



**DR. GEOFFREY ANDERSON, MD,  
MPH**

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, emergency general surgery and work as an intensivist in the surgical and cardiac surgical ICU's.
- 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)
- 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 the 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 studies and advocate for ways to improve this experience. The global surgery work of TIGER lab is focused on Rwanda and based at the

# Trauma, Implementation science, Global surgery, and Equity Research **(TIGER)** Lab @ PGSSC

## **PROJECTS**

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### **GDP and LCoGS Indicators**

We are examining the relationship between various national-level economic metrics and how well a country performs on the LCoGS indicators. We hope the data we generate will inform budgetary decisions by nations for National surgical, obstetric, and anesthesia Plans (NSOAPs).

Expected dates: June 2021 – Dec 2022

Skill sets involved: macroeconomics, quantitative analysis

Collaborators: Mark Shrime, Louis Nguyen

### **Health system strengthening as seen during COVID Scoping Review**

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

Expected dates: June 2021 – Dec 2022

Skill sets involved: systematic reviews

Collaborators: PGSSC

### **Simulation Lab Models**

We are creating low-cost, locally simulation models for UGHE in Rwanda. These models include those used for breast biopsies, chest tube placements, pericardiocentesis, 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 2023

Skill sets involved: surgical education, simulation, materials science

Collaborators: UGHE sim lab, STRATUS lab

### **GSW and SDH systematic review**

We are performing a systematic review of all papers that examine the social determinants of health related to 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

Collaborators: PGSSC, CSPH

University of Global Health Equity (UGHE). 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.

PGSSC fellows and RA's will get the chance to work on a variety of projects and utilizing a whole host of methodologies including education research, modeling with the help of large databases, policy development, writing editorials, systematic reviews, manuscript and grant writing. Their location requirements but trainees are typically based in Boston or Rwanda (with allowances made for COVID restrictions).

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**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 screen 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 medical translation app for patients.

Expected dates: June 2021 – Jan 2024

Skill sets involved: Spanish language, quality improvement,

Collaborators: Trauma and psychiatry at MGH and BWH, CSPH

**Financial complications 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 this information to help advocate for changes to policy around insurance, trauma care, services and reimbursement.

Expected dates: Jan 2022 – Jan 2025

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

Collaborators: FORTE at BWH, BMC, MGH

**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 2023

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

Collaborators: VRP programs at BWH, MGH

**Post ICU syndrome and Long-Term Outcomes**

We are describing the long-term mental health and functional outcomes of trauma survivors who were in the ICU.

Expected dates: June 2021 – Dec 2022

Skill sets involved: quantitative analysis

Collaborators: FORTE, psychiatry at BWH

**Social Vulnerability Index and Gun Violence**

We are comparing the outcomes after firearm injuries for patients who live in neighborhoods with different social vulnerability. We hope to show that outcomes once a patient reaches a hospital are similar across vulnerability but that the real drivers of patient outcomes are upstream from the trauma center. This will be evidence that can be used to target interventions to improve outcomes for victims of gun violence.

Expected dates: June 2021 – Dec 2022

Skill sets involved: quantitative analysis, large database research

Collaborators: CSPH

**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 account for a small fraction of pediatric firearm injuries.

Expected dates: June 2021 – Dec 2022

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

### **Social vulnerability and the epidemiology of trauma**

We are examining how trauma is experienced differently by people who have different levels of social vulnerability. We hope to show that the vulnerable have different rates of trauma, different mechanisms of injury and have different outcomes compared to the less vulnerable. This project will serve as baseline data for a whole host of projects around the social determinants of trauma

Expected dates: Jan 2021 – Jun 2023

Skill sets involved: quantitative analysis, large database research

Collaborators: CSPH

### **Societal cost of trauma due to excess SVI**

This project will build on the epidemiology of trauma project. In the epidemiology paper we hope to show the human cost of social vulnerability as it relates to trauma. This paper will quantify this cost to society in financial terms. We hope that this will build a strong argument for policy solutions.

Expected dates: Jan 2022 – Dec 2024

Skill sets involved: quantitative analysis, large database research

Collaborators: CSPH, University of Michigan

### **Policy solutions for SVI and trauma modeling**

This is the next step in the social determinants of trauma series. We will use the data from the epidemiology and costing papers to model different policy level solutions. We will show the effect policies can have in terms of the human and financial cost. This will help local, state and federal governments see which policy interventions are most effective.

Expected dates: Jan 2022 – Dec 2025

Skill sets involved: quantitative analysis, large database research, governmental policy

Collaborators: CSPH, University of Michigan

### **Voices of the Vulnerable**

This project will interview victims of violence from different levels of social vulnerability to hear the patient perspective on the challenges of violence and trauma for those most vulnerable in our society.

Expected dates: June 2023 – Dec 2025

Skill sets involved: qualitative research

Collaborators: CSPH

### **Regions/Countries:**

USA, Rwanda`