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New fellowships bring African scientists to train at NIH

By Shana Potash

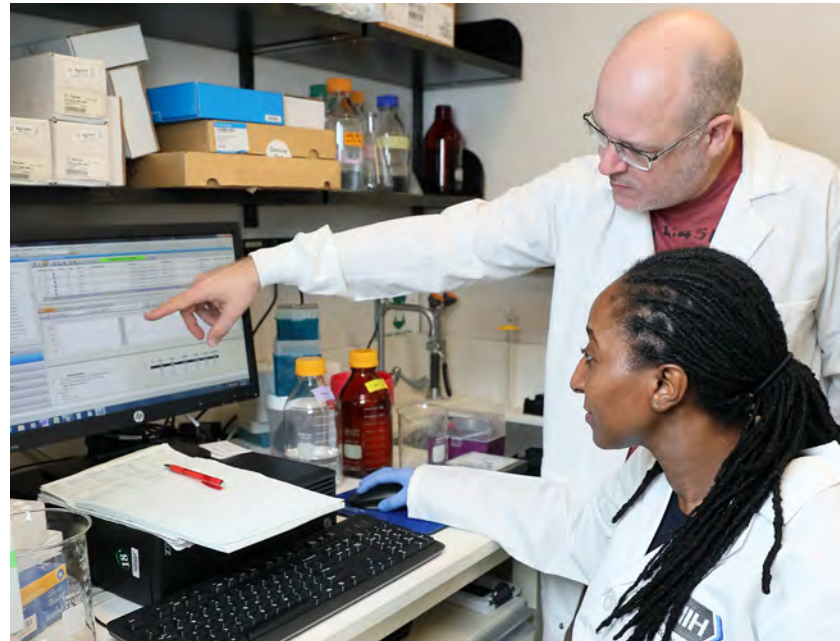
A new NIH fellowship program aims to prepare future generations of African researchers while establishing ongoing scientific partnerships between NIH labs and African investigators and institutions. The African Postdoctoral Training Initiative (APTI) is a collaboration of the NIH, the African Academy of Sciences and the Bill & Melinda Gates Foundation. Fogarty is managing the partnership.

During the four-year fellowships, NIH will provide two years of training with principal investigators who share the fellows' research interests. The African scientists will then return to their home institutions and receive two years of support to help them continue their research and establish themselves as independent investigators.

Ten fellows chosen for the inaugural cohort will assume their NIH positions by early 2019 and another cohort is expected to be recruited in 2020. NIH and the Gates Foundation together are expected to provide about \$4 million for the program.

“Our goal is to equip these talented African fellows with the skills to become scientific leaders, prepared to help solve their country's health challenges and train future generations of researchers,” said NIH Director Dr. Francis S. Collins, whose intramural research lab will host one of the fellows. “By designing the African Postdoctoral Training Initiative to begin at NIH and then continue at their home institution, we aim to prevent ‘brain drain,’ build sustainable research capacity, and establish long-term collaborations between U.S. scientists and African investigators and research institutions.”

The fellows chosen for the 2019 cohort come from six African countries: Ghana, Mali, Nigeria, Ethiopia, Kenya and Egypt. They have been matched with labs from seven institutes at NIH and will study diseases and conditions



Dr. Nana Amissah from Ghana is training with NIH senior investigator Dr. Michael Otto as part of the new African Postdoctoral Training Initiative.

that are research priorities in their respective countries, including infectious diseases, maternal and child health, and diabetes.

“It's an opportunity to learn new techniques, new skills,” said Dr. Nana Ama Amissah, a fellow from Ghana who is training with Dr. Michael Otto, a senior investigator with NIH's National Institute of Allergy and Infectious Diseases (NIAID), who shares her research interest in the *Staphylococcus aureus* bacterium. Because *S. aureus* can reside in chronic wounds, Amissah has been investigating if and how it might delay the healing of buruli ulcers—a potentially devastating skin and tissue infection that is caused by a *Mycobacterium ulcerans* and occurs mainly in tropical areas including West Africa.

. . . continued on p. 2

Photo by Chia-Chi Charlie Chang for Fogarty

FOCUS



Mentorship training in LMICs needs increased support

- New journal supplement serves as guide for enhancing mentorship
- Programs must be developed for implementation in LMIC context
- Articles detail mentorship competencies, case studies, toolkits

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New fellowships bring African scientists to train at NIH

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Noting that Amissah has had interesting results on a specific lineage of *S. aureus*, Otto said “she can benefit very much from the research environment at the NIH right now to dig deeper.”

During the fellowship, Amissah will be learning and conducting basic science she couldn’t do back at home. She took courses in molecular biology and recombinant DNA technology to prepare to work with Otto, who is chief of the Pathogen Molecular Genetics Section. “If there’s anything I don’t understand, I go to him and then he

explains it better,” Amissah said. The fellowship program targets early career scientists who have doctoral degrees and less than five years of research experience. Candidates must also be citizens of an African country and employed at one of the continent’s academic, research or government institutions.

“It is imperative to strengthen African scientific leadership to advance health and development goals on the continent. We are thrilled to partner with the NIH and the African Academy of Sciences to support these

10 outstanding researchers working to solve the world’s greatest health challenges,” said Dr. Trevor Mundel, President of the Global Health Division at the Gates Foundation. “Training from NIH, one of the world’s foremost biomedical research institutions, will help these scientists develop the transformational solutions the world and their communities urgently need.”

