M4 student Jenny George participated in a four-week rotation at the University of São Paulo teaching hospital, FMUSP, the largest hospital in Brazil, in summer 2016.

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THE IMPORTANCE OF GLOBAL HEALTH

As our world gets smaller, medical advances are increasingly transcending borders, language, culture and politics. The simple reason: no matter where you live, global health and local health are fundamentally related.

Some of these connections are overt, as in the need to stop the spread of infectious diseases before they take hold in the United States. Others are more subtle, though no less impactful. Can studying how foreign doctors communicate difficult diagnoses inform how physicians here interact with patients? What can a Japanese hospital’s experience with hand-hygiene awareness teach us about our own safety programs? Can disease management initiatives utilizing automated calls and text messages in Bolivia be effective in rural America?

At Global REACH, the inherent ‘reach’ in our name extends both ways, benefiting Michigan Medicine as well our collaborators abroad. We foster international collaboration that brings together the world’s top physician scientists to partner on meaningful research to improve healthcare abroad and at home. Such partnerships accelerate new discovery by enabling researchers to access ever larger pools of patient data. They introduce students to new healthcare systems and settings, thereby challenging their preconceived notions. Most important, they foster the exchange of ideas, inspiring both doctors and future doctors alike to be more resourceful.

What we understand at Global REACH is that every global health issue is someone’s local health problem. And, as evidenced in these pages, those challenges are best met through collaboration. The resulting creativity and innovations benefit us all.
ABOVE: The Cesar Garayar Garcia hospital in Iquitos, in northern Peru on the Amazon River, was among the sites for a group experience for several M4 UMMS students in the summer of 2016.

ABOVE RIGHT: M4 Sidhar Katrik completed a summer rotation with the All India Institute of Medical Sciences (AIIMS) in summer 2016.

OUR VISION

Global REACH will be a nationally recognized leader for developing individuals and programs to improve health and healthcare through collaborative partnerships in other countries.

A FOUR-PART MISSION

Enable students, trainees, and faculty to develop high-impact careers in global health.

Create partnerships that allow our Medical School community to collaborate synergistically to improve global health.

Advance education and research in global health, particularly in the “science of collaboration,” while cultivating a community of educators and scholars.

Demonstrate the value of global health initiatives across the medical school and the university.
OVERVIEW

OUR APPROACH: 3 STRATEGIES

Global REACH was founded at the University of Michigan Medical School in 2001 to leverage existing international activities. The aim was to create more synergies and collaboration among the faculty already involved in independent global health work, as well as to expand offerings to students and trainees, both at UMMS and those visiting from abroad.

“REACH” stands for Research, Education, and Collaboration in Health. Indeed, those three areas are at the heart of the mission at Global REACH, and this report is divided into respective sections.

Research

Fund pilot projects and new initiatives that advance the mission with a focus on our values.

Provide consultation on approaches to external funding.

Education

Build mentoring programs for students, trainees, and faculty.

Create and strengthen meaningful experiences for students, trainees, and their mentors.

Provide technical support for training and education programs offered through UMMS.

Collaboration

Establish platforms for multi-departmental, multi-disciplinary collaborative efforts to foster synergistic innovation and cutting-edge research to address global health challenges.

Convene and connect members of our school and institution to advance programs and careers in global health.
Colleagues and friends,

The global health community at the University of Michigan continued to grow and thrive throughout the 2015-16 academic year, thanks in no small part to support and resources provided through Global REACH.

The year ushered in many milestones. We launched burgeoning institutional relationships in Taiwan that will add to a growing portfolio of research and education platforms. Our team offered career-changing (and in many cases life-changing) educational experiences abroad to more than 50 medical students. At the same time, we helped bring nearly 300 scholars and learners from more than a dozen countries to Michigan Medicine. And we offered our first-ever Partnership Development Grants, fostering new international collaborations among an already robust network of scholars and researchers.

That network is expanding. More than 20 colleagues joined our Faculty Associate/Affiliate programs in 2015-16, adding their expertise to a collective U-M global health community. Interest in global health is strong among students as well, with nearly three quarters of incoming medical students indicating that global health offerings played a significant role in their decision to attend UMMS.

By supporting faculty and students alike in their international research and learning endeavors, UMMS continues to recognize the importance of global health – not only for our partners overseas, but for our own institution as well. I’ve always maintained that the most powerful international collaborations are rooted in respect and mutual benefit, a conviction at the core of our work in Global REACH and in evidence throughout this report. As you will see, global health experiences tend to change our students and scholars for the better, and that in turn has the power to change the world.

Respectfully,

Joseph C. Kolars, MD
Josiah Macy, Jr., Professor of Health Professions Education
Senior Associate Dean for Education & Global Initiatives
University of Michigan Medical School
To date, 167 Global REACH Faculty Associates (UMMS) and Affiliates (other schools) have ongoing collaborations with colleagues across some 70 countries.

54 UMMS students enjoyed international experiences in 2015-16, the vast majority funded and facilitated through Global REACH. In addition, UMMS hosted 290 visiting scholars and students from overseas.

Global REACH directly funded 13 new collaborative research projects in 2015-16, and Faculty Associates and Affiliates published 153 papers with one or more co-authors from overseas.
HIGHLIGHTS FROM THE 2015-16 YEAR

For the first time, Global REACH offered Partnership Development Grants to help faculty build new collaborative projects with partners overseas. Five faculty were awarded $10,000 each to establish projects with new partners in Ghana, Ethiopia, China, and India.

A delegation of U-M faculty traveled to Taipei, Taiwan to meet with counterparts at Academia Sinica, a leading research institute, and Chang Gung Memorial Hospital, Taiwan’s largest hospital system and UMMS’ newest institutional collaborator.

UMMS Family Medicine physician Michael Fetters was the recipient of a prestigious Fulbright Distinguished Chair honor for a collaboration with colleagues at Peking University Health Science Center.

UMMS physicians helped colleagues in Ethiopia establish a new GI fellowship program at St. Paul’s Hospital Millennium Medical College in Addis Ababa.

Five scholars from China became the first to complete a two-year research studies program in conjunction with China’s Xiangya School of Medicine.

Ten first-year medical students participated in faculty-led research experiences in Brazil, Colombia, Kenya, and Uganda.

The University of Michigan Health System-Peking University Health Science Center Joint Institute funded eight new collaborative research projects, including studies involving fertility, genetics, pediatric epilepsy, and substance abuse among patients with HIV/AIDS, among others.

Two Ghanaian physicians were the recipients of donor-funded gifts administered through Global REACH for unique projects aimed at reducing infant and maternal mortality in their country.

In all, 63 Global REACH Faculty Associates and Affiliates published global health research papers with one or more collaborators overseas.
Global REACH Faculty Associates (UMMS) and Affiliates (other schools) with ongoing overseas collaborations

Countries around the world where Global REACH Faculty Associates are engaged in collaborative partnerships

Unique Memorandum of Understanding agreements with universities and institutions abroad
Many UMMS faculty have longstanding collaborations with colleagues and counterparts from around the world. These partnerships comprise many activities including joint research projects, student and/or resident exchange programs, and faculty observerships. Global REACH facilitates these partnerships in a number of ways. The team provides logistical support to visiting students, scholars, physicians, and researchers, helping faculty connect with colleagues who share a mutual interest. Global REACH also promotes collaborative success stories across the U-M campus and beyond.
PLATFORMS FOR COLLABORATION

In some cases, individual partnerships within a country grow over time into a collaborative network spanning many colleagues, departments, and even institutions. In these cases, Global REACH designates these robust partnerships to be “Platforms for Collaboration” and provides an extra level of administrative support, facilitating travel and communication, and even administering some grant opportunities. Global REACH currently helps coordinate six unique Platforms on four continents.

PLATFORM COUNTRIES

- Brazil
- China
- Ethiopia
- Ghana
- India
- Israel

Intensive “Platforms for Collaboration” facilitated by Global REACH to foster partnerships that connect individuals, programs, and entire organizations.
Institutional collaborations abroad

ORGANIZATIONAL PARTNERSHIPS

UMMS has developed institutional partnerships with peer universities, research institutions, and healthcare organizations around the world. Many of these relationships have been codified through Memorandum of Understanding (MOU) agreements.

Such agreements often expand on 1:1 faculty collaborations, paving the way for small- and large-group delegation visits, student and scholar educational exchanges, and joint research projects between collaborators at each institution. In each case, an emphasis is placed on crafting an agreement of mutual benefit to both institutions, whether through two-way student and scholar exchanges, a shared interest in specific research areas, or other common healthcare and educational objectives.

Currently, UMMS enjoys standing MOU agreements with more than 30 institutions. In 2015-16, Global REACH added or renewed seven MOUs with partner organizations in Taiwan, China, and India, among others.
Professional collaborations at the University of Michigan Medical School are not limited to institutions with signed MOU agreements or countries where Global REACH administers broad collaborative Platforms. Many faculty maintain 1:1 partnerships with colleagues across more than 70 countries. Global REACH supports these efforts, offering resources and events that help faculty share their work and connect with collaborators. Those engaged in global health are encouraged to become Global REACH Faculty Associates or Affiliates. These programs foster a true global health community across UMMS, bringing together colleagues with shared interests to maximize the impact of our collective activities.

**Faculty Associates:** Medical School faculty involved in global health are encouraged to become Global REACH Faculty Associates. Currently, there are 150 Faculty Associates, including 22 who joined in 2016. They represent 30 departments and divisions across the medical school.

**Faculty Affiliates:** Non-medical school faculty involved in global health join the Faculty Affiliates program. Currently, there are 17 members representing the schools of Dentistry, Nursing, Public Health, and more.

**Global REACH UMMS Faculty Associates program growth**

<table>
<thead>
<tr>
<th>Year</th>
<th>Faculty Associates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>97</td>
</tr>
<tr>
<td>2014</td>
<td>119</td>
</tr>
<tr>
<td>2015</td>
<td>128</td>
</tr>
<tr>
<td>2016</td>
<td>150</td>
</tr>
</tbody>
</table>

**UMMS departments and divisions represented among Faculty Associates**

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ABOVE: Monthly Global Health Initiatives Forum meetings bring together faculty from UMMS and beyond to discuss their global health projects.
Faculty and students interested in global health are encouraged to attend Global Health Initiatives Forum events, a monthly series organized by Global REACH that provides a venue for faculty to present their latest international projects and meet colleagues who share similar interests.

