig D. McClain, MD, MPH
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About Me

I am a pediatric anesthesiologist practicing at Boston Children's Hospital. In addition to being Co-Director of the Pediatric Neuroanesthesia Service at BCH, I am faculty at the Program in Global Surgery and Social Change at Harvard Medical School. My work through PGSSC has focused on a variety of aspects of improving the delivery of anesthesia and perioperative care to vulnerable populations throughout LMICs. In partnership with Dr. Nandakumar Menon (Gudalur, Tamil Nadu, India) and the Association of Rural Surgeons in India we have looked at developing novel and attainable solutions to the anesthesia workforce crisis in rural India. Additionally, we are in the early stages of defining and exploring anesthesia workforce issues in rural Mexico in Chiapas in partnership with Compañeros en Salud. We work very closely with Dr. Nakul Raykar of the PGSSC (please see the Raykar Lab page). Finally, our group partners with the Center for Surgery and Public Health at Brigham and Women's Hospital to explore the intersection of global surgery and anesthesia and the existential threat of climate change.

PGSSC trainees working with our group may be involved with several different projects exploring the role of anesthesia services in surgical systems. These projects involve defining and exploring issues around access to safe anesthesia, looking at anesthesia workforce issues in LMICs, and policy and advocacy efforts toward promoting safe surgery and anesthesia (e.g anesthesia and NSOAPs). Climate change projects involve looking at the intersection of surgical and anesthesia services and climate change. Projects involve both mitigation strategies as well as defining the influence of climate change on the outcomes of surgical patients. The Global Anesthesia (as well as Climate Change) group is committed to decolonizing global health and all that implies. As such, we will follow the PGSSC recommendation around authorship on publications involving this group. Specifically, this will involve every effort to not simply include partners as authors, but involve them in first and senior author roles.

Projects

Scaling Spinal Anesthesia Training of Medical Officers in Rural India

We recently completed a randomized controlled trial in Southern India demonstrating the non-inferiority of medical officers in the delivery of spinal anesthesia after the completion of a three-phase training program. Based on these results, we are partnering with ARSI and Martin Luther Christian College to scale the program. We will need to continue to assess the impact and effectiveness of this program as more medical officers are trained and begin to utilize their new skills in rural India to improve the availability of safe anesthesia and improve access to life-saving surgical care.

Expected involvement will be from July 2021-June 2023.

Quality of Anesthetic Care

Assessments of the quality of anesthetic care are challenging in HICs. In LMICs, there has been a focus on simply providing access. We believe that an important aspect of access should be the safety and quality of anesthetic care. In 2020, our group published a paper in *Anaesthesia* that made consensus recommendations using a modified Delphi approach around the provision of quality anesthesia services in LMICs. Ongoing evaluation and exploration of how LMICs can achieve not only improved access to anesthesia but also improve quality is an important part of achieving healthcare equity and universal healthcare.

The Intersection of Surgical Systems and Climate Change

The Climate in Obstetric, Anesthesia, and Surgical Team (COAST) is a partnership with CSPH. We have projects exploring climate change mitigation strategies in global surgery, obstetrics, and anesthesia. Additionally, we are currently performing several systematic reviews that will examine the influence of climate change on the outcomes of surgical patients as well as how NSOAP planning and implementation should take climate change concerns into consideration. Expected involvement will be ongoing.

Region/Countries

India, Mexico, Western Pacific

THE OPPORTUNITY THROUGH SURGERY (RANGANATHAN) LAB @PGSSC

Kavitha Ranganathan, MD
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About Me

I am a plastic surgeon at Brigham and Women's Hospital with a focus on craniofacial surgery. My clinical practice focuses on trauma and oncologic reconstruction as well as gender-affirming surgery. My research focuses on 1. Prevention and treatment of poverty as it relates to healthcare, 2. Advocating for equitable care distribution, and 3. Building academic leaders in global surgery.

I collaborate with multiple hospitals in India including the All India Institute of Medical Sciences in New Delhi, Ganga Hospital in Coimbatore, and Saveetha Medical College in Tamil Nadu. The ultimate goal of our lab is to use surgery as a time point around which to improve patients' social determinants of health to optimize long-term health and well-being even after discharge.

Projects

Prevention and Treatment of Poverty due to Healthcare Costs:

Defining the Burden of Surgical Expenditures due to Trauma: Unintended Costs and Consequences (Multiple Projects Ongoing) 150 million people devote more than 40% of non-food spending to healthcare. Over 30% of surgical patients incur catastrophic expenditures due to surgery. The impact of these expenses on social determinants of health including food scarcity, education, employment, and financial security is poorly understood. The goal of the current study is to define the burden of catastrophic expenditures on trauma patients and quantify the impact on clinical outcomes and social determinants of health locally and internationally. This work involves partnerships in Boston, MA, USA. International partners are established in New Delhi, Coimbatore; Tamil Nadu, India, and the Global Surgery Foundation (UNITAR), Geneva, Switzerland.

