# Center for Global Health Equity **Inaugural Impact Report**

2022

CENTER FOR GLOBAL HEALTH EQUITY
UNIVERSITY OF MICHIGAN

*Interdisciplinary Solutions to Advance Global Health*

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Inaugural Impact Report | 2022

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*Cover: Center member Jody Lori—professor of Health Behavior and Biological Sciences in the U-M School of Nursing—learns about community health visits for expectant mothers in Butaro, Rwanda.*

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# A Global Movement to Advance Equity in Health

Can you imagine a world where health is not an obstacle to education, employment, and the pursuit of a fulfilling life?

At the Center for Global Health Equity, we can envision such a world. And with our many partners around the globe, we are pursuing novel, interdisciplinary solutions to some of our most daunting health equity challenges.

What's different about Michigan's approach to global health? Our founding donor, the late Tachi Yamada, was so passionate about health equity that our Center is one of the few to include equity in its name. We are motivated by a conviction that, while our health is greatly influenced by the circumstances into which we were born, these barriers can be overcome. While the Center opened its doors during the pandemic, and we mourn the loss of Tachi, we are now operating at full speed to fulfill our charge. As you read about our early successes in this inaugural Impact Report, we hope you will appreciate some unique elements of the Center.

**We partner differently**. Our partners in low- and middle-income countries define our partnerships and projects. They identify the most critical needs in health equity for their communities and develop the research questions that guide our shared work. We are committed to sharing resources and ensuring that our partners benefit from Center funding and enabling structures. We have members around the world, and they confirm with us that our approach to global health collaboration is different.

**We support a movement**. We prioritize and invest in projects that advance the global health equity movement in every way possible. Our work strengthens systems to improve health and health equity, informs public policy, creates new technical solutions for community health, and empowers women as health leaders in their communities. We know there are ways to solve the seemingly intractable problems that plague global health, and we are committed to finding them.

**We maximize our resources**. We are doing all of this while based at the University of Michigan, the leading public research university in the US. By leveraging the unique strengths of this excellent institution, we reach across disciplines to create solutions. In addition to supporting innovative research, we have launched educational opportunities for our students and extended training and capacity sharing pathways for global partners. These efforts are changing the way we do global health work. This is a big part of the movement—changing the model itself.

**We are dreaming big**. Because this is our inaugural impact report, we have included an overview of the Center's history (see page 2). We are proud of the foundation we have built and are preparing to take some big next steps. We engage more faculty and global partners every month. Our research models are constantly evaluated and improved so that our partnerships set the standard for collaboration and co-design. We have already deployed a series of seed grants that have led to much larger national and international grants, many of which include global research partners as lead investigators. And we are developing new models for student engagement to prepare future generations of researchers to be leaders in the global health equity movement.

When we are successful, people in the communities we engage will live longer, healthier lives.

Thank you for supporting the movement.

***Joseph C. Kolars, MD, MACP***

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*Josiah Macy Jr. Professor of Health Professions Education*

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***Amy Conger, PhD***

*Managing Director, Center for Global Health Equity*

*Faculty Associate, Center for the Study of Higher and Postsecondary Education*

*University of Michigan*

# Collaborating across campus and

*Tachi Yamada in India.*

## 2016

Exploratory conversations begin between Tachi Yamada and Joe Kolars about a new U-M Center for Global Health Equity.

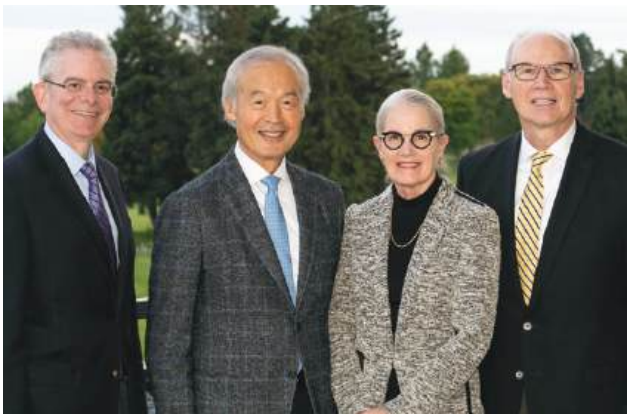
## 2017

Tachi Yamada meets with U-M leadership to discuss a catalytic gift to initiate a Center for Global Health Equity.

## 2019

*June*. Joseph Kolars and John Ayanian convene meetings with diverse stakeholders across three U-M campuses exploring the idea of a new Center for Global Health Equity.

*October*. University of Michigan publicly announces $10 million gift from Tachi and Leslie Yamada in support of global health equity.



*John Ayanian, Tachi Yamada, Leslie Yamada, and Joseph Kolars in 2019.*

*Provost Carl Amrhein of Aga Khan University and Center director Joseph Kolars holding signed copies of a memorandum of understanding.*

## 2020

*September*. Center opens with offices on U-M North Campus. Interdisciplinary Challenge Groups convene with emphasis on four thematic areas.

*October*. Partnership launched with Aga Khan University.

*December*. Center reaches 150 members.

# around the world to improve health

## 2021

*March*. Center launches pilot funding program for Challenge Group Grants to advance high-impact projects.

*August*. Passing of Tachi Yamada, the Center's founding donor.

*September*. Impact Scholars program launched.

*October*. $6.5M NIH grant for the UZIMA-DS (data science) project with partners at Aga Khan University in Kenya. $6.5M NIH grant for the Heat and Health African Transdisciplinary Center (HE2AT) project with partners at Aga Khan University in Kenya, IBM Research Africa, the University of Cape Town, and the University Peleforo Gon Coulibalu.

*The Empowering Women and Communities Challenge Group meets on north campus to discuss recent project work and new collaborations.*

*Ryan Rego, Victor Rateng, Leon Espira, and Purity Muthoni with Lukoye Atwoli—dean of the Aga Khan University Medical College, East Africa—on U-M campus.*

## 2022

*February*. Global Vaccine Equity Ideas Lab convened on Ann Arbor campus. Center delegation visits partner sites in Uganda and Kenya.

*March*. $338K NIH grant for Longitudinal Study of Health and Aging in Kenya (LOSHAK) with partners at Aga Khan University in Kenya.

*April*. Center reaches 250 members. CGHE Community Gathering, the Center's first in-person event.

*May*. $440K NSF grant for Characterizing the Use of Contextual Factors during Engineering Design project.

*September*. Seed Grant and Impact Accelerator Grant programs launched.

*November*. Center delegation visits partner sites in Rwanda. Collaboration launched with Rwandan Ministry of Health. Center co-hosts Ghana-UM Conference for Global Health Collaboration in Accra.

## *Our version of a postdoc program is different.*

"Being an Impact Scholar with the Center allows me to dream about creative interventions and have the support to turn those possibilities into realities that improve the health of communities."

—HaEun Lee, PhD

*Lee with community research leaders Angella Tushabe and Christian Atuhaire preparing to facilitate focus group discussions in the Bushenyi region of Uganda.*

"My time with the Center has turned everything on its head, helping me understand more fully how my research can change human lives."

—Leon Espira, PhD

*Espira in Kakamega, Kenya, with his father, Abraham Espira, founder and director of Kakamega's Nala Community Hospital, a key provider of obstetric and gynecological services in Kakamega County.*

# The Impact Scholars Program

The Impact Scholars program prepares exceptional early-career scholars for work in global health research and program development, with a focus on measurable impact in low-resource settings.

Impact Scholars build coherent bodies of their own work and prepare for successful global health careers in academia, government, civil society, or advocacy as effective, influential leaders.

Working with University of Michigan faculty mentors, scholars engage in projects that involve interdisciplinary collaboration across two or more themes that have been prioritized by the Center.

"What makes this program truly unique is how it encourages us to conduct research that pursues impact and to focus on independent scholarship rather than following traditional approaches to research and scholarly publishing."

—Ryan Rego, PhD

*Rego at Leda, Camp 24, Cox's Bazar Refugee camp in Bangladesh with research partners—Sirajul Islam, Ashok Barman, and Kabir Ahmed—conducting meetings with community leaders to refine their survey on vaccination decision making.*

*Rego at the Diarrhea Treatment Centre in the Leda refugee camp in the Cox's Bazar camp complex, Bangladesh.*

# Stomach Bugs, Diarrhea, and Other Paths to Global Health Work

When Ryan Rego visited family in Pakistan as a child, he wondered why he had to be so careful about what he ate and drank. This unpleasant but effective introduction to health inequity led Rego to study gastric conditions and diseases.

As a child, I could never understand why in Pakistan I had to be so careful to eat only hot food and drink only bottled water. Back home in London, everything was safe to eat.

## Disease Matters

Growing up, my family made frequent visits to Pakistan to visit my grandparents. Without fail, on each trip, I would eat or drink something I'd been warned not to and would get a stomach bug. (We'll come back to the possible outcomes of stomach bugs later.)

This confusion—and later frustration—with the inequity stuck with me, and it still bothers me today.

As an undergraduate at Case Western Reserve University, I majored in economics and became very interested in development economics. I also wanted to attend medical school to become an emergency room physician—the fast pace and broad knowledge required resonated with me like nothing else.

While at Case Western, I shadowed Justin Yax, an emergency medicine physician who was also director of the Emergency Medicine department's fellowship in humanitarian aid. Yax was an experienced responder to humanitarian emergencies, and we found ourselves discussing the field of humanitarian aid more often than emergency medicine. He recommended I consider studying public health, and I fell in love with the field while earning an MPH.

## Research Matters

Public health combines nearly any discipline—for me, medicine and economics—in such effective, problem-solving ways that I set aside the path of becoming a physician for a career as an epidemiologist.

"I sought a path that would ensure my research could continue having a positive impact on human communities and also on *how* we do research."

MPH in hand, I moved to Johannesburg, South Africa, to work for Population Services International, a large global health NGO with a focus on reproductive health. I would learn a lot about international health research.

Research can be used to inform public health programs directly, which in turn can improve people's lives.

Research can also have a dark side, if we're not careful. When researchers from high-income countries conduct studies without true local engagement—using my colleagues in South Africa as little more than a mailbox for IRB applications and HR for field workers, despite these colleagues being internationally esteemed and respected researchers—it is little more than a mechanism through which colonial legacies of power and exploitation continue to play out.

In South Africa, I saw papers get published where local experts had conducted most or all of the work while foreign researchers took the desired positions of principal investigator, lead author, and so on.

Coming to the end of my contract in South Africa, I desperately wanted to work in the humanitarian aid space but had difficulty finding jobs. I decided that further schooling would be an effective way to contribute to the field and moved back to the UK to pursue a PhD in epidemiology.

On my first day as a PhD student, my supervisor let me know he was most interested in either pre-hospital care or diarrheal disease. Thinking back to my childhood experiences visiting Pakistan, the choice was obvious: diarrhea.

## Diarrheal Matters

As I began my PhD in 2018, the world of water, sanitation, and hygiene (WASH) was rocked by the results of two large-scale, multi-million dollar trials claiming that the provision of safe water and proper hygiene facilities—such as pit latrines—did not impact the rate of diarrhea among children under five.