The monthly events feature global health work by faculty in the medical school and beyond. In 2015-16, speakers included Yolaine Civil, a UMMS Pediatrician who has worked across Africa with Doctors Without Borders; Paul Clyde from the U-M William Davidson Institute, who focuses on healthcare delivery in low- to middle-income countries around the world; and the School of Nursing's Patricia Abbott, who spoke about eHealth and telemedicine efforts and advances in low-resource settings.

The events help faculty stay engaged in the U-M/UMMS global health community, showcasing the breadth and depth of work being done and presenting opportunities to forge new inter- and intra-disciplinary partnerships.
The University of Michigan Medical School has a long history of clinical, educational, and research collaboration with China, both at the individual and the institutional levels. Dozens of medical school faculty have co-authored hundreds of publications with colleagues in China in recent years, and almost 20 UMMS departments have ongoing collaborations with Chinese universities.

The University of Michigan Medical School holds Memorandum of Understanding agreements with several Chinese research and academic institutions: Peking Union Medical College, Peking University Health Science Center, Central South University, Shandong University, and Shanghai Jiao Tong University.

UMMS has Memorandum of Understanding agreements with five institutions across four cities in mainland China, as well as a large hospital system in Taipei, Taiwan.

Students, scholars and faculty collaborators from China visited UMMS in 2015-16 through Global REACH.

UMMS Faculty Associates participate in the Global REACH China Platform.

UMMS and PUHSC delegates meet during U-M President Mark Schlissel’s visit to Beijing in the summer of 2015. It was his first international trip since being named the President of U-M.
Platform Highlights: 2015-16

July 2015: U-M President Mark Schlissel traveled to China to continue to build relationships among Chinese partner institutions and strengthen relations with international alumni. The President began the trip in Beijing to explore firsthand the JI collaborations at Peking University Health Science Center (PUHSC).

July 2015: Two PUHSC students were enrolled into the U-M Program in Biomedical Sciences (PIBS) through a new UMMS-PUHSC collaborative MD/PhD program. In addition, four PUHSC students were accepted for research rotations at UMMS.

August 2015: Seven students from Central South University Xiangya School of Medicine began a two-year research training program at the UMMS. Another ten Xiangya students began their training in Summer 2016.

October 2015: Drs. Joe Kolars and Amy Huang visited China when Dr. Kolars was invited to speak on the topic of medical education at the Lancet-Chinese Academy of Medical Science Health Summit. Dr. Kolars delivered a conference keynote: “Reflections on Medical Education Reform: Cultivating Health Professionals for the 21st Century.”

December 2015: Four medical students from PUSHC and two students from Shanghai Jiao Tong University completed month-long clinical electives at UMMS through the Special Pathway for International Medical Students.

May 2016: Leaders from U-M hosted representatives from the eponymous foundation of notable Chinese philanthropist Li Ka Shing.

June 2016: Five scholars from the Xiangya School of Medicine became the first to complete an intensive research training program that brings Xiangya students to UMMS to study and conduct research for two years.
Formalized in 2010, the Joint Institute for Translational and Clinical Research between the University of Michigan Health System and Peking University Health Science Center comprises a large share of the overall China Platform. Nearly 40 UMMS faculty are actively engaged in ongoing research projects with PUHSC colleagues, and many others are involved in mentoring learners and colleagues through educational exchange programs in place between the two institutions.

The majority of research projects focus on one of four areas of interest to both UMHS and PUHSC: cardiovascular, liver, pulmonary, and renal diseases. Each project is co-led by faculty members from each institution. Additionally, JI program “cores” help guide researchers through issues like human protection, biomedical informatics, and cross-cultural collaboration.

**Joint Institute Highlights: 2015-16**

**October 2015:** The Fifth Annual Symposium of the Joint Institute for Translational and Clinical Research was held in Beijing, China.

**December 2015:** PUHSC researcher Jinwei Wang was awarded a 2016-17 Fogarty Fellowship for his JI-related work exploring Chronic Kidney Disease (CKD).

**December 2015:** A delegation led by Dr. Lai Wei from PUHSC Second Hospital visited U-M to meet with colleagues in the JI’s liver disease program.

**February 2016:** PUHSC PhD student Fangrui Ding visited Dr. Roger Wiggins’ laboratory at U-M to collaborate with the JI project on Alport Syndrome.

**February 2016:** Dr. Ran Liu, Associate Chief Physician from PUHSC First Hospital’s Neurology Department, began a one-year lab training program at U-M.

**April 2016:** UMMS Family Medicine physician Mike Fetters received a Fulbright Scholarship to spend five months in Beijing leading a joint research project with PUHSC Ethics Professor Yali Cong.
The Joint Institute (JI) for Translational and Clinical Research was highlighted as a successful institutional partnership in a paper published in *Academic Medicine* in the spring of 2016. The article, written by leaders of the JI, highlights best practices, lessons learned, and significant outcomes to emerge from the University of Michigan Health Systems’ partnership with Peking University Health Science Center. Detailed are the leadership and governance models for the JI.

“Institution-level collaborative partnerships across cultures are not without their challenges … including differences in governance structures, funding mechanisms … and intellectual property laws,” write the paper’s authors, led by Dr. Joseph Kolars, UMMS Senior Associate Dean for Education and Global Initiatives. “One of the foundational aspects of the JI is that all decisions are made jointly … with a clear understanding that all decisions, including the dispersion of funds, will be agreed upon by both institutions.”

That approach has proven effective. Since established in 2010, the JI has funded 33 joint research projects involving more than 100,000 patients in both the US and China. Those projects have produced 15 peer-reviewed publications and counting, with select projects having secured more than $3 million in extramural funding.

“We are optimistic about the future of the JI because this model has gained wide support among faculty,” the authors note. “We aim to position investigators to compete successfully for funding opportunities within China and the United States and to advance … our mutual understanding of diseases that affect the populations of both countries.”

“We are optimistic about the future of the JI because this model has gained wide support among faculty.”
- Joseph Kolars, Sr. Associate Dean for Education & Global Initiatives
Projects in a variety of disciplines and across a wide range of countries will benefit from Global REACH Partnership Development Grants. Issued for the first time in the spring of 2016, the grants will help five faculty establish new collaborative projects with partners overseas.

Each one-year grant will offer up to $10,000 to cover travel expenses for the U-M principal investigator and their counterparts abroad.

**Addressing gender-based violence in Ghana**
Researchers plan to partner with University of Cape Coast colleagues to adapt a U-M undergraduate sexual violence prevention program for use in Ghana, ensuring the program is culturally appropriate for UCC students.

**Epigenetic regulation in pancreatic cancer development**
The prevalence of pancreatic cancer in China is on the rise. Dr. Shi and her collaborator at China Medical University seek to identify novel biomarkers for diagnosis, prognosis, therapeutic prediction, and therapeutic targets for pancreatic cancer.

Sarah Rominski  
Research Assistant Professor of OB/GYN
Michelle Munro-Kramer  
Assistant Professor of Nursing
Jiaqi Shi  
Asst. Professor of Pathology
Improving pediatric epilepsy care in Ethiopia

Epilepsy is very prevalent in Africa, and yet the number of anti-seizure medications available is limited. U-M dietitians plan to partner with counterparts at St. Paul Hospital, in Ethiopia, on culturally appropriate dietary-treatment menus and patient education.

Harmonized assessment of age-related weakness, disability and diabetes risk: The Chinese Health and Retirement Longitudinal Study

No countries spend more on diabetes-related healthcare than the US and China. Researchers will leverage ongoing large-scale retirement studies to compare the burden of age-related disability and diabetes in each country.

Expanding collaboration on genetic analysis of neurodevelopmental disorders in India

Almost 15 percent of young children in India have one or more neurodevelopmental disorders. To help define the genetic causes of these disorders, researchers plan to expand a current Whole Exome Sequencing project underway at Manipal University, bringing in new collaborators at other Indian institutions.
University of Michigan Medical School faculty members have been collaborating with partners in Brazil for decades. Former U-M President Mary Sue Coleman traveled to Brazil in 2012 to sign collaboration agreements with several institutions, including the University of São Paulo Medical School (FMUSP), the Biological Sciences Institute (ICB), and the State of São Paulo Research Foundation (FAPESP). An agreement with the Federal University of Bahia (UFBA) followed in 2014.

Overall, nearly two-dozen clinical, educational, and research projects across some 15 disciplines are currently under way between faculty at U-M and their colleagues in Brazil. The second University of Michigan-Brazil Platform Symposium took place in the fall of 2016 in São Paulo.

Platform Highlights: 2015-16

December 2015: A team from Kellogg Eye Center led by Dr. César Briceño presented an oculoplastics symposium during the annual University of São Paulo Ophthalmology Congress.

February 2016: A Brazil Platform ‘Meet-and-Greet’ event gathered faculty from across U-M with a shared interest in collaborations with Brazilian partners.

June 2016: Two UMMS researchers and their Brazilian colleagues were awarded a FAPESP grant to design specialized mouse models that will explore metabolic dysfunction.
Scholars from two Brazilian universities are spending time at Michigan Medicine to gain expertise on the latest gene-modification techniques. The new collaboration brings together scientists from the University of Sao Paulo’s Ribeirao Preto Medical School, the State University of Campinas School of Applied Sciences, and UMMS to develop genetically modified mice using CRISPR. The fast, inexpensive gene editing method is helping researchers more easily create mouse models to study a variety of diseases, and the teams from Brazil are among the latest to come to UMMS to learn it.

“We host what I call a CRISPR mouse genetics boot camp about every quarter,” said Thom Saunders, Research Associate Professor in the Department of Internal Medicine and the Director of the Transgenic Animal Model Core, one of U-M’s Biomedical Research Core Facilities. “You have people all over the world working to develop this new technique. The idea is to have people who are well trained so they can take their new skills back to their home institutions.”

Carol Elias, PhD, UMMS Associate Professor of Molecular and Integrative Physiology, organized the project, funded through the State of Sao Paulo Research Foundation (FAPESP) and U-M. She is a Brazilian native and former University of São Paulo researcher.

“My colleagues in Brazil have been using CRISPR but there are challenges,” said Dr. Elias. “At U-M, we have core facilities that focus exclusively on this work, so I spoke with Thom about hosting us and he was on board. It’s amazing how willing people are to collaborate here.”