Expected Dates: August 2022-July 2024

Skillsets Involved: Quantitative and qualitative study methodologies, data collection, data analysis, manuscript preparation, implementation science, grant writing

Collaborators: Dr. Maneesh Singhal, MBBS; Dr. Sabapathy, MBBS; Dr. Praveen Ganesh, MBBS; Dr. Geoff Ibbotson, MD, MSc

Advocating for Equitable Care Distribution:

Highlighting the needs and challenges that affect marginalized patient populations while seeking, receiving, and administering surgical care (Multiple Projects Ongoing) Numerous disparities exist in healthcare. We hope to highlight the challenges that exist for marginalized groups of people in this project at every level- from the teams providing care to the patients receiving it. We use data-driven methods to examine the state of transgender health in the United States, gender disparities in academic surgery, and disparities based on race and sociodemographic data.

Expected Dates: August 2022-July 2024

Skillsets Involved: General research methods of quantitative and qualitative analysis, large database analyses, systematic review, and meta-analysis expertise

Collaborators: Center for Surgery and Public Health

Building Academic Leaders in Global Surgery Academic Global Surgery:

Paradox or Possibility? There are unique challenges associated with integrating global surgery into academic practice. The goal of the current series of projects is to educate trainees on the approach to a sustainable academic career in global surgery with a focus on mentorship and career advancement.

Expected Dates: August 2022-July 2024

Ideal Skillsets: Willingness to learn

Collaborators: Dr. Ranganathan, MD

Region/Countries

India, USA, Switzerland

THE AFSHAR LAB @PGSSC

Responsible Innovation, Responsible Investing, & Global Surgery

Dr. Salim Afshar

Salim.afshar@childrens.harvard.edu



About Me

Hi! I am a pediatric head and neck surgeon with a passion for solving technical problems at scale. I have an engineering and design background and have deep experience in starting companies and raising capital. In 2014 I returned to Harvard and joined PGSSC. Since then, I have worked in Zambia and India, and also have been mentoring teams around innovation through the IDHA and Harvard I-Lab. Recently, I have focused on mentoring and helping healthcare companies grow through my role as an advisor and venture capitalist with W Health Ventures. My investment and mentoring focus is both for startups forming in the US and internationally. I am particularly passionate about the role of innovation to increase access and care, and as such, my projects are focused on the intersection of global surgery and innovation, the ethical dangers of technology deployment, and how to help develop and raise local capacity to solve the material and system needs of the healthcare system.

Projects

Global Surgery Policy and Advocacy

- Advocate for and support global and regional NSOAP development process and in particular, how to develop strategic frameworks for technology implementation.
- Innovative financing for supporting innovations in global surgery.
- Supporting technology and investing policy and advocacy work through my role as a member of the UN Healthcare Innovation Exchange

Global OMS / Head and Neck Pathology

- Increasing the presence of head and neck surgeons in discussing and contributing to health systems strengthening.
- Supporting education and discourse activities around the vascular anomaly, the Vascular Anomalies Severity Score VASS & ISSVA.
- Global OMS workforce mapping project (ongoing).

Innovation and Funding

- Increasing the dialogue regarding the role of venture capitalists to help address the global health and surgical challenges that exist through supporting, mentoring, and accompanying local innovators.
- Supporting the activities of the International Congress for Innovation in Global Surgery.
- Supporting the social discourse regarding ethical and responsible innovation, investing, and management as well as the importance of increasing diversity, equity and inclusion.

THE SRIME LAB @PGSSC

Patient choice Financial risk protection Impact evaluation

DR. Mark Shrime

shrime@mail.harvard.edu



About Me

I am a decision analyst and a head and neck surgical oncologist. I serve as the International Chief Medical Officer for Mercy Ships. I direct a global project at PGSSC to understand the financial burden that surgical disease has on patients worldwide, as well as individual projects to assess the patient-centered impact of specialty surgical care. I have a specific interest in assessing the complex interactions between health, equity, and impoverishment; in determining what works and what doesn't in global surgery; and in understanding how patients make decisions for or against having surgery. Students and fellows in my lab will also serve as members of the Mercy Ships institutional review board if they so desire

Projects

Global assessment of the cost of surgical care

Project Description: Design and validate a survey to measure the financial impact of surgical care, and then roll that survey out globally

Expected Dates: Ongoing

Expected Skillsets: Quantitative analysis, survey methods, and consortium building

