



# DUKE GLOBAL HEALTH INSTITUTE

2010 Director's Report

Barbados China Ghana Jamaica Haiti Honduras India Indonesia Kenya Mexico Nicaragua





## CONTENTS

- 2 Partnership Builds Capacity,  
Responds to Community Needs in Tanzania
- 4 Educating Future Global Health Leaders
- 10 Engaging Faculty
- 16 Building Partnerships
- 20 Looking Ahead



**Dec 2004**  
University-wide  
Global Health  
Steering  
Committee is  
formed by the  
Provost and  
Chancellor

**April 2006**  
University-wide  
Symposium kicks  
off Duke's global  
health initiative

**June 2006**  
Steering  
Committee  
report calls for a  
university-wide  
Global Health  
Institute

**Sept 2006**  
Global Health  
Certificate begins

**Nov 2006**  
Michael Merson  
begins as  
founding director

**July 2007**  
Center for Health  
Policy joins DGHI

**Aug 2007**  
GH PLUS delivers  
first shipment of  
surplus medical  
equipment  
to Uganda

**Oct 2007**  
DGHI Executive  
Committee  
approves bylaws

**Dec 2007**  
Five-Year DGHI  
Strategic Plan  
is finalized

**Jan 2008**  
Global Health  
Residency Program  
is approved,  
coordinated by the  
Hubert-Yeargan  
Center for  
Global Health

**G**lobal health programs are spreading like wildfire across college campuses. The desire among today's youth to "make a difference in the world" is being harnessed, and Duke is no exception. With great foresight, Duke faculty and leadership established the Duke Global Health Institute more than three years ago. Since that time, global health has become widely recognized as a growing and viable field of study and scholarship. In fact, we are literally helping to write the definition of global health.

Among our many accomplishments is the development of 12 quality education programs for a wide range of students, from undergraduate to graduate and professional. These programs combine the classroom with real-world fieldwork and research service-learning experiences throughout the world.

In addition to their teaching, Duke faculty are undertaking cutting-edge research on some of the world's most pressing global health challenges. DGHI's growing base of faculty includes 78 members

and affiliates representing fields from engineering, health systems and public policy to cardiology, emerging infections and the environmental sciences, to name a few.

DGHI is an engaged and collaborative partner with many of Duke's schools, departments and institutes to help "internationalize" Duke.

Through this report we aim to provide a glimpse into the people, places and programs that make up the Duke Global Health Institute. We have carefully selected these stories to demonstrate the diversity and breadth of the Institute's work. We encourage you to visit our website, [www.globalhealth.duke.edu](http://www.globalhealth.duke.edu), for a complete listing of all our programs.

DGHI and Duke are increasingly recognized as a model of interdisciplinary education, research and service-learning, and as a leader among academic global health programs. I am proud of these accomplishments, and of the dedicated faculty, staff and students who are responsible for our success. 🇺🇸

## MISSION STATEMENT

The Duke Global Health Institute (DGHI) works to reduce health disparities in our local community and worldwide. Recognizing that many global health problems stem from economic, social, environmental, political and health care inequalities, DGHI brings together interdisciplinary teams to solve complex health problems and to train the next generation of global health scholars.



**Michael H. Merson, M.D.**  
*Wolfgang Joklik Professor of Global Health  
Director, Duke Global Health Institute*



- Jan 2008**  
DGHI given authority to appoint regular rank, non-tenure faculty
- June 2008**  
DGHI initiates support for student summer fieldwork
- Nov 2008**  
First Global Health Postdoctoral Fellow named
- Dec 2008**  
Board of Trustees approves Master of Science in Global Health (MSc-GH)
- June 2009**  
DGHI awarded NHLBI grant to help establish Center of Excellence in Cardiovascular Disease in China
- July 2009**  
DGHI begins first international education program at Peking University
- Aug 2009**  
First MSc-GH class matriculates
- Dec 2009**  
DGHI Student Council holds first meeting
- April 2010**  
DGHI external Board of Advisors holds inaugural meeting



## PARTNERSHIP BUILDS CAPACITY, Responds to Community Needs in Tanzania



Cutting-edge research and world-class clinical training have led to improved health care for thousands of people in northeastern Tanzania, where Duke's decade-long partnership with Kilimanjaro Christian Medical Centre (KCMC) continues to thrive.

The partnership began in Moshi in 1995 and combines a strong research infrastructure with faculty dedicated to addressing health needs of the community. Duke-KCMC serves as a model for the integration of global health research, education and service-learning.

"There have been a number of discoveries in research, whose focus has been determined through discussion, deliberation and identification of common goals," said John Bartlett, professor of medicine, associate director of research at DGHI and a pioneer in HIV/AIDS research and care. "In addition, there's a teaching component that involves capacity building on both sides. It's based upon a spirit of wanting to learn, a spirit of mutual respect that each partner has something to teach the other."

In 2005, Bartlett, a Duke faculty member for more than 23 years, and his family moved to Tanzania to continue building a collaborative relationship with the people involved in ongoing clinical and research work related to HIV at KCMC.

Now led by John Crump, assistant professor

of medicine and DGHI member, the Duke-KCMC partnership has grown beyond HIV/AIDS to include other infectious diseases, women's reproductive health and mental health.

### Building Capacity for Improved Testing, Treatment

With financial support from the National Institutes of Health and other sources, Duke's long-term investment in KCMC has led to the establishment of a robust, state-of-the-art research laboratory with more than \$2 million worth of medical equipment and technology. Duke and KCMC also partnered with the Elizabeth Glaser Pediatric AIDS Foundation and the US Centers for Disease Control and Prevention- Tanzania to build the "Child Centered Family Care Clinic," which combines family-oriented HIV care, training and research collaborations to improve HIV treatment, prevention and care.

"There's great synergy in having an area in the community where patients are seen and research staff are working," said Bartlett. "This allows us to have access to the patients and recruit them into studies. The results of these studies can then provide feedback and help improve the quality of care given to patients."

More than 15,000 Tanzanians have been tested and referred for care through a Duke-supported HIV voluntary counseling and testing (VCT) site in Moshi. In a study of behavioral factors associated with voluntary testing, Duke researchers found that testing rates quadrupled when it was offered free of charge. In part, as a result of this research, the Tanzanian government has agreed to pay for HIV testing so it can continue to be free of charge to patients.

In addition to free testing, Duke-KCMC researchers dis-

covered that the availability of free antiretroviral therapy leads to better adherence to medications and better treatment outcomes. East Africa has seen a decline in HIV prevalence, which is likely attributable to the combined services of VCT, access to care, community-based education and the availability of free treatment.

### Responding to Community Needs

In response to concerns raised by local physicians, Duke-KCMC faculty worked with health providers at two Moshi hospitals to investigate the cause of fever among children and adults.

Fever is a symptom of malaria, which is prevalent in sub-Saharan Africa, but can also be associated with treatable bacterial infections, tuberculosis and cryptococcal meningitis. Using the specialized KCMC laboratory to test nearly 500 blood cultures taken from febrile children, researchers found that 62 percent of the children received treatment for malaria, yet only two percent were found to have malaria. This patient information was immediately delivered to hospital clinicians to ensure patients received the appropriate treatment. These blood tests are being routinely done today, enabling Tanzanian clinicians to better care for their patients.

"This dramatically changed the paradigms of care in Tanzania," said Bartlett of the findings that were presented at the American Society of Tropical Medicine and Hygiene annual meeting in fall 2009.

Also likely to change health care in Tanzania is an alternative method of HIV testing that does not require refrigeration of blood samples, a crucial issue in remote settings where clinics and HIV testing labs are scarce and electricity is unavailable.

In the largest field study of its kind, Crump and a team of researchers found a strong correlation between viral load values using the current standard of plasma collection, which requires freezing and shipping in a cold chain to a central lab, and an alternative method that uses dried blood spots,



*"There's a teaching component that involves capacity building on both sides. It's based upon a spirit of wanting to learn, a spirit of mutual respect that each partner has something to teach the other."*

JOHN BARTLETT, M.D.



which can be stored at room temperature. The 10-month experiment was undertaken at two remote sites in Tanzania and blood samples were tested at a central lab at KCMC, some 250 to 350 kilometers away from the two sites. These findings could lead to far greater access of HIV/AIDS testing and monitoring in remote parts of Africa.

### Expanding beyond HIV/AIDS

Beginning exclusively as an HIV-focused clinical research effort, the Duke-KCMC partnership has expanded to address other critical health needs. With the recruitment of additional faculty, new research is under way in women's reproductive health. Today, Moshi is host to faculty, students, global health residents and trainees from Duke Schools of Medicine, Nursing, Public Policy, Arts and Sciences, Divinity and Engineering.