RESOURCES

<http://bit.ly/NIHAfricanPostdoc>

Fogarty’s Bridbord celebrated for 35 years of service

The Fogarty family assembled in December to toast Dr. Ken Bridbord and pay tribute to his many contributions to global health research and training. Although Bridbord is retiring from federal employment, he will remain at the Center as senior scientist emeritus.

“We all stand in awe of your contributions,” noted Fogarty Director Dr. Roger I. Glass. “It was an amazing joy to work with you and experience your wisdom, your vision and your warmth.”

A few years after joining Fogarty, Bridbord co-chaired the 1987 International Conference on AIDS held in Washington, D.C. That experience inspired him to develop the Center’s first extramural funding mechanism—the AIDS International Training and Research Program (AITRP)—designed to help low- and middle-income countries build the capacity to respond to HIV/AIDS.

Bridbord’s vision that NIH field research could be advanced by investing in developing local scien-

tific leadership in LMICs, resulted in creation of scientific leaders who form the backbone of global HIV/AIDS research today, observed Yale University’s Dr. Sten Vermund, in a video tribute. In another taped message, Fogarty grantees in South Africa, Drs. Salim and Quarraisha Abdool Karim, echoed praise for Bridbord’s keen insight and forward-thinking ideas. “This legacy you’ve created—we can already see the fruits of it in terms of research leadership in developing countries and in so many other ways in terms of the quality and quantity of research emanating from Africa,” Quarraisha Abdool Karim said.

Speakers also paid tribute to Bridbord’s dedication, flexibility and patience. “You understood that building sustainable international research and public health capacity required an investment measured in decades, and not in years,” observed Dr. Glenda Gray, President and CEO of the South African Medical Research Council.

AITRP provided the model for numerous other Fogarty initiatives,

resulting in a portfolio of programs that has supported training for more than 6,000 scientists globally and currently awards \$60 million each year. In this way, Bridbord has influenced countless numbers of research careers and touched virtually every discovery in HIV, observed Dr. Mike Cohen, who was principal investigator on the University of North Carolina’s AITRP grant.

Earlier in his career, Bridbord played a critical role in convincing the Environmental Protection Agency to remove lead from gasoline. “That was a huge triumph for public health,” according to Dr. Phil Landrigan of Boston College, Bridbord’s partner in the effort.

Fogarty staff also expressed their appreciation. As a mentor, Bridbord saw the best in everyone, took time to listen and didn’t micromanage, said Dr. Josh Rosenthal. Bridbord could be summed up in a single word—charismatic, according to Dr. Joel Breman. Dr. Flora Katz observed Bridbord takes great pride in his work and “believes in the nobility of public service.”

Conference seeks to advance women in global health

By Karin Zeitvogel

A woman health worker in rural India was gang-raped “to teach her a lesson” after she promoted contraception, family planning and education for girls. Women working on polio vaccination campaigns have been abducted and killed. And one of the world’s few women health ministers was asked during congressional testimony if she was married or single. The male lawmaker asking the question said the answer would indicate to him and his colleagues if the minister had ever had “a good night.”

Those were some of the stories heard by the 900, mainly female attendees at the second Women Leaders in Global Health (WLGH) conference, held in London in November. Despite women making up around three-quarters of the global health workforce, often serving on the frontlines of a health crisis or providing unpaid care for a family member, they hold less than a quarter of global health leadership positions, noted former Fogarty trainee Dr. Soumya Swaminathan, who is now WHO Deputy Director-General for Programmes.

“If they don’t give you a seat at the table, pull up a folding chair. If they don’t let you pull up your folding chair, sit on the table.”

— DR. AYOADE OLATUNBOSUN-ALAKIJA,
CHIEF HUMANITARIAN COORDINATOR, NIGERIA

Change has to start at the base of the pyramid and cover every level of caregiver and recipient, conference-goers were told. “We need leaders and excellent foot soldiers,” said Dr. Wafaa el-Sadr, a professor at Columbia University and member of Fogarty’s advisory board. “Everyone within an organization needs to be transformed.” All women need access to quality health care, and organizations need to revisit their messaging about women’s health, said Dr. Joanne Liu, the international president of Médecins Sans Frontières (MSF). “If we don’t improve access to health care for women, we’re always going to be running behind a train that is moving faster,” Liu said. Three-quarters of patients who go to MSF hospitals are women seeking care for a pregnancy-related issue or to give birth, she added. “But we never talk about that. We talk about the war-wounded, about Ebola, never about women coming in to deliver and being safe and well cared for.”

All leaders, male and female, need to be able to inspire others “to pursue a common mission that’s higher than yourself and the people you’re trying to lead,” said the Bill & Melinda Gates Foundation’s Dr. Anita Zaidi, who is also the principal investigator on a Fogarty-supported project



Participants at the recent Women Leaders in Global Health conference explored barriers to progress, such as those experienced in Peru by Fogarty grantee and former health minister, Dr. Patty Garcia (on right).

David Snyder for Fogarty

on children’s health. Women in leadership positions can have a broad impact, said former Fogarty trainee, Dr. Patty Garcia, who was health minister of Peru from 2016-17. During her 15 months in office, Garcia successfully pushed to allow contraception from the age of 14 to tackle Peru’s teen pregnancy problem, and changed the way Peru screens for cervical cancer. “We now have molecular testing and self-testing so women can be empowered taking their own samples,” Garcia told the conference. But change didn’t come without a struggle. “I got into a big fight with male physicians—they didn’t want empowerment,” said Garcia—the woman health minister who was asked about her marital status.

Women leaders need to be assertive to overcome resistance to being included in top-level conversations, said Dr. Ayoade Olatunbosun-Alakija, Nigeria’s chief humanitarian coordinator. “There’s an urgency—we don’t have time to wait around and be invited,” she said. “If they don’t give you a seat at the table, pull up a folding chair. If they don’t let you pull up your folding chair, sit on the table.”