The main critiques of these studies focused on the quality of the interventions. We thought that something else was at play, namely, how the outcome itself—diarrhea—was defined and measured.

As was the norm, these study teams had asked parents, very simply, if their child had had diarrhea at any time in the past three weeks. But parents might

1. not understand what diarrhea is
2. forget whether their child had diarrhea
3. not want to answer honestly.

All three were indeed the case, as my colleagues and I were able to show.

But another, more important, factor was at play in assessing the two 2018 studies: the interventions used in the trials were not directly related to diarrhea but instead to enteric infections generally. That is, these studies had used diarrhea as a proxy for enteric infection and from there to evaluate the interventions.

But is diarrhea a good proxy of enteric infection? As we see with COVID, the relationship between a disease and its symptoms is complex.

- Having a cough does not mean somebody definitely has COVID
- Feeling 100% in good health does not mean someone is COVID free

We demonstrated the same for diarrhea—it does not make a good proxy of enteric infections because evaluating symptoms and interventions is too complicated.

The impact of our work on how other research teams might approach future studies of

diarrheal diseases—which affect millions of families every year and kill around 1.5M children each year—helped see the importance of research that accounted for human experience, including how study participants experience an intervention and might report information about their family's health.

As my PhD work came to an end, I sought a path that would ensure my research could continue having a positive impact on human communities and also—whenever possible—on how we do research.

I was delighted to discover the Center for Global Health Equity's Impact Scholars program, which is interested not only in how many publications we postdocs can produce in a year nor in how much work we can do on various topics regardless of our level of interest.

Instead, we are asked to conduct high-quality research that has a clear line of sight to impact—to clearly defined outcomes that can improve lives. Anyone doing a postdoc in the health sciences knows what an incredible opportunity this is. I have the privilege in this program of working among and alongside displaced populations in low- and middle-income countries, with excellent support and mentorship from University of Michigan faculty and staff and, most importantly, from faculty and staff in the countries where we are privileged to co-design and co-lead research. ■

*Rego (second from right) in an urban informal settlement in the Mirpur neighborhood of Dhaka, Bangladesh, with research colleagues, including faculty from the International Centre for Diarrhoeal Disease Research, Bangladesh.*

# To Be a Good Steward

## Strengthening Systems for Healthier Women and Communities

**HaEun Lee spent years observing how she was perceived and treated, especially as a woman, in the various settings where she has lived. Her research aims to empower women and change social contexts so that we value women and their health more in all the decisions we make.**

*Lee with Sister Dr. Priscilla Busingye—obstetrician and gynecologist and fistula surgeon at Saint Francis Hospital in Nsambya, Uganda—on a site visit to a camp that provides free postpartum surgical procedures.*

After my first year of college, I traveled to South Africa with a group of friends to volunteer in the townships of Johannesburg. On our way from one settlement to another, I met a young woman about my age sitting on the side of the road. We had a brief conversation in which she shared with me some of the harrowing details of why she was there and not able to be safely at home with her family.

While I struggled at the time to find something to say, I was feeling many things. I felt powerless because I didn't know what to say to her and because I knew larger systems of oppression were behind her health crises and those of many other women and girls. I felt shame from the stark contrast of our circumstances, knowing they had little to do with our own merit or worth and everything to do with larger social circumstances over which neither of us have control.

More than anything, I felt a sense of responsibility—that I needed somehow to become a better steward of the privileges I had been given.

This poignant encounter in South Africa has stayed with me not only because of the details of human suffering but because such stories are all too common, especially for those who are made vulnerable by the contexts of subjugation that pervade our communities. The story reminds me how difficult life is for so many of us, and that awareness motivates me to remain focused on the community health engagement work I conduct as a researcher.

## A Bedside Steward Moves into Research

I was born in South Korea and, due to my parents' jobs, had moved more than twenty times before graduating high school—between seven countries, attending twelve different schools, and using three different languages in class. Throughout this time, I was observing how I was perceived and treated, especially as a woman.

My experiences in South Africa were part of a larger process of career discernment for me. I had already committed to nursing and art majors, two fields that can tangibly, practically touch people's lives. During senior-year clinical rotations—with

*Lee on a tour of the simulation lab at the Virika School of Nursing and Midwifery in Fort Portal, Uganda.*

"Women are painfully aware of the privileges we do and do not have. With the privileges I have, I am choosing to move through my research career with a sense of stewardship and responsibility."

my experiences from South Africa and many other contexts in my heart and on my mind—I began to study in more depth the systemic, structural, and policy-level issues that contribute in every way to human illness and health.

As much as I had loved working closely with patients, I realized that working as a bedside nurse would no longer be my path. I became involved with nursing research, focusing on women's health in minority populations. I joined a research team working with local, low-income women on basic menstrual, contraceptive, and other reproductive education. And I worked on a pilot project educating women in underserved communities about coping mechanisms for depression and anxiety.

As a doctoral student at the University of Michigan School of Nursing, I worked on improving access to reproductive health services. In my focus region—rural areas of the central African country of Zambia—I learned that many pregnant women there do not have basic financial means, not even enough to secure transportation to a clinic, pay for basic medications, and purchase baby clothes. Even in financially stable families, husbands control family resources and often will not prioritize expenses related to pregnancy and childbirth.

As an Impact Scholar with the Center for Global Health Equity, I work on an interdisciplinary research team pursuing novel health governance approaches in Uganda. We facilitate regular meetings between community members and politicians where community members express health care needs and politicians share policy plans and progress. We train politicians on how to monitor and supervise the implementation of research and community information. The primary goal of the project is ensuring clinics in rural areas have the medication, equipment, and trained staff whenever and wherever men, women, and children need them. And we believe that, by empowering local community members and politicians to work together in constructive ways, this project can help improve the overall quality of Uganda's rural healthcare.

## Research with Hope

When asked about my passion for research, I share how hopeful I remain that good research and evidence-based policy can help women around the world better protect and promote their own health and the health of the systems and cultures around them, including their own family. In valuing women and their health, all people and communities have a better chance at living up to their potential.

Women are painfully aware of the privileges we do and do not have. With the privileges I have, I am choosing to move through my research career with a sense of stewardship and responsibility.

It has been almost a decade since I sat down with the young woman in South Africa. She was kind and generous to share her story with a stranger. Sadly, her story is far too common.

But I live in hope. I do not yet know, fully, what kind of life I must live to say I was a good steward of all I've been given. I do know that, compared to ten years ago, today I feel more empowered, less ashamed, and extremely motivated to help women and their communities be their fullest, healthiest selves.

My research will continue to address the larger schemes of empowering women and changing our social contexts so that we value women and their health more in all the decisions we make. ■

*Espira (center) with a Center delegation in Nairobi, Kenya, learning about diagnostic radiology capabilities on a tour of Aga Khan University's Cancer Center.*

# Learning the Many Languages of Global Public Health

Human health is more than what we can define using studies and metrics, says Leon Espira. Our health is a reflection of our interactions with others as we seek better lives for ourselves and our loved ones.

Though I am a scientist by training—with a passion for discovery, analysis and understanding—I realize that the things that make us human are often not tangible or quantifiable.

Human health is more than what we can define using studies and metrics but rather is a reflection of our interactions with others as we seek better lives for ourselves and our loved ones.

It is this recognition that has steered me in the direction of public health. Knowing that human health is about more than data helps me approach my work with a certain humility, one that recognizes a key truth in life—all the people I work with, in many ways, seek the same things I do.

I was born in Kenya of mixed parentage. My mother is Russian, while my father is Kenyan. I was afforded the luxury of growing up in an atmosphere that enabled me to define myself not by cultural norms but as the sum of all the cultures I straddle. Russian was my first language, Swahili my second, and English I only learned in school.

In as much as language defines our perspectives, I continue to see the world through my mixed heritage as well as these commonalities that are inherent in all of us.

In my late teens I moved to Winnipeg, Canada, to a world much removed from my childhood contexts. But with the common threads and common languages that bind all humans together, I found making friends to be relatively easy. Soon enough, I felt comfortable defining myself as Canadian.

After completing a masters degree in cardiac physiology, I worked as an outreach coordinator in

"Epidemiologists, like many researchers in public health, speak several languages."

underprivileged communities in Canada. I then took a job in the Netherlands and, while there, volunteered as a language coach. In these roles, my own privilege became clear to me, as did the bidirectional nature of outreach and volunteer work.

I have encountered many people during this journey and recognize that the difference between many of them and myself is tiny—yet I was afforded privileges that many do not have. Kenya, however, remains my defining experience. Being Kenyan grounds how I see myself and the world—despite all the distance I have traveled from my childhood.

As I look to a career in global health, I continue to reach back to and draw upon these experiences. They give me a sense of perspective. Research, too, is inherently bidirectional, and embracing research as such can only enhance our mission of advancing the health of people in communities around the world.

Because I know that research can only partly describe the human experience, I am glad to be an epidemiologist. Epidemiologists, like many researchers in public health, speak several languages. I've learned the languages of infectious disease, public policy, economics, medicine, and ecology. And these help me converse as a bidirectional researcher—trying to help communities understand disease and prevent it, while at the same time learning from the communities to become a better epidemiologist.

It is this versatility in public health that attracts me most—all the languages I get to speak and all the perspectives those languages offer. ■

*Espira (right) with John Luseno (far left) and Hardley Malema (center) from Eco2librium visiting a household in Kakamega County, Kenya, to learn about water and sanitation access in rural areas.*

# Leveraging Expertise for Larger Funding Opportunities

**We take individual projects with big potential and connect them with others, adjusting the approach to amplify impact.** The University of Michigan knows how to go after major external grants that help our researchers and our partners advance global health equity. Securing external revenue from funding sources like the National Institutes of Health and the National Science Foundation allows our global partners to address these wicked problems.

*Felix Agoi (right), AKU's field coordinator, with Josh Ehrlich, research assistant professor with the U-M Institute for Social Research in Kilifi, Kenya, on a site where pilot testing for LOSHAK is being conducted. Agoi and Ehrlich were part of a team that received an NIH grant with seed funding from the Center.*

Aga Khan University, Nairobi.

# Data Science and Emerging Tech for Earlier Interventions

**Psychology + Medicine + Data Science + Public Health**

In partnership with the Center, Aga Khan University received a $6.5 million NIH grant to establish a cutting-edge data science hub, which has broad implications for implementing new technologies across the continent.

Aga Khan University (AKU) is the recipient of a $6.5 million grant to establish a cutting-edge data science hub which will use artificial intelligence, machine learning, and other emerging technologies to improve health and care delivery in local communities.

Utilizing Health Information for Meaningful impact in East Africa though Data Science (UZIMA-DS) will be the first initiative of its kind in the region. Funded by a grant from the US National Institutes of Health (NIH), the program will be led by AKU with partners in Kenya, the US and Canada.

UZIMA-DS looks to leverage data science to proactively avoid adverse outcomes in maternal and newborn health and mental health. It will also leverage machine learning, an application of artificial intelligence, to identify creative solutions to aid health service providers and policymakers within resource constrained environments.