The Duke-KCMC Women's Health Collaboration, established by DGHI member Jeffrey Wilkinson and a team of researchers including many from Tanzania, is playing an important role in research, training and service in Tanzania. Research is currently under way in the areas of cervical cancer, stillbirth/early neonatal death, postpartum hemorrhage, training for emergency obstetric care, laparoscopic surgery, obstetric fistula and related stigma, and preeclampsia. Wilkinson has also developed the East African Women's Health Network, which promotes cross-border collaborations between health care providers, governmental, nongovernmental and international organizations.

With support from foundations, agencies and individual donors like Thomas Gorrie, DGHI Board of Advisors chair and Duke University trustee, Duke and KCMC are poised to continue building the infrastructure in Moshi, expanding its research focus as health needs change, and delivering advanced training and medical care to the people of Tanzania. This dynamic partnership serves as a successful model for other global health partnerships as institutions jointly tackle the world's greatest health challenges. 📄

## BI-DIRECTIONAL EDUCATION SUSTAINS GLOBAL HEALTH RESEARCH IN TANZANIA

**THE DUKE-KCMC COLLABORATION** will continue to prosper for decades to come with the passing of the torch to a new generation of students, trainees and clinicians who are committed to improving health.

Since 2002, Duke-KCMC has hosted dozens of Duke students and trainees, including medical students and global health residents, who engage in clinical practice and global health research. It's an enriching and rewarding experience for the committed and diverse group of students, many of whom have published research in professional journals and are pursuing careers in global health research.

Equally important is the education and training of Tanzanians to one day pioneer groundbreaking clinical and research programs that help the people of their own country. With support from the Fogarty International Center and with leadership of Duke faculty John Hamilton, Duke has enabled 34 Tanzanian trainees to complete research training in the US and elsewhere in the world.

"It's a blessing to have this opportunity," said Habib Ramadhani, a Tanzanian who received a Duke Master of Science in Clinical Research in 2008 and is currently a doctoral student in epidemiology. "There are lots of people out there who wish to pursue studies in the US, but they have not been able to do so. To have a wish and be able to accomplish your wish, it is a blessing."

Ramadhani's aspiration is to understand the causes of diseases that are treatable in the developed world, yet debilitating and deadly in Tanzania. He worked as a doctor in Tanzania prior to his advanced training, from which he realized that a career in public health would be more useful to him.

"Armed with a PhD in epidemiology as a young investigator, I have a goal of developing human resources capacity in Tanzania through teaching and mentoring at the medical school," said Ramadhani, who recently led a study on adherence to medications among HIV/AIDS patients. "I also plan to work to develop new research tools and algorithms that would be relevant in my setting with the hope of influencing and changing public health policies."

As Ramadhani and other Tanzanian trainees return to KCMC, they will lead the way in building capacity in their country as talented, dedicated experts in medicine.

# EDUCATING FUTURE GLOBAL HEALTH LEADERS

## GLOBAL HEALTH EDUCATION AND TRAINING PROGRAMS

### UNDERGRADUATE

- Global Health Focus
- Global Health Certificate (also graduate)
- Winter Forum (January 2011)
- Global Semester Abroad (begins Spring 2011)
- Provost's Undergraduate Team Teaching Initiative (begins Spring 2012)

### GRADUATE

- Master of Science in Global Health

### MEDICAL

- Global Health module in School of Medicine curriculum
- Third Year Study Program in Global Health
- Global Health Residency

### POSTDOCTORAL AND PROFESSIONAL

- Postdoctoral Fellowship
- NC Health Disparities Fellowship

### INTERNATIONAL

- Duke-Peking University Global Health Diploma

Since its founding, one of DGHI's greatest strengths has been the energy and enthusiasm of Duke students. Channeling that enthusiasm toward rigorous academic programs and faculty-mentored service-learning projects has been among DGHI's top priorities.

With a dozen programs targeting undergraduate, graduate, postdoctoral and professional learners, DGHI's education and training portfolio continues to grow both on the Durham campus and abroad. *See graph for enrollment growth since 2007.* Just as DGHI is not situated within one school or department, its education programs are not oriented toward one discipline. Global health education attracts students from every corner of campus, including public policy, arts and sciences, medicine, engineering, environment, business, nursing, divinity and law.

In four years, the Global Health Certificate program (open to undergraduate and graduate students) has become the second largest Certificate program on campus with 112 students currently enrolled. The program will graduate its largest cohort to date of 46 students in May 2010. The Institute's Master of Science in Global Health welcomed its inaugural class of 17 students in August 2009 and will continue to grow in coming years. A recent survey of Duke medical students found that among second-year students, two-thirds chose Duke—at least in part—for its global health programs, and as many as one-third intend to participate in the Third Year Global Health Study Program.

DGHI relies heavily on its international sites and partners to make these programs, and the research service-learning components they include, successful and meaningful for students. *See page 16 for a map of Duke Global Health Sites.* In summer 2009, DGHI placed more than 50 undergraduate and graduate students in research service-learning projects in 11 countries, including the United States. In addition to mentoring and placement, DGHI provides funding to students for summer fieldwork projects in global health. These opportunities are often life-changing for

*“Access to health care is a human right, and global health is the best tool we have to reduce disparities globally.”*

AARON STOERTZ

students and are instrumental in supplementing their academic learning with real-life experiences.

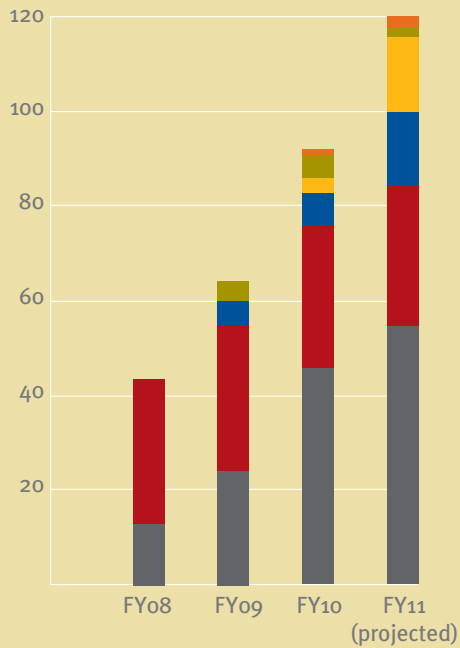
In partnership with the Hubert-Yeargan Center for Global Health, the Global Health Residency Program began in 2008 and has expanded to 11 residents from four departments in the Medical Center. Global health residents spend at least nine months of research and clinical work at a global health site, most often in Tanzania, Kenya or Uganda.

In 2009, DGHI teamed up with Peking University (PKU) in Beijing to establish its first international training program, the Duke-PKU Global Health Diploma. This successful two-week program was co-taught by faculty from Duke and PKU. The program will be repeated in summer 2010 and there are plans to replicate it with institutions in other countries.

A top future priority in the area of education and training is the development of distance learning initiatives and the enhancement of instructional technology tools and resources. Over the coming months and years, DGHI intends to take advantage of the vast array of technology to open the classroom to the world, and the world to Duke's classrooms. In partnership with Duke's Office of Information Technology, our aim is to open global health training to more international audiences.

The following pages provide profiles of four outstanding future leaders in global health. Their energy, enthusiasm and drive to serve humanity are the motivators that make DGHI's education and training programs a success. 🌟





### Students Completing Duke Global Health Education Programs

- Postdoctoral Fellowship
- Global Health Residency
- Master of Science in Global Health
- Third Year Study Program
- Global Health Focus
- Global Health Certificate





FRANCES AUNON

## FRANCES AUNON

B.A., Cultural Anthropology,  
Global Health Certificate, 2010

Hart Leadership Program:  
Service Opportunities  
in Leadership

DGHI Student Council,  
Undergraduate Chair

Hometown: Burke, Virginia

From the start of her college career, Frances Aunon knew she was interested in reducing health disparities in resource-poor settings. Once at Duke she quickly became involved in more than half a dozen global health-related education programs and service-learning opportunities, and is poised to graduate this spring with unlimited opportunities at her fingertips.

Aunon's initial interest in global health came from her participation in the Global Health Focus program. That spark was further flamed by interactions with her Duke faculty mentors, and has now turned into a passion that has shaped her personal and professional paths.

"For me, stumbling upon global health was life-changing," says Aunon, who spent a spring break and two consecutive summers working with the Costa Rican Humanitarian Foundation to address the social, cultural and health challenges in La Carpio, outside of San Jose. "I had the chance to build trust, relationships and capacity within a population that is in great need. It was a really great experience because it also taught me how to conduct community-based research. I'm so grateful for the support structures I've had here at Duke and DGHI, and also in Costa Rica, because without them, I really wouldn't be the person I am today."

As a Global Health Certificate student, Aunon completed the six core global health courses. They enriched her understanding of global health challenges and trained her to think critically and find innovative solutions. Armed with this knowledge, Aunon developed a microfinance program and conducted a needs assessment of the Nicaraguan immigrant community living in the Costa Rican slum. She also organized a child education program which has been sustained by the community. The following summer, Aunon led a team of Duke students back to the village to discover that she had inspired a spirit of transformation and sustainability among the children, women and families she had worked with previously.