One team has already visited Saunders’ lab for what amounts to a CRISPR crash course, with a second team to follow in mid-2017. University of Campinas Research Associate Fernando Simabuco was among the first group to complete the training.

“It is intense because we cover so much ground in two weeks, but it’s been really good to get the hands-on experience,” said Simabuco, PhD. “I’m excited to get back to Brazil to try it out in my own lab.”
The University of Michigan Medical School now counts the leading clinical and research institutions in Taiwan among its prominent international partners.

New relationships with Chang Gung Memorial Hospital, Taiwan’s largest health system, and Academia Sinica, the country’s premier research institution, promise collaboration opportunities to advance science and health all over the world.

“We’ve been working on establishing these partnerships for close to 10 years, so to see it coming together is extremely gratifying,” said Dr. Kevin Chung, Chief of Hand Surgery at UMMS, who organized and led a group of UM delegates to two symposia in Taiwan in the summer of 2016. “I believe we’ve laid the groundwork for this to grow. Our long-term vision is really to have a UM-Taiwan platform, starting with these two preeminent institutions.”

Academia Sinica has close connections with the country’s leading research universities. The life sciences are a major focus, with particular emphasis on epigenetics, fundamental disease processes, and cutting-edge data science.

With seven individual hospitals comprising some 10,000 beds, Chang Gung Memorial is Taiwan’s biggest health care institution, serving about 20 percent of the country’s population. It is the largest hospital system ever to be accredited by the Joint Commission International.

Chang Gung Memorial has allocated $3 million over the next three years for research projects between their own physicians and UMMS faculty. The first awards were made in early 2017.

“The investigators we brought really connected with colleagues there. Each member came back with an identified partner and a great idea for future research.”

Delegates from U-M and collaborators from Taiwan’s Chang Gung Memorial Hospital celebrate their new partnership during the first-ever UMMS-Chang Gung Symposium.
Disaster response was the focus of the first publication to emerge from a new partnership between the University of Michigan Medical School and Taiwan’s largest health system, Chang Gung Memorial Hospital.

Colleagues at U-M and Chang Gung worked together to analyze the latter institution’s response following a June 2015 concert fire that injured nearly 500 people, many severely. Published in Plastic and Reconstructive Surgery, the paper examines how thoughtful emergency planning at the national and local levels helped save a lot of lives.

“This was a tragic, high-profile event, unmatched by any other disasters that we’ve seen in the literature about severe burn injuries. But it demonstrated the efficiency of the Taiwanese disaster preparedness program,” said Dr. Kevin Chung, a U-M Surgery Professor and the paper’s first author.

Of the 499 injured, Chang Gung received 49 patients, 17 of whom suffered burns across more than 50 percent of their bodies, according to the report.

The hospital mobilized more than 330 doctors, nurses, paramedics and administrators to manage the crisis. Of the 49 accident victims treated at Chang Gung, only two succumbed. Interestingly, just five days before the disaster, Chang Gung leaders had run a practice drill on a hypothetical chemical explosion scenario.

“Because they’d gone through this drill, it was still fresh in everyone’s mind,” Dr. Chung said. “Without planning, there is no way that any institution could manage the number of patients they absorbed and treat them successfully. Hopefully the world can learn from this experience.”

research,” said Dr. Joseph Kolars, Senior Associate Dean for Education and Global Initiatives. “I’m confident both institutions stand to learn a great deal from one another.”

The potential for mutual benefit was key in establishing the relationship, said Dr. Chung, who expects the first-round grants with Taiwanese partners to be announced in early 2017.

“We didn’t go to Taiwan and say, ‘We’re here to help you and we’ll take it from here.’ Instead, we made it clear that we’re here to collaborate and work together to improve health,” he said. “The doctors we met at Chang Gung really shared those values.”
The University of Michigan has long-standing relationships with many institutions in Ghana. Among the earliest UMHS faculty members to work in Ghana was UMMS OB/GYN Chair Dr. Timothy Johnson who in the early 1980s helped establish an in-country post-graduate training program for Obstetrician/Gynecologists. To date, 140 of the 142 graduates of the program still practice or hold leadership positions in Ghana, and the program has become a model for similar training initiatives across Sub-Saharan Africa in places like Ethiopia, Cameroon, Liberia and Malawi.

Dr. Johnson’s individual collaborations have over the years expanded and evolved into a formal Ghana-UMMS Platform that spans many institutions and disciplines, from Pediatrics to Emergency Medicine, to name just a few.

**Platform Highlights: 2015-16**

**August 2015**  Ghanaian leaders honored UMMS Drs. William Barsan and Rockefeller Oteng for their work on the Ghana Emergency Medicine Collaborative. The program celebrated its fifth anniversary in 2015 and has produced 15 emergency physicians and more than 80 nurses to date.

**October 2015:** A group of UMMS head and neck surgeons visited Komfo Anokye Teaching Hospital in Kumasi to hold training sessions with Ghanaian colleagues.

**May 2016:** Representatives from University of Cape Coast College of Health & Allied Sciences visited UMMS to study administrative processes in a major US academic medical center.

**July 2016:** A University-sponsored African Social Research Initiative Conference, held in Accra, gathered scholars to discuss social, health, and economic issues for the entire African continent.

In addition to working closely with the Ghanaian Health Service and the Ministry of Health, UMMS has Memorandum of Understanding agreements with institutions in Kumasi, Cape Coast, Tamale and Accra.

Students, scholars and faculty collaborators from Ghana visited UMMS in 2015-16 through Global REACH

UMMS Faculty Associates are involved in the Global REACH Ghana Collaboration Platform
A group of U-M ear, nose and throat (ENT) doctors are passing their skills and techniques to counterparts in Africa thanks to a growing Otolaryngology Department partnership with one of Ghana’s largest hospitals.

Three head and neck surgery specialists visited Kumasi’s Komfo Anokye Teaching Hospital (KATH) in October of 2015 to lead training seminars and clinics. The primary goal: train Ghanaian colleagues who will in turn be able to teach medical students and residents. The partnership launched in 2014.

“We are just ramping up to a point where we are really beginning to make a difference. Here, there’s enough infrastructure that if you train people well, they can do it on their own,” said Dr. Jeffrey Moyer, a Global REACH Faculty Associate who has been to Ghana several times. “It’s just a matter of giving them the tools so that they can be successful. They are very, very bright people. They’re very motivated. They just have a resource issue.”

The World Health Organization reports that 360 million people – 5 percent of the world’s population – have disabling hearing loss. The problems are particularly prevalent in Africa, where a lack of infrastructure and limited access to the care make preventive treatment less common. Typical of West Africa, Ghana is home to 26 million people, but the country has only between 20 and 30 practicing ENT physicians – fewer than the number of ENT specialists at UMHS alone. Few children have their hearing regularly screened and many ear infections go untreated, contributing to otherwise preventable permanent hearing loss.

To combat these challenges, leaders at KATH hope one day to make the hospital a training destination for ENT specialists across Ghana and all of West Africa.

“It is not the doctors from Michigan coming in to do the cases themselves. They are teaching people how to do it.”

- Alex Oti
KATH ENT Specialist
A handful of faculty who hail from Macedonia are working to build partnerships and improve healthcare in their home country. The University of Michigan Medical School has in recent years become a popular learning destination for Macedonian students and scholars, while groups of U-M faculty members have twice made the journey to the small Balkan nation to share expertise and meet with counterparts at Ss. Cyril and Methodius University, home to Macedonia’s largest medical school.

“I had a vision to create a viable exchange program for students and scholars, but I was thinking on a small-scale, mainly within the rheumatology division, which is my interest,” said UMMS Assistant Professor of Internal Medicine and native Macedonian Dr. Vladimir Ognenovski, who helped establish connections with Cyril and Methodius more than a decade ago. “With the help of some of my colleagues, we’ve been able to do much more than that.”

Dr. Ognenovski and other Macedonian faculty members, with financial support from the Macedonian Ministry of Health, have in the last few years...
managed to bring some 25 visiting physicians, as well as more than a dozen students, from Cyril and Methodius University to U-M for educational rotations.

Macedonia declared independence from the former Yugoslavia only 25 years ago, and the government has been investing in the small country’s medical infrastructure, including supporting the partnership between UMMS and Cyril and Methodius by financing many of the exchanges. Macedonian scholars across many disciplines, including orthopedics, cardiology, pulmonology and radiology, have spent time at U-M since the two institutions formalized their memorandum of understanding agreement in 2009.

“Groups of UMMS faculty have also visited Macedonia to share and exchange knowledge during symposium meetings there. Most recently, Assistant Professor of Radiology Jadranka Stojanovska led a group of several UMMS colleagues to Macedonia for a two-day radiology symposium in the fall of 2015.”

“It is a young country, but they have a great deal of intellectual capacity and capability. By sharing our expertise, we’re helping them to leverage that,” she said. “One of the things I love about U-M is that everyone is so willing to share their time and knowledge. It’s an enormously collaborative culture here.”

Next on the horizon for the partnership is a translational pathology symposium in Macedonia being planned for early 2017 by Associate Professor of Pathology – and Macedonia native – Zaneta Nikolovska-Coleska. She has also been instrumental in the partnership, helping to organize rotations for Macedonia colleagues in a variety of UMMS departments, including pathology, otolaryngology, and obstetrics and gynecology.

“You can’t forget where you come from,” said Dr. Nikolovska-Coleska, who has been at UMMS since 2001. “Everyone at U-M has been so supportive of everything we’re doing. Every time I email a colleague about getting involved and sharing their expertise, they are always so eager to help. It means a lot.”
The India Platform, and the partnerships it comprises, is largely centered on two leading Indian institutions: the All India Institute of Medical Sciences (AIIMS), in New Delhi, and Maharashtra University of Health Sciences (MUHS), in Maharashtra. The University of Michigan Medical School entered into a memorandum of understanding with AIIMS in 2011, while the partnership with MUHS was formalized in 2012 through the joint Obama-Singh 21st Century Knowledge Initiative award. Partnerships focus on a variety of topics, including ophthalmology, brain trauma, and the genetic causes of developmental disorders, to name a few.

Platform Highlights: 2015-16

August 2015: Dr. Prabhakaran Dorairaj, Vice President of the Public Health Foundation of India, visited U-M to talk about reducing the burden of cardiovascular disease in India.

March 2015: AIIMS launched a second Research Methods course organized with the help of UMMS faculty members including Dean Brenner, MD, and Mary Rogers, PhD.