"Early identification and intervention are critical to a good prognosis for all health conditions," said Amina Abubakar, professor of psychiatry and director of the Institute for Human Development at AKU and co-principal investigator. "However, in many low- and middle-income countries (LMICs) there is a dearth of tools that can be used for early identification of women, children, and young adults at risk of poor physical and mental health."

The UZIMA-DS project will be a game changer in two ways, Abubakar says, "First, we will leverage existing data to develop tools and models that can aid early identification of at-risk populations. Second, we will build the capacity of young Kenyan scientists through post-doctoral and PhD fellowships to use large data to inform health policies and practice."

"There is a dearth of tools that can be used for early identification of women, children, and young adults at risk of poor physical and mental health."

–Amina Abubakar, Aga Khan University

UZIMA-DS will leverage machine learning to identify creative solutions to aid health service providers and policymakers within resource constrained environment.

Collaborating institutions include the University of Michigan, the Kenya Medical Research Institute/Wellcome Trust Research Programme, and the University of Ottawa.

"I am honored to be working with Professor Abubakar and her colleagues at AKU who share my passion for leveraging AI and machine learning to impact health equity and improve people's lives," said Akbar Waljee, co-principal investigator and professor of Internal Medicine at the University of Michigan, the top-ranked public research university in the US by research volume. The University of Michigan Center for Global Health Equity provided seed funding to support the initial partnership, which has potentially far-reaching implications for a technology previously associated primarily with high-resource settings.

*Akbar Waljee (left) and Amina Abubakar at Aga Khan University in Nairobi.*

"New technologies and innovative partnerships can help us address health data and service gaps in Kenya," said Carl Amrhein, Provost and Vice President (Academic) at AKU. "Since the inception of the UZIMA-DS, it has promised a unique and powerful approach to improving health and health equity in East Africa, which aligns well with AKU's commitment to global health."

The grant is part of NIH's Harnessing Data Science for Health Discovery and Innovation in Africa (DSI Africa) program, which aims to leverage data science technologies to develop solutions to the continent's most pressing public health problems through a robust ecosystem of new partners from academia, government, and the private sector. AKU will implement the project through the Institute for Human Development and the Medical College.

The Research Hubs formed out of this initiative will serve as a core component within the larger program, which will also consist of data science and innovation training programs, research on the ethical, legal, and social implications central to data science health research and innovation in Africa, and an open data science platform and coordinating center. ■

*Felix Agoi (right), AKU's field coordinator, with Josh Ehrlich in Kilifi, Kenya, on a site where pilot testing for the Longitudinal Study of Health and Aging in Kenya (LOSHAK) is being conducted.*

# Advancing Healthy Aging in Africa

**Demography + Psychology + Medicine + Public Health + Economics**

An international team of researchers received an NIH grant to address major gaps in population-level data on aging in Kenya, one of Africa's most populous nations and one that expects its elderly population to quadruple by 2050.

Africa is getting older.

The continent home to humanity's origins and countless ancient civilizations also has the world's youngest population. But that is changing, and rapidly.

While today people over the age of 60 make up 5.6% of Africa's population, by 2050 that is expected to increase to over 15%.[1]

With enabling support from Center for Global Health Equity, an international team of researchers has received a $338K grant from the National Institutes of Health (NIH) to address major gaps in population-level data on aging in Kenya, one of Africa's most populous nations.

"Kenya expects its elderly population to quadruple by 2050," says Anthony Ngugi, interim chair of Population Health at Aga Khan University (AKU) and co-principal investigator of the NIH grant.[2]

It is vital, says Ngugi, to begin studying "both population-level trends and individual aging trajectories to understand risk factors for health, disability, and well-being in the Kenyan context."

Over the next thirty years, as Kenya becomes a place where people live longer and need different kinds of care, social structures will need to change. "Kenyan researchers and our partners can provide data that informs the social and policy adjustments we need in Kenya to address the growing needs of an aging population," Ngugi said.

"When the idea for the LOSHAK study was presented, I jumped on it, because I saw that the need was there."

–Anthony Ngugi, Aga Khan University

The NIH grant supports pilot work to lay groundwork for future NIH grant applications aimed at launching the full-scale Longitudinal Study of Health and Aging in Kenya (LOSHAK), a cohort study of Kenyan adults aged 45 and older. The study will eventually enroll thousands of participants and will follow them over the course of years.

"Such an approach requires commitment from participants and patience to see how results unfold over years," explained Ngugi. "But data from such a study is so valuable."

Key focus areas include Alzheimer's disease and related dementias, mental health, the health and economic impacts of climate change and air pollution, and factors influencing late-life economic well-being. With the rapid demographic changes and lack of corresponding research to understand them, the project seemed rather timely to Ngugi. "When the idea for the LOSHAK study was presented, I jumped on it, because I saw that the need was there," he said.

## Connecting in Coastal Kenya

The LOSHAK study utilizes an existing study platform, the Kaloleni/Rabai Community Health and Demographic Surveillance System, a population-based research platform that includes more than 14,000 individuals over the age of 45 living in coastal Kenya.[3]

The Kaloleni/Rabai study is run by AKU, whose expertise and leadership "is central to the success of LOSHAK," said Josh Ehrlich—research assistant professor with the U-M Institute for Social Research, assistant professor of Ophthalmology and Visual Sciences at Michigan Medicine, and co-principal investigator of the NIH grant.[4] "Our partners at AKU have strong relationships with communities in this region, and these relationships—the trust and understanding they've built—make all the difference in the quality of the research."

Ngugi and Ehrlich will use preliminary data and findings collected during this initial phase to improve the study's infrastructure and, eventually, to propose a larger rollout in Kenya to field a nationally representative sample. In addition to continuing to build relationships in communities that are new to working with researchers, the LOSHAK team faces logistical challenges. "Kenya is a large country with many rural areas that can be difficult to access. But it's vital that rural as well as urban populations be represented," said Ehrlich.

During his time with the Kaloleni/Rabai platform, Ngugi has also established relationships with leaders in local health systems, including local clinics and staff, and has ongoing collaborations with Kenya's National Ministry of Health. "Regional and national health leaders are excited about the project, because they understand the importance of studying aging," Ngugi said.

## Models Are Important

LOSHAK is also part of the Health and Retirement Study (HRS) network, a family of studies on aging in 45 countries modeled on the US HRS that began in the 1990s. "The HRS provides extensive data to understand how health, economic, and family networks interact over time to affect aging, economic well-being, and social relations," said Kenneth Langa, associate director of the HRS and co-investigator on the grant.[5]

Currently, the only HRS network study in Africa is in South Africa, making LOSHAK only the second such project in the region. Langa says the Kenyan study has also provided a variety of innovations. "LOSHAK is a poster child for how

to get smart, talented folks in both countries together. Anthony and Josh, with support from the Center for Global Health Equity, have put together a remarkable team."

"And the way the LOSHAK study will apply population-level data to issues like climate change will be pioneering work. Africa is already experiencing many risks related to climate, and this study will help us see in great detail the connections among climate, aging, and health," Langa added.

Another key feature of HRS projects is that all data collected are made publicly available. "The National Institute on Aging funds the HRS and ensures that all HRS network studies make their data public for researchers all over the world," said Langa.

Along with the population-based insights on aging and health in Kenya and the cross-national comparisons LOSHAK will provide, the study also advances the Center for Global Health Equity's model of collaboration. "The Center is committed to fostering sustainable relationships as we pursue collaborations with international partners, such as Aga Khan University," said Center director Joseph Kolars. "Such relationships go hand-in-hand with projects that are truly co-designed, and LOSHAK is a remarkable example of bringing together two existing studies in a creative way."

Ngugi shares the commitment to this partnership model. "It is rare to come across a partner as developed and resourced as the University of Michigan who is truly willing to listen, truly willing to partner on an equal basis, and is even willing to learn from us," he said. "It is encouraging to work so closely with our Michigan partners and to share our capacities so together we can do this important work in Kenya."

Other members of the grant team include Felix Agoi (AKU), Jessica Faul (UM), Muthoni Gichu (Global Brain Health Institute), Jean Ikanga (Emory), Pamela Jagger (UM), Elisa Maffioli (UM), Alden Gross (JHU), Carlos Mendes de Leon (Georgetown University), Edward Miguel (UC-Berkeley), Muthoni Mwangi (AKU), Roselyter Rianga (Moi University), Shaheen Sayed (AKU), and Akbar Waljee (UM).

> "LOSHAK is a poster child for how to get smart, talented folks in both countries together."
>
> –Kenneth Langa
> Health and Retirement Study

LOSHAK is funded by the National Institute on Aging and the University of Michigan Center for Global Health Equity. The project has also received additional funding from the Michigan Center on the Demography of Aging and the Harmonized Cognitive Assessment Protocol (HCAP) Network. ■

## Notes

1. Wan He, Isabella Aboderin, and Dzifa Adjaye-Gbewonyo. US Census Bureau. Africa Aging: 2020 International Population Reports P95/20-1. US Government Printing Office, Washington, DC, 2020.

2. Anthony Ngugi, Interim Chair of Population Health and Associate Professor of Epidemiology and Population Health–Aga Khan University.

3. Ngugi, Anthony, et al. "Cohort Profile: The Kaloleni/Rabai Community Health and Demographic Surveillance System." International Journal of Epidemiology 49/3 (June 2020):758–759e.

4. Josh Ehrlich, Research Assistant Professor–Institute for Social Research, Assistant Professor of Ophthalmology and Visual Sciences–Michigan Medicine.

5. Kenneth Langa, Associate Director–Health and Retirement Study, Research Professor–Institute for Social Research, Cyrus Sturgis Professor of Medicine–Michigan Medicine, Professor of Health Management and Policy–School of Public Health, Research Scientist–VA Center for Clinical Management Research.

Photo. Marcin Szczepanski, College of Engineering, University of Michigan

*Nurses Noelia Calel (center) and Virginia Xicay Garcia (right) joke with M-HEAL students during a meeting at a public health clinic in Santa Cruz, Guatemala. Calel and Garcia are demonstrating a new stethoscope that electronically records heart-sounds of patients in rural parts of Guatemala and sends them to a Guatemala City hospital. The stethoscope could eventually prevent major complications for infants born with congenital heart defects.*

# Contextualized Engineering Design for Better Health

**Engineering + Information Science + Medicine**

Too little is known about how and when experienced engineering designers incorporate contextual factors into their designs. A team of U-M researchers has been studying how context informs design decisions throughout engineering design processes.

Does it matter if an engineer understands the context in which a design solution will be employed?

The answer might be an obvious yes. But with more and more processes and products being shared globally, implementing new technologies—from healthcare to clean water to energy and communications—in local contexts is becoming increasingly challenging.

"The successful design of engineered technology depends on a designer's appropriate consideration of context—the physical, social, and economic environments of the technology's anticipated use," says Kathleen Sienko, professor of Mechanical Engineering in the University of Michigan College of Engineering.

But little is known about how and when experienced engineering designers incorporate contextual factors into their designs.