"It was rewarding to see how our efforts actually made a lasting difference, especially with the children who had continued going to the community center or began to attend school," said Aunon. "Sometimes it's just a buzzword—making a difference. But, it's nice to return three times over a two-year period and see how our work carried over."

During her undergraduate years at Duke, Aunon co-authored a white paper on the role of universities in civic engagement, completed a research project on the perceptions of HIV/AIDS among Brazilian sex workers, and worked at a Washington, DC-based Latin American think tank, where she gained a broader understanding of global public policy and its implications for NGOs working on the ground.

Aunon's most recent contribution to global health came this year as the undergraduate chair for the newly-created DGHI Student Council. In this position, she is organizing a student global health case competition that will propose a feasible community-based solution to a real global health challenge. The case will be linked to a DGHI signature research initiative within one of Duke's global health sites. Aunon is also an active participant in a new partnership with the Triangle Global Health Consortium to design and implement a year-long mentoring and training program for Duke undergraduates and students from neighboring universities.

With a promising future, Aunon has positioned herself to be a leader in global health. "Duke has prepared me extraordinarily well, both on an academic level and on a personal level, to listen and to lead. A number of DGHI faculty members have taught me how to work with a community and how to apply that knowledge in the field in a constructive way. That winning combination has prepared me for what I hope will be an exciting career in global health." 🌍





JERRY BLOOMFIELD

He's considered a trailblazer for being among the first of a new generation of physicians to pursue heart disease research in the developing world. Jerry Bloomfield, a Duke cardiovascular medicine fellow, knows that chronic diseases are no longer diseases of the wealthy.

Supported by training and research grants from the Fogarty International Center and the National Heart, Lung and Blood Institute at the National Institutes of Health, Bloomfield is currently launching a clinical research program in Eldoret, Kenya to evaluate the causes of heart failure among East Africans.

"Although we've been taught that the primary causes of heart disease in Africa are infections and congenital disorders, they are probably much more similar to those in the US than most people believe," said Bloomfield.

Prior to his cardiology fellowship at Duke, Bloomfield completed clinical rotations at Kijabe Medical Centre, located 40 miles northwest of Nairobi, where he later served as the interim director of the intensive care unit. He was struck by the prevalence of chronic cardiovascular disease among his patients, rather than the various infectious diseases he expected to treat. Chronic diseases are quickly becoming just as important as infectious diseases in places like Kenya, where rising incomes and adoption of Western lifestyles are lengthening life expectancy and there are increasing rates of smoking and obesity. Now spending a year as a Fogarty fellow at Moi University in Eldoret, a Duke global health site, Bloomfield said he is

excited for the opportunity to explore the epidemiology of heart failure, while potentially impacting more Africans through research and outreach efforts.

"This is the first time I have a venue where I feel I can do meaningful research and ask good questions that not only improves care of the patients I'm seeing in Eldoret, but also can offer solutions, changes in health education, and impact hundreds, maybe thousands, of people at a time," said Bloomfield, who believes it was possible with the strong network of support from mentors at Duke, including faculty in DGHI, the Hubert-Yeargan Center for Global Health and the Division of Cardiology.

Bloomfield is also developing an innovative education program to reach people who may not have access to a physician or are unfamiliar with the health risks associated with cardiovascular disease. His program will utilize cell phone technology to send SMS text messages with relevant health information. "This doesn't mean that drugs, equipment, and medical procedures aren't important—they are. But, to be successful you have to reach people in their home, at their level, and in their language," said Bloomfield.

There are significant challenges to blazing a trail, particularly building his own capacity to do it. But, with the application of innovative research and education programs and the support of a world-class university and medical center behind him, Bloomfield is poised to become a worldwide leader in global cardiovascular health. 🌍

JERRY BLOOMFIELD, M.D.

Duke Global Health Resident,  
Cardiovascular Medicine  
Fellow, 2011

Fogarty International Clinical  
Research Fellow, 2009-2010

Internal Medicine Residency,  
Johns Hopkins University, 2005

M.D., Johns Hopkins University, 2002

M.P.H., Johns Hopkins University,  
2001

B.A., Psychology, Cum Laude,  
Princeton University, 1997

Hometown: Brooklyn, New York



## ANDY CUNNINGHAM

### ANDY CUNNINGHAM

B.A., International Comparative Studies, Asian and African Languages and Literature, Chinese concentration, Summa Cum Laude, 2008

Co-Founder, Executive Director of WISER

2010 Marshall Scholar,  
2007 Truman Scholar,  
2004 Robertson Scholar,  
Goldman Sachs 2006  
Global Leaders Award

Hometown: Rutland, Vermont

Duke alumnus Andy Cunningham is helping young women in a small Kenyan village to realize their potential, and to improve their lives and communities through education. In January 2010, a new secondary school opened its doors in a remote area of Kenya where no woman has continued on to public university in the past two decades.

The all-girls boarding school and research center was the vision of Cunningham, who in 2007 co-founded (along with Duke Biology professor and DGH member Sherryl Broverman) the Women's Institute for Secondary Education and Research (WISER), whose goal is to improve education, economic and health outcomes for girls living in Muhuru Bay. Cunningham's vision is now a reality, as 30 girls are being given an alternative to the typical life in Muhuru Bay, a life in which many young women drop out of school. In response to the needs identified by the community, the WISER school is complete with electricity, internet access and the village's first source of clean drinking water.

"My goal for WISER is for it to grow into a national and international movement that empowers young women in one of the most remote villages in the world to access and engage in the world in which they live," said Cunningham.

The seven-acre boarding school is part of a larger effort by WISER to encourage community development. With the help of Cunningham and other Duke students, the NGO has developed eight successful programs, including a community health mapping project, business leadership program, and WISERBridge, which has quadrupled the passing rate of Kenyan students transitioning from primary into secondary school.

"The impact Andy Cunningham has had at Duke through his work with the WISER program and beyond is immeasurable. He has proven himself to be a passionate public servant and a scholar who is dedicated to making

a difference in this world," said Duke President Richard Brodhead. "Duke is honored to count Andy as an alumnus and we are excited to witness the fruits of his potential."

Cunningham's passion for children's rights and education was realized in his time at Duke, when he was able to combine his research on gender and HIV with skills he learned in the classroom.

"I discovered that I actually had the capacity to make an impact in the world by integrating what I learned at Duke with problems facing us around the world," said Cunningham. "Duke's focus on global health, global service and global engagement has provided the perfect springboard to prepare me for my future."

Recently named a Marshall Scholar and a Truman Scholar for his exemplary academic achievements and public service, Cunningham plans to pursue a graduate degree in international and comparative education at Oxford University. He aims to one day have an influential position at a global agency to continue working on innovative approaches to education and community development. The young college graduate has already achieved more than many people do in a lifetime, and at 23 years old, his passion and perseverance to make a difference in the world is unstoppable. 🇺🇸

*"Duke's focus on global health, global service and global engagement has provided the perfect springboard to prepare me for my future."*

ANDY CUNNINGHAM





# AARON STOERTZ

In one year, more than 1,200 people without health insurance in Durham, North Carolina have received specialized health care through a nonprofit organization led by Duke Master of Science in Global Health (MSc-GH) student Aaron Stoertz.

“Access to health care is a human right, and global health is probably the best tool that we have to reduce disparities globally,” said Stoertz, a member of the inaugural class of DGHI’s program, and an English Literature major from Wesleyan University. “It’s about someone here in North Carolina being equal to someone who is in sub-Saharan Africa, and it plays into my ideas of worldwide justice. I really believe that we have made some progress, but there’s a lot more to be done.”

Stoertz’s journey to global health began after college when he led a conservation biology development project in the Republic of Equatorial Guinea in West Africa. He found that sickness and disease were rampant throughout the community, making it difficult to effectively implement his intervention to improve the environment.

“My work in Africa really gave me a deeper understanding that when a community is sick, it can’t be empowered to make progress on anything else,” said Stoertz. “I knew then that I would concentrate my efforts on public health.”

Today, he works with the nonprofit organization Project Access in Durham, which links the uninsured with a local network of specialists, clinics, laboratories, pharmacies and hospitals. The program’s quick rise to success is due, in part, to Stoertz, who assisted in forging critical connections between patients of the Lincoln Community Health Center and more than 1,000 specialists within the Duke University Health System.

“We have had an outpouring of support from the health community in Durham, and it’s because we are connecting people with health services in a very real way,” said Stoertz, who credits much of this success to Duke Chancellor for Health Affairs Victor Dzau, who encouraged participation among Duke physicians. “Positive change is really possible when you get the right people together, and that’s helped me to understand the power of leadership in global health.”

Stoertz looks forward to the day when he’ll promote and implement best practices in global health for a multinational organization or NGO. A global health research degree from DGHI will help him get there.