April 2016: Professor of Endocrinology Gary Hammer was among five US scholars invited as guest faculty an India Endocrinology Summit in Mumbai.

June 2016: M1 student Harika Rayala spent the summer studying infection prevention practices at the Amrita Institute in Kochi, Kerala. This was the first time UMMS faculty had teamed up with colleagues from Amrita, marking the beginning of a new institutional relationship.
Thanks to a University of Michigan partnership, a first-of-its kind master’s program in India stands poised to introduce that country’s first-ever entirely domestically-trained scholar-teachers in Health Professions Education.

Maharashtra University’s Master of Health Professions Education (MHPE) degree program accepted its initial cohort of students in 2016. Meanwhile, the University of Michigan’s own MHPE graduated its first students in 2016. The 2012 Obama-Singh 21st Century Knowledge Initiative grant that fostered the development of both funded travel and collaboration for the two universities to develop the programs jointly on opposite sides of the globe.

At U-M, the degree is a fitting addition to the already robust education programs offered within the Medical School. But in India, the degree marks a major milestone in advanced medical education and training, according to Professor of Learning Health Sciences Larry Gruppen, a Global REACH Faculty Associate.

“In a country of well over one billion people, there were only a handful of individuals with this training. And all of them obtained that education outside of India,” said Dr. Gruppen, the Principal Investigator from the U-M team.

Maharashtra University’s new program will soon begin filling that need. Like its sister platform at U-M, it will give participants – health professionals who already hold advanced degrees – insights into student learning processes as they hone their skills as educators, educational leaders, researchers, and scholars in health professions education. The program is for professionals in medicine, dentistry, nursing and other health fields, and Maharashtra University makes the program available nationally through partnerships with faculty members in a number of medical schools across India.

“India’s health environment is still very much in development, with a huge need for well-trained physicians and medical professionals who can teach and share expertise with their colleagues,” Dr. Gruppen said.
True partnerships benefit through face-to-face interaction, which is why Global REACH facilitates and otherwise supports many global health events for UMMS faculty and students. On campus events like the Global Health Initiatives Forum series provide faculty regular opportunities to meet with colleagues engaged internationally for project updates and the exchange of ideas.

Larger annual events like the Sujal M. Parikh Memorial Symposium and the Kellogg Eye Center's International Night provide students from the Medical School and beyond an opportunity to learn about and get involved in global health projects and research.

Finally, Global REACH also supports student participation in select national conferences, offering a limited number of travel awards to attend events like the annual meeting of the Consortium of Universities in Global Health (CUGH). In the past five years, Global REACH has offered financial assistance to 18 UMMS student presenters at prominent national conferences.
STUDENT SYMPOSIUM FOCUSES ON DISPARITIES

An annual student-run symposium spotlights health disparities and honors the memory of a UMMS student.

The 2015 Sujal M. Parikh Symposium for Health & Social Justice featured keynotes by former Assistant Surgeon General Fitzhugh Mullan, MD, of the George Washington School of Public Health, and Agnes Binagwaho, MD, Rwanda’s Minister of Public Health. The annual conference is organized by students with administrative support from Global REACH.

Sujal Parikh was a fourth-year medical student when he died in 2010 following a traffic accident in Kampala, Uganda, where he was conducting AIDS research. The annual event, which includes a benefit luncheon, raises money for social causes to which the young man was so dedicated.

KELLOGG EYE CENTER INTERNATIONAL NIGHT

The Kellogg Eye Center for International Ophthalmology’s annual International Night event affords medical students a chance to learn about clinical and research-related opportunities abroad in ophthalmology.

The third annual International Night featured keynote speaker Thomas Lietman, MD, Director of the University of California, San Francisco’s Proctor Foundation for Ophthalmology Research, who spoke about his efforts to eradicate trachoma in Africa.

M2 student Vicky Koski-Karell reported on her multiple summers of working in Haiti. Roland Chen, U-M Engineering Research Associate, described his portable slit-lamp which is undergoing field trials in India, as well as other innovative technological designs in ophthalmology.
Native Ethiopian and UMMS OB/GYN Adjunct Professor Senait Fisseha was the catalyst for many of the partnerships in Ethiopia, which have expanded well beyond the medical school to include the U-M colleges of Business, Engineering, Nursing and others. For UMMS, much of the collaboration is facilitated through the Center for International Reproductive Health Training (CIRHT), established by Dr. Fisseha in 2014 with the assistance of an anonymous $25 million donation. CIRHT works closely with the Ethiopian Ministry of Health to bolster the reproductive health curriculum for doctors and nurses-in-training across Ethiopia, as well as expand and improve family planning clinical services there.

Platform Highlights: 2015-16

September 2015: A UMMS-led team of surgeons helped perform Ethiopia’s first-ever kidney transplants as part of a collaboration to create a sustainable, Ethiopian-run transplantation center there.

October 2015: UMMS doctors helped launch a GI fellowship training program at St. Paul’s Hospital Millennium College.

January 2016: St. Paul’s Hospital opened the MICHU family planning clinic with the help of CIRHT. The facility is first of several planned reproductive health clinics CIRHT plans to open across Ethiopia.

February 2016: A symposium of the Ethiopia-Michigan Collaborative Consortium (EMC2) brought more than 20 delegates from Ethiopia to U-M to explore collaborations in health, clean water access, combating human trafficking and more.
A University of Michigan-led team performed the milestone first kidney transplants in Ethiopia after spending more than two years to help establish a transplant center there.

UMMS Transplant Surgeon Jeffrey D. Punch, MD, and his colleagues performed three kidney transplants at St. Paul’s Hospital Millennium Medical College in Addis Ababa in the fall of 2015. All three recipients received kidneys from living donors and each procedure was successful.

“We’ve been working for more than two years to establish the kidney transplants program in Ethiopia, and the team is so proud to be a part of this historic milestone for the country. The real winners are the patients with kidney disease who up until now have had no treatment option other than very expensive dialysis that some just can’t afford,” said Dr. Punch, a UMMS Professor of Surgery.

Punch was joined in Ethiopia for the Sept. 22, 23 and 24 surgeries by U-M Transplant Center nurse Lynn Reid, RN, and four Ethiopian fellowship colleagues. Nephrologist Alan B. Leichtman, MD, and Transplant Social Worker Colleen Satarino, MSW, were also instrumental in the project.

“We’re tremendously proud of the work of our team,” said Dr. John Magee, Director of the U-M Transplant Center and a transplant surgeon. “This will provide a life-saving alternative to those patients with kidney disease in Ethiopia. It is great we were able to share our knowledge and partner with our St. Paul’s colleagues.”

Over time, Dr. Punch and his team plan to train enough Ethiopian physicians in the procedure so the transplant center can be self-sustaining without UMMS assistance.

“The surgeons and internists in Ethiopia are first-rate, and St. Paul’s management is going about everything in the right way to make sure patients do well in the long run,” he said. “This is a great showcase of how a partnership like this can make a tremendous difference in people’s lives.”
A researcher at UMMS has teamed up with an Israeli partner to study the genetic connections between muscular dystrophy and heart disease.

The project, led by UMMS Associate Professor of Molecular & Integrative Physiology Daniel Michele, PhD, is one of five studies to receive funding in 2016 as part of a broader collaboration between UMMS and two partner institutions in Israel. Dr. Michele and his research partner, Dr. Ofer Binah, of the Technion-Israel Institute of Technology, have been collaborating since 2014.

“Despite the same gene causing the disease, some patients with muscular dystrophy get more severe cardiomyopathy than others and we are interested in examining why,” said Dr. Michele.

Duchenne muscular dystrophy, an inherited genetic disease that attacks the muscles, affects predominantly males and impacts about 1 in every 7,250 young males, often with devastating effects. Many with the illness do not reach their 30s, and heart disease is frequently a leading cause of death.

Dr. Michele’s research has focused on muscular dystrophy for much of his career. He first connected in 2013 with Dr. Binah, whose heart stem cell research dovetailed with Dr. Michele’s own work. The partners garnered an initial research grant from the UM-Israel Partnership to begin a collaboration, funding that supported key preliminary experiments and allowed for exchange of cell lines and techniques to show that heart cells made from stem cells might be a feasible model to study the disease.

Based on that initial work, the two investigators received two subsequent grants from the Binational Sciences Foundation, which is funded through both the US and Israeli governments, and another round of funding from U-M’s partnership platform, which brings together researchers from Michigan, Technion, in northern Israel, and the Weizmann Institute, a research center in Rehovot, south of Tel Aviv.
While individual professors at the University of Michigan Medical School have long-standing partnerships with counterparts in Israel, a broader institutional partnership between UMMS and the Technion-Israel Institute of Technology, in Haifa, was codified in 2011, thanks to a generous gift from the D. Dan and Betty Kahn Foundation. That partnership expanded in 2013 with the inclusion of the Weizmann Institute of Science, in Rehovot, which had a previous history of partnerships with members from the U-M School of Life Sciences.

The resulting Israel Platform is a unique international partnership between three world-class institutions. Key research focus areas include precision medicine, drug discovery, quantum sciences, big data, health cyber security, and more, with more than $2 million in research funding allocated over the last four years alone.

Dr. Michele has twice been able to visit Dr. Binah’s lab at Technion, where the partners have developed cell lines from stem cells for their study. Dr. Binah visited U-M in the spring of 2016 for the annual Kahn Symposium, which draws participating researchers from U-M, Technion and Weizmann, and has sent students to Michigan for training in techniques. The two research groups now meet regularly via online videoconferencing to update results and plan experiments.

“The partnership has been very fruitful, not just in terms of science, but for broader collaborations,” said Dr. Michele, who had not previously worked with an international partner. “We’ve been able to participate together in a number of focus groups and symposia to help identify new areas of collaboration, and we’ve been able to organize some student exchanges as well. The institutional collaboration helps make all of this possible.”

The partners’ latest grants will fund the project for another two years and help move it beyond the developmental stages, generate publications, and attract additional lines of funding.

“Our initial scope was to develop and characterize some patient cell lines. The second phase is to manipulate the mechanisms that alter cell functionality,” he said. “While heart disease is often linked to muscular dystrophy, it’s not universal. If we can also identify at the genetic level why disease is less prevalent among some patients, we may be able to mitigate the underlying causes and extend lives by using known drugs or target new drugs to combat heart disease in patients.”
UMMS students were involved in international educational experiences in 2015-16

Funding provided to UMMS students through Global REACH for international electives in 2015-16

Foreign countries visited by UMMS students for global health education experiences in 2015-16
Global REACH supports the mission of the University of Michigan Medical School by providing opportunities for students to participate in educational experiences abroad. Medical students get involved in global health in a variety of programs, whether through participation in the unique Global Health & Disparities Path, a faculty-led research program overseas, or independent clinical elective experiences.

