

# Exploring Global Health Challenges: My Insights from Duke's Summer Program in Geneva

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## Abstract

My intensive, week-long participation in Duke's Summer in Geneva program as a student exposed me to pressing global health issues through interactions with senior officials from various Geneva-based global health organizations, collaboration in a case competition with my cohort, and the development of a policy brief. During the program, I engaged with the Medicines for Malaria Venture to understand their strategies for combating anti-malaria drug resistance in Africa, explored Gavi's initiatives to improve vaccine accessibility in low- and middle-income countries, held discussions with WHO leaders on lessons learned from the global response to the COVID-19 pandemic, and examined the high maternal and infant mortality rates in Sub-Saharan Africa and South Asia. Furthermore, I deepened my understanding of the Congolese refugee crisis by working with an interdisciplinary team of medical, public health, global health, and business students to develop strategies for effectively delivering primary care services to refugees in camps in Uganda. In addition to addressing primary care needs, I explored imaging disparities in rural areas of the U.S. and developed a policy brief proposing strategies to expand radiological services for patients in these underserved regions. Overall, the program provided a comprehensive exploration of global health challenges, equipping me with valuable insights into efforts to improve global health delivery and equity.

## Day 1: Maternal and Child Health

My program began at Uni Mail in Geneva, where my cohort and I introduced ourselves and engaged in a discussion on the issue of maternal and child health. My cohort consisted of students from diverse academic backgrounds, including rising second-year medical students and individuals pursuing master's or PhDs in public health, global health, and business. This was an important issue, and my cohort and I had an engaging discussion after analyzing several research articles on it.

### Key Points:

- Many organizations are actively working toward the Sustainable Development Goal of reducing maternal mortality to fewer than 70 deaths per 100,000 live births and ending preventable deaths of neonates and children under five years old.
- Prior to the start of the COVID pandemic, there has been significant reduction in maternal and children under age 5 since the 1990s. Progress was disrupted by the pandemic as funding and resources shifted towards combating COVID-19, reducing the availability of maternal and child health services.
- Progress is not evenly distributed globally, as the majority of maternal and child deaths for children under the age of five are concentrated in Sub-Saharan Africa and South Asia. Contributing factors include inadequate access to healthcare facilities and resources, high levels of poverty, and the prevalence of infectious diseases that complicate pregnancies.



## Day 2: Global Health Alliance for Vaccine (GAVI)

One of the highlights of my second day in the program was a visit to Geneva's Global Health Campus, where I learned about GAVI's work in expanding access to vaccines in low- and middle-income countries. GAVI collaborates with organizations such as UNICEF, WHO, the Bill & Melinda Gates Foundation, vaccine manufacturers, and governments to achieve its core mission of ensuring no one is left behind when it comes to immunization. Their efforts focus on reaching zero-dose children, underserved communities, and strengthening primary healthcare services in LMICs.

### Key Points:

- Since 2000, GAVI has supported routine immunization efforts, helping to vaccinate over 1 billion children and prevent more than 17.3 million deaths. Their work has also contributed to stronger economies in the regions they serve, and 19 countries have successfully transitioned out of GAVI's support, demonstrating sustainable progress in their immunization programs.
- In 2022, an estimated 14.3 million individuals received zero vaccine doses, with 33% of this population coming from Nigeria and Ethiopia. Additionally, 71% of this group resides in countries supported by GAVI.
- In various parts of the world, men and women are not vaccinated at the same rate. GAVI has made significant efforts to promote gender equality by ensuring equal access to vaccinations for both males and females. The organization addresses misinformation surrounding vaccines, tackles cultural barriers, and works to alleviate financial and social constraints that may hinder vaccination efforts.

## Day 3: Medicines for Malaria Venture (MMV)

MMV is a Swiss-based non-profit organization dedicated to reducing the burden of malaria, particularly in low- and middle-income countries. Their mission is to develop and deliver effective anti-malarial drugs that can protect vulnerable populations, with the long-term goal of eradicating malaria altogether.

### Key insights:

- One of the deadliest strains of malaria in sub-Saharan Africa, Plasmodium falciparum, is developing resistance to the current first-line treatment, artemisinin, highlighting the urgent need for new therapeutic options.
- One of MMV's original goals was to reduce malaria cases to 5 cases per 1,000 people by 2030. However, current estimates suggest that the rate may reach 50 cases per 1,000.
- Key barriers to achieving these goals include insufficient global funding for malaria initiatives and a lack of financial contributions from malaria-affected countries themselves.

## Day 4: World Health Organization

One of my favorite site visits during this program was to the World Health Organization (WHO), where I had the opportunity to speak with leaders of the organization. Established 76 years ago at the end of World War II, the WHO was created to foster collaboration among countries and facilitate a unified response to global health crises. The World Health Organization (WHO) has multiple layers of governance, with Dr. Tedros Adhanom Ghebreyesus serving as its Director-General.