“This masters program will give me the monitoring and evaluation tools to measure the effectiveness of an intervention. These indispensable analytical and research skills will allow me to adapt this successful model in Durham to other communities in great need,” said Stoertz.

In the coming months, Stoertz will begin his MSc-GH research project which is designed to help strengthen health care management and leadership capacity in Uganda. Working as part of a DGHI initiative funded by the Robertson Foundation, he and other Duke researchers and their partners in Uganda are bridging the public and private sectors, particularly academic and faith-based leaders, by drawing on each other’s strengths in health education and health technologies to better meet the needs of the population and improve health care delivery.

“I have worked hard to be that facilitator, and to make essential connections within a community, and will continue to do so,” said Stoertz, who is excited to begin the Uganda research project. “I think it’s important to lead by example.”

## AARON STOERTZ

MSc-GH, Global Health Systems concentration, 2010

Graduate Certificate in Field Epidemiology, UNC-Chapel Hill, 2007

Clinical Fellowship in Diabetes, East Carolina University, 2007

B.A., English Literature, Minor in pre-medical coursework, Wesleyan University, 2003

DGHI Student Council, Graduate Chair

Foreign Language and Areas Studies Fellow

Hometown: Boone and Winston-Salem, North Carolina



# ENGAGING FACULTY

**SIGNATURE RESEARCH INITIATIVES**

*(number of projects under way)*

- Cardiovascular Disease (8)
- Emerging Infectious Diseases (32)
- Gender, Poverty and Health (18)
- Global Aging and Population Dynamics (5)
- Global Environmental Health (5)
- Health Systems Strengthening (10)

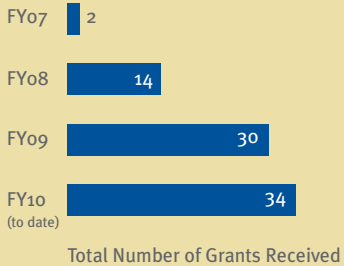
**A**s an academic global health institute, little can be accomplished in the areas of education and research without a strong base of dedicated and knowledgeable faculty.

DGHI has two levels of faculty: 1) Members, who have voting rights, are actively involved in the Institute, and often have a leadership position in a DGHI program; and 2) Affiliates, who are involved in an aspect of the Institute’s work, whether teaching, research or service-learning. Currently, DGHI has 36 members and 42 affiliates representing all of Duke’s 10 schools. Nineteen of these faculty have been recruited to Duke during the past three years, at least in part through the efforts of the Institute, and nearly all (17 of 19) have appointments in a Duke school or department in addition to DGHI.

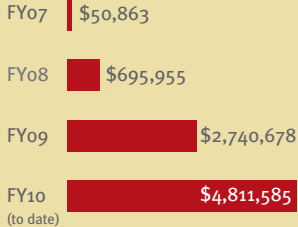
These faculty make it possible to offer 37 global health courses, and combined, are leading nearly 80 global health research projects in 23 countries.

An example of one of DGHI’s recent joint faculty recruits is Giovanna Merli, associate professor of Public Policy and Sociology, DGHI member and associate director of the Duke University Population Research Institute. Merli, a demographer by training, was recruited to Duke from the University of Wisconsin, with funds from Provost Peter Lange’s Faculty Enhancement Initiative, the Sanford School of Public Policy and DGHI. Her research focuses on the role of China’s population control program in lowering fertility preferences and fertility rates in China, and the social and behavioral determinants of HIV. Faculty like Merli enable DGHI to broaden its reach within and across schools and departments at Duke, while also bringing differing perspectives to important global health problems.

**DGHI External Grants 2007-2010**



**DGHI External Grant Funding 2007-2010**



*Does not include Center for Health Policy grants*

**Building a Strong, Relevant Research Portfolio**

DGHI is supporting ongoing faculty research, as well as new scholarship, knowledge and technology to address global health’s most pressing issues.

At the core of the Institute’s research efforts are its six Signature Research Initiatives (SRIs) on emerging global health themes. *See left for complete list of SRIs.* These SRIs engage faculty from multiple schools and departments who address these themes from a broad, interdisciplinary perspective. To facilitate this discovery, DGHI has to date awarded 11 pilot research grants that promote innovative research questions, recruited faculty to fill gaps and supported the preparation and management of external grant funding.

For example, in 2009, DGHI launched its Global Environmental Health Initiative under the leadership of Duke faculty member Randy Kramer. Members of the faculty working group represent public policy, economics, molecular genetics, pulmonary and critical care medicine, environmental sciences and engineering. The group has sponsored three innovative pilot research projects that are measuring the health consequences of mercury exposure in Peru and Bolivia, deforestation on malaria in the Amazon basin, and arsenic and fluoride levels in groundwater in Ethiopia.





Duke Global Health PLUS (Placement of Life-changing Useable Surplus) was created in 2007 by the Duke University Health System and DGHI to provide useable surplus equipment to health facilities throughout the world where Duke faculty are carrying out global health projects. The first shipment was made to New Mulago National Hospital (*see photo*) in Kampala, Uganda where Duke neurosurgeon Michael Haglund and his team used the equipment to establish a neurosurgery unit. (Uganda had only five neurosurgeons to serve 30 million people.) They also trained local staff on the use and maintenance of the equipment. After three years, Haglund's effort has led to a doubling in the number of surgical cases and an almost three-fold increase in the number of neurosurgery cases performed at the hospital. Haglund's program is proof that combining capacity building, training and partnership between health systems from the US and East Africa, can be a successful model to addressing disparities in surgical care.

Another growing area of research is global cardiovascular disease (CVD) and its risk factors—obesity, diabetes and hypertension—as well as measures for its prevention and treatment in the international context. In 2009, DGHI was awarded a Center of Excellence in CVD in Beijing by the NIH National Health, Lung and Blood Institute. This partnership involves collaborators from The George Institute in China and Australia, Peking University and hospitals in five nearby provinces in China. A second Center of Excellence in CVD was awarded to DGHI affiliate Eric Velazquez and partners at Moi University in Eldoret, Kenya. The project will provide clinical, research and training leadership in cardiovascular and pulmonary diseases. In addition, Jubilant Healthcare Foundation has funded two studies in Kolkata, India which focus on the natural history of CVD and diabetes and related metabolomic profiling.

Within the emerging infectious diseases initiative, the majority of research projects are focused on HIV/AIDS. These projects investigate a broad spectrum of HIV/AIDS topics, including prevention, transmission, pathogenesis, treatment and related mental health consequences. One recently completed study of HIV-infected patients in the State of Tamil Nadu, India completed by Michael Merson and his colleagues showed that HIV-infected patients with access to a comprehensive HIV care program, including antiretroviral therapy, experienced increased employment and higher income over a two-year period. It is expected that this SRI will expand its research to non-HIV/AIDS emerging infections over the coming years.

In addition to the SRIs, DGHI is agile enough to explore other research areas when there is ample faculty interest to do so. Two such exploratory working groups are in the areas of global mental health, and the health of refugees and internally-displaced people.

DGHI is committed to cutting-edge research that is addressed from multiple perspectives and relevant to the afflictions facing millions of people around the world. While we have in many ways just begun these research endeavors, great promise lies ahead because of our outstanding team of faculty. 📖

## CENTER FOR HEALTH POLICY

**UNDER THE LEADERSHIP** of Kate Whetten, associate professor of Public Policy Studies and Community and Family Medicine, the



**Center for Health Policy  
Health Inequalities Program  
AT DUKE UNIVERSITY**

**Center for Health Policy (CHP) aims to optimize the health and quality of life for persons around the globe, with an emphasis on reducing health disparities in the United States.**

CHP formally joined DGHI in 2007 and has served as an important partner in research and teaching. Faculty and staff of CHP tackle cutting-edge policy questions related to health disparities through the disciplinary lenses of law, psychology, epidemiology, economics, sociology, anthropology, social work, business, nursing and medicine. CHP's core areas of research include health inequalities, behavioral health, aging, structure and financing of care options and novel community education.

A recent example of CHP's scholarship is the release of its highly-acclaimed research on orphaned and abandoned children. Led by Whetten, a team of researchers identified the characteristics associated with positive outcomes for orphaned children by following 3,000 orphaned children in five Asian and African countries. The longitudinal study found that children in institutional orphanages fared as well or better than those who lived in the community.

CHP is recognized as one of Duke's most productive centers in terms of grant funding and research output. In 2009, CHP faculty were awarded 15 new grants, bringing their total to 25 grants, totaling \$4.6 million. Last year, CHP faculty and staff also published 37 journal articles, two monographs, and two book chapters, with an additional 24 papers accepted for publication.

CHP-affiliated faculty are also making significant contributions to DGHI's education programs, including teaching courses in the Global Health Certificate and Master of Science in Global Health, and mentoring undergraduate and graduate students. 📖

For more details, go to [www.globalhealth.duke.edu/chp](http://www.globalhealth.duke.edu/chp)



GARY BENNETT

GARY BENNETT, PH.D.