To help engineers—especially novices in the profession—better incorporate the lived environments of local communities into their designs, a team of University of Michigan researchers has been studying how contextual information informs design decisions throughout engineering design processes.

Through extensive interviews with experienced engineering designers, Sienko and Kentaro Toyama, professor of Information in the University of Michigan School of Information, are exploring exactly how

"Designs that better address user needs are always prized but can be more difficult to actually procure."

–Kathleen Sienko, U-M College of Engineering

engineers can more fully apply all of the inputs available to them in a design process.

Findings from this work will be compared to previous research with novice engineering designers to develop recommendations for best practices in engineering design generally.

The research involves semi-structured interviews, observations, and document reviews across three engineering design domains—medical devices, consumer products, and information and communication technologies.

"Our results will help us understand which behaviors are transferable across engineering design specialities, levels of experience, and use settings," said Sienko. "We hope this will lead to better design solutions for local populations in need of solutions to critical health concerns."

Sienko, Toyama, and Grace Burleson, a PhD student in the College of Engineering, received a pilot grant from the Center for Global Health Equity to collect data on novice engineers. "Context matters, especially in global health," said Burleson. "It's well documented that when we fail to incorporate context it leads to design failure."

Building on this enabling support, Sienko and Toyama recently received a $440K grant from the National Science Foundation (NSF) to describe and better understand the use of contextual factors in engineering design.

They will focus on multiple categories of contextual factors that can affect design and design implementation—environmental and infrastructure factors, socio-cultural factors, and local political factors.

Based on Burleson's preliminary results, novice engineering designers readily consider local climates when designing devices. For example, they aim to select materials that account for local temperature, humidity, and other environmental realities, like high amounts of dust in the air or annual expectations of drought and flooding.

Novice engineering designers, however, rarely consider how politics can affect their design processes. It is important that designers consider not only what utilities are available locally and how the reliability of local transportation impacts supply and delivery of products. Contextualized engineering design must also consider socio-cultural factors of consequence, including language and education access, local symbols and stigmas, and local aesthetics.

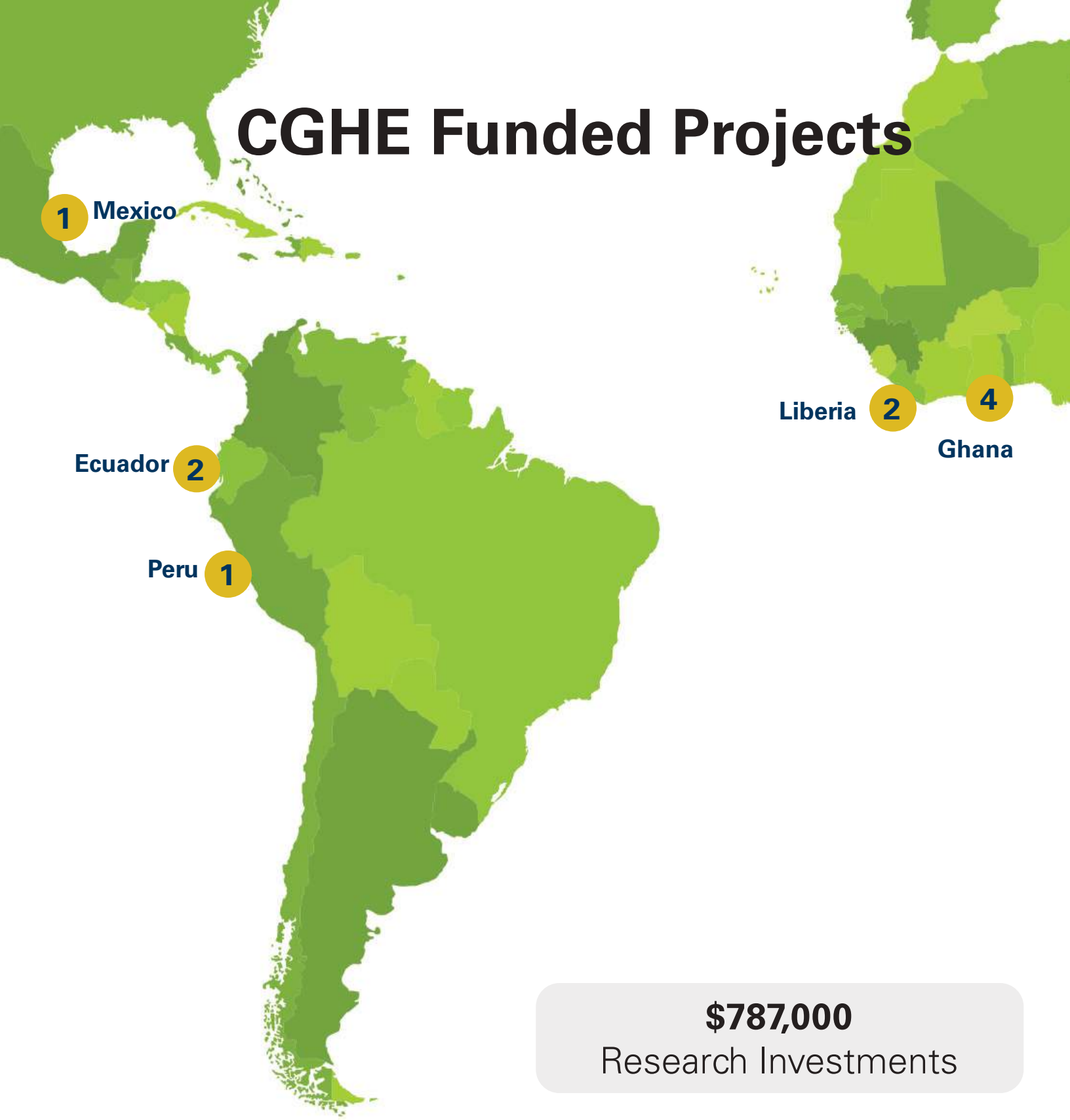
"Whenever possible, we recommend using context-appropriate graphics and adjusting for language differences, selecting colors and symbols with meanings appropriate in local contexts, and generally aligning design decisions down to the last detail with local preferences," said Toyama.

Finally, say Toyama and Sienko, designers should consider all facets of local and regional politics. "We need to be asking what local initiatives and policies could impact the regulatory processes around the projects we hope to implement. Who are the local stakeholders and how can they be engaged positively as supporters of your project?" Sienko said.

Sienko and Toyama hope their research will lead to a range of innovations in processes and products designed with local environments and local stakeholders front and center.

"Anyone working in global health knows that new challenges are constantly emerging," said Sienko. "Designs that better address user needs are always prized but can be more difficult to actually procure." ■

# CGHE Funded Projects




**$787,000**
Research Investments

**# Total number of Center-funded projects in the country**

Some impact projects operate in more than one country.

## Thematic Priorities

Based on potential for impact, institutional strengths, and perceived needs, Center leaders and stakeholders identified four primary themes to guide initial collaborations and efforts.

- **Strengthening systems** to improve health and health equity, including creative approaches with the private sector—human resource development, collaborative care models, supply chain and access
- **Informing policy and programming** related to social and environmental determinants of health—climate change, food security, education, health economics, and economic development
- **Developing technical solutions** for health equity—artificial intelligence and data science approaches, telehealth tools, and systems
- **Empowering women** as effectors of health for themselves, their families, and their communities

# Challenge Group Grants

## Collective Solutions for Complex Problems

Challenge Groups comprise faculty from across the University of Michigan who share complementary expertise and interests.

These interdisciplinary communities explore potential partnerships and projects that align with their respective interests, with an eye toward collaborations that carry the greatest potential for impact.

Challenge Groups meet regularly and provide opportunities for researchers to share ideas and receive feedback on current projects. Many members value this time together with colleagues in other units who nevertheless understand their goals, approaches, and passion for global health.

As experts from around the university convene to discuss wicked problems in global health, they build communities of practice that advance collective solutions.

*The Center has funded a number of high-impact projects—shown here—that arose from these respective Challenge Groups.*

## Health and Socioeconomic Impacts of Water Intermittency in Mexico

**Anthropology + Public Health + Engineering**

**Sergio Bautista**
National Institute of Public Health-Mexico

**José Luis Figueroa-Oropeza**
National Institute of Public Health-Mexico

**Jaclyn Goodrich**
U-M School of Public Health

**Branko Kerkez**
U-M College of Engineering

**Elizabeth Roberts**
U-M College of Literature, Science, and the Arts

**Brisa Sánchez**
Drexel University, Public Health

**Mara Téllez Rojo**
National Institute of Public Health-Mexico

**James Wagner**
U-M Institute for Social Research

**Krista Wigginton**
U-M College of Engineering

### Challenge Group **Climate Vulnerability and Health**

The project seeks to understand the effects of intermittent water supply on chronic disease and economic and gender inequality globally, and to develop evidence-based approaches to address them.

## Maternal Depression in Rural and Urban Ecuador

**Anthropology + Public Health + Psychiatry + Environment**

**Fu Yu Chang**
University of Cuenca-Kaleidos Center for Interdisciplinary Ethnography

**Mayra Flores**
University of Cuenca-Kaleidos Center for Interdisciplinary Ethnography

**Rebecca Hardin**
U-M School for Environment and Sustainability

**Gwenyth Lee**
Rutgers University-Epidemiology

**Maria Muzik**
U-M Medical School

**Jorge Núñez**
University of Cuenca-Kaleidos Center for Interdisciplinary Ethnography

**Maka Suarez**
University of Cuenca-Kaleidos Center for Interdisciplinary Ethnography

### Challenge Group **Empowering Women and Communities**

The project documents the multiple facets of maternal mental health in Ecuador and explores how health professionals understand, diagnose, and treat maternal depression.

## Family Planning Uptake in Ghana

**Nursing + Medicine + Public Health**

**Sarah Compton**
U-M Medical School

**Veronica Dzomeku**
Kwame Nkrumah University of Science and Technology-Nursing

**Jody Lori**
U-M School of Nursing

**Cheryl Moyer**
U-M Medical School

**Emmanuel Nakua**
Kwame Nkrumah University of Science and Technology-Public Health

**Easmon Otupiri**
Kwame Nkrumah University of Science and Technology-Population, Family, and Reproductive Health

**Emily Treleaven**
U-M Institute for Social Research

### Challenge Group **Empowering Women and Communities**

The project explores the *know-do* gap among postpartum Ghanaian women to identify potential interventions that enable them to realize fertility goals.

## Gender-Based Violence on University Campuses in Sub-Saharan Africa

**Nursing + Medicine + Social Work**

**Michelle Munro-Kramer**
U-M School of Nursing

**Sarah Compton**
U-M Medical School

**Lisa Fedina**
U-M School of Social Work

University of Cape Coast, Ghana

Kwame Nkrumah University of Science and Technology, Ghana

Takoradi Technical University, Ghana

University of Liberia, Liberia

Obafemi Awolowo University, Nigeria

Sefako Makgatho Health Sciences University, South Africa

University of KwaZulu-Natal, South Africa

National University of Science and Technology, Zimbabwe

Challenge Group
### Empowering Women and Communities

The project will conduct a cross-country campus climate survey to inform development of culturally, contextually appropriate interventions for universities in sub-Saharan Africa.