The conference, part of the Women Leaders in Global Health Initiative, was hosted by the London School of Hygiene and Tropical Medicine. The 2019 WLGH conference is set to take place in November in Rwanda.

RESOURCE

Website: www.wlghconference.org

PROFILE

Fogarty Fellow studies kidney disease in India

By Shana Potash

Dr. Shuchi Anand, who was born in India and moved to the U.S. with her family at age 12, noticed something during a return visit that stuck with her. “As I was becoming more aware of the world, I distinctly remember visiting someone in the hospital in India, in my hometown, and seeing the disparity in care,” she said. “It was really heartbreaking.”

Years later, as she pursued a medical degree, a master’s in clinical epidemiology and postdoctoral training in nephrology at U.S. institutions, Anand seized every opportunity she could to work in developing countries and gain experience in global health. A Fogarty fellowship took her back to India—to the Centre for Chronic Disease Control (CCDC), a research organization in New Delhi where, under the mentorship of director Dr. Dorairaj Prabhakaran, Anand studied prevalence and risk factors for chronic kidney disease (CKD), a condition most commonly caused by diabetes and high blood pressure.

“It is a significant problem in terms of chronic disease burden in low-resource settings, and in India in particular, where there’s a lot of diabetes,” Anand noted. At the time of her fellowship, there was little data on CKD in India and most of her time was spent helping to fill that gap.

Anand worked on a large project, the Center for Cardiometabolic Risk Reduction in South Asia (CARRS) Surveillance Study, which through clinic and home visits gathered information related to diabetes, cardiovascular disease and CKD from thousands of people in three large South Asian cities—New Delhi and Chennai, India and Karachi, Pakistan. Anand accompanied interviewers as they went door-to-door to conduct surveys in India and then helped analyze data. A 2015 paper on which Anand was the lead author estimated one in 12 people living in New Delhi and Chennai have evidence of CKD, with diabetes mellitus, pre-diabetes and hypertension that put them at risk of a heart attack, end-stage renal death or other adverse outcomes.

“I sort of grew with Dr. Prabhakaran’s center because this was one of their major population-based surveys,



Shuchi Anand, M.D., M.S.

Fogarty Fellow:	2012-2013
Fellowship at:	Centre for Chronic Disease Control, India
U.S. partners:	Stanford University and University of California, Berkeley
Research focus:	Chronic kidney disease in developing regions

their first one. And it’s the first one that has been rigorously conducted on chronic diseases in India,” Anand said of the exposure the fellowship provided. She was able to watch and learn how the team trained interviewers to interact with study participants and pose survey questions, and she learned how to manage, store and analyze the data that was collected. Anand also gained experience as an editor by working with Dr. Prabhakaran, who was co-editor of the kidney disease volume of *Disease Control Priorities*, third edition.

The Fogarty fellowship segued into an NIH career development grant that allowed her to expand upon her work in India. With support from the National Institute of Diabetes and Digestive and Kidney Diseases, Anand conducted mentored research on the epidemiology and management of CKD in South Asians and found, for example, that the prevalence of CKD among people in urban India is similar to that of Indians who emigrated to the U.S., but those living in India are more likely to face worse outcomes.

“My findings are hopefully going to help with health system planning and development. What is the true burden of kidney disease in their population? What are the types of outcomes their population is experiencing? And how can they try to prevent most adverse outcomes?” Anand said. “It also has implications for population health in the U.S. because we have a South Asian minority population here that faces similar risk to kidney disease as people living in India and those risks are a bit different than the Caucasian or African American population.”

RESOURCE

<http://bit.ly/FellowCKDstudy>

OMAR SIDDIQI, M.D. M.P.H.

Dr. Omar Siddiqi first visited Zambia in 2005 when he was a neurology resident at Beth Israel Deaconess Medical Center, to explore the possibilities of doing global health neurology research there. Named a Fogarty International Clinical Research Fellow in 2010, he moved to the southern African country and has been there ever since. In 2018, he helped launch Zambia's first neurology research training program. Siddiqi is an assistant professor of neurology at Harvard Medical School, the Director of the Global Neurology Program at Beth Israel Deaconess Medical Center, and a lecturer at the University of Zambia.



What impact has Fogarty had on your career?

Fogarty was the spark that made everything else happen. When I first went to Zambia in 2005, there were few, if any, mechanisms outside of Fogarty that allowed me to combine neurology research and global health. I was able to return to Zambia in 2010 as a Fogarty fellow with an early career scientist's award, and prove there are important research questions relevant to low- and middle-income countries (LMICs) and the U.S.

What research question did you investigate?

I studied the causes of infections in the brain in the HIV population, mainly meningitis and encephalitis. At the time there was just one neurologist, from the former Soviet Union, working in Zambia, and scant information about my research topic, despite the country's huge burden of tuberculosis meningitis in the HIV population. We got very good data and published a paper.

What are the key outcomes of your research?

We've classified the full spectrum of neurological diseases in the HIV population and found that there's a huge neurological disease burden outside of HIV in LMICs. This has helped to spur the neurology training program we launched in Zambia in October 2018, which will put more boots on the ground and allow us to see the disease processes in various parts of the country. In the first year of the program, there were three adult and two pediatric neurologists in training, all of them from Zambia. This training program will enrich the research environment in Zambia and allow us to look at neurological diseases in more detail, build capacity, and answer research questions that help LMICs and countries like the U.S.

How does research in Zambia benefit the U.S.?

A lot of the diagnostic technologies for TB meningitis have been rolled out in LMICs, where the disease is highly prevalent. TB meningitis occurs in the U.S., but not with the critical mass of patients that you need to

answer important diagnosis and management questions, so the U.S. looks to data from countries like Zambia to help guide how to treat its TB meningitis patients.

How has mentorship influenced your career?

Mentorship has been critical. When I started out on this career path, I didn't know anything about funding opportunities, about how to balance a career in the U.S. with something overseas. But my mentors—Dr. Gretchen Birbeck, who has been doing neurology research in Zambia since 2001, and Dr. Igor Korolnik, then the director of the HIV/Neurology Center at my home institution, Beth Israel Deaconess Medical Center—took me under their wings and gave me sound advice: Start by finding a research question you're interested in, that's relevant to the setting, and that you can carry through to completion. I started writing grants with Igor and eventually got support from Fogarty, along with several others.

What are your goals for neurology in Zambia?

In 10-20 years, I'd like to have a neuroscience institute with advanced diagnostics and research facilities, where Zambians would receive training and local neuroscientists would conduct research. People from neighboring countries that lack neurology training programs, such as Botswana, Zimbabwe and Mozambique, would come to the institute for training. South Africa does this quite well but Africa's huge, so you need more than one country to provide training for others.

How has neurology advanced in LMICs?

When I first got to Zambia, they had no neuroimaging, they were doing rudimentary testing on spinal fluid, there were no advanced neurological tests, no training program. Now, we have a training program, a CT scanner, an MRI scanner, a fully functioning neurophysiology lab, and a neurology clinic where we see up to 60 patients a day. We've moved mountains. It's enormous progress and it's been catalyzed by NIH support.

Mentorship training in LMICs needs increased support

By Shana Potash

Whether helping young scientists shape their careers, conduct ethical research, or define a work-life balance, mentors are instrumental in nurturing future generations of global health researchers. But in low- and middle-income countries (LMICs), formal mentoring is not often adequately supported by institutions or included in formal training programs. To encourage LMIC organizations to strengthen mentoring and institutionalize the practice, Fogarty-funded authors produced a new publication to serve as a guide.

The supplement to the *American Journal of Tropical Medicine and Hygiene* offers recommendations, case studies and an overview of toolkits to help design mentorship programs tailored to LMICs. The publication

Mentorship training must be expanded and given more institutional support in low- and middle-income countries, according to a new publication by Fogarty-supported authors.

was inspired by a series of “Mentoring the Mentor” workshops hosted in LMICs by faculty of Fogarty’s Global Health Program for Fellows and Scholars. It was edited by Dr. Craig Cohen, Co-director of the University of California Global Health Institute in San Francisco. More than 40 leaders in global health from around the world contributed to develop and publish the special issue.

“Great mentors are not born. Mentoring skills, like any other, must be developed,” Fogarty Director Dr. Roger I. Glass and Dr. Flora Katz, director of the Center’s extramural programs, note in the preface to the supplement. “It is our hope this collection of articles will provide a stimulus for increased funding to fill this critical need.”

Mentoring in the context of LMICs

Formal mentoring is not yet common practice in many of the LMIC institutions that conduct global health research. However, a growing number of their scientists are interested in mentorship, and there is a strong need for it, according to supplement authors. They emphasize the importance of creating programs in the context of LMICs, considering the availability of resources and the culture within the institution and the country. “The advancement of global health research demands sustained career development opportunities for LMIC scientists that can only be attained via the implementation and dissemination of culturally compatible mentoring practices.”

While the existing guidance for successful mentoring is more in line with high-income settings, the authors describe how to adapt it, and address the challenges of implementing mentorship programs in LMICs. Institutions, for example, may not recognize or compensate faculty for their mentoring activities, making it financially unrewarding. Education approaches that reflect a country’s history or culture may be more authoritarian, hierarchal or paternalistic and could potentially deter junior scientists from disagreeing or bonding with their more senior mentor. And the male-dominated academic culture that is common among LMIC institutions can deter women scientists or limit their progress.

The authors recommend institutions formally acknowledge the value of mentoring by giving it a key academic role and providing protected time and compensation. To mediate

Photo by Richard Lovell for Fogarty



the effects of a hierarchical culture, rules for respectful disagreement can be established to encourage critical thinking and make mentees comfortable expressing differences of opinion. Institutions should consider the age, gender, culture and other characteristics of faculty and students to support diversity. A work-life balance that would allow more opportunities for women or scientists with family responsibilities, for example, could increase the number and diversity of mentors. Other ways to cultivate quality mentors include joint training with scientists from high-income countries as well as group or peer mentoring.

A framework for mentoring

What is mentorship exactly? A frequently cited definition describes it as a process in which “an experienced, highly regarded person (the mentor) guides another individual (the mentee) in the development and re-examination of his or her own ideas, learning, personal and professional development.”

The relationship between mentor and mentee, according to supplement authors, should be mutually beneficial with each party learning from the other. This dynamic is central to a conceptual framework offered in the supplement to help mentors organize their work, generate new ideas and develop programs within their institutions. “One of the important factors that predicts success in this is the ‘click’—the connection between the mentor and mentee,” the authors note.

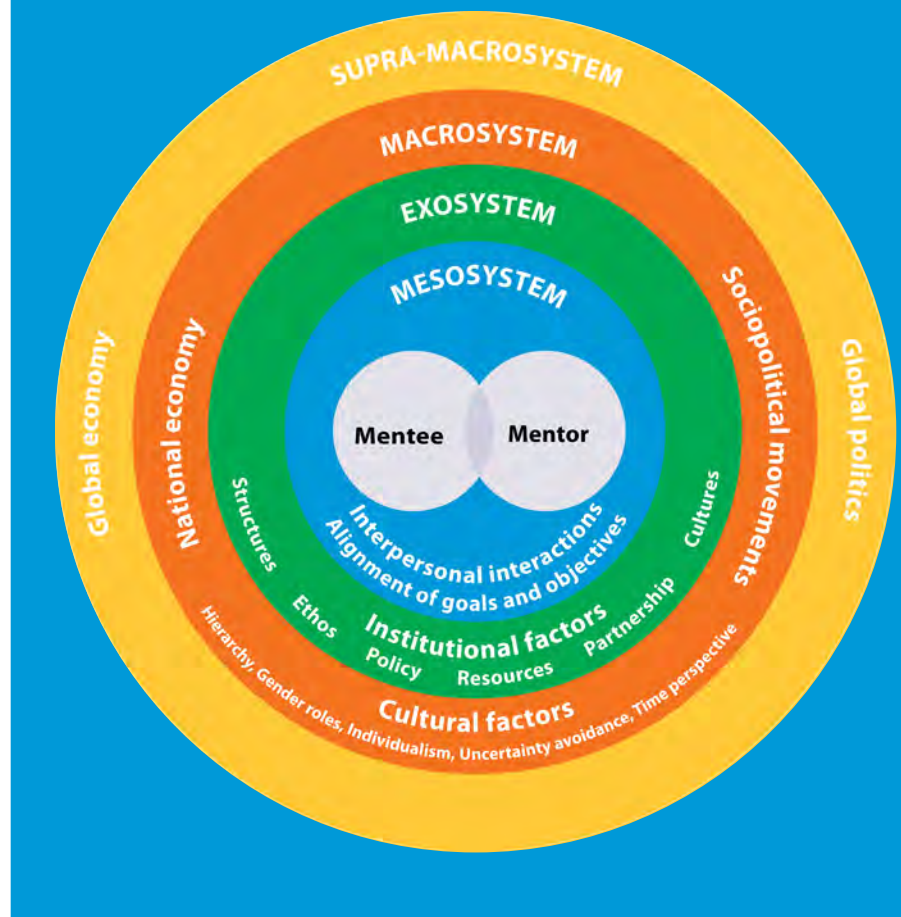
Visualized as concentric circles, the framework highlights the mentor-mentee relationship and interactions that may affect it (*see graphic*). Their bond, which may be influenced by age, gender and world view, is the center circle. The model expands next to institutional issues such as available resources and organizational ethos. Farther out are cultural and societal aspects including hierarchy and gender roles. Lastly are the global economy and politics, which may not have much effect on the mentor-mentee relationship, but may impact their work.

The framework also addresses mentee success and satisfaction—is their work a job, career, mission or calling? Here the authors distinguish between coaching, which is task-oriented, and mentoring which is person-oriented and can nudge the mentee toward a calling that brings high levels of satisfaction and success.

Evaluating mentorship programs

As mentorship is strengthened and more formal programs are developed and implemented, evaluation will be needed to determine best practices, plan mentoring activities, and demonstrate their value. To facilitate that, the supplement

A Conceptual Framework for Mentoring



provides a framework identifying *six areas for evaluation* along with objective and subjective measures to assess them at the individual and institutional level. The latter is particularly important to LMIC institutions seeking to grow their mentoring capacity and optimize their resources, according to the authors.

- The *mentor-mentee relationship* can be assessed at the individual level by satisfaction surveys and by costs measured in time or money, for example, while evaluations by divisions, departments or schools can help identify gaps in institutional support.
- Evaluating *career guidance* at the individual level could be done by charting the progress of mentees and appointments or promotions for mentors. Their institutions may look at retention of prominent faculty and staff.
- *Academic productivity* for both parties at all levels could be viewed through published papers, invited talks or funded grants, but the authors suggest they be used alongside other categories as they may not fully reflect a mentor's contributions.
- *Networking*, key to career development and global health research, can be evaluated at the individual level by describing the number of collaborators. Institutions can use bibliometric tools to analyze

co-authorship, for example, and map the connections between investigators and institutions.

- *Wellness*, described as an innovation of the framework, reflects work-life balance and can be assessed individually with satisfaction surveys, and institutionally using validated tools that measure stress, lack of self-esteem and other factors that can lead to burnout.
- *Organizational capacity* creates the mentoring environment and could be measured by looking at the number of mentors and their age, gender and ethnic diversity, for example. Evidence of institutionalization, such as established training programs or promotions for mentors, could be monitored. Also important is self-perpetuation—to confirm that mentees are becoming mentors.

Competencies for global health research mentoring

Recognizing that high-quality mentorship can transform the trajectory of someone's career and "shape the identity and success of institutions," supplement authors identify *nine core competencies* for global health research. With north-south partnerships being at the heart of these initiatives, the authors say the proposed capabilities will help create more equitable relationships between investigators from high-income countries and LMICs.

Effective communication is paramount. Not only is it important to show empathy and compassion and to provide constructive feedback, mentors must be comfortable with cross-cultural and cross-gender communication. Because many LMIC academic institutions are dominated by men, the authors suggest special efforts be made to encourage the growth of female researchers and support them as role models and mentors to younger women.

Mentors must be able to help mentees *align expectations* with reasonable goals, assess a mentee's talents, and *provide knowledge and skills* needed to fill the gaps and achieve success. *Addressing diversity* is critical—mentors should embrace it by encouraging collaboration with all people and by recognizing their own biases, whether conscious or unconscious.

Fostering independence by demonstrating belief in a mentee, letting them take the lead, or assisting them in

securing their own funding is key for mentoring, as is *promoting professional development* by guiding them as they work on a team, manage their time and develop communications skills. Mentors also must be able to *promote professional integrity and ethical conduct* by being a role model for it.

Mentors must have problem solving skills, patience in the face of adversity and other knowledge for *overcoming resource limitations*, given the LMIC environment. The final competency, *fostering institutional change*, is needed to advocate and negotiate for the development and implementation of mentoring programs.

Case studies for mentorship capacity development

To help LMIC institutions develop best practices for mentoring, the supplement contains several case studies.

When instances of plagiarism and cheating were discovered at Peru's Universidad Peruana Cayetano

Heredia, the university used a Fogarty grant supplement to develop a free, online research integrity course. It includes a mentoring module with videos of university investigators discussing the role of mentors and their own experiences. The university and the Peruvian National Science and Technology Council both require completion of the course for anyone applying for a grant or registering

as an investigator. Thousands of people have taken the online course and the concept of mentoring is now well recognized and valued, according to supplement authors.

A scientist aiming to strengthen mentoring at the Kenya Medical Research Institute used a Fogarty grant to assess mentoring at the Institute's Centre for Microbiology. The assessment found universal interest from scientists, but only 40 percent had experience as a mentee and only 20 percent as a mentor. Barriers to the institutionalization of mentoring were identified, and a mentorship policy manual was drafted. Scientists are now working with U.S. colleagues to develop an institution-wide mentorship program.

With no formal mentoring program, "supervisor" and "guide" are the dedicated roles at India's Saint John's National Academy of Health Sciences and its affiliated research institute. Several efforts are being made to integrate mentorship into the culture. A new Vice Dean position was created to oversee postgraduate training

MENTORING DEFINITION:

"An experienced, highly regarded person (the mentor) guides another individual (the mentee) in the development and re-examination of his or her own ideas, learning, personal and professional development."

— STANDING COMMITTEE ON POSTGRADUATE MEDICAL AND DENTAL EDUCATION, UK

and support improvements, including mentorship. Institution leaders sensitized staff to the difference between mentoring and supervision. In addition, young faculty have been participating in Fogarty's Global Health Program for Fellows and Scholars, which gives them early exposure to mentoring.

In Mozambique, a mentorship program was established at the Universidade Eduardo Mondlane. To maximize a limited pool of mentors, monthly group meetings for interested researchers, ranging from undergraduate to Ph.D. students, were initiated. Since these meetings began, more faculty and junior researchers have become interested in mentorship, mentees have found a support system in their peer group, and more mentees are prepared to mentor the next generation of students.

There are several key takeaways from the case studies, as noted by the authors. Developing a free, online course for responsible conduct of research that includes mentoring, and having it endorsed by the most significant research sponsor in the country, are best practices that could be replicated. Needs assessments can identify gaps and help strengthen mentoring. While institutional support is critical, group or peer mentoring can be effective when resources are limited. The authors note that collaborations between LMIC institutions and those in high-income countries—and efforts such as the “Mentoring the Mentor” workshops and the Fogarty Global Health Fellows and Scholars program—can serve as catalysts to strengthen mentoring.

Addressing ethical issues through mentorship

Mentors play a critical role in ensuring scientific integrity by addressing the responsible conduct of research and serving as a model for it. Through literature review, supplement authors identified and provided suggestions to avoid misconduct in four areas: preventing plagiarism, determining valid authorship, the appropriate use of IRBs and considering imbalances of power.

To reduce plagiarism, the authors suggest online programs that check for it, promoting scientific writing courses, including modules on plagiarism in responsible conduct of research courses, and holding one-on-one discussions about it when editing a mentee's work.

Fairness and integrity should be the guiding principles in determining authorship of a publication. From the initial design of a study through the analysis and writing phases, mentors can offer guidance on the criteria for authorship, the appropriate order, and how to handle guest and ghost authors.



High-quality mentorship can transform an LMIC scientist's career trajectory and shape the identity and success of institutions, as noted in the supplement, published by the American Journal of Tropical Medicine and Hygiene.

Photo by David Snyder for Fogarty

Mentors need to be well-informed about the latest local and international regulations governing biomedical research. Potential violations of IRB and Ethics Review Committee approval include changes in an approved study location, type of sample needed for research procedures, wording used for participant consent or amount of participant compensation.

Noting that a researcher's primary ethical obligation in global health is to “improve the health and well-being of the individuals and communities they visit,” the authors say mentors must teach the importance of empowering local investigators.

Mentoring toolkits

One way to strengthen mentorship is through toolkits—written or online resources that offer guidance to mentors, mentees and institutions. But material written specifically for LMICs is scarce.

In the supplement's final article, researchers reviewed existing mentoring toolkits—focusing on those developed by organizations involved in global health mentoring, written in English, and containing any guidelines that could be applied to LMICs.

Authors identified and summarized 18 toolkits—providing a brief description, the intended audience, competencies addressed, tools included and other helpful information, along with weblinks to access the resource.

With this series of articles, the team of authors aims “to help herald in a new era of increased mentoring in LMICs that leads to advancement of global health research and practice around.”

OPINION

By Dr. Roger I. Glass, Director, Fogarty International Center

Failure can teach valuable lessons, lead to opportunities



Does anyone's career go *exactly* as planned? Mine certainly has not! But I wouldn't change a thing. Every experience—whether stunning success or abject failure—has led me to where I am today.

It was my pleasure to recount some of my biggest blunders with a group of my peers on a panel at the recent American

Society of Tropical Medicine and Hygiene annual meeting. The goal was to provide unfiltered reflection on the importance of learning from failure—how to recover, apply the lessons learned and figure out how to move on in a positive way from the unexpected results. It could be argued that our ability to respond to failure is one of the most important skills we can develop.

For my colleague Dr. Steve Meshnick, of the University of North Carolina, failure came early in his research career in the form of two dead cows. He thought he had discovered a cure for sleeping sickness—which would have been a significant accomplishment—but alas, when he administered the drug, the cows immediately went into convulsions and died. Not a promising start...

He eventually determined that his skills were better suited to epidemiology than lab science, and he's gone on to make impressive discoveries in the field of malaria.

Failure is useful, Meshnick maintains, to achieve personal growth and self-awareness. He says he's learned that persistence is a helpful trait for researchers seeking grant funding. Another tip is to juggle multiple projects, so if one fails, you have others to keep you occupied. Although rejection is painful, he says it's helped him gain insights into how to improve his research proposals. In one case, he was forced to collaborate with a team of modelers, which has led to a long and fruitful partnership. Finally, he suggests scientists try not to take failure as a personal affront.

Figuring how to make lemonade out of lemons saved the career of my friend, Dr. Gail Cassell, now a senior

lecturer at Harvard Medical School. She left a tenured position in academia to head Eli Lilly's infectious disease drug discovery and clinical development activities. Shortly after she arrived, the company made painful cuts, including to her unit. A timely phone call out of the blue requesting a supply of old drugs for an ongoing clinical trial of multi-drug resistant TB helped her forge a new path. It was thought that MDRTB was too expensive to treat in low- and middle-income countries but this study, using drugs that were a half-century old, showed participants could be cured. That was the catalyst that she says began one of the largest philanthropic efforts in pharma's history.

Gail's advice to young scientists: be open to unexpected opportunities no matter how busy you are, and make it a priority to establish a network of peers and mentors.

I was amused to hear that Dr. Peter Agre, who won a Nobel Prize in Chemistry, received a "D" in the subject in high school. As the runt of the litter in his large family, he says he learned early on that he could benefit from the wisdom of others. A conversation with another parent at his daughter's school and a casual chat with a friend at a stop on the annual family road trip both led to valuable collaborations that directly contributed to his prize-winning scientific discoveries.

For my part, developing a potentially life-saving rotavirus vaccine, only to have it crash and burn when it was found to cause intussusception in some children, was devastating. But failing is an important learning experience and an essential part of growing up. My advice for early career scientists is to follow their passions and find knowledgeable mentors to help guide them on their way. Also key, is maintaining a sense of humor, especially during the tough times.

One of the session's attendees reminded us of a lesson on the importance of optimism in overcoming failure, learned during the historic smallpox eradication campaign. In the words of the inestimable Dr. Bill Foege, "Recruit people who are too young to know it can't be done."

RESOURCE

Website: <http://bit.ly/LearningFailure>



Nobel for Former Fogarty Scholar-in-Residence

Dr. Tasuku Honjo, who was a Fogarty Scholar-in-Residence in the 1990s, has won the 2018 Nobel Prize in Physiology or Medicine. Honjo and NIH grantee Dr. James Allison were recognized “for their discovery of cancer therapy by inhibition of negative immune regulation.”



Bekker lauded for HIV research and human rights

Fogarty collaborator and former trainee Dr. Linda-Gail Bekker has received the 2018 Desmond Tutu Award for HIV Prevention Research and Human Rights. Bekker, a University of Cape Town professor, was lauded for her research and her advocacy of personalized models of care that have “saved lives and helped to break down barriers of stigma and discrimination in HIV prevention.”



De Luca recognized for scientific innovation

Former Fogarty fellow Dr. Michele De Luca was recognized for his research on stem cells and their therapeutic potential. A professor at Italy’s University of Modena and Reggio Emilia, De Luca received a 2019 “Innovators in Science Award” from the New York Academy of Sciences and the pharmaceutical company Takeda.



NIH Institute Director Katz mourned

The director of NIH’s National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS), Dr. Stephen I. Katz, died suddenly in December 2018. Katz led NIAMS since 1995 and was an adjunct investigator in the dermatology branch of the National Cancer Institute, where he began his NIH career in 1974.



Former Fogarty advisor, NIH leader Li dies

Dr. Ting-Kai Li, a former director of NIH’s National Institute on Alcohol Abuse and Alcoholism and past Fogarty board member, has died. Known for his research on the metabolism, pharmacokinetics and pharmacogenetics of alcohol, and the neurobiology and genetics of alcohol-related behavior, Li spent most of his career at Indiana University before joining NIH.



Gramzinski leading U.S. military HIV research effort

Dr. Robert Gramzinski is the new director of the U.S. Military HIV Research Program (MHRP), which serves to protect troops from infection and improve global health. His prior MHRP roles included operational oversight of activities in several African countries and Thailand. Previously, he was with NIH’s National Institute of Allergy and Infectious Diseases.



New role for O’Brien with WHO

The WHO has appointed Dr. Kate O’Brien as its Director of Immunization, Vaccines and Biologicals. O’Brien, whose research includes vaccine clinical trials and disease epidemiology, has been executive director of the International Vaccine Access Center at Johns Hopkins Bloomberg School of Public Health. She’s also been an advisor to Gavi, the Vaccine Alliance.

NIH launches free placental atlas tool

Investigators can now access NIH’s Placental Atlas Tool, or PAT, a free resource incorporating placental data from publications and public databases into a single website. Produced by NIH’s National Institute of Child Health and Human Development, the tool is useful for studying placental development and function throughout pregnancy.
Website: <https://pat.nichd.nih.gov>

African scientists face barriers, report says

A new study of Africa’s young scientists provides details of the challenges they face in terms of research output, funding, mobility, collaboration and mentoring. The book was published by the nonprofit organization, African Minds.
Full report: <http://bit.ly/nextgenAfrica>

WHO says progress on malaria has stalled

Reductions in malaria cases have plateaued after several years of decline, according to the WHO’s World Malaria Report 2018. A new country-led response has been launched to scale up prevention and treatment. Ten African countries and India account for 70 percent of malaria cases.
News release: <http://bit.ly/Malaria2018>

Vax gaps cause measles cases to spike

Reported measles cases jumped in 2017, as multiple countries experienced severe outbreaks, according to a report published jointly by the CDC and the WHO. Because of gaps in vaccination coverage, measles outbreaks occurred in all world regions, causing an estimated 110,000 deaths.
News release: <http://bit.ly/MeaslesUp>

More research needed to defeat dementia

The World Dementia Council has released a publication calling for more research. Titled *Defeating Dementia: the Road to 2025*, the report says data sharing and open science are critical to accelerating progress. While clinical trials on dementia have more than doubled since 2013, recruitment shortfalls are causing delays.
Full report: <http://bit.ly/DefeatDementia2025>

WHO: insufficient progress on road safety

Traffic deaths continue to rise, causing 1.35 million fatalities annually, according to the WHO. Its 2018 report on road safety says traffic injuries are now the leading killer of youth aged 5-29 years. Interventions have helped in wealthier places but fatalities remain high in low-income countries.
News release: <http://bit.ly/WHOtraffic2018>

Funding Opportunity Announcement	Details	Deadline
International Research Scientist Development Award (IRSDA) (K01) Independent Clinical Trial Required Independent Clinical Trial Not Allowed	http://bit.ly/IRSDAct http://bit.ly/IRSDAnoct	Mar 7, 2019 Mar 7, 2019
Planning for Noncommunicable Diseases and Disorders Research Training Programs in LMICs (D71)	http://bit.ly/NCDlifespan	Mar 14, 2019
Japan Society for the Promotion of Science U.S. Postdoctoral Fellowships in Japan	http://bit.ly/JSPSforUS	Mar 15, 2019
Global Infectious Disease (GID) Research Training Program (D71) (D43) Clinical Trial Optional	http://bit.ly/GIDplan http://bit.ly/GIDtraining	July 25, 2019 July 25, 2019

For more information, visit www.fic.nih.gov/funding

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Fogarty International Center
National Institutes of Health
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Managing editor: Ann Puderbaugh
Ann.Puderbaugh@nih.gov

Writer/editor: Shana Potash
Shana.Potash@nih.gov


Writer/editor: Karin Zeitvogel
Karin.Zeitvogel@nih.gov

Web manager: Anna Pruett Ellis
Anna.Ellis@nih.gov

Designer: Carla Conway

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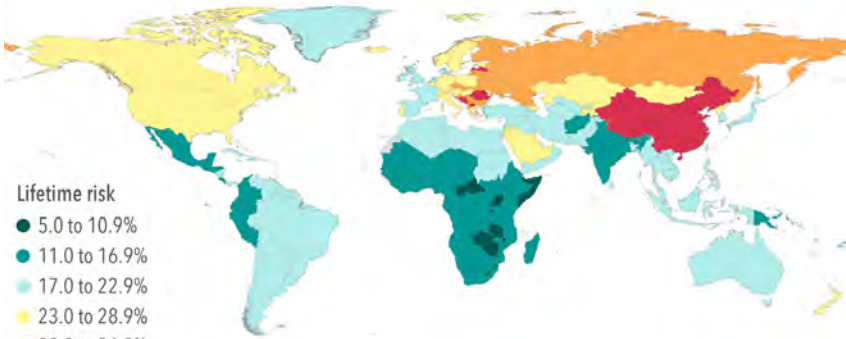
Global stroke risk estimates vary by geographic region

One in four people over age 25 is at risk for stroke during their lifetime, according to a new scientific study. Researchers found a nearly five-fold difference in lifetime stroke risk worldwide—with the highest risk in East Asia and Central and Eastern Europe—and lowest in sub-Saharan Africa, where people are at a greater risk of dying earlier from another cause. The lifetime stroke risk for 25-year-olds in 2016 ranged from 8 percent to 39 percent, depending on where they live.

“Our findings are startling,” said Dr. Gregory Roth of the Institute for Health Metrics and Evaluation (IHME) at the University of Washington, and senior author on the study. “We found extremely high lifetime risk for stroke, and based on other research we evaluated, it is clear that younger adults need to think about long-term health risks. They can make a real difference by eating healthier diets, exercising regularly, and avoiding tobacco and alcohol.”

Lifetime risk of stroke occurrence (in %) in both sexes combined, 2016

In 2016, the lifetime stroke risk ranged from 8% to 39%, depending on where people live.



Lifetime risk

- 5.0 to 10.9%
- 11.0 to 16.9%
- 17.0 to 22.9%
- 23.0 to 28.9%
- 29.0 to 34.9%
- 35.0% and above

GBD 2016 Lifetime Risk of Stroke Collaborators. Global, Regional, and Country-Specific Lifetime Risks of Stroke, 1990–2016. *N Engl J Med*. 19 Dec 2018.

RESOURCE
Website: <http://bit.ly/IHMEstroke>