In all, 54 UMMS students participated in international educational experiences in 2015-16. Global REACH funded and facilitated the vast majority of those experiences, helping more than 40 students study in places like India, Colombia, and Uganda. Global REACH also works to bring students, residents, fellows and other scholars from institutions abroad for educational experiences at UMMS.
M1 student Hassan Ali participated in a faculty-led experience to Kenya in the summer of 2016. He and another student visited Consolata Hospital in the city of Meru to work with UMMS Professor Daniel Clauw on a project to study correlations between patient diet and fibromyalgia symptoms. The students also worked with children at the Kithoka Primary School, an experience that stayed with Ali. “I got to know the children on a personal level. I listened to their dreams and ambitions. Their energy and willpower to prosper despite their lack of resources is beyond description,” he said. “This experience helped me realize that I really enjoy working with children and that I want to be in a pediatric subspecialty after medical school.”
MANY WAYS TO ENGAGE OVERSEAS

University of Michigan Medical School students find a variety of ways to get involved in global health work and projects overseas.

GLOBAL HEALTH AND DISPARITIES: UMMS offers a unique Global Health and Disparities (GHD) Path of Excellence for students who wish to focus major portions of their curriculum on health disparities issues at the local and international levels. Global REACH offers annual scholarship opportunities to qualifying GHD students. Award sizes vary based on the proposal.

M4 CLINICAL AND RESEARCH ELECTIVES: Each year, dozens of fourth-year medical students choose to spend one of their elective months overseas. While some students set up their own electives, Global REACH helps many students connect with partner institutions overseas for clinical or research electives. The funding amount per student varies between $500 and $1,500.

FACULTY-LED EXPERIENCES: Global REACH provides students an opportunity to participate in faculty-mentored small group projects. Participants receive a $4,000 stipend to join existing faculty projects for 8-10 weeks, working overseas alongside partners who already have collaborations with UMMS.

NON-TRADITIONAL SCHOLARSHIPS: In addition to funding for clinical and research electives, Global REACH also provides scholarships to select medical students for a variety of overseas experiences. Often, these trips help connect both the students and the university with new international partners, helping to forge new, long-term collaborations.

DONOR-FUNDED EXPERIENCES: Global REACH administers funds set aside by generous donors for student experiences abroad. Two UMMS students benefited from donor-funded electives in FY 2015-16 thanks to the support of Drs. Douglas and Margo Yellin Woll.
Upon first glance, Steven Weinberg’s résumé doesn't seem particularly worldly. Born and raised in Ann Arbor, he attended both undergraduate and medical school in his backyard at the University of Michigan.

But look again. Four international trips in about as many years allowed Weinberg to apply his hometown education on a worldwide scale, thanks to the medical school’s unique Global Health and Disparities Path of Excellence, strong faculty mentors, and some financial support from Global REACH.

“I would have never had these experiences without funding. But it’s much more than financial support,” said Weinberg, who graduated in 2016 from UMMS. “There’s a culture of international health that the faculty have cultivated at Michigan over the last few years. That had a huge impact on me as a medical student and it will last into my career.”

As an undergraduate studying economics, Weinberg helped start a non-profit organization focused on childhood malnutrition. The experience led to an independent six-month trip to Ethiopia, working and shadowing at a health clinic there even before he enrolled in medical school.

Ethiopia happened to be the newest addition to the growing list of countries where U-M was developing collaborative global health partnerships. Weinberg enrolled at UMMS in 2012 and selected its then-new Global Health and Disparities Path of Excellence, which allows students to focus some
areas of study on health inequality issues both domestic and foreign. In 2013, he was among the first students to visit Ethiopia on a Global REACH scholarship. In all, he would visit St. Paul’s Hospital Millennium Medical College, in Addis Ababa, three times as a medical student. In addition to clinical experiences, he was able to conduct research, surveying his medical school counterparts in Ethiopia to learn how the new physician training partnership was influencing their career aspirations. The ongoing collaboration between UMMS and St. Paul’s aims to address Ethiopia’s problem with so-called “brain drain” in healthcare, so that more Ethiopian-trained physicians will remain in Ethiopia after graduating rather than leaving to practice medicine elsewhere.

His work in this area earned him the Timothy R. B. Johnson Global Women’s Health Award and an invitation to present some of his findings during a poster presentation at the 2014 Consortium of Universities for Global Health conference. Weinberg’s class of 2016 is only the second cohort of Global Health and Disparities (GHD) Path students to graduate since the program was first introduced in 2011.

“We’ve seen our Global Health and Disparities Path come a very long way in just a few short years, and I’m so proud of all of our students who chose this path,” said Dr. Joseph Kolars, Senior Associate Dean for Education and Global Initiatives at UMMS. “GHD students like Steven and the faculty members who support them are keeping our University at the forefront of positive change in healthcare on a local, national and increasingly global scale.”

Following his graduation, Weinberg began a residency in pediatrics at the University of North Carolina where he hopes to continue global health pursuits.

“I am so grateful for the opportunities and experiences I’ve been given here at U-M,” he said. “My dream job would be to commit a career to projects like the ones I’ve been involved in, perhaps even returning to U-M down the road to watch those partnerships continue to thrive.”
Coursework, rotations, research and studying for boards. In an already-crowded medical school curriculum, finding time for an international experience is not easy. But for the students who do, an experience abroad can be infinitely rewarding. They not only learn about medicine in an entirely different (often resource-scarce) setting, but they also discover things about themselves, lessons that follow them into practice no matter what type of medicine they ultimately pursue, or where they pursue it.

“\textit{I learned a lot about challenges faced by surgeons and anesthesiologists providing care in resource-poor settings, and about the difficulties of changing pre-existing healthcare methods in order to implement safer quality standards. I saw how visiting healthcare providers from the United States taught their Dominican counterparts in order to help establish a system in which healthcare providers from the US were no longer needed. It is clearly important to establish long-term relationships with hospitals, communities, and care providers in order to improve communication and trust.}”

- Elizabeth Feenstra, M4 GHD Scholarship, Dominican Republic

“I was surprised at how universal medicine is on a global scale. The physicians were well-versed on the latest literature and adhered to evidence-based medicine principles. It made me realize that many of the differences I witnessed in practice are a result of systemic influences, especially insurance and primary care infrastructure. This has prompted a greater personal interest in public health and policy, and how it may affect my daily practice.”

- Janet Ma, M4 Elective, China
“The experience helped me realize my own strengths and shortcomings as a physician. My training in western medicine can provide evidence-based treatment. However, I realized that much of the care I can provide is futile without educating patients. For instance, we saw many patients with musculoskeletal pains from manual labor. While I can provide them with a short supply of NSAIDs, a more effective treatment is education on stretching and proper techniques for performing their manual labor in order to place less stress on muscles and joints. Thus, my job is more than providing medicine. I must also educate patients on preventive measures to provide more optimal care.”

- Lindsey Gakenheimer, M4 Elective, Peru

“I had a lot of fun, and would definitely be interested in pursuing more international work. One of the most striking things was how many Ghanaian doctors had to leave Ghana to pursue specialty training and subsequently do not return. So I would love to be involved in helping create more training programs that encourage local talent to stay.”

- Alyssa Newton, M4 Elective, Ghana

“My trip offered invaluable insights into the struggles of a nation healing itself after a period of violence. Since many people have been displaced and experienced trauma, the community possesses many unique needs. My time in Colombia really highlighted the importance of mental health resources in under-resourced areas, as well as the necessity of cooperation between social service providers, insurers, the government, and healthcare providers.”

- Rachel Gutfreund, M1 Faculty-Led Experience, Columbia
The Global Health & Disparities (GHD) Path of Excellence is unique to the University of Michigan Medical School. GHD was the first “Path” program introduced to UMMS students in 2011. Today it is one of eight Path of Excellence options, although it remains among the largest and is top choice for many students. For the incoming class of 2015-16, 34 students opted to join the GHD program, and 134 have been involved since its launch.

GHD students find themselves immersed in foundational, investigative and experiential learning focused on understanding and reducing health disparities both at home and abroad. GHD students have elective opportunities in underserved areas both in the United States and overseas.

Among the 34 GHD Path of Excellence students in the UMMS graduating class of 2016 was Mohamad Issa, who traveled as an M4 to Jordan on a Global REACH-provided GHD scholarship. Issa worked with Syrian refugees at the King Hussein Cancer Center, completing clinical rotations at private and public institutions, performing plastic surgery and ENT work, conducting research, and volunteering with the refugees.

“These experiences have definitely colored the way I see medicine and how I interact with my patients. They’ve made me much more empathetic and understanding,” Issa said. “I believe physicians need to have some experience with people who have access to minimal healthcare.”

GHD Path participation by entering class at UMMS*

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<tr>
<th>Year</th>
<th>Graduated</th>
<th>Still Attending</th>
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<td>2011-12</td>
<td>18</td>
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<td>2012-13</td>
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<td>2015-16</td>
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*UMMS students select a Path of Excellence following the completion of their M1 year.
Since 2013, Drs. Douglas and Margo Yellin Woll have supported international experiences for standout third- and fourth-year medical students interested in clinical clerkships in underserved areas of developing countries. Each year, two Woll Family Scholars receive $2,500 scholarships to support these electives, which typically last one month.

Global REACH oversees the program and administers the scholarships, which have benefited eight students to date. Half have visited Ghana, while the others have visited Ethiopia, including Laura Coleman and Katelin Zhan, two M4s who traveled together in 2016 to St. Paul’s Hospital in Addis Ababa for four-week rotations in the Obstetrics & Gynecology Department.

“The international rotation I completed will shape the way I approach my residency,” said Coleman. “Not only will I be more connected with, and culturally prepared to treat, immigrant patients, but I will also apply the new approaches to education and clinical practice seen abroad.”

For Zhan, the visit to St. Paul’s was her first international experience as a medical student, and a moving one.