## Empowerment among LBQ Women in Western Kenya

**Social Work + Psychology + Medicine + Public Health**

**Gary Harper**
U-M School of Public Health

**Laura Jadwin-Cakmak**
U-M School of Public Health

**Ashley Lacombe-Duncan**
U-M School of Social Work

**Anita Mbanda**
Western Kenya LBQT Feminist Forum

**Sara McClelland**
U-M Women's and Gender Studies

**Wilson Odero**
Maseno University

**Becky Odhiambo**
Western Kenya LBQT Feminist Forum

**Caroline Rucah**
Western Kenya LBQT Feminist Forum

Challenge Group
### Empowering Women and Communities

Kenya is home to an increasingly visible sexual and gender minority community. Through a mix of qualitative individual in-depth interviews and focus group discussions, the project takes first steps toward developing policies, programs, and services that promote health equity among LBQ women in Kenya.

## Empowerment among Indigenous Women in Thailand

**Anthropology + Public Health + Medicine**

**Tawatchai Apidechkul**
Mae Fa Luang University

**Amanda Flaim**
Michigan State University, Sociology

**Chutimav Morlaeku**
Indigenous Mountain Peoples Education and Cultural Association of Thailand

**Cheryl Moyer**
U-M Medical School

**Malee Sitthi Kriengkrai**
Chiang Mai University

**Laura Rozek**
Georgetown University, Public Health

**Emily Treleaven**
U-M Institute for Social Research

Challenge Group
### Empowering Women and Communities

Working with local partners, the project develops ethnographic and related qualitative instruments to explore how indigenous women in Thailand conceptualize empowerment and its relationship to their health and the health of their children.

## Dementia Biometrics in the Chitwan Valley of Nepal

**Public Health + Medicine + Social Sciences**

**Dirgha Ghimire**
U-M Institute for Social Research

**Kenneth Langa**
U-M Medical School

**Carlos Mendes de Leon**
Georgetown University, Public Health

**Janak Rai**
Tribhuvan University

**Meeta Sainju Pradhan**
Institute for Social and Environmental Research, Nepal

**Uttam Sharma**
Institute for Social and Environmental Research, Nepal

Challenge Group
### Data Science

The project addresses health inequities in the older adult population of Nepal. As the size of the older adult population grows, increasingly larger numbers of adults are affected by Alzheimer's disease and related dementias (ADRD). The project designs and conducts a pilot test of the procedures and logistics of collecting blood samples in the context of a new large survey study of ADRD in Nepal.

*A community member speaking at PHP-organized health meeting between citizens and local chairperson in Kagongi Subcounty, Mbarara District, Uganda.*

# Advancing Governance and Citizenship in the Ugandan Health Sector

**Nursing + Public Health + Medicine + Public Policy + Economics**

The Community-Centered Development in the Ugandan Health Sector project sits at the intersection of public health, economics, and political economy. Its success relies on a truly unique cross-sector approach to improving healthcare for women and children.

For as long as Jordan Bateisibwa can remember, resources and funding for maternal healthcare have been scarce in his native country of Uganda.

"When my mother was pregnant with me, she had to travel over thirty kilometers to get to the nearest healthcare center," he recalled.

Now, Bateisibwa is part of a developing project—formally known as Community-Centered Development in the Ugandan Health Sector—that aims to transform and improve healthcare for women and children in Uganda.

Supported by Progressive Health Partnership (PHP)—a nonprofit focused on reducing disease burdens especially for mothers—and funded by the Center for Global Health Equity (CGHE), the Community-Centered Development Project sits at the intersection of public health, economics, and political economy. The project focuses on healthcare quality in underserved communities.

Bateisibwa, director of programs for PHP, said his humble childhood motivated him to help others, especially mothers in rural communities. "When you go through difficulties, you don't want others to have to go through them too," he said.

That mindset led Bateisibwa to work with Josh Greenberg, an MD/PhD candidate at the University of Michigan, to co-found PHP in Uganda more than a decade ago.

While he was still an undergraduate student, Greenberg met Bateisibwa, and together they worked to launch PHP. He said the idea of starting the Community-Centered Development Project came about when he and Bateisibwa were meeting with mothers who had just given birth.

"We were inspired by a particular woman who described the shortcomings in healthcare delivery that she experienced at a local public health facility. She described several accountability gaps in the service provision, and she knew that things could be better," Greenberg remembered.

The woman's story was echoed by other members of the community, and the team began to ask how to approach the problem. "We started thinking about the fundamentals of social organization. We went back to the basics," Greenberg said. "What role do governments play in citizens' lives? Who is responsible for providing resources and services to people? How can the Ugandan government strengthen its own systems of health service provision?"

Greenberg, Bateisibwa, and team began engaging with communities to organize meetings between citizens and local leaders as a way to initiate discussions that could lead to tangible change in the governance of local health facilities. They also connected with the Office of the Prime Minister, which is now assisting in the expansion of the citizen-leader meeting idea into a working model that can be applied in other communities.

Timothy Lubanga, commissioner for monitoring and evaluation in the Office of the Prime Minister, is using lessons from the project to spearhead improvements to the Government Nationwide Community Information Monitoring System, also known as Barazas. "Based on the knowledge we are gaining from this project, we are adopting new methodologies to empower local leaders at the sub-county and parish levels with monitoring skills and tools to enable them to execute their oversight roles more effectively," Lubanga noted.

> "When you go through difficulties, you don't want others to have to go through them too."
>
> –Jordan Bateisibwa
> Progressive Health Partnership

Elisa Maffioli, assistant professor of Health Management and Policy at the University of Michigan School of Public Health and an expert in health economics and policy said that addressing the institutional aspects of healthcare delivery is not only necessary but an opportunity for empowerment.

"In this specific setting, local leaders can influence what types of healthcare are provided at the community level. They can take tangible steps to ensure that government resources are allocated as intended," Maffioli explained. "When you bring citizens, local leaders, and healthcare providers together to address health-related issues, you can find ways to create a more efficient healthcare system and to improve health outcomes."

The relationships that grew out of these meetings became the foundation for two interventions the team is developing for use in Ugandan communities. The first is a citizen-leader meeting, a space for marginalized community members—especially women—to voice their concerns and perspectives to local leaders.

The second involves training local leaders to give them tools and knowledge for implementing public health improvements once they've worked with both their constituents and local health facilities to identify issues.

"When you bring citizens, local leaders, and healthcare providers together to address health-related issues, you can find ways to create a more efficient healthcare system and to improve health outcomes."

—Elisa Maffioli, U-M School of Public Health

HaEun Lee, an Impact Scholar with CGHE and a member of the team, has been in Uganda supporting the implementation of these interventions.

"These trainings take many forms, from teaching local leaders how to monitor healthcare facilities, resources, and personnel at these facilities to providing platforms for local leaders to share their experiences and learn from each other," Lee said. "At the core of these interventions are skill-building, consistency, and community engagement to empower leaders to better serve their local jurisdictions."

A central component of the Community-Centered Development Project is the chance to collaborate with partners from a diverse range of fields and backgrounds.

"We've been able to combine research directly with healthcare policy," said Lee. "Working with a range of experts allows for brainstorming, exchanging ideas, and working together in a way that is really bringing the project to life."

*Health leadership training session in Mbarara, Uganda, for local leaders from throughout the Ankole region.*

"We are so grateful the Center has been able to support the scaling-up of this initiative. Working within the Center's supportive culture and environment—and with colleagues in different fields, including the Center's Impact Scholars—has really enriched the project," Maffioli said.

The team is moving into phase 2 of the project—expanding the interventions across a much wider geographic area and conducting research to determine the effectiveness of the strategies.

"Initiatives like this are of particular interest to the Center," said Joseph Kolars, CGHE director. "We're grateful for the opportunity to learn from local partners about strategies that strengthen the ability of communities to have more agency for their health and well-being."

As the Community-Centered Development Project continues to take shape, its success will rely on a truly cross-disciplinary and cross-sector approach to improving healthcare for women and children in Uganda.

"That leaders can be engaged to help improve health services really opens people's eyes," Bateisibwa said. "From there, you can start working toward necessary change."

Other members of the grant team include Fred Muhumuza (Makerere University), Timothy Lubanga (Office of the Prime Minister), Jody Lori (UM), and Dean Yang (UM). The next phase of the Community-Centered Development Project will be advanced by LAUNCH program funding for Greenberg from the National Institutes of Health Fogarty International Center. ■

## External Funding Enabled by the Center for U-M and Global Partners

| | |
|---|---|
| **$6.5M NIH** | Utilizing health Information for Meaningful impact in East Africa through Data Science (UZIMA) |
| **$6.5M NIH** | The HEat and HEalth in Africa Transdisciplinary Center, the HE2AT Center: Developing Data Science Solutions to Mitigate the Health Impacts of Climate Change in Africa |
| **$338K NIH** | Longitudinal Study of Health and Aging in Kenya (LOSHAK) |
| **$439K NSF** | Characterizing the Use of Contextual Factors during Engineering Design |

**13**
**EXTERNAL GRANT SUBMISSIONS TO DATE**

**$13.77M**
**IN EXTERNAL FUNDING ENABLED**

*Center member Cheryl Moyer meets with a chief and other community members in the Wuru area of Upper West Ghana to discuss how research data is used in their community.*

# Innovative Approaches to Global Vaccine Equity

Researchers from thirteen academic units across the University of Michigan—including all three campuses—gathered in winter 2022 for three full days of learning and collaboration to develop new approaches that address vaccine equity in low- and middle-income countries.

The Center for Global Health Equity hosted the Global Vaccine Equity Ideas Lab, an intensive, interactive event that convened twenty-six researchers and eight faculty advisors from various disciplines for facilitated discussions leading to an array of novel research and solution-oriented initiatives that can increase vaccine equity globally.

The Center has allocated up to $3 million for transformative ideas developed by participants in the Ideas Lab. Teams formed during the event will be invited to co-design full projects with global partners and receive Center funding for their initiatives.

"Vaccine equity is a complex issue and solutions must incorporate not only the science of vaccines but also social structures, economics, policies, and more. This cohort of participants brings a variety of vital perspectives to the table," said Joseph Kolars, Center director and senior associate dean for Education and Global Initiatives in the Medical School.

During the event, participants heard from guest provocateurs who are recognized leaders in global health equity: Patricia García, professor of Public Health, Cayetano Heredia University, Peru; Joseph Mathew, professor of Pediatric Pulmonology, Postgraduate Institute of Medical Education and Research, India; and Rajeev Venkayya, past president of Global Vaccine Business, Takeda Pharmaceutical Company.

The Center recruited from all disciplines, seeking participants interested in engaging the complexities of vaccine equity. Previous experience in vaccine-related research was not required.

"Addressing vaccine and vaccination inequities will require truly interdisciplinary solutions, which is why I'm so excited about the composition of faculty participating in this upcoming event," said Matthew L. Boulton, senior associate dean for Global Public Health in the School of Public Health and lead advisor for the Ideas Lab. "The Center has developed a unique initiative to foster innovative approaches that address what represents one of the greatest contemporary challenges facing the global public health and medical communities."