Patient-centered health, financial, equity, and shame-based outcomes of surgical and orthopedic care

Project Description: Working with an international surgical NGO to determine outcomes for patients receiving orthopedic care at hospitals across sub-Saharan Africa

Expected Dates: Ongoing

Expected Skillsets: Quantitative analysis

Cost-effectiveness of high-flow oxygen delivery in Rwanda, Kenya, and Malawi

Project Description: My lab is the cost-effectiveness consultant for the BREATHE trial of high-flow oxygen at hospitals in three sub-Saharan African countries, led by Dr. Beth Riviello

Expected Dates: Ongoing

Expected Skillsets: Data design

Region/Countries

Global, Sub-Saharan Africa

THE BRAZIL LAB @PGSSC

Global pediatric surgery, trauma care, and gender equity in Brazilian SAO specialties

Dr. David Mooney

david.mooney@childrens.harvard.edu



About Me

Hi! I am a pediatric surgeon at Boston Children's Hospital. I obtained my medical degree from St. Louis University School of Medicine and completed a general surgical residency at the University of Vermont, where I completed a research fellowship in surgical immunology. Then I trained in pediatric surgery at the Children's Mercy Hospital in Kansas City, Missouri. I am currently the Director of the Trauma Center at Boston Children's Hospital and am very interested in global pediatric and trauma care.

Projects

Brazilian SAO density longitudinal analysis:

Project Description: This project evaluates changes in SAO density and surgical trainees longitudinally in Brazil.

Expected Skill Sets: Statistical analysis, public health policy, surgical indicator knowledge

Developing Pediatric Trauma Simulation Tools

Project Description: This project is led by Dr. Fabio Botehlo, he is working on developing partnerships that will allow him to create a virtual app that will teach Brazilian surgeons pediatric trauma protocols

Expected Dates: June 2023

Expected Skill Sets: Grant Applications

Impact of COVID-19 on Surgical Training in Brazil

Project Description: This project is a survey that will explore how COVID-19 affected surgical training in Brazil

Expected Skill Sets: Statistical Analysis, Survey Design, Mentorship in Manuscript Drafting

Region/Countries

South America, Latin America, United States

THE JOSEPH LAB

@PGSSC

Michelle Joseph, MBBS, BSC, MSC, Ph.D., FRCS
michelle_joseph@hms.harvard.edu



About Me

Orthopedic trauma surgeon, interested in ortho-plastics and limb salvage.

Research Area:

Trauma Systems - Civ-Mil - Engagement - Health Equity

Learning Opportunities:

- Research Methodologies: Quantitative Analysis, Qualitative Analysis Scoping Review, Delphi Technique, Abstracts & Presentations Manuscript preparation, Project Management Grant Writing, Mixed-Methods, Scoping Review, Framework Development.

Projects

PROTHA STUDY I Quality Improvement & Implementation

Project Trauma Haiti - Multifacility pilot of a complex intervention package: Triage, Primary Trauma Care, WHO Trauma Registry, and Morbidity & Mortality meetings. Three-phase study: pre-implementation, implementation, and post-implementation. GIS mapping trauma patients.

Collaborators: ASHAC, CT, SHAMUC, FMPUEH, MSPP, NAAHPUSA, Loma Linda University

Dates: Present – 2024

IMPACT STUDY I Feasibility & Framework Development

The Integrated Military Partnerships and Civilian Trauma systems study is an innovative project that aims to first, understand the function and capabilities of military trauma systems through the dissemination of a multinational survey to the six WHO regions, assessing the level of integration that may exist with civilian trauma systems, the survey has been designed by the multi-collaborative study group and the RB is pending. This data will provide evidence for the feasibility of developing a framework to guide integration at the policy level.

Collaborators: Uniformed Services University/Walter Reed: King's College London, Royal Medical Services of the Jordanian Armed Forces, Army Hospital Colombo, Peruvian Navy Asian Collaboration for Trauma.

Dates: present - November 2023

ANTI-RACISM WG I Anti-racism statement

Civic engagement and advocacy targets are the priorities of the ARWG. Joining this team will require committing to achieving the targets.

Team: Senior Fellows, Bethany Hedt-Gauthier, Robert Riviello

Date: July 2021 - July 2023

TRAUMA & INJURY WG

Following the success of our Road Traffic Injuries Webinar, we will launch a series. Next three topics: Mental Health & Trauma; Youth & Trauma; Gun violence. Tasks of the team include concept note design. Multimedia dissemination and use. Opportunities for active participation and leading social media sessions.

Date: July 2021 - July 2023

Region/Countries

Global, Haiti, Mexico