### Key Points:

- Although China has faced significant criticism for delaying the reporting of the COVID-19 outbreak, it played a crucial role in providing access to COVID-19 vaccines for low- and middle-income countries (LMICs) at a time when higher-income nations were focused on securing vaccines for their own populations. Ensuring the equitable distribution of vaccines is essential for controlling the virus on a global scale.
- Countries like New Zealand and Taiwan, which took early warnings of the impending pandemic seriously and implemented strict, effective measures to contain the spread of the virus, experienced very low infection rates. Their approaches are now being studied by public health experts to improve preparedness and responses for future pandemics.
- Misinformation spread by some political leaders made it more difficult to control the virus's spread. This included the promotion of unproven treatments such as drinking vodka or using hydroxychloroquine, as well as advocating for controversial strategies like herd immunity. WHO is currently focused on creating new strategies to ensure that information and the urgency of pandemics are communicated effectively to both world leaders and everyday citizens.



## Case Competition

Millions of Congolese have fled to neighboring Uganda in search of safety due to ongoing armed conflict and environmental crises, particularly in the eastern Democratic Republic of Congo (DRC), in regions like North and South Kivu. Armed groups fighting for control of land and natural resources in these areas have committed severe human rights violations, including killings, kidnappings, and sexual violence. Environmental challenges, such as flooding and landslides, further worsen the humanitarian crisis, which has received limited international attention and aid. Upon arrival in Uganda, Congolese refugees are granted refugee status, processed through transit centers, and resettled in village-like communities. My team aimed to develop a policy proposal for delivering primary care services to refugees in the Nakivale settlement. With my medical background, I focused on determining the essential primary healthcare services needed for these refugees.

## Primary Care Services

### Initial Assessment for Patients

- Collect past medical history and family health history of patient
- Measles screening and immunization

### Address Urgent Issue:

- Laceration, broken bones, wounds, etc.

### Intermediate:

- Mental health (PTSD, depression, anxiety)
- Chronic disease (Hypertension, splenomegaly, arthritis)
- Sex and Gender based violence (genital injury, fertility issues, unwanted pregnancies)
- Malnutrition

### Long Term:

- Health Education
- Contraceptive
- Vaccination (measles, malaria, tuberculosis, Hep B+C)
- Monitoring health status of the population

This is an outline of the primary healthcare package I proposed. Upon arrival at the camp, refugees would undergo a thorough collection of their medical and family health history. Screening and immunization for measles would be prioritized due to its rapid spread in densely populated areas. The healthcare services are divided into three categories: urgent, intermediate, and long-term. Urgent needs include addressing acute issues such as lacerations, broken bones, or injuries sustained while fleeing conflict. Intermediate needs focus on mental health care, management of chronic diseases, addressing sexual and gender-based violence, and combating malnutrition. Many refugees suffer from PTSD, anxiety, and depression due to the trauma they have experienced. A significant proportion of the Congolese population also deals with conditions like hypertension, splenomegaly, and arthritis. Unfortunately, sexual violence, sex slavery, and genital mutilation are prevalent, requiring resources to treat genital injuries, address unwanted pregnancies, and manage fertility issues. Malnutrition remains a critical concern, making screening and nutritional support essential to address deficiencies.

For long-term health services, our goal is to educate individuals on managing their conditions and making necessary lifestyle changes. Given the high rates of STDs and HIV in this population, we aim to provide education and contraceptives to reduce the incidence of these diseases. To further prevent the spread of communicable diseases like measles, malaria, tuberculosis, and hepatitis B and C, we plan to achieve herd immunity through vaccinations. Additionally, we emphasize providing continuous care by monitoring and following up on patients' health status to ensure their long-term well-being. I also proposed collaborating with Project CURE, an organization that donates medical supplies, to acquire the necessary equipment and involve medical students from Ugandan institutions, helping them develop their clinical skills.

## Policy Brief

I was tasked with creating a policy brief on an issue I am passionate about, and as an aspiring radiologist, I chose to explore the imaging disparities faced by residents in rural regions of the United States.

### Key Insights:

1. Approximately 20% of the U.S. population lives in rural areas, and on average, they must travel 10.5 miles to reach a hospital, compared to 4.4 miles for urban patients.
2. Less than 10% of radiologists practice in rural regions, and many rural hospitals do not always have the necessary imaging staff available.
3. While efforts have been made to expand primary care, OB/GYN, and surgical services in rural areas, similar initiatives have not extended to radiology. In 2023, only three additional residency spots for radiology were added nationwide.

### Policy Suggestions:

1. Expand teleradiology services for patient in rural regions
- Action: Integrate all states into the Interstate Medical Licensure to streamline licensing for out of state providers in rural areas
2. Invest in improving infrastructure for rural hospitals
- Action: Equip rural hospitals with three-phase electrical transmission to enhance imaging operations
3. Increase the radiology workforce in rural areas by expanding the number of training positions and programs at hospitals in these regions
- Action: Congress and the center for medicare & medicaid services need to increase and equitably allocate residency spots in these areas.