The interdisciplinary cohort represented thirteen U-M units, from engineering and public policy to pharmacy and business (full list below), as well as researchers from Dearborn and Flint.

"As a Latina researcher working in the field of Latinx health inequities, my work centers on social justice and racial/ethnic health equity. Communities of color have been disproportionately impacted by COVID-19 infections and death. Participating in the vaccine equity ideas lab just makes sense," said Lisa Lapeyrouse, associate professor of Health Science and Administration at the University of Michigan–Flint. "My greatest desire is that this group of scholars can develop and implement new vaccine equity strategies that have meaningful, lasting impacts on the health and quality of life of the most vulnerable in our global community." ■

## Vaccine Equity Provocateurs

### Patricia García, MPH, MD

Professor, School of Public Health, Cayetano Heredia University, Peru
Affiliate Professor of Global Health, University of Washington

*Dr. Patricia J. García is a professor in the School of Public Health at Cayetano Heredia University in Lima, Peru. She has served as Peru's Minister of Health, dean of the School of Public Health at Cayetano Heredia University, and chief of the Peruvian National Institute of Health.*

*García is recognized as a leader in global health and has been member of the Pan American Health Organization (PAHO) Foundation's technical advisory group, a board member of the Consortium of Universities in Global Health, and president of the Latin American Association Against STDs (ALACITS). She is affiliate professor of Global Health at the University of Washington and at the School of Public Health at Tulane University. She is actively involved in research and training in global health, reproductive and sexual health, and medical informatics. She is a member of the United States National Academy of Medicine, being the first Peruvian professional to achieve this distinction.*

### Joseph Mathew, MD

Professor of Pediatric Pulmonology, Postgraduate Institute of Medical Education and Research, India

*Dr. Joseph L. Mathew is professor of Pediatric Pulmonology at the Advanced Pediatrics Centre of the Postgraduate Institute of Medical Education and Research in Chandigarh, India. Mathew has expertise in pediatric respiratory disease, vaccination and immunization for population health, and evidence-based healthcare decision making.*

*For more than two decades, Mathew has contributed extensively to advancing our understanding of how to manage childhood asthma, tuberculosis, cystic fibrosis, and pneumonia, leading several research projects and publishing extensively in these areas. He has also contributed to evidence-based policymaking around the mitigation of several respiratory conditions and the expansion of vaccine uptake in contexts of developing countries.*

### Rajeev Venkayya, MD

Past President, Global Vaccine Business Unit, Takeda Pharmaceutical Company

*Dr. Rajeev Venkayya recently transitioned from a role as president of the Global Vaccine Business Unit at Takeda Pharmaceutical Company, where he led a vertically-integrated business developing vaccines for dengue, norovirus, and Zika. Venkayya serves as an independent member of the board of the Coalition for Epidemic Preparedness Innovations and the International AIDS Vaccine Initiative and is a life member of the Council on Foreign Relations.*

*Prior to joining Takeda, Venkayya served as director of Vaccine Delivery at the Bill and Melinda Gates Foundation's Global Health Program and served on the board of Gavi, the Vaccine Alliance. Before that, he was special assistant to the president for Biodefense at the White House. In this capacity, he oversaw US preparedness for bioterrorism and biological threats and was responsible for the development and implementation of the National Strategy for Pandemic Influenza. Venkayya trained in pulmonary and critical care medicine at the University of California, San Francisco, where he also served on the faculty. He was resident and chief medical resident in internal medicine at the University of Michigan.*

## Innovative Programming to Bring People Together

**Why do people join the Center for Global Health Equity?** Because they are passionate about the movement, possess skills to engage in impactful collaborations, and find in this community others with a similar desire to do meaningful work.

*"I can think of no better place than the University of Michigan to advance the pursuit of research excellence globally by developing methods and infrastructure that lead to better and more open social science data for pressing global questions."*

—Amy Pienta
Institute for Social Research

*Amy Pienta speaks at a retreat focused on designing the Center's new Data Collaborative.*

## Events That Build Community
## **October 2022 Community Gathering**

The Center's growing membership represents a diverse community of experts focused on interdisciplinary solutions to global health challenges.

*Center member Jody Lori (third from left) and Center director Joseph Kolars (second from right) with Dr. Francois (center) and colleagues in front of one of the rural health centers connected to Butaro District Hospital.*

Amina Abubakar
Psychology,
Aga Khan University

Omolade Adunbi
Literature, Science & the Arts

John Ayanian
Institute for Healthcare
Policy and Innovation

Olufunmilayo Banjo
Demography and Social Statistics,
Obafemi Awolowo University

Jordan Bateisibwa
Director of Programs,
Progressive Health Partnership

Sue Anne Bell
Nursing

Matthew Boulton
Public Health

Bilal Butt
Environment & Sustainability

Jean Claude Byiringiro
Medicine, University of Rwanda

Paul Clyde
Business

Joseph Eisenberg
Public Health

Lisa Fedina
Social Work

Mary Gallagher
Literature, Science & the Arts

Dirgha Ghimire
Institute for Social Research

Gary Harper
Public Health

Amy Huang
Medicine

Carlos González-Cabezas
Dentistry

Branko Kerkez
Engineering

Jody Lori
Nursing

Nancy Love
Engineering

Joseph Mathew
Advanced Pediatrics Centre, India

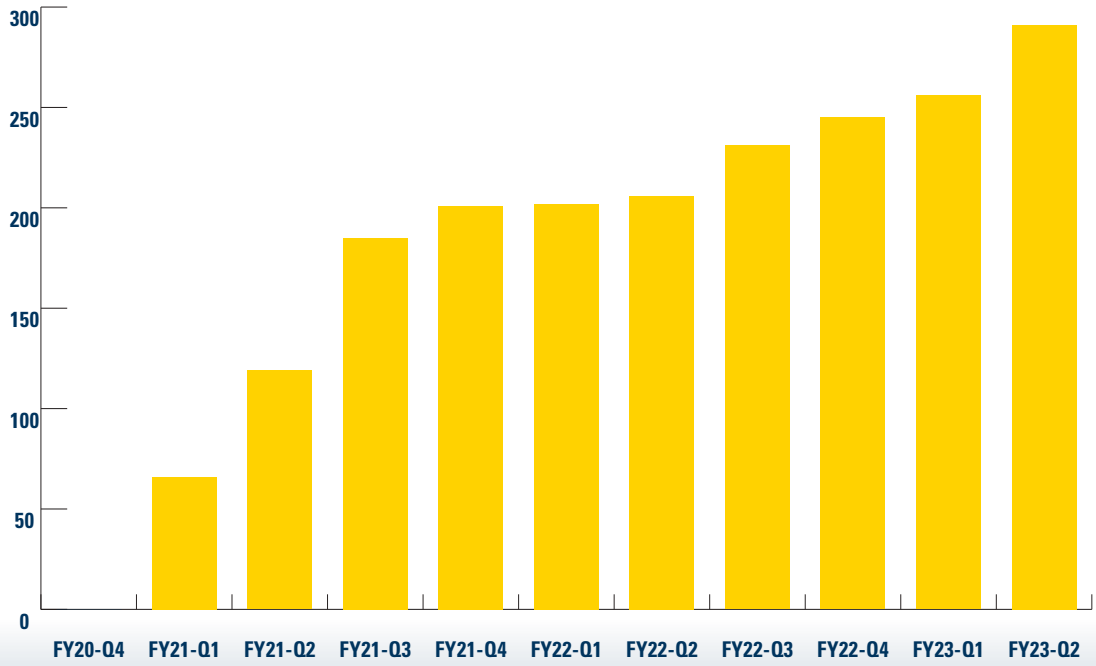
Shobita Parthasarathy
Public Policy

Lee Schroeder
Medicine

Maka Suarez
Anthropology, University of Oslo

**291**
**Members**
**246** Faculty Members
**45** Associate Members

Membership Growth
Since the Center Opened




**A Global Community for Health.** The Center for Global Health Equity supports a diverse community of practice focused on interdisciplinary solutions to global health challenges in limited resource settings.

From September 2020 to January 2023

# The Center organized and hosted 17 seminars with 1,400+ participants

## Events That Build Community

### April 2022 Community Gathering

### July 2022 Data Collaborative Retreat

# Engaging Students

From business to public health to social sciences, University of Michigan programs are consistently ranked in the top 10 worldwide. We need students from all disciplines to address the greatest challenges in global health equity. The Center is actively building a student movement to help learners from all backgrounds see themselves in the global health equity space—whether in foundational research or public policy, health care or health communications. Center student programs help train the next generation of global health champions.

## Journeys in Global Health Equity

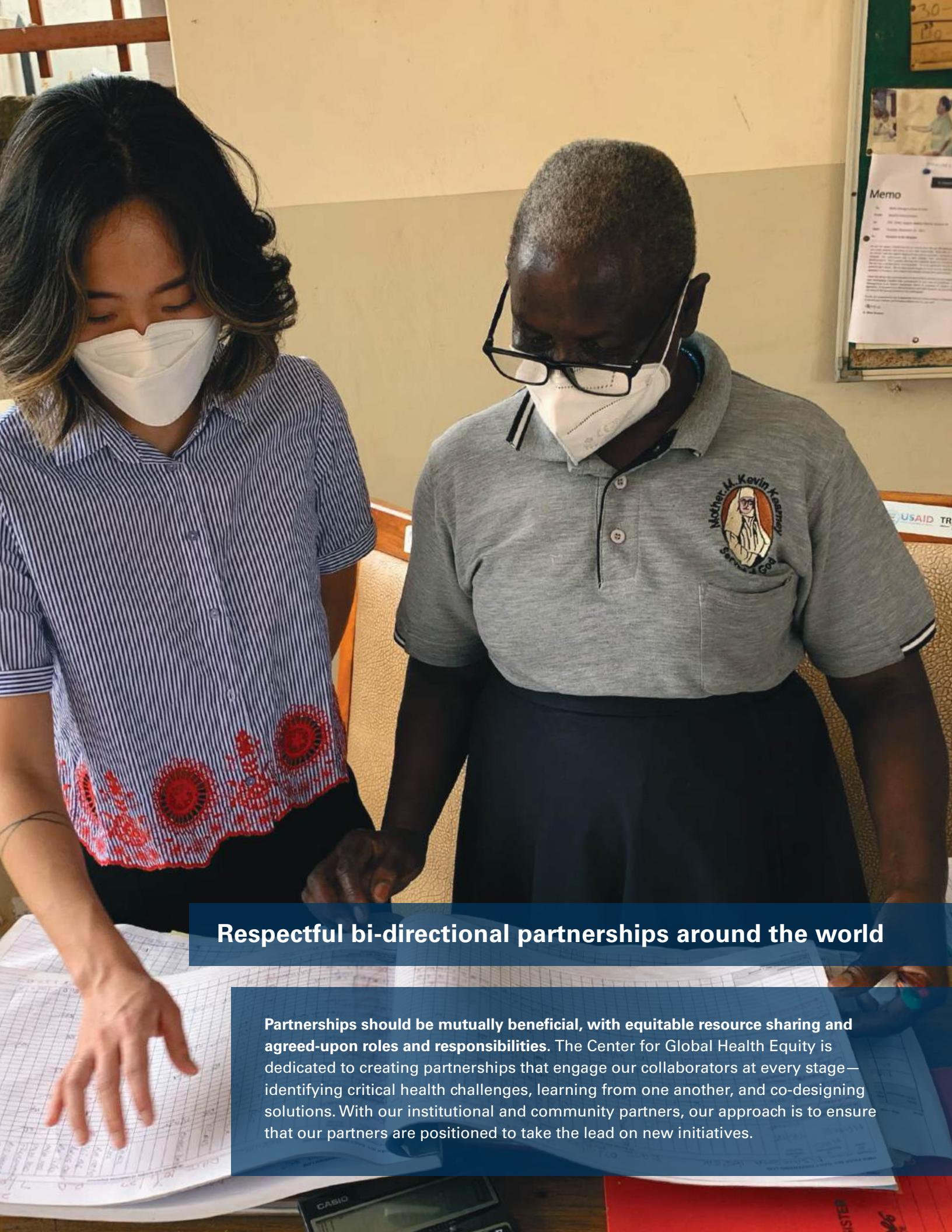
Distances Traveled by Luminaries in the Field

The Center's 2022-2023 academic year seminar series features global health luminaries from around the world. These conversations provide audience members with an intimate glimpse of the professional and personal journeys of leading global health advocates, the critical challenges they see in the field, and how academic centers can contribute to relevant solutions.