Ph.D., Clinical Psychology,  
Behavioral Medicine concentration,  
Duke University, 2002

M.A., Clinical Psychology,  
Behavioral Medicine concentration,  
Duke University, 1999

B.A., Psychology,  
Psychophysiology concentration,  
Magna Cum Laude, Morehouse  
College, 1997

Affiliations:

Department of Psychology and  
Neuroscience, Duke Global Health  
Institute, Duke Comprehensive  
Cancer Center, Duke Center for  
Health Policy, Duke Center on  
BioBehavioral and Social Aspects  
of Health Disparities

Although his chronic disease research among high-risk populations is primarily focused on the United States, Gary Bennett’s appointment at DGHI is helping to launch his career internationally to study the emerging obesity epidemic in China.

“The prevalence of obesity in China, although rising, pales in comparison to what it is right now in the US,” said Bennett, DGHI member and associate professor of psychology and neuroscience, who was alarmed to learn that heart attacks, strokes and kidney disease cause 80 percent of deaths in China. “But, what I found to be most frightening is that the rate of increase throughout the developing world is happening a lot faster than it did in the US when we started to experience our epidemic.”

It was during Bennett’s recent trip to Beijing in summer 2009 as an instructor in the joint Duke - Peking University Global Health diploma program that he was alerted to the severity of chronic diseases among the Chinese, and the potential to tailor his research to that population.

Bennett’s work in North Carolina is focused on populations who are at a disproportionately higher risk of becoming obese and developing cardiovascular disease, diabetes, hypertension and cancer. This group includes the socially-disadvantaged, as well as immigrants, ethnic minorities and women. To reach this population, Bennett has developed strategies and coordinated behavioral interventions that have been implemented and evaluated at community health centers, where he says there are oftentimes limited resources to deal with the complications of obesity. These proven intervention research studies have shown how clinically-significant weight loss can be achieved in disadvantaged primary care settings.

“The situation in China presents a nice opportunity for us to take some of what we’ve learned here in North Carolina and try to help that high-risk population as well,” said Bennett, who plans to return to Beijing later this year to develop obesity interventions that are similar to those he has used in North Carolina and earlier while at Harvard.

“We’ve been doing this for a decade, and so we have many of the interventions developed already that can be adapted and delivered among Chinese populations. We already have a good understanding of the fundamentals on how you get people to lose weight and improve their health.”

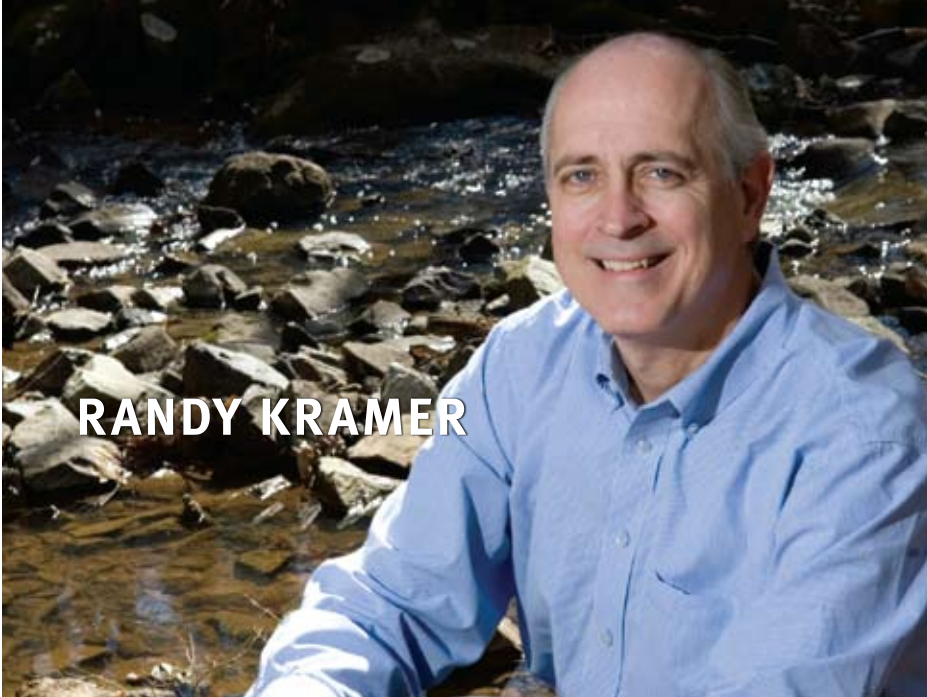
Bennett is ready to embrace this next step in his career, and although he has always had an interest in global health, it is DGHI that has allowed him to expand his horizons.

“I would not have developed an international program so soon, if at all, if I hadn’t been part of DGHI,” said Bennett. “DGHI has been absolutely instrumental; it’s the primary conduit for global research at Duke. For those who are interested in developing a strong global research portfolio, we need resources, intellectual and otherwise, to get the work started. So, it would be impossible for me to move this forward without the support of DGHI.”

*“DGHI has been absolutely instrumental; it’s the primary conduit for global research at Duke. For those who are interested in developing a strong global research portfolio, we need resources, intellectual and otherwise, to get the work started. So, it would be impossible for me to move this forward without the support of DGHI.”*

GARY BENNETT





# RANDY KRAMER

**A**fter more than 20 years as a Duke Professor, Randy Kramer has turned his sights to one of today's major global health challenges—global environmental health.

An esteemed professor who was named Duke's 2004 University Scholar/Teacher of the Year and twice received the Teacher of the Year award at the Nicholas School of the Environment, Kramer is helping to stimulate interest in global health among his colleagues and students. Trained as an environmental economist, Kramer's interest in health grew out of his early research on water quality and biodiversity.

"I was largely focused on how people manage the environment, but it became clear to me that deforestation and other environmental changes had dire consequences on human health," said Kramer, who has also done research on the environmental effects of malaria control programs. "When DGHI came along, I thought it was an exciting opportunity to really push further into the connections between environmental quality and human health."

Kramer leads DGHI's environmental health signature research initiative which addresses important environmental issues, such as water quality and sanitation, and the effects of climate change on human health. The working group provides an opportunity for faculty from across Duke to become familiar with each other's research programs and interests, and to begin to formulate new research initiatives around global environmental health.

"DGHI is one of the most exciting developments I've seen at Duke," said Kramer. "It's a unique model in that it's leveraging activities in departments and schools across campus and taking advantage of the broad exper-

tise already available. That's why DGHI has been able to accomplish so much, so quickly."

The spirit of collaboration is apparent in his new research funded by the World Health Organization, in which Kramer's team is developing decision support tools related to malaria policy in Kenya, Tanzania and Uganda. This research explores the environmental, health and economic impacts of interventions, such as bed nets and mosquito spraying programs. His research team includes collaborators from a number of African universities and Ministries of Health, as well as Duke faculty from schools of law, medicine and environment. The three-year project builds on findings from Kramer's earlier malaria control research, in which he and his colleagues found that disparities in socioeconomic status contribute to inequitable access to malaria control measures.

"Improving the implementation of malaria control efforts begs for an interdisciplinary approach," said Kramer, who believes suboptimal policy decisions are extremely costly in today's high-stakes environment where there is a growing burden of vector-borne diseases in many parts of the world. "We hope that our decision support tools will start a conversation among policy makers on environmental management and disease management, encourage better coordination in policymaking, and reduce the burden of malaria."

Positive changes in human health are promising when strong collaborations like this exist, and Kramer's distinguished history at Duke coupled with his expertise and eagerness to work across boundaries, are a great asset to DGHI. 🌍

RANDY KRAMER, P.H.D.

Ph.D., Agricultural Economics,  
University of California, Davis, 1980

M.E., Economics,  
North Carolina State University, 1976

B.A., Economics,  
University of North Carolina,  
Chapel Hill, 1975

*Affiliations:*  
Nicholas School of the Environment,  
Duke Global Health Institute,  
Department of Economics



MANOJ MOHANAN

## MANOJ MOHANAN, PH.D.

Ph.D., Health Policy, Economics  
Track, Harvard University, 2009

S.M., School of Public Health,  
Harvard University, 2004

M.P.H., School of Public Health,  
Harvard University, 2000

M.B.B.S., Grant Medical College,  
University of Mumbai, 1997

*Affiliations:*

Duke Global Health Institute,  
Department of Economics,  
Department of Community and  
Family Medicine, Duke University  
School of Medicine

**H**ealth systems and policy expert Manoj Mohanan, who joined DGHI in fall 2009, employs innovative social science methods to understand and improve health care delivery in resource-poor settings.

Mohanan brings 13 years of field expertise and training to DGHI, where he now leads the health systems strengthening signature research initiative. He attended medical school in India before completing a masters of public health and a doctorate degree in health policy and economics at Harvard University.