“Access to care in Ethiopia is complicated, impacted by the same litany of socioeconomic determinants of health as it is in the US. However, each of the issues we face at home seems to be magnified there,” she said. “I left with a sense of urgency to work towards equitable women’s health, a deep appreciation for those physicians and healthcare workers working in low-resource countries, and a reflection on the shared struggles among healthcare systems in developed and developing countries.”

The Global REACH team joins the students enriched by these experiences in thanking the Wolls for their generosity and support.
BRINGING THE WORLD TO UMMS

Every year, Global REACH facilitates educational visits to UMMS for dozens of students and other scholars from many partner institutions abroad. Students, residents and fellows participate in electives, rotations, observerships, and other training opportunities within medical divisions across the health system.

During the 2015-16 academic year, Global REACH coordinated the visits of 66 learners from places like Ghana, China, India and Brazil. Some stay just a few weeks. Others stay in Ann Arbor for years learning clinical and research skills from some of the top physician scientists in the United States.

Students, scholars and other learners visited UMMS through in 2015-16, including 69 visits facilitated by Global REACH

Global REACH Faculty Associates served as global health mentors to students, visiting fellows, or residents in 2015-16
Students & scholars visiting from abroad

UMMS Obstetrics & Gynecology Professor & Chair Dr. Tim Johnson (left) hosted Ghanaian physician Titus Beyuo for a three-month fellowship in the spring of 2016. While at UMMS, Dr. Beyuo, from Korle-Bu Teaching Hospital, in Accra, was involved in clinical work, attended grand rounds, finished his fellowship casebook, and also presented to some UMMS faculty about the use of magnesium sulfate to manage eclampsia and preeclampsia among pregnant women, a common treatment in the US but one that, for economic reasons, is less common in Ghana. “The whole fellowship experience was fantastic,” Dr. Beyuo said. “I expected to observe, but I’ve felt like an active participant in the academic discussion, so it exceeded my expectations.”
Five promising young scholars have become the first to complete a new program which brings medical students from China to learn research at the University of Michigan. The partnership between UMMS and Central South University Xiangya School of Medicine, in southern China, brings a handful of students to Ann Arbor for two-years to work in a research lab under a UMMS faculty mentor. Medical PhD research programs are rare in China, so the partnership aims to expose promising Chinese students to research and over time increase the number physician scientists in that country.

“In the long term, I believe we are helping to train the students who will become the future leaders of medicine in China,” said Dr. Eugene Chen, UMMS Professor of Cardiovascular Medicine and Vice-Chair for Basic and Translational Research, who championed the program. “These students can return to China to have a huge impact in the field, and the University of Michigan will have played a key role in their training and education.”

The program is one aspect of a larger partnership, formalized in 2014 with the Xiangya School of Medicine, allowing for exchange of faculty, researchers and students between the two institutions. The program culminated with
participants presenting their research findings before Dr. Chen and other UMMS leaders, including Joseph Kolars, Sr. Associate Dean for Education and Global Initiatives.

“I’m impressed by the students’ work and grateful to the mentors who put in the extra time and energy to guide these young researchers and shape their experience,” said Dr. Kolars. “Thanks to their efforts, this has been a terrifically successful partnership launch.”

The five students represent the first cohort to enter and finish the two-year program. Two subsequent cohorts have enrolled as well, each larger than the last. The most recent group includes 10 Xiangya students.

Each student works in a different lab on a unique project, two of which have already produced publications. Among the students is Pei Li, whose work exploring a protein that could play a role in preventing certain kinds of chronic liver disease has already been published.

Like all of the students, Li will need to return to China to complete her eight-year medical program at Xiangya. But the experience at UMMS prompted her to re-think her future career after that, she said.

“In China, most medical school graduates typically have two choices, to be a university professor or a practicing doctor,” she said. “After this, I have another plan. I want to apply for a PhD program and continue doing research.”
A national partnership aimed at helping young researchers hone their skills even as they pursue their passions for global health continues to grow. Funded by a competitive award from the National Institute of Health (NIH) Fogarty Center, the Northern Pacific Global Health Research Training Consortium comprises four US universities that partner to offer extensive international research training opportunities to promising post-doctoral researchers, immersing them in global health at the start of their careers.

The participating institutions are the Universities of Washington, Michigan, Hawaii, and Minnesota, and theirs is one of several consortia in the United States that hosts a Fogarty International Center-sponsored Global Health Fellowship Program. Trainees nominated by their host university complete a 12-month research training program at a foreign partner institution. Each fellow shapes and conducts his or her own research project with guidance from experienced faculty mentors. The University of Michigan has made 14 awards since 2012, including two fellowship each for 2015-16 and 2016-17.

Now entering its fifth year, the program has welcomed more than 100 fellows from around the world to date. The Consortium recently earned a continuation grant from the National Institutes of Health to fund another 90 fellows over the next five years.
INTRODUCING UMMS FOGARTY FELLOWS

Understanding maternal and neonatal “near-miss mortality” in Ghana: What happens to women and babies who survive life-threatening complications?

Partnering with three Ghanaian teaching hospitals, Dr. Bell is working to quantify and categorize neonatal “near-misses” among women and infants who survive following a life-threatening complication. She seeks to help physicians and researchers understand the social and cultural factors associated with near-miss mortality and its long-term outcomes in order to improve maternal and neonatal survival rates in southern Ghana.

Assessing shifting epidemiology of cancer trends in Southeast Asia

Based in Thailand, Dr. Virani studies changing epidemiology trends of cancer and other non-communicable diseases in order to better understand how lifestyle and environmental factors contribute to disease rates. The global burden of cancer is increasing in low- to middle-income countries like Thailand, in part because of lifestyle and demographic changes associated with economic development. The changing health profile of the region offers Virani and her colleagues the opportunity to identify cancer and risk-factor trajectories at an early stage, information that could help guide effective healthcare policy and delivery.

Comparison of Chronic Kidney Disease (CKD) prevalence and risk factors between China and the United States and prediction of future CKD prevalence in China

Wang and his colleagues are working to compare the prevalence of chronic kidney disease (CKD) and the effects of known risk factors for CKD between China and the United States. Lifestyle changes in China have caused dramatic increases in the prevalence of diseases like hypertension and diabetes in recent years and are expected to drive increasing prevalence of late-stage CKD in the near future. Understanding the tide of CKD and the impact of its risk factors is an essential first step to formulate and implement public health strategies.

The impact of iron supplementation on neurocognitive functioning in young Ugandan children

Iron deficiency is a prevalent pediatric health concern, particularly in low-to middle-income nations like Uganda. Hickson's project is nested in a parent study that aims to understand how cerebral malaria affects cognition in children and how iron therapy may be used to limit those deficits. To accurately evaluate the efficacy of iron therapy in treating those impairments, Hickson and her colleagues aim to quantify the impact of iron therapy on the cognition of children who do not have cerebral malaria. The findings of their investigation could have implications for the prevention and treatment of cognitive impairments in children globally.
Global REACH Faculty Associates/Affiliates who published one or more papers with co-authors from abroad in 2015-16

Publications in 2015-16 by Faculty Associates/Affiliates in collaboration with foreign co-authors

New collaborative research projects and partnerships funded through Global REACH in 2015-16

13

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Discovery is a vital part of the core mission of UMMS with faculty members engaged in scientific and social research that improves health and healthcare both at home and abroad. Global REACH plays an important role, starting with coordinating collaboration Platforms in places like China, India, and Ghana, so that researchers with similar interests in different parts of the world can connect on projects that transcend language, culture, and distance. In some cases, Global REACH even offers grants to facilitate these connections and help forge new areas of collaboration.

That’s just the beginning. Faculty-Led International Experiences offer UMMS students an opportunity to engage firsthand in research abroad, often resulting in publications. In addition, international students and scholars from around the globe come to UMMS each year to study research best practices from some of the world’s top scientists, and many of those trips are coordinated through Global REACH. Finally, Global REACH helps our UMMS physician scientists celebrate their discoveries by promoting their findings both at U-M and throughout the global health research community.

In 2015-16, more than 60 Global REACH Faculty Associates (from the medical school) and Faculty Affiliates (from other health-related colleges at U-M) published some 150 works with co-authors from abroad.
Countries where 10 or more publications were co-authored with partners outside the US

- Canada: 31
- China: 25
- Brazil: 16
- Ghana: 14
- Germany: 14
- Japan: 12
- UK: 10

Global REACH Faculty Associates and Faculty Affiliates conduct rigorous medical and social science research with colleagues in their own institution, across the United States, and around the world. The 2015-16 year brought publications with co-authors from nearly 58 countries on six continents. The resulting research has appeared in top scientific and medical journals, include the *New England Journal of Medicine*, *Plos One*, and the *Journal of the American Academy of Child & Adolescent Psychiatry*, to name a few.
U-M nephrologist Matthias Kretzler, MD, and an international team of renal systems researchers discovered a simple test to identify patients at risk for chronic kidney disease (CKD), one of the fastest growing chronic diseases nationally and one of the most costly diseases globally. In addition to fellow UMMS faculty, Dr. Kretzler joined colleagues from both China and Switzerland on the project. The team published their work in *Science Translational Medicine* in December 2015 and it was highlighted by NIH Director Francis Collins, who called the results “very promising” in his blog. “Beyond their implications for CKD, these results demonstrate the power of identifying new biologically important indicators directly from patients and then testing them in large, diverse cohorts of people,” Collins said.
University of Michigan physician spent much of 2016 in China at UMMS’ partner medical school after being named a 2016 Fulbright Distinguished Chair in Social Sciences.

Dr. Michael Fetters, a Professor of Family Medicine, is the first UMMS member in recent memory to receive a Distinguished Chair honor, among Fulbright’s rarest awards. He spent five months in Beijing teaching and leading a joint research project with colleagues at Peking University Health Science Center (PUHSC), U-M’s partner school in the Joint Institute for Translational and Clinical Research.

“We are so proud of Dr. Fetters. This honor not only represents an amazing personal accomplishment for him, but will also be of great benefit to our JI partnership,” said Amy Huang, MD, Global REACH Director of China Programs. “Dr. Fetters’ Fulbright award demonstrates the value of fostering relationships between our faculty and collaborators overseas, as both institutions stand to gain a great deal from this work.”

Fulbright scholarships connect US scholars with counterparts overseas in order to collaborate on global issues. While the program offers more than 1,000 awards annually, only about 40 recipients receive Distinguished Chair awards, Fulbright’s top honor. Dr. Fetters joins just a handful of other U-M faculty members to be named Distinguished Chairs.