## On Campus with Lukoye Atwoli
## **February 2022 in Nairobi**

## On Campus with Lukoye Atwoli
## **April 2022 in Ann Arbor**

*Above: Center member Lukoye Atwoli—dean of the Aga Khan University Medical College, East Africa—presents on the AKU-Nairobi campus. Below: Atwoli with Center director Joseph Kolars in conversation on the U-M campus. Right: Kenya health official going over tuberculosis data with Impact Scholar HaEun Lee.*




## Respectful bi-directional partnerships around the world

**Partnerships should be mutually beneficial, with equitable resource sharing and agreed-upon roles and responsibilities.** The Center for Global Health Equity is dedicated to creating partnerships that engage our collaborators at every stage—identifying critical health challenges, learning from one another, and co-designing solutions. With our institutional and community partners, our approach is to ensure that our partners are positioned to take the lead on new initiatives.

**Center funding enables collaboration beyond the University of Michigan**

**74** international researchers

**61** U-M researchers

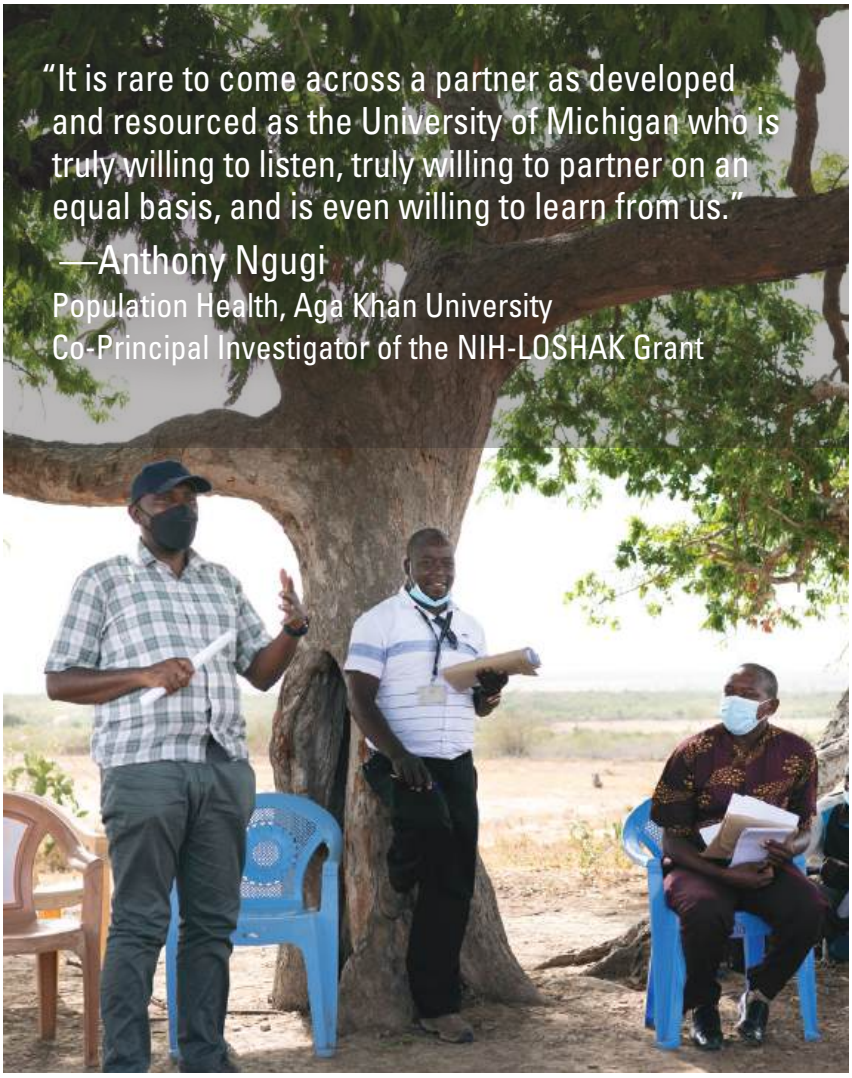
**45** partner institutions and organizations

**15** countries represented

"None of our health challenges can be solved by one discipline."

–Farhana Alarakhiya
Chief Data Innovation Officer, Aga Khan University

*Farhana Alarakhiya speaks at a retreat focused on designing the Center's new Data Collaborative.*



"It is rare to come across a partner as developed and resourced as the University of Michigan who is truly willing to listen, truly willing to partner on an equal basis, and is even willing to learn from us."

—Anthony Ngugi
Population Health, Aga Khan University
Co-Principal Investigator of the NIH-LOSHAK Grant

## TOP TWEETS

**ETHIOPIA. Lia Tadesse** 6,684 Impressions | 312 Engagements

**KENYA. Lukoye Atwoli**
1,211 Impressions | 26 Engagements

**UGANDA. King Faisal Hospital**
3,432 Impressions | 94 Engagements

*Top: Anthony Ngugi (left) and Felix Agoi (center) present health information at a community health dialogue and data sharing meeting near Mariakani Hospital in Kaloleni, Kenya. Above: Impact Scholar HaEun Lee and Jordan Bateisibwa (front row center) with Progressive Health Partnership colleagues, Bushenyi District Southwestern Uganda.*

## How We Approach Impact

Moving beyond traditional academic measures of success

Focusing on solution-driven initiatives for positive change

Valuing health equity—the idea that everyone has fair, just opportunities to live as healthy a life as possible

Embracing genuine collaboration—valuing local partnerships, leveraging expertise across the university, finding synergy

Promoting bidirectional learning and capacity sharing

Demonstrating cultural humility

Operating with accountability and transparency

*Top left: Becky Odhiambo, programs director for the Western Kenya LBQT Feminist Forum (WKLFF), leads a research training near Kisumu as part of the Empowerment for Us by Us (E4UBU) project.*

*Top right: Ernesto Martinez (U-M Engineering), and a household member, take samples from a tinaco, a rooftop storage unit that holds piped water from the municipal system as part of the Health and Socioeconomic Impacts of Water Intermittency in Mexico project.*

*Right: Staff and volunteers of the Institute for Social and Environmental Research in Chitwan, Nepal, including partners on the Dementia Biometrics in the Chitwan Valley project.*

*For more on these projects, see page 24.*

SUPER

# Committed to Changing the World

## The Global Legacy of Tachi Yamada

Tachi Yamada quite literally changed the world. It is easy to look at the current pandemic—and so many other infectious disease trajectories—and think we are behind the curve. And perhaps we are in many ways.

But in the last twenty years, through the development and deployment of new drugs—and through a seismic transformation in the pharmaceutical industry—health systems around the world have new tools in the fight against malaria, tuberculosis, HIV, and other diseases that make millions of people sick every year.

And Tachi was at the center of much of that.

### A Question and a Challenge

Tachi liked to ask a simple question that demands we consider the very future of human health.

*Why should our health be so deeply influenced by where we're born?*

Tachi was passionate about equity, so much so that our Center here at the University of Michigan is not a Center *for global health* but a Center *for global health equity*. This comes from the recognition that our health is greatly influenced by the circumstances into which we were born—local economic resources, environment quality, access to education, access to healthcare.

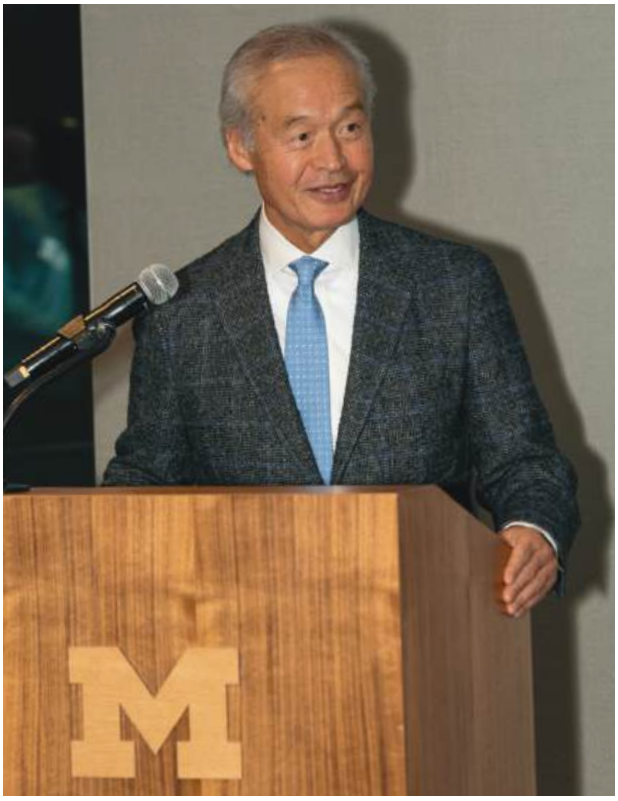
Out of our control, apart from any decisions we make as individuals, our health outcomes from an early age and even before we're born can be profoundly different based solely on our location.

Tachi began his career in academia and thought this should be an area of scholarship. He thought universities should be dedicated to conducting research that helps reduce gaps in health. He thought we should pay close attention to how we conduct research so that our approaches themselves supported the growth and expansion of health for everyone.

Tachi was particularly passionate about the health of individuals and communities in low- and middle-income countries, where health challenges are remarkably complex and demand interdisciplinary solutions.

### Stellar Academic and Beloved Mentor

Tachi was always looking for the best in people and for the positive aspects of any challenging situation. Instead of writing off academia as



*Tachi Yamada addresses the audience at an event celebrating the announcement of the Yamada family gift to establish the Center for Global Health Equity at the University of Michigan.*

"Throughout his life, Tachi recognized the many ways a university is uniquely positioned to take on global health challenges, and he looked for ways to incentivize academics to partner across disciplines and across borders in new and creative ways."

—Joseph C. Kolars

an antiquated enterprise that couldn't adapt, he insisted that it get better. Instead of getting hung up on academia's focus on traditional research metrics, he saw the tremendous potential for interdisciplinary collaboration.

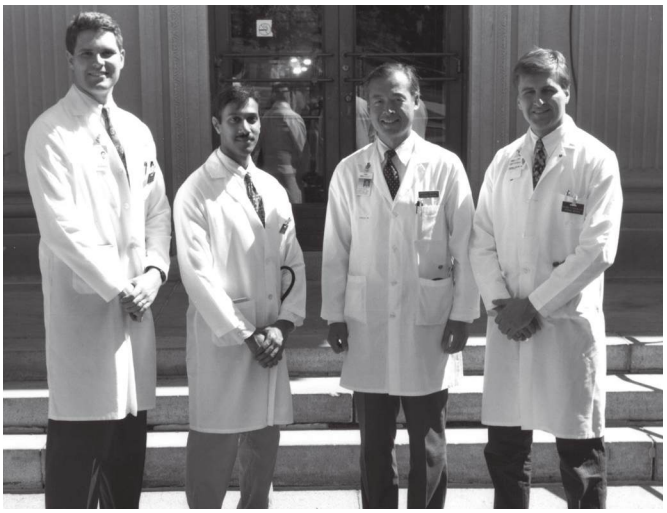
Not every academic thinks and works outside their own discipline. But every university campus is a physical representation of the breadth of human knowledge, with experts in the arts, sciences, business, engineering, and medicine all sharing the same space.

Tachi modeled this in the broad arc of his own career, giving everything he had as a physician, academic, business leader, and executive director of the Bill and Melinda Gates Foundation's Global Health program.

But he always leaned into this positive aspect of academia—its unique ability to be truly interdisciplinary. Throughout his life, Tachi recognized the many ways a university is uniquely positioned to take on global health challenges, and he looked for ways to incentivize academics to partner across disciplines and across borders in new and creative ways.

As a scholar, Tachi was known not only for his wisdom, talent, and passion but for his prolific knowledge of the areas he was managing. He spent hours every day reading, ensuring he was well versed in the exigencies of the situation.

Tachi was an unparalleled mentor. He had the ability to truly understand how somebody was thinking, what their inner values were even if they weren't being expressed. And he had the ability, then, to show somebody where they could be, what they could become.



*Top: Tachi Yamada and Mimi Takami outside the Michigan League during commencement week. Takami is now assistant professor of Internal Medicine in the U-M Medical School.*

*Below: Tachi Yamada with chief medical residents (l-r) Robert Ernst, Rajeev Venkayya, and Michael Hudson.*

*Tachi Yamada with Bill Gates*

"In his new role, Tachi again saw problems as opportunities. He focused his efforts on understanding how all of the entities do and could work together, and how they might improve their communication and alignment around urgent health needs. He pioneered efforts in vaccine development and disease eradication, initiatives he knew could be remarkably cost-effective and health-effective when all components of the system worked together."

—Joseph C. Kolars

Tachi believed that everyone has gifts to offer, everyone has something to bring to the table. I watched him time and again prioritize the development of others, helping countless individuals pursue careers in a diversity of fields.

His ability to lift those around him to unimagined heights stands at the heart of his legacy. And this applies not only to individuals but to entire institutions and industries.

## An Undaunted Advocate

Tachi quietly changed the face of the global pharmaceutical industry. As a newly appointed director in the upper echelons of a leading drug conglomerate, Tachi learned that his was one of 39 companies suing Nelson Mandela and the government of South Africa for their handling of HIV drug prices. Tachi thought this was unconscionable and began leading thoughtful, constructive conversations at multiple levels of the organization to find solutions that would give people access to medicine they needed.

Tachi's understated courage garnered him the attention of the Gates Foundation, where he took on a leading position in their global health initiatives. At the time, global health was still being defined in a fundamental way, and the institutions involved ranged from local health leaders to educational institutions to national governments to multinational corporations.

In his new role, Tachi again saw problems as opportunities. He focused his efforts on understanding how all of the entities do and could work together, and how they might improve their communication and alignment around urgent health needs. He pioneered efforts in vaccine development and disease eradication, initiatives he knew could be remarkably cost-effective and health-effective when all components of the system worked together.

*Tachi Yamada after receiving the honorary Knight Commander of the Order of the British Empire from Queen Elizabeth II in 2007, pictured here (l-r) with Takao Yamada, Leslie Yamada, Tachi, Elliott Yamada, and Sanae Yamada.*

And Tachi emphasized education in low-income countries. He knew that—beyond technical solutions like new drugs and delivery systems—we had to think about the healthcare workforce. He recruited me to be a partner here, supporting the advancement of healthcare training and capacity in these settings.

## Proponent of the Movement

Tachi was a committed philanthropist, a practical visionary able to perceive both novel possibilities and the practical steps required to achieve them.

At a moment in time when so many in academia—including students—had a deep hunger to serve others and a desire to ensure their work is relevant, Tachi again sought to draw out the best in all of us. He envisioned academia as playing a significant role in global health. And with that vision, Tachi and Leslie have positioned the entire University of Michigan to succeed.

Tachi and Leslie's generous gift to create the Center for Global Health Equity is a continuation of their commitment to imagine and enable big solutions.

The Center is working not only to advance health research and other initiatives but to constantly evaluate how we are doing that work. Our paradigm is to ensure our work in co-designed research and student engagement will lead to deep impact. We assume bidirectional learning in all we do, knowing we have just as much to learn from partners in other communities as they might from us.

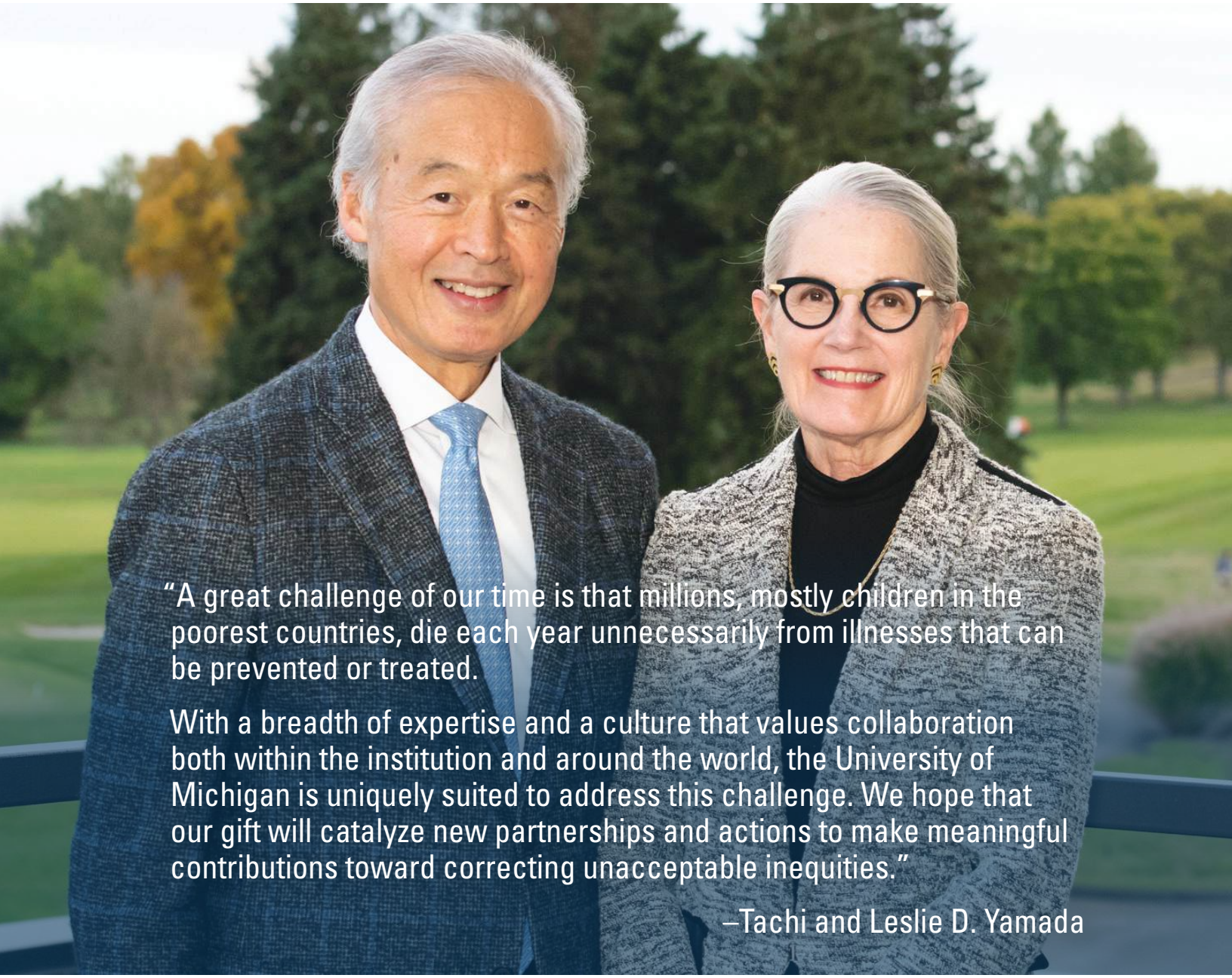
We remain committed to the word equity in our Center's name. As we remember and honor Tachi, we will have the highest, most sincere commitment to collaborating in new ways—ways that serve our partners first, ways that imagine a better future and the steps that will take us toward it.

*—Joseph C. Kolars*
*Director, Center for Global Health Equity*

*Tachi and Leslie Yamada in 2018, when Tachi received the Order of the Rising Sun, Gold and Silver Star, in recognition of his contributions in strengthening Japan's leadership and public-private partnerships in the field of global health.*

*Tachi Yamada addresses members of the U-M Internal Medicine department.*

# A Commitment to Global Health



"A great challenge of our time is that millions, mostly children in the poorest countries, die each year unnecessarily from illnesses that can be prevented or treated.

With a breadth of expertise and a culture that values collaboration both within the institution and around the world, the University of Michigan is uniquely suited to address this challenge. We hope that our gift will catalyze new partnerships and actions to make meaningful contributions toward correcting unacceptable inequities."

–Tachi and Leslie D. Yamada

Not content with the status quo, the late Tachi Yamada and Leslie Yamada have devoted their personal and professional lives to supporting thoughtfully disruptive ideas that lead to tangible results.

The Yamada family is dedicated to fostering paradigm-shifting ideas and positive change at the University of Michigan—empowering faculty, staff, and students through the Center for Global Health Equity with new resources to make a greater positive impact on the health of those with the greatest need, anywhere in the world.

CENTER FOR GLOBAL HEALTH EQUITY
UNIVERSITY OF MICHIGAN

globalhealthequity.umich.edu