From early in his career, Mohanan understood that improving health in low- and middle-income countries requires a holistic approach. Every year, millions of people in poor countries die from preventable or treatable diseases, often because the health systems that are supposed to serve them fail to deliver effective and affordable care. The lack of expertise, analytic skills and research capacities of staff working in health systems often makes reform difficult. But with improvements in health care delivery, governance, financing and information technology, resource-poor countries can begin to build capacity to develop a stronger health systems infrastructure.

“For a long time, we’ve talked about health systems in a rather piecemeal manner, but it is important to understand that there are feedback loops affecting different parts of the system,” said Mohanan, who is currently working with health policy leaders in India. “Changes on the health financing arm, such as a new health insurance program, will undoubtedly result in spillover effects on many different areas including the health workforce or service delivery. It’s important to think of the system as a whole when coming up with policy prescriptions.”

Mohanan helped to design and plan a health insurance program in the Indian state of Karnataka and continues to advise policy makers on the best way to apply

and rigorously evaluate it over time. The health insurance program is aimed at improving access to health care for millions of people living below the poverty line. Mohanan was recently awarded nearly \$1.2 million from the International Initiative for Impact Evaluation to conduct a rigorous impact evaluation of state-run voucher programs in Gujarat and Karnataka that provide access to obstetric care in the private sector to women living below the poverty line.

Mohanan plans to expand his research portfolio through new collaborations with Duke faculty who will be members of the DGHI health systems strengthening working group that is under development.

“I’m scoping out opportunities to bring together more experts who are interested in health systems to foster new and innovative research,” said Mohanan, who is impressed by the breadth of research and education initiatives currently under way throughout the fast-growing Institute. “It’s a privilege to be at an institute that is working diligently to promote interdisciplinary collaboration in global health research, and at the same time, train the next generation of global health leaders.”

This spring, Mohanan introduced a new course on health systems and health policy at Duke, which is a core course in DGHI’s Master of Science in Global Health and is popular among students in the Fuqua School of Business and Sanford School of Public Policy. The course introduces both the challenges of strengthening health systems as well as practical methods by which solutions to health system challenges can be reached and applied in developing countries.

As the next generation of scholars learns to consider the wider implications of global health work, it is visionary faculty members like Mohanan who help put DGHI on the path to becoming a world-class leader in global health systems research. 🇺🇸





**SVATI SHAH**

The exploding burden of cardiovascular disease among low- and middle-income countries was the motivation for Duke cardiologist Svati Shah to consider research initiatives in her parents' home country of India. She is among several highly-trained experts recruited by the Duke Global Health Institute to study the causes of this shift toward chronic diseases within an international context.

Shah, also trained in epidemiology and genomics, has established an adult cardiovascular disease genetics clinic at Duke University Medical Center. She said with the support of DGHI, her interest in genomics research abroad became possible.

"DGHI gave me the infrastructure and support I needed to be able to do global health research in India. So when DGHI came along, I leaped at the opportunity," said Shah, assistant professor of medicine, whose research in India focuses on genomics and novel biomarkers in patients with cardiovascular disease (CVD) and diabetes.

Worldwide, there are more deaths associated with CVD than from tuberculosis, HIV and malaria combined. "In fact, India has the largest number of diabetes cases in the world," said Shah, who visited the country last spring to explore possibilities for her research projects and build local partnerships. She saw patients who had not been diagnosed with diabetes until they suffered from an end-stage complication, typically kidney failure, blindness or a heart attack.

It is Shah's hope that her research will lead to earlier diagnosis of chronic diseases and fewer deaths among high-risk populations in India. She plans to determine

whether findings from her epidemiological research among Caucasians, in which she found novel mechanisms for disease risk for diabetes and CVD, may be useful for risk prevention and targeting of vulnerable Indian populations. In addition to genetic influences on human health, Shah is also studying the extent to which environmental factors play a role in chronic disease risk among Indians.

"We believe the growing burden of heart disease, diabetes, and cancer is now producing the largest burden of public health in developing countries because people are living longer, eating Western diets, and developing sedentary lifestyles as they transition from rural to urban populations," said Shah. "But, we don't fully understand the epidemiological transition of the trend toward urban settings and its effect on chronic disease. We also don't understand the underlying mechanisms of risk."

Shah is partnering with the Indian biotechnology company, Jubilant, to fund long-term cohort studies and to help build a research infrastructure in Kolkata, where village women are being trained to deliver basic health care in their communities. Shah's research team is also working with the New Delhi-based Public Health Foundation of India to analyze clinical data and biological samples from thousands of patients with diabetes and other chronic diseases to learn more about their natural history of disease and metabolomic profiles.

Shah's genetic and epidemiological expertise is a unique fit for fieldwork in the underdeveloped area of cardiovascular global health. She is poised to make a difference for the people of India and beyond. 🌍

SVATI SHAH, M.D.

M.H.S., Medical Genomics, Duke University Medical Center, 2005

M.D., University of Washington School of Medicine, 1998

M.H.S., Epidemiology, Psychiatric Epidemiology, Johns Hopkins School of Public Health, 1994

B.A., Biology, Psychology, Johns Hopkins University, 1993

*Affiliations:*

Division of Cardiology, Department of Medicine, Duke Center for Human Genetics, Duke Global Health Institute, Cardiology Fellowship Training Program, Duke Adult Cardiovascular Genetics Clinic, Sarah W. Stedman Center for Nutrition and Metabolism

# BUILDING PARTNERSHIPS



“Interdisciplinary” isn’t just a buzzword; it is how DGHI works. Engrained in the foundation of DGHI is its ability and mandate to cross boundaries and form partnerships within Duke to bring all corners of campus to bear on global health challenges. This is evident in our education, research and service-learning programs, as well as in our governance structure. Whether it be bringing the Fuqua School of Business and Divinity School together to address health care leadership in Africa, or the Department of Medicine and School of Public Policy to study the most suitable environment for children orphaned by HIV/AIDS, DGHI is seen as both a catalyst and valuable collaborator.

DGHI is also looking outside of Duke to build partnerships with other universities and NGOs. Examples include its contributions to the formation of the Consortium of Universities for Global Health and the Triangle Global Health Consortium. Further, and equally important, DGHI is forming collaboration to strengthen health systems, expand education and training programs, build local capacity, and find solutions to the most pressing health issues and disparities through innovative research. The common thread throughout all of DGHI’s international collaborations is the presence of a local university or NGO partner. These in-country partnerships are fundamental to ensuring a sustainable, mutually-beneficial relationship that is built on community needs and priorities.

**ESTABLISHED SITES**


- Leogane, Haiti
- Eldoret, Kenya
- Singapore
- Moshi, Tanzania
- Kampala, Uganda
- Durham, NC, USA

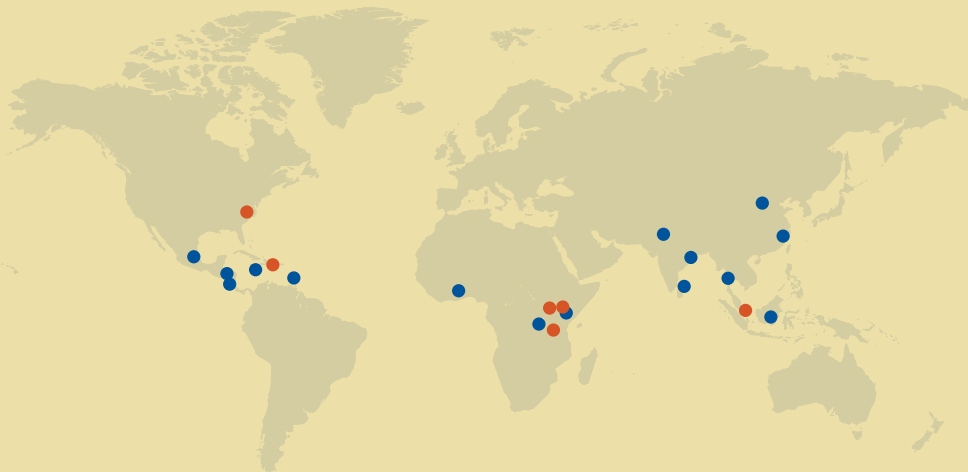
**EMERGING SITES**

- Cave Hill, Barbados
- Beijing, China
- Shanghai/Kunshan, China
- Accra, Ghana
- Las Mercedes, Honduras
- Delhi, India
- Kolkata, India
- Yogyakarta, Indonesia
- Mona, Jamaica
- Muhuru Bay, Kenya
- Mexico City, Mexico
- Leon, Nicaragua
- Kigali, Rwanda
- Galle, Sri Lanka
- Bangkok, Thailand

**Duke’s Global Reach**

Duke’s most visible and long-term international presence has been in Moshi, Tanzania; however, the university’s international reach extends far beyond Kilimanjaro. A few examples include:

- In Sri Lanka, DGHI member Truls Ostbye is working with the University of Ruhuna in Galle on collaborative research projects in mental health, as well as educational opportunities for third-year medical and MSc-GH students and residents.
- In Rwanda, DGHI member Nathan Thielman is building collaborations centered on the reduction of maternal mortality with the Kigali School of Medicine and Rwanda Ministry of Health. Also, Duke undergraduates conducted service-learning projects around orphan care and empowerment. Additional research, training and service-learning collaborations are expected.
- In Kampala, Uganda, faculty have formed a strong collaboration with Makerere University and Mulago National Hospital in the areas of neurosurgery and orthopedic surgery. Research is also under way in the areas of health systems strengthening, stroke and childhood malnutrition. In 2009, six undergraduates participated in service-learning projects in Uganda and five will do so in 2010.
- In Leogane, Haiti, DGHI is partnering with DGHI member David Walmer and Family Health Ministries to conduct research related to cervical cancer and women’s health. Leogane has also hosted an OB/GYN global health resident, a third-year medical student and seven DukeEngage students. Plans are underway to build a large maternal and child hospital in the area.
- In Las Mercedes, Honduras, under the leadership of DGHI senior advisor and pediatrician Dennis Clements, along with support from Heifer International, Rotary International and local governments, Duke’s Engineers Without Borders students are building a mother/child clinic that will serve as a venue for student research, service delivery and training opportunities. 







DGHI affiliate and Fuqua professor Will Mitchell, and DGHI associate in research Caroline Hope Griffith discuss the impact of social entrepreneurship and health initiatives on peace and reconciliation efforts in Uganda with Sister Rosemary Nyirumbe. Nyirumbe is director of the St. Monica's Girls Tailoring School in Gulu, Uganda and recipient of the 2007 CNN Heroes Award. In January 2010, Duke Divinity School's Center for Reconciliation's Great Lakes Initiative held its annual event in Bujumbura, Burundi, which aims to empower faith leaders to continue promoting peace in their region. The faith-based sector has an important role to play in addressing health and management training.

## FINDING THE INTERSECTION

### Health, Faith and Business Combine to Address Health Needs of Africa

**D**GH is responding to the growing demand for experts in health systems management in the developing world by bringing together Duke's strengths in health, business and faith.

Along with Duke's Fuqua School of Business and Divinity School, DGHI is promoting sustainable health leadership and training programs that could lead to better delivery of health care across sub-Saharan Africa. Building on a shared understanding that the faith-based sector plays a critical role in health care in many countries, this partnership across disciplines makes perfect sense.

"Faith-based health providers are key parts of the health services base in many African countries in terms of both magnitude and quality of service," said Will Mitchell, professor of international management at the Fuqua School of Business. "Faith-based organizations also provide commercial infrastructure in many emerging markets, including services such as banking, insurance and import-export services. As such, they are highly relevant for health policy and strategy, as well as for business policy and strategy."

In a project funded by the Robertson Foundation, Mitchell, David Toole, associate dean of the Duke Divinity School, and DGHI researchers are addressing the intersection of Uganda's faith-based care and government-run health care systems. More than a third of Uganda's health care is delivered by faith-based organizations, which are often more effective despite having fewer trained workers, supplies and technology. The interdisciplinary Duke team is working with three Ugandan academic institutions, including Makerere University, and three faith-based medical bureaus, to offer short courses and mentoring programs in an effort to improve health systems leadership and management capacity.

"What excites me is when you undertake this kind of work, you start to change the way Duke exists as a university," said Toole, who is leading a number of devel-

opment projects in Africa through the divinity school that promote health within a theological context. "We are doing this to improve the delivery of health care at all levels in Uganda. Another outcome of this project will be here at Duke in terms of relationship-building across disciplines and thinking about solutions to a problem more comprehensively."

DGHI also co-sponsored a series of discussions at Duke in fall 2009 with a panel of African leaders about the needs for translating global health research into policy change and education of youth to become leaders who inspire social change.

#### Global Network Promotes Leadership, Management Training

The recent launch of a joint Fuqua/DGHI health systems training and education network led by Kevin Schulman, director of Fuqua's Health Sector Management Program, is also addressing these needs. This network is made up of 23 senior academic leaders from universities, multilateral organizations and NGOs in 15 countries across sub-Saharan Africa, Latin America, Asia, Europe and the US. Initiated with a grant from the Rockefeller Foundation, the network will be fostering innovation in health systems management, policy and financing through the global exchange of curriculum and course materials used by schools of public health, medicine and business. A goal of this network is to encourage faculty from these schools to work together in developing new curricula in these areas.

"Duke is really showing the way in terms of fostering collaboration and programs that span multiple schools. This global network is fantastic because it promotes access and the exchange of information," said Guy Pfeffermann, CEO and chairman of the Global Business School Network and a member of the global health systems network. "It's exciting that we are now breaking ground in creative ways that answer real-life problems around the world." 🗣️

*"Duke is really showing the way in terms of fostering collaboration and programs that span multiple schools. This global network is fantastic because it promotes access and the exchange of information. It's exciting that we are now breaking ground in creative ways that answer real-life problems around the world."*

GUY PFEFFERMANN  
CEO and chairman of the  
Global Business School Network

## ENGINEERING STUDENTS FIND SOLUTIONS TO CHALLENGES

### Make Lasting Impact on World Health



Robert Malkin's Developing World Healthcare Technology Laboratory at Duke (DHT-Lab) aims to improve technological infrastructure in clinics and hospitals across low- and middle-income countries, where basic diagnostic equipment is either missing or broken, and hospital staff are not trained to repair it. Since 2004, DHT-Lab has built flagship programs which include academic, research, technology development and service-learning experiences for both undergraduate and graduate students. Most recently, students from the DHT-Lab have developed a curriculum for Rwandan medical technicians that will allow them to maintain and repair medical instruments at their own facilities. For more details, go to <http://dhtlab.pratt.duke.edu>

The opportunity for Duke students to work alongside faculty, physicians and community partners has led to key advances in health in disadvantaged areas around the globe. Partnerships between Duke Medicine, the Pratt School of Engineering, and the Duke Global Health Institute have facilitated this interaction and led to outstanding discoveries.

#### Students Help Develop New Medical Device for Developing World

Hundreds of women in rural Haiti are now being treated early for cervical cancer who otherwise would not have received a proper diagnosis and care. Ten years ago, Duke OB/GYN associate professor, DGHI member and Family Health Ministries (FHM) founder David Walmer developed a novel diagnostic colposcope device called the CerviScope. (A colposcope is a lighted magnifying instrument used to examine the tissues of the vagina and the cervix.) More recently, engineering students from Robert Malkin's Developing World Healthcare Technology Laboratory at Duke (DHT-Lab) have created a modified, more effective version of the device for use and distribution in low- and middle-income countries. Today, the device is used to detect and treat early signs of cervical cancer in Haiti, and is also being tested in Ethiopia, Argentina and Pakistan, among other countries.

The improved design and distribution of Walmer's portable colposcope was the result of his partnership with Malkin and his student-driven lab, whose academic, service, research and product development opportunities seek to improve the quality of health care throughout world. The CerviScope is, to date, the most successful health care technology launch in the program's history at Duke.

"This is probably the most meaningful project I've been a part of," said Duke alumnus Theo Tam (Pratt '07), who also worked with Duke Fuqua School of Business to develop a business model for the CerviScope's distribution in other countries. "By partnering with experts from DHT-Lab, FHM, the medical school and the business

school, I feel like my small contribution has already made a lasting impact in lives all over the world."

"The students have really driven the success of this medical device. It's these students and others who volunteer with us who provide the catalyst to take our ideas and grow them," said Walmer, whose nonprofit organization hosts more than a dozen DGHI and DukeEngage undergraduate and graduate students in Haiti each year. "Duke students have been an incredible resource to us."

Walmer, his wife Kathy and a staff of 60 Haitians run two medical clinics, a school and an orphanage at three sites in rural Haiti. In these clinics, Duke students and trainees have worked on maternal and family health programs, including cervical cancer prevention programs, educational outreach, community surveys, GPS mapping of health data and a best-practices model for cervical cancer screening. In a part of the world where poverty is extensive and health needs are dire, the work of Duke students and trainees is helping FHM to empower Haitians to take control of their health. Such collaboration among Duke organizations and community partners will pave the way for more innovative solutions to global health challenges.

"It is absolutely true that the strength of DGHI is collaborations across campus," said Malkin, director of DHT-Lab, who says DGHI's role of bridging disciplines at Duke was vital for working in Haiti. "As individual departments, as individual researchers, we cannot have this kind of impact. And if we don't come together like this, it may not get done for resource-poor settings or highly-desperate health care situations."

