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## Africa's medical educators gather for historic meeting

Optimism was in the air at the inaugural meeting of the Medical Education Partnership Initiative held recently in South Africa. "This is a hopeful time," observed Dr. Francis Omaswa, one of the leaders of the initiative's coordinating center. Omaswa opened the session, calling it "the largest-ever meeting of African medical educators," and said "we are making history...this is really a milestone in Africa's development."

The more than 230 participants included several African ministers of health, deans and faculty of the region's leading medical schools, two U.S. ambassadors, the NIH director and numerous African and American collaborators.

Omaswa said the initiative, in which the U.S. will invest up to \$130 million over five years in African institutions to transform medical education, is an "exceptional" opportunity.

With funding from the U.S. President's Emergency Plan



Photo courtesy of George Washington University

NIH Director Dr. Francis S. Collins addressed participants of the Medical Education Partnership Initiative. He expects lessons learned through the program will inform health care everywhere.

for AIDS Relief, known as PEPFAR, and the NIH, the program supports awards in a dozen African countries, which are being jointly administered by Fogarty and the

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## Fogarty hosts global health advocate Crisp

By Steve Goldstein



Photo by Ernie Branson

Lord Nigel Crisp, a former head of the British National Health Service, said developed nations can look to low- and middle-income countries for low-cost innovations.

Six years as chief executive of the U.K. National Health Service did not make Lord Nigel Crisp a global health advocate. His conversion followed his retirement from NHS in 2006, when he co-chaired an international task force on increasing the

education and training of health workers globally and traveled widely in the developing world.

"I learned three basic lessons," Crisp said during a well-attended lecture on capacity building sponsored by Fogarty. "Stop telling people in the developing world what to do, support the education and training of health workers in their own countries and—we have a lot to learn from them."

A member of the British House of Lords, Crisp is the author of "Turning the World Upside Down: The Search for Global Health in the 21<sup>st</sup> Century," which stresses the need for co-development and mutual learning instead of traditional top-down approaches to training and health innovation. He also serves on a prominent Lancet Commission studying capacity building in health education.

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## FOCUS



## Addiction is a worldwide crisis

- The personal cost of the khat habit in Yemen
- Methamphetamine addiction in South Africa
- A "brain drain" in Bulgaria

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# Something new under the sea

Photo by Julia Kubanek



The red algae known as *Callophycus serratus* contains a compound found to have strong anti-malarial properties.

The latest promising weapon in the war against malaria comes from seaweed found in Fiji as part of a Fogarty-led program. Animal studies have begun and, if a chemical defense that targets marine fungi in the seaweed proves effective, the ocean may yield the key to defeating a disease that kills more than a million people a year.

The study has been led by Fogarty grantee Dr. Julia Kubanek, a chemical ecologist at the Georgia Institute of Technology in Atlanta, who wanted to discover how marine plants and animals defend themselves against infections. In Fiji, she and her colleagues collected seaweed and other marine species to look for natural antibiotics. They also screen compounds from these organisms for biomedical properties.

Kubanek's group discovered that red algae known as *Callophycus serratus* contained compounds called bromophycolides, one of which was found to have strong anti-malarial properties. The compound is able to stop the malaria parasite from neutralizing a toxic byproduct in the infected red blood cell, thus killing the parasite.

"This is not a mechanism of action that is brand new to science," Kubanek said. The anti-malarial chloroquine works in a similar way, but the malaria parasite has evolved resistance to chloroquine. The seaweed compound, she said, has killed chloroquine-resistant parasites.

"All of these drugs have a limited life span," Kubanek explained. "The malaria parasite reproduces often and can evolve resistance to drugs. The key to slowing it down is using the drug responsibly and in combination with other drugs."

Now, in the lab of key collaborator Dr. Karine Le Roch at the University of California-Riverside, the drug derived from the lead bromophycolide compound will be tested on mice infected with malaria—to see whether it's effective as a cure—and also whether it can prevent infection in healthy mice.

Georgia Tech and UC Riverside now have a U.S. patent on the anti-malarial potential of this class of compound. The lead is very promising, albeit early, and will take a lot of further work to determine if it will be suitable as a drug. Kubanek's work is funded by Fogarty's International Cooperative Biodiversity Groups (ICBG) program—in collaboration with other NIH partners, as well as the National Science Foundation, the U.S. Departments of Agriculture and Energy and the National Oceanic and Atmospheric Administration. The ICBG program encourages biological exploration and biodiversity conservation.

Photo by Julia Kubanek



Samples of compounds from seaweed and other marine species are screened for biomedical properties.

"Without the ICBG program, I wouldn't be focusing on drug discovery now," said Kubanek. "The program gave us the opportunity to bring together lots of different scientists to serve the goals of discovery and conservation in Fiji."

Kubanek said they are learning a lot about medicinal chemistry and pharmacology by seeing how nature has thrived and survived. "What is really valuable about the ICBG program is that we combine the discovery of new therapeutics with the conservation of these natural resources—many of which are only found in developing countries."

*Stout EP, Prudhomme J, Le Roch K, Hay ME, Franzblau S, Fairchild CR, Aalbersberg W, Kubanek J (2010) Unusual antimalarial meroditerpenes from Fijian red algae. Bioorganic and Medicinal Chemistry Letters 20:5662-5665. DOI: 10.1016/j.bmcl.2010.08.031 Previous GHM article: <http://bit.ly/eFw20v>*



# NIH aids stricken Chile, Haiti with equipment loans

Photo by Dr. James Harrington



The 84 items of equipment consists of computers, microscopes, micro-injectors, centrifuges, freezers and other items.

and facilities severely damaged by the 8.8 magnitude earthquake and resulting tsunami of February 27, 2010.

“We’re very pleased that the equipment has been delivered to the Chilean laboratories,” said Dr. Michael Gottesman, NIH Deputy Director for Intramural Research. “This is the result of months of hard work by many people and the effort will no doubt help reinvigorate the NIH’s historically robust collaborative research partnerships with scientists in Chile.”

The 84 items of equipment being loaned by the NIH consists of computers, microscopes, micro-injectors, centrifuges, freezers and others. The NIH Office of Intramural Research and Chilean intramural researchers on the NIH campus surveyed research colleagues in Chile and compiled a list of needed equipment to replace what was damaged or destroyed during the earthquake.

Fogarty worked with the Embassy of Chile in Washington to coordinate the loan, which identified the Chilean National Commission for Scientific and Technological Research (CONICYT)—the NIH counterpart institution—to receive and distribute the used laboratory and scientific equipment. Designated for support are the University Catolica del Maule, University of Concepcion, University of Chile, University of Chile-INTA (Institute of Nutrition and Food Technology) and the University of Talca.

Completing the chain of cooperation, the 10,000 tons of equipment was shipped to Chile without charge by FedEx in an arrangement coordinated between the delivery company and the Chilean Embassy in Washington, D.C.

“This is an excellent example of a bilateral relationship built not only in big announcements, but also built over a matrix of collaborative and connective pathways,” said Chilean Ambassador Arturo Fermandois.

The NIH has historically worked closely with CONICYT and has had several bilateral agreements in place to foster scientific exchange and collaboration. Dr. Pablo Moya, a Chilean postdoctoral fellow at the National Institute of Mental Health worked closely with Fogarty and the Office of Intramural Research on the loan project. “As Chilean researchers at NIH, we are happy to see this initiative reach safe dock,” said Moya. “This is an example of the importance for Chilean scientists abroad to keep networks with their country, to promote collaborative research as well as technology transfer.”

“The value of the equipment we received in support of Chilean universities goes far beyond the cost ... and represents the true spirit of collaborative research and mutual understanding in the pursuit of knowledge,” said Maria Elena Boisier of CONICYT.

**“The effort will no doubt help reinvigorate the NIH’s historically robust collaborative research partnership with scientists in Chile,” said Dr. Michael Gottesman.**

The equipment loan is anticipated to be permanent. The equipment arrived in Santiago just days before the visit to Chile by President Barack Obama. The loan will help reestablish the ability of Chilean institutions to perform cutting-edge biomedical health research. “In extraordinary circumstances scientists have to pull together,” said Fogarty Director Dr. Roger I. Glass.

In a similar effort, Haiti, which is also trying to recover from a severe earthquake last year, received an equipment loan through the efforts of Fogarty and the NIH Clinical Center. Two Sono-Site ultra-sound machines arrived in Haiti March 23 to be loaned to long-time NIH grantee GHESKIO, with the shipping costs paid by the Clinical Center. “We can guarantee this equipment will be put to good use,” said Dr. Jean William Pape, director of GHESKIO.

The portable ultrasound machines will be used in Haiti for cholera patients in hypovolemic shock who need vascular catheterization due to fluid loss from severe diarrhea.

## Africa's medical educators gather for historic meeting

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Health Resources and Services Administration. Seventeen NIH Institutes and Centers and the Common Fund are participating in the initiative.

MEPI is unique in that it empowers African leaders to define local needs and develop the most appropriate solutions, said Amb. Eric Goosby, the U.S. Global AIDS Coordinator. He called for “sustained intellectual honesty” and an acknowledgement of “the important role that research plays in anchoring an inquiring mind” in clinical as well as scientific work, both “essential to improving the quality of care.”

Photo by Ann Pudebaugh



In South Africa, NIH Director Dr. Francis Collins and Fogarty Director Dr. Roger Glass toured a research site in Soweto with grantee Dr. Glenda Gray of University of Witwatersrand.

The program is not a sign the U.S. is pulling back. Instead, Goosby said, “this is the commitment to make the PEPFAR gains sustainable, rather than just one chapter in the book.”

Despite its enormous population and burden of disease, sub-Saharan Africa has only a fraction of the health care workers it needs, according to NIH Director Francis S. Collins. “If we don’t have the talented individuals who are going to roll up their sleeves and carry out this work, we aren’t going to accomplish very much.”

But the quality of training must also be considered, suggested Dr. Miriam Were, chair of Kenya’s AIDS council.

## Fogarty hosts global health advocate Crisp

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Illustrating the disparities in global health resources, Crisp stated that sub-Saharan Africa has 10 percent of the world’s population, 25 percent of the disease burden and but one percent of the health workers.

Crisp said that health professionals should look to low- and middle-income countries for low-cost innovations. He cited specific methods, such as treating cases of clubfoot in Africa by early and regular manipulation of the foot when surgical intervention is not available. He noted breakthroughs in products as with the development of “new

“Let there be operational research to establish the maximum number that can be included in bedside teaching to ensure we are producing quality medical doctors.”

MEPI will also encourage researchers by addressing the lack of infrastructure and support to make research a viable career, protected time to conduct investigations and the data management necessary for population studies, Collins said. In addition, the program will facilitate information sharing among African institutions. “We hope MEPI will build interactions in a much more interconnected, networked way, as opposed to the twinning model,” in which western researchers are paired with African counterparts.

Health care workers are best recruited and trained in the settings where they’re needed, said Dr. Laura Cheever, of HRSA’s HIV/AIDS Bureau. In the U.S., physicians who train in community settings are three times more likely to work in that environment.

For MEPI to achieve its full potential, participants were encouraged to leverage existing resources. (See related info at: <http://bit.ly/e5iyDX>) Synergies could also be built with NIH’s Human Heredity and Health in Africa project, Collins suggested.

MEPI’s African leaders should think creatively and experiment with new ways of teaching, said Fogarty Director Dr. Roger I. Glass. “We have great hopes for what you can achieve.”

If MEPI is successful, it will generate innovative models that are useful everywhere, Collins said. “We expect to learn about things through MEPI that will inform health care elsewhere in the world, including the U.S.” Louis Pasteur once said that science belongs to no one country, Collins reminded the participants and added, “Science belongs to Africa, too.”

and cheaper” lenses for cataracts by Aravind Eye Hospitals in India. And Crisp also mentioned the increasing use of mobile health to deliver medical information to isolated communities and remote regions.

“Innovation is happening everywhere,” Crisp declared, adding that it has attracted commercial interest, which fosters healthy competition. Western companies, such as General Electric, are being forced to recognize and compete with lower-cost products and procedures from developing countries, he said.

# Q & A: Dr. Emilia Noormahomed

## In recognition of Women's History Month

*Global Health Matters sat down with Dr. Emilia Noormahomed, a parasitologist at the Universidade de Eduardo Mondlane in Mozambique, the only female Principal Investigator receiving a Medical Education Partnership Initiative award.*

Photo by Ann Pedelbaugh



### How did you choose this career path?

I was very much influenced by my parents. My father started his career as a nurse and ended as a nursing instructor at Maputo's central teaching hospital. My mother was a pharmacist. My father also had a private practice. As a child, I used to help him prepare everything to do his job, sterilizing the syringes and so on. All my life I wanted this kind of

career. I'm the kind of person who likes to always innovate and do new things. I consider myself to be privileged and think it's my duty to work to improve the health of my country and that's what I'm fighting for.

### Has it been difficult to be a woman scientist?

Fortunately, I grew up without any feeling of discrimination as a woman and that was also the case at medical school. In my country, most doctors are women. Now, 51 percent of my students are women, which you don't find in many places in Africa.

When I graduated from medical school, I was in the first group of students invited to join the faculty. I began in the microbiology department and took advanced courses in infectious diseases while teaching. Later, I completed my Ph.D. in parasitology at the University of Grenada in Spain, with a thesis on cysticercosis. I now study malaria, HIV/AIDS and other opportunistic infections.

In 2002, I was appointed dean of the medical school and tasked with improving the curriculum to increase the number of graduates and decrease the failure rate. Since 1963, the school had graduated an average of only 21 doctors a year. Since it's the only medical school in our country, it was important to expand. We now graduate about 100 doctors a year. That work was very exciting for me but I wanted to get back to research so I stepped down after four years.

### What has been your greatest frustration?

My biggest frustration is when I see institutions devoting money to send trainees abroad to get their Ph.D. without creating the infrastructure for those people to return home to contribute to their country. What is the point of wasting so much money when they come home and cannot practice what they have learned? We will never develop our country's research capacity that way.

**"I consider myself to be privileged and think it's my duty to work to improve the health of my country and that's what I'm fighting for."**

### What advice do you have for young African women interested in science?

My advice is they should always be decisive, persistent and find a balance between their professional ambitions and the other duties we women have at home. They should fight for their rights. It's not easy to find a balance but I feel proud of my children, who I had when I was still completing my studies. My son, now 26, is studying business and management, while my daughter, 20, is studying architecture. The work-life balance can depend on having the right partner who is supportive. In the end, the success of our careers as women can depend on the environment we have at home.

### What are you most proud of achieving?

I am most proud of securing the MEPI grant—this is the biggest award I have ever won. The most important thing about this is the U.S. government is giving us the opportunity to develop a plan that takes into account the knowledge, resources and priorities we have in our country, with the objective of empowering African people to build up leadership and ownership. Also, this initiative is concerned with facilitating and sustaining networking among our African institutions to develop South-South collaborations. The most important aspect is our partnership with University of California, San Diego, which will provide technical assistance as we proceed. So the conditions are ideal. We have no reason to fail. And we cannot fail!



# The global health cost of addiction

**H**undreds of millions of people worldwide are consumers of substances that alter behavior, impair health and create a craving for continued use. Addiction results in the harmful or hazardous use of tobacco and psychoactive substances, including alcohol and illicit drugs. Psychoactive substance use can lead to dependence syndrome—a cluster of behavioral, cognitive and physiological phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use and a higher priority given to drug use than to other activities and obligations.

## FAST FACTS

- Alcohol abuse results in 2.5 million deaths annually.
- Tobacco kills more than five million people annually and is responsible for one in 10 adult deaths.
- At least 15.3 million people have drug use disorders.
- Drug use by injection is reported in 148 countries, of which 120 report HIV infection among this population.

Source: World Health Organization

Recent estimates are that in 2008, 155 to 250 million people, or 3.5 to 5.7 percent of the world's population aged 15 to 64, used psychoactive substances such as cannabis, amphetamines, cocaine, opioids and non-prescribed psychoactive prescription medication. Cannabis is the most commonly used (129-190 million people), followed by amphetamines, cocaine and opioids. Globally, it is estimated that 13.5 million people take opioids, including 9.2 million who use heroin.

**What's the result?** WHO says the use of psychoactive substances “causes significant health and social problems for the people who use them, and also for others in their families and communities.” WHO estimated that 0.7 percent of the global burden of disease in 2004 was due to cocaine and opioid use, with the social cost of illicit substance use nearly two percent of Gross Domestic Product in those countries that have measured it. Tobacco is of course a legal drug, and its consequences are nearly catastrophic for global health. Tobacco use is the leading cause of preventable death and most of these deaths are in low- and middle-income countries. If current trends persist, tobacco will account for eight million deaths annually by 2030, with 80 percent in low- and middle-income countries.

Through its tobacco program and other grants, Fogarty has been supporting addiction research and producing results that may lead to better and more effective interventions.

## Anti-smoking programs target Indian youth



Tobacco use is especially high among low-income communities in India.

India presents a serious challenge in efforts to curb tobacco addiction. Nearly 14 percent of Indian youths, aged 13 to 15, smoke and more than 5,500 try tobacco for the first time every day. Tobacco use

is especially high among low-income communities and many are beginning at age 10 or younger.

Fogarty's tobacco program aims to support research and capacity building. In Delhi, India, Fogarty supports Project ACTIVITY, a group-randomized intervention trial designed

to develop, implement and evaluate a comprehensive, community-based approach to tobacco control for youth living in urban slums. The study is being conducted with 14 low-income communities in Delhi in collaboration between a local health information group and the University of Texas. Seven slums were designated to receive a two-year intervention, with another seven serving as a comparison group.

The two-year intervention targets intra-personal and socio-environmental risk factors to prevent the onset of tobacco use and promote tobacco cessation using training workshops, community-based cessation camps, interactive activities and policy enforcement. Activities include street plays, poster and slogan competitions and a “quit and win” contest. The goal is to engage young people in activities that vividly present the negative health effects of smoking, aided by young leaders in the communities.

# Researching the roots of addiction in Yemen

In Yemen, khat is the national plant and daily habit. Unfortunately, its consequences are extremely negative. Chewing the leaves of the evergreen shrub releases an amphetamine-like stimulant. Though it's considered highly addictive, there is virtually no research on how it affects brain function.

Dr. Mustafa al'Absi, a professor of psychology at the University of Minnesota-Duluth, began studying the neurobehavioral effects of khat use in his native country with support from Fogarty. The drug is undermining national productivity and contributing to the country's water shortage; a daily bag of chew requires an estimated 500 liters of water to produce. A high unemployment rate among youth is part of the shaky economy and political instability is aggravated by terrorist elements.



*Chewing khat seems to affect stress response and the ability to perform cognitive tasks, early results of the study show.*

Against this backdrop, al'Absi hopes his findings help curb the use of the drug and inform public policy decisions by linking chewing khat with cognitive and emotional malfunctions. Khat seems to affect stress response and is linked to an increase in road accident fatalities.

At universities in Sanaa and Taiz, al'Absi has begun studying khat users and hopes to ultimately recruit 150 participants. After filling out questionnaires regarding their health and khat use, subjects are then given some psychological challenges and other tasks that are mentally demanding. "We're trying to see how reactivity to these challenges varies as a function of chronic khat use, or tobacco use and a combination of those and compare that with the controls," said Al'Absi.

On a subsequent visit, subjects perform various cognitive tasks to measure attention, memory and concentration. Based on early results, al'Absi said he has "a hunch that people using stimulants will have difficulties with challenges and coping with acute stressors ... one of the things that interests me is how people regulate their emotions. How people cope with stress or emotionally charged situations may be impacted by stimulants like khat."

As with other addictive substances, there is a supposition that khat use leads to "a high prevalence of certain psychopathology," said al'Absi. Based on snapshot data and some anecdotal experience, "there seems to be a lowering of the threshold for having full blown episodes of depression and psychotic behavior," he explained.

The subject matter is important to the mental state, economic productivity, stability and ultimately the future of the Yemeni people. There are also ramifications for thousands of U.S. immigrants from Africa and the Middle East who have brought the habit with them and now find khat easy to obtain in New York, Los Angeles, Detroit, Dallas and other cities.

Al'Absi said the khat project actually began with a Fogarty International Research Collaboration Award (FIRCA) that sparked the conversation between researchers in Minnesota and Yemen. This behavioral study, he said, helped the evolution of proposals focusing on both social-behavioral studies and infectious disease studies. Al'Absi was able to leverage the FIRCA into a larger grant from the National Institute on Drug Abuse, which demonstrated Fogarty's ability to nurture budding global health researchers. Apart from training a Yemeni cadre in addiction research, al'Absi helped establish the nation's first Institutional Review Board and conducted training in ethical issues. His team forms a network of U.S., European and Yemeni scientists and al'Absi hopes this will foster Yemeni-American scientific cooperation and capacity-building efforts.

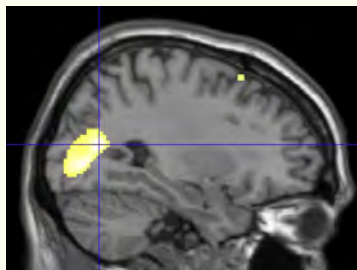
"You know, khat is endemic in countries that are already highly burdened and taxed by