His winning proposal found him partnering with PUHSC Medical Ethics Chair Yali Cong, PhD, to examine attitudes towards disclosing cancer diagnoses and the reasons underlying those attitudes in China. While candid...
communication regarding diagnosis is the norm in the United States, the same does not always hold true in China, where family members often play a prominent role in making care and communication decisions, according to Dr. Fetters.

“While this may be changing, I believe that telling people they have cancer probably remains the exception rather than the rule in many parts of China,” said Dr. Fetters. “We shouldn’t make assumptions about what the right approach is, but our goal through this research would be to create more open public dialogue about approaches to involving patients and family members in treatment and care decisions.”

The study has practical implications for Western researchers collaborating with colleagues in China as they navigate conflicting cultural standards between the two countries; patients must consent to be involved in clinical research trials – and consent is difficult to obtain if the patient doesn’t understand their diagnosis.

“Our research could help inform healthcare policy in China, and the teaching of medical education and ethics.”

- Dr. Michael Fetters
Community-based Surveillance of Maternal Deaths in Rural Ghana

The project, which involved several UMMS faculty from Obstetrics & Gynecology, sought to examine the feasibility and effectiveness of community-based maternal mortality surveillance in rural Ghana, where most information on maternal deaths usually comes from retrospective surveys and hospital records. In 2013, community-based surveillance volunteers used a modified reproductive age mortality survey to interview family members of women of reproductive age (13-49 years) who died in the Bosomtwe district in the previous five years. Respondents reported on the deaths of 132 women who had either a maternal death or died within one year of termination of pregnancy. The community-based mortality survey was effective for ascertaining maternal deaths and identified many deaths not included in hospital records. National surveys could provide the information needed to end preventable maternal mortality by 2030.


Association of DCDC2 Polymorphisms with Normal Variations in Reading Abilities in a Chinese Population

The doublecortin domain-containing 2 (DCDC2) gene has been widely suggested to be a candidate gene for dyslexia, but its role in typical reading development over time remains to be clarified. Researchers explored the role of DCDC2 in contributing to the individual differences in reading development from ages 6 to 11 years by analyzing data from 284 unrelated children who were participating in the Chinese Longitudinal Study of Reading Development. This study provides support for DCDC2 as a risk gene for reading disability and suggests that this gene is also operative for typical reading development in the Han population.

Contemporary Practice Patterns of Flexible Ureteroscopy for Treating Renal Stones: Results of a Worldwide Survey

Flexible ureteroscopy (fURS) is increasingly used in the treatment of renal stones. However, wide variations exist in technique, use, and indications. To better inform our knowledge about the contemporary state of fURS for treating renal stones, researchers conducted a survey of endourologists worldwide. More than 400 surgeons from 44 countries participated in an anonymous online questionnaire assessing fURS treatment of renal stones. The overwhelming majority of endourologists surveyed consider fURS as a first-line treatment modality for renal stones, especially those <2 cm. Use of UAS, high-power holmium lasers, and dusting technique has become popular among practitioners.


Validation of the CogState Battery for Rapid Neurocognitive Assessment in Ugandan Children

CogState is a widely used computer-based cognitive test whose validity has not been assessed in resource-poor settings. Researchers examined the construct, concurrent and convergent validity of CogState, test-retest reliability, and the effect of sociodemographic variables on CogState outcomes in 230 Ugandan children ages 5-13. The study determined that CogState is a valid and reliable test battery for rapid computer-based neurocognitive assessment in Ugandan children and can thus be used in this cultural context.


Intimate Partner Violence among Mothers of Sick Newborns in Ghana

Intimate partner violence (IPV) is a major public health problem estimated to affect 15%-71% of women worldwide. Researchers sought to elicit IPV risks among mothers of sick newborns in Ghana. As part of a broader study on postpartum depression, we conducted semistructured surveys of 153 women in a mother-baby unit, assessing demographics, depression, social support, and IPV with the present partner. In all, 46% of mothers reported some form of violence, mostly emotional (34%), followed by physical (17%), and sexual (15%). The study highlights the frequency of perinatal IPV and the associated risk factors of depression and poor social support.

Structured Caregiver Feedback Enhances Engagement and Impact of Mobile Health Support: a Randomized Trial in a Lower-Middle-Income Country

Patients’ engagement in mobile health (m-health) interventions using interactive voice response (IVR) calls is less in low- and middle-income countries than in industrialized ones. Researchers conducted a study to determine whether automated telephone feedback to informal caregivers (“CarePartners”) increased engagement in m-health support among diabetes and hypertension patients in Bolivia. Patients with diabetes and/or hypertension were identified through ambulatory clinics affiliated with four hospitals. All patients enrolled with a CarePartner. Patients were randomized to receive weekly IVR calls including self-management questions and self-care education either alone (“standard m-health”), or with automated feedback about health and self-care needs sent to their CarePartner after each IVR call (“m-health+CP”). The 72 participants included 39 with diabetes and 53 with hypertension. After 1,225 patient-weeks of attempted IVR assessments, the call completion rate was significantly higher among patients randomized to m-health+CP, compared with standard m-health (62.0% versus 44.9%). CarePartner feedback more than tripled call completion rates among indigenous patients and patients with low literacy. M-health+CP patients were more likely to report excellent health via IVR. Caregiver feedback increased engagement in m-health and may improve patients’ health status relative to standard approaches. M-health+CP represents a scalable strategy for increasing the reach of self-management support in LMICs.


A Propensity Score Analysis of the Impact of Invasive Intracranial Pressure Monitoring on Outcomes after Severe Traumatic Brain Injury

Although a recent clinical trial demonstrated no improvement in outcomes with invasive intracranial pressure monitoring (ICPM) following severe traumatic brain injury (TBI), its generalizability has been called into question. In several global settings, ICPM is not the standard of care and is used at the discretion of the attending neurosurgeon. Researchers sought to determine the impact of ICPM on mortality and six-month functional outcomes following severe TBI. The setting was a referral trauma center in New Delhi, India, with 300-600 TBI admissions per year. During a two-year period, data were prospectively entered into a severe TBI registry. Following analysis, ICPM use was associated with an 8% decrease in mortality, but had no significant effect on functional outcome.

MMS researchers have teamed up with Ghanaian colleagues on a first-of-its kind study to better understand social and cultural factors behind deaths and near-death incidents for newborns and mothers in Ghana.

Funded by a $1.44 million USAID grant and headed by Assistant Professor of Learning Health Sciences and OB/GYN Cheryl Moyer, PhD, the PREMAND study (PRE-venting Maternal And Neonatal Deaths) combines on-the-ground surveying and data gathering with sophisticated GPS mapping to help local health officials identify trends and tailor solutions in their respective regions.

“The clinical causes of mortality are relatively well understood, but little is known about the impact of social and cultural factors on maternal and neonatal outcomes,” writes Dr. Moyer in a paper published in March 2016 in *Reproductive Health*. “Less still is understood about how such factors may vary by geographic location, and how such variability may inform locally-tailored solutions.”

While more advanced than some African nations, Ghana still has a high infant mortality compared to the United States – about 25 in every 1,000 babies don't survive the first month. Further, the rate of these deaths varies widely from region to region, driven by cultural factors such as preferences for traditional at-home remedies and customs requiring some women to seek approval before visiting the clinic or hospital. Trained field workers will team up to identify both infant and maternal deaths and near-misses, and conduct interviews to gather pertinent details about circumstances of each case. Mapping the findings will help healthcare leaders identify trends and allocate resources.

“If there are trends or associations visible to the naked eye on the map, it is likely to hold more value locally than the results of a statistical test,” Dr. Moyer and her colleagues note.
Career Preferences of Graduating Medical Students in China: a Nationwide Cross-sectional Study

China faces major challenges in the distribution of health professionals, with serious shortages in rural areas and in the development of Primary Care Providers (PCPs). This study investigates the career preferences of medical students in China and the impact of rural backgrounds on these preferences. Students in the final year of their program in 16 medical schools across China completed a 58-item survey that included questions regarding their demographic characteristics, attitudes toward practice in low-resource areas, postgraduate planning, self-assessed competency, university facilities assessment, and financial situation. Completed surveys from 3,020 students showed that, upon graduation, 48.5% preferred to work in urban public hospitals. This percentage rose to 73.6% when students were asked to state their anticipated preference five years after graduation. Those who preferred to work in rural areas upon graduation were more likely to be those who lived in rural areas when 1-15 years old, attended high school in rural areas, or had parents currently residing in rural areas. To address the serious shortages of health professionals in rural areas and PCPs, medical schools should consider strategies to recruit more medical applicants with rural backgrounds and to orient students to rural and primary care interests.


Cross-cultural Perspectives on the Patient-Provider Relationship: a Qualitative Study Exploring Reflections from Ghanaian Medical Students Following a Clinical Rotation in the United States

International health experiences exposed learners to different culturally-based patient care models. Little is known about student perceptions of patient-provider interactions when they travel from low-to high-resource settings. This study explored reflections among Ghanaian medical students who participated in clinical rotations at the University of Michigan Medical School. In-depth interviews were conducted with 15 individuals who had participated in three-to four-week clinical rotations at UMMS between 2008 and 2011. The Ghanaian students reported that their perspectives of the patient-provider relationship were significantly affected by participation in a UMMS rotation. Major thematic areas emerged, such as (1) observations of patient care during the UMMS rotation, including patient comfort and privacy; (2) reflections on the role of humanism and respect within patient care; (3) barriers to respectful care; and (4) transformation of student behaviors and attitudes. Students from under-resourced settings can derive tremendous value from participation in clinical electives in more affluent settings, namely through exposure to a different type of medical care.

The World Health Organization has long maintained the Model List of Essential Medicines (EML), identifying those medicines required for basic healthcare delivery.

Why not a corresponding Model List of Essential Diagnostics (EDL) covering laboratory tests that should also be widely available? It’s a question with major global health implications that one UMMS doctor posed in the *New England Journal of Medicine* (NEJM).

“We believe the world can no longer wait to have laboratory testing available to all clinicians,” writes Dr. Lee Schroeder, Assistant Professor of Pathology and the first author of the recent article. “An EDL would clarify priorities for policymakers and encourage setting common goals regarding laboratory testing, paving the way toward improved health care delivery and ultimately better patient outcomes.”

Schroeder’s article, “Time For a Model List of Essential Diagnostics,” appeared in the June 30, 2016 issue of *NEJM*. Working with colleagues at Johns Hopkins University, Emory University, and Albert Einstein School of Medicine, he’s proposed a list of nearly 150 essential laboratory tests based largely on the World Health Organization’s EML – which includes many medications that cannot be prescribed without a test-based diagnoses anyway.

“For each [EML] core medicine, we consulted a number of well-established sources to identify diagnostic tests considered essential for at least one of the following: diagnosing the condition for which the medicine is indicated, monitoring for medication efficacy, or monitoring for medication toxicity,” Schroeder writes.

His report follows a 2015 study in which he and others looked at lab testing capabilities and capacities in Kampala, Uganda. The team plans to call upon the WHO to establish a Model List of Essential Diagnostics, engaging major stakeholders and donors to support the organization in that endeavor.

“Such a list should lead to greatly improved access and affordability of diagnostics in resource-poor settings,” he said.
Patients with Spina Bifida and their Caregivers’ Feelings about Intermittent Bladder Catheterization in Brazil and Germany: a Correlational Study

A major complication for individuals with spina bifida (SB) is managing their neurogenic bladder. For many, this process evokes negative feelings associated with guilt, dependence, and lack of self-worth. Researchers sought to compare feelings that hinder the performing of intermittent bladder catheterization reported by individuals with SB and their families in two countries of different sociocultural characteristics: Brazil and Germany. The study included 200 SB patients and their caregivers – 100 each from Brazil and Germany. Asked about the existence of negative feelings or ideas that may hinder the performance of the key person responsible for catheterization, 155 (77.5%) participants did not report such feelings. On the other hand, 45 (22.5%) reported emotional difficulties; among these participants, 31 (69%) were Brazilians and 14 (31%) Germans. Although emotional factors are important to the adjustment of using catheterization methods for bladder management, the majority of people with SB and their caregivers seem to report no major emotional difficulties with this process. Yet a considerable group of participants did report such emotional difficulties associated with fear and shame. Knowing more about the factors associated with such negative feelings can facilitate interactions, provide mutual aid, and assist with resolution of practical concerns related to intermittent bladder catheterization.


Key Informants’ Perspectives on Development of Family Medicine Training Programs in Ethiopia

Through national policy, the Ethiopian government has recently identified family medicine as a potential contributor in addressing the nation’s health care challenges. The Addis Ababa University family medicine residency program started in 2013 and is the first and the only family medicine program in the country as of March 2016. While the Ministry of Health has a vision for the continued development of family medicine, significant challenges remain. Continuing discussion about the potential roles of family medicine specialists in Ethiopia is needed, as well as policy-level strategic planning to place family medicine at the core of primary health care delivery in the country. In addition, the healthcare tier system needs to be restructured to include the family medicine specialists along with appropriately equipped healthcare facilities for training and practice. Key stakeholders are optimistic that family medicine expansion can be successful in Ethiopia through a coordinated effort by the Ministry of Health and collaboration between institutions within the country, other Sub-Saharan African countries, and international partners supportive of establishing family medicine in Ethiopia.

Hauslohner Awards: Improving public health awareness among African physicians

U-M alumnus Dr. Peter Hauslohner and his wife, Dr. Marianna Nosa, established the Hauslohner Global REACH fund in 2014. Rather than experiences for UMMS learners, the Hauslohners designed their gift to directly support community-based public health research in Africa. Awardees are generally physicians-in-training or recent medical school graduates.

The two 2016 recipients are both Ghanaian doctors exploring maternal and neonatal health issues in the region.

**Victoria Aboungo**, Medical Officer, Obstetrics and Gynecology, Baptist Medical Centre, Nalerigu: This project explores community-based approaches to addressing maternal and neonatal mortality by conducting focus groups and in-depth interviews throughout the East Mamprusi District of the Northern Region of Ghana, one of the regions with the highest rates of maternal and neonatal morbidity and mortality in that country.

**Ashura Bakari**, Pediatrician, Suntreso Government Hospital, Mother and Baby Unit, Kumasi: Despite the national reduction of newborn deaths in Ghana, the Ashanti region had a higher newborn mortality rate in 2014 than in 2008. At the same time, mothers who have lost their newborns are often discouraged from mourning the lost baby. This study seeks to improve our understanding of the knowledge, attitudes and beliefs concerning newborn deaths in both rural and urban areas of the Ashanti region.

**Biomarkers and Mortality in Severe Chagas Cardiomyopathy**

Chagas cardiomyopathy is a chronic sequela of infection by the parasite Trypanosoma cruzi. Advanced cardiomyopathy is associated with a high mortality rate, and clinical characteristics have been used to predict mortality risk. Though multiple biomarkers have been associated with Chagas cardiomyopathy, it is unknown how these are related to survival. This study aimed to identify biomarkers associated with mortality in individuals with severe Chagas cardiomyopathy in an urban Bolivian hospital. Researchers found that severe Chagas cardiomyopathy is associated with high short-term mortality. Further, several biomarkers were found to have an added predictive value for mortality, even in the presence of decreased ejection fraction and other clinical signs of congestive heart failure.

Improving Healthcare Worker Hand Hygiene Adherence Before Patient Contact: A Multimodal Intervention of Hand Hygiene Practice in Three Japanese Tertiary Care Centers

Though hand hygiene is an important method of preventing healthcare-associated infection, we found suboptimal hand hygiene adherence among healthcare workers in 4 diverse Japanese hospitals (adherence rates of 11%-25%). Researchers sought to assess multimodal hand hygiene intervention coupled with a contest to improve hand hygiene adherence. The intervention was a multimodal hand hygiene intervention recommended by the World Health Organization that was tailored to each facility. The hospital with the highest adherence after the intervention was given $5,000 (US) and a trophy provided by an American coinvestigator unaffiliated with any of the Japanese hospitals. Researchers tracked hand hygiene adherence rates before patient contact for each unit and hospital, and compared these to pre-intervention adherence rates. Adherence improved overall, but improvement rates varied considerably among the hospitals (from +8% to +29%). Using a novel contest coupled with a multimodal intervention successfully improved hand hygiene rates among Japanese healthcare workers. Given the overall low rates, however, further improvement is necessary.


The Globalization of Cooperative Groups

National Cancer Institute (NCI)-supported adult cooperative oncology research groups have a longstanding history of participating in international collaborations throughout the world. Most frequently, the US-based cooperative groups work reciprocally with the Canadian national adult cancer clinical trial group. Thus, Canada is the largest contributor to cooperative groups based in the United States, and vice versa. Although international collaborations have many benefits, they are most frequently utilized to enhance patient accrual to large phase III trials originating in the United States or Canada. Within the cooperative group setting, adequate attention has not been given to the study of cancers that are unique to countries outside the United States and Canada, such as those frequently associated with infections in Latin America, Asia, and Africa. Global collaborations are limited by a number of barriers, some of which are unique to the countries involved, while others are related to financial support and to US policies that restrict drug distribution outside the United States. The researchers detail their cooperative group experience in international research and describe how international collaboration in cancer clinical trials is a promising and important area that requires greater consideration in the future.

Transformative Innovations in Reproductive, Maternal, Newborn, and Child Health over the Next 20 Years

As part of the “Grand Convergence: Aligning Technologies and Realities in Global Health” Collection, Cyril Engmann and colleagues discuss promising innovations that have the potential to move the RMNCH agenda forward.


Laboratory Diagnostics Market in East Africa: A Survey of Test Types, Test Availability, and Test Prices in Kampala, Uganda

Diagnostic laboratory tests are routinely defined in terms of their sensitivity, specificity, and ease of use. But the actual clinical impact of a diagnostic test also depends on its availability and price. This is especially true in resource-limited settings such as sub-Saharan Africa. We present a first-of-its-kind report of diagnostic test types, availability, and prices in Kampala, Uganda. Test types (identity) and availability were based on menus and volumes obtained from clinical laboratories in late 2011 in Kampala using a standard questionnaire. Test volumes and menus were obtained for 95% (907/954) of laboratories in Kampala city. These 907 laboratories offered 100 different test types. The ten most commonly offered tests in decreasing order were Malaria, HCG, HIV serology, Syphilis, Typhoid, Urinalysis, Brucellosis, Stool Analysis, Glucose, and ABO/Rh. In terms of AI, the 100 tests clustered into three groups: high (12 tests), moderate (33 tests), and minimal (55 tests) availability. Point-of-care laboratories contributed 35% to the AI of high availability tests, but only 6% to the AI of the other tests. The mean price of the most commonly offered test types was $2.62 (range $1.83-$3.46). Both public and private laboratories were critical to test availability. The tests offered in point-of-care laboratories tended to be the most available tests.

CD90 and CD24 Co-Expression Is Associated with Pancreatic Intraepithelial Neoplasias

Thy-1 (CD90) has been shown to be a potential marker for several different types of cancer. However, reports on CD90 expression in pancreatic intraepithelial neoplasia (PanIN) lesions are still limited where PanINs are the most important precursor lesion of pancreatic ductal adenocarcinoma (PDAC). The researchers investigate candidate markers for PanIN lesions by examining the distribution and trend of CD90 and CD24 expression as well as their co-expression in various stages of PanINs. Thirty cases of PanINs, which were confirmed histopathologically and clinically, were used to evaluate protein expression of CD90 and CD24 by immunofluorescence double staining. Results suggest that co-expression of CD90 and CD24 may have an important role in the development and progression of PanINs, which is also conducive to early detection and treatment of PDAC.


The Co-occurrence of Anemia and Cardiometabolic Disease Risk Demonstrates Sex-specific Sociodemographic Patterning in an Urbanizing Rural Region of Southern India

Researchers explored the extent and sociodemographic determinants of anemia, overweight, metabolic syndrome (MetS) and the co-occurrence of anemia with cardiometabolic disease risk factors among a cohort of Indian adults. The study utilized a cross-sectional survey of adult men (n=3322) and nonpregnant women (n=2895) aged 18 years and older from the third wave of the Andhra Pradesh Children and Parents Study that assessed anemia, overweight based on body mass index, and prevalence of MetS based on abdominal obesity, hypertension and blood lipid and fasting glucose measures. Researchers examined associations of education, wealth and urbanicity with these outcomes and their co-occurrence and found that women in this region of India may be particularly vulnerable to co-occurring anemia and cardiometabolic risk, and associated adverse health outcomes as the nutrition transition advances in India.

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