FHM is currently working to build a state-of-the-art hospital, training and research facility in Leogane, about 20 miles west of Port-au-Prince. The hospital will provide medical care to thousands who live in rural communities throughout the region. Construction is planned to begin this year, and will also serve as a hub for Duke faculty, physicians and students to jointly engage in clinical practice, research and service that benefits the Haitian community. 🇸🇰





## DUKE-NUS GRADUATE MEDICAL SCHOOL: Duke's "Other" Campus

In 2005, Duke University and the National University of Singapore (NUS) joined hands to form the Duke-NUS Graduate Medical School. Formally a part of the NUS system, Duke-NUS is led by a governing board from both campuses, and students completing the program receive a joint MD degree from both universities. In a short time, Duke-NUS has become widely known in Asia for its training of physician-scientists. During its first three years, 130 students were admitted to the program which emphasizes team-based learning as its main pedagogical approach.

Under the leadership of current Duke-NUS Dean Ranga Krishnan and founding dean R. Sanders Williams, this cross-university education and research model has proven successful, and could serve as a model for future international education endeavors. In March 2010, DGHI Director Michael Merson was named Vice Chancellor for Duke-NUS Affairs. In this new role, Merson will serve as a bridge between the two campuses and will seek to expand research collaborations between faculty from Duke and Duke-NUS.

Central to the core of Duke-NUS is cutting-edge research with a bent toward basic and translational sciences. Its signature research programs include: 1) cancer and stem cell biology, 2) neuroscience and behavioral disorders, 3) emerging infectious diseases, 4) cardiovascular and metabolic disorders and 5) health services and systems.

Among Duke-NUS's shining stars is its research in health systems, in which DGHI has been involved in the recruitment of new faculty. Led by David Matchar, the program is focusing on the areas of healthy aging, depression among older adults, integrated services for chronic disease, systems modeling and outpatient health care expenditures. The goal of this research is to make the best, most compelling evidence available in order to enable positive policy changes by decision makers.

Health systems researchers at Duke-NUS are developing a systems modeling laboratory which will address a range of health system problems. Eric Finkelstein, a health economist, is currently studying the cost-effectiveness and demand for a video game to treat childhood anxiety. If successful, the game could reduce the number of visits to psychiatrists, thus allowing them to see more patients at a lower cost. He is also researching how health expenditures vary across populations, and the viability of incentives to encourage people to engage in more physical activity.

With world-class facilities, a strong cadre of faculty, cutting-edge research, and the drive to become the top medical school in Asia, Duke-NUS Graduate Medical School promises to be a strong collaborator of DGHI in a growing number of areas.

## PROGRAM ADDRESSES GLOBALIZATION AND HEALTH EQUITY

**SINCE THE FOUNDING** of the Program on Global Health and Technology Access in 2004 by Duke Public Policy professor and DGHI member Anthony So, it has become a leading education, research and policy arm in the promotion of innovation and access to health technologies in resource-poor settings.

Globalization plays a major role in the fight against HIV/AIDS, tuberculosis, malaria and most recently the H1N1 flu. The program, which is housed at the Sanford School of Public Policy, addresses the impacts of globalization on human health, from the availability and affordability of essential vaccines and medicines in poor nations, to how such health technologies cross borders and build capacity within communities.

The program supports various educational initiatives, most notably the Global Health Fellows Program, which places graduate students from diverse fields in summer policy internships in Geneva to learn how inter-governmental institutions, public private partnerships and nongovernmental organizations shape global health policy. With support from DGHI, the summer fellowships are part of Sanford's Program on Global Policy and Governance.

"The greatest resources at Duke are our students, and it has been gratifying to see such an extraordinary surge of interest in global health over the past few years," said So, who hopes to expand education offerings and research opportunities. "We look forward to evolving our program further in such a way that we not only understand how to engineer health technologies, but think deeply about how are they funded, the capacity-building that brings about results in resource-poor settings, and how new models of innovation impact access."

With nearly a dozen partners at Duke and within the national and international community, the program's research portfolio has expanded considerably over the past five years to include a range of projects targeting antibiotic resistance, tobacco control in Southeast Asia and access to essential medicines. 📖

For more details, go to <http://sanford.duke.edu/centers/ghta/>

For more details, go to [www.duke-nus.edu.sg/](http://www.duke-nus.edu.sg/)



## LOOKING AHEAD

**T**o build a leading and influential global health institute, we must focus our efforts on three key areas: educating the next generation of global health leaders; recruiting a world-class global health faculty; and developing international research and learning sites. It takes a world-class faculty engaged in innovative and cutting-edge research to create a dynamic learning environment for tomorrow's leaders in global health. To be sure, there are many priorities for the Institute, but we recognize that our long-term success lies in our ability to develop these core areas.

### Educating the Next Generation of Global Health Leaders

DGHI's education and training programs support the emerging communion of multidisciplinary perspectives that will uniquely characterize 21st Century advances in global health. Our goal is to develop the next generation of leaders, scholars and researchers poised to affect policy change and improve the health of populations living in a variety of settings. DGHI harnesses the strengths of Duke's commitment to interdisciplinary education and provides unique opportunities for students and trainees to put knowledge in the service of society. We do this at the undergraduate, graduate, professional and postdoctoral levels by capitalizing on Duke's diverse strengths in medicine, nursing, engineering, divinity, law, the environment and business, as well as its broad arts and sciences base. Our reach needs to be both international and local, and our education programs must meet the demands of an increasingly global classroom comprised of lifelong learners.


Over the next five years, the Institute will continue to grow its education portfolio at Duke and with our partner sites around the world. We will not only send our students into the field, but, through the use of innovative and emerging learning technologies, bring the field into the classroom through case studies, videoconferences with our international sites, and communication with educators, researchers, policymakers and health care providers around the world.

### Faculty Development: Defining the Field of Global Health

DGHI's comprehensive faculty development plan, which is based on consultations with colleagues across the campus and medical center, defines the areas critical to the Institute's growth. These include cardiovascular and infectious diseases, health economics, behavioral and environmental sciences, and engineering, law and public policy. In order to enhance the teaching and mentoring of students and expand the Institute's research portfolio, we must recruit distinguished senior faculty, promising junior faculty and postdoctoral fellows. We anticipate the recruitment of an additional 25 faculty over the next five years. Faculty recruitment and development is critical to developing the breadth and depth of expertise necessary to support DGHI's education and research priorities.

### International Research and Learning Sites

Duke and DGHI will be distinguished in great part by the development of core and strategically-important research and service-learning sites in low- and middle-income countries. These sites are the nexus of research, education and outreach and are therefore critical to our success. While the selection of sites is partially driven by Duke University's emerging academic partnerships in China and India, all sites reflect our commitment to identifying partner institutions such as universities, teaching hospitals and nongovernmental organizations in underserved areas around the globe. The model for developing sites relies on the important synergies that occur when Duke faculty from different schools and disciplines, as well as students and advanced trainees, work side by side with their peers at partner institutions and with communities in the surrounding areas. Sustained commitment to capacity building and bi-directional learning, such as the model developed in Moshi, Tanzania, are integral to all we endeavor to accomplish at these sites.

We are looking to partners from the public, private, academic, governmental and philanthropic communities to join us in this endeavor to address health disparities through innovation and education, in order to improve the health of all people around the world. As is often quoted at DGHI, the world can no longer exist half healthy and half sick. We are committed to the long, arduous work ahead and are firm in our belief that we can make a difference. 



**Duke Global Health Institute**

Duke University  
310 Trent Drive, Trent Hall  
Box 90519  
Durham, North Carolina 27708  
Phone: 919.681.7760  
Email: [globalhealth@duke.edu](mailto:globalhealth@duke.edu)  
[www.globalhealth.duke.edu](http://www.globalhealth.duke.edu)

*Director:* Michael Merson

*Editor:* Geelea Seaford

*Writer:* Alyssa Zamora

*Designer:* Regina Barnhill-Bordo

Published March 2010

Copyright© 2010,

Duke Global Health Institute

**Photo Acknowledgements:**

Anant Agarwalla, Kimberly Atkins, Janel Belle, Gary Bennett, Scottee Cantrell/  
Nicholas School of the Environment, David Chou, Dennis Clements, Andy  
Cunningham, Lisa Deng, Duke Photography, Duke-NUS Communication Office,  
Matt Gay, Joanna Gross, Caroline Hope Griffith, Adrian Hadiono, Michael Haglund,  
iStockphoto, Randy Kramer, Robert Malkin, Alice Mao, Karen Meacham,  
Geelea Seaford, Moses Sichangi, Theo Tam, Nathan Thielman, Kate Whetten,  
Jeff Wilkinson, Alyssa Zamora



**FSC** C0C-XXXXXX  
©1996 Forest Stewardship Council A.C.

Printed with vegetable-based inks  
on FSC Certified Paper containing  
100% post-consumer waste

© Copyright Duke Global Health Institute, 2010.



Rwanda Singapore South Africa Sri Lanka Tanzania Thailand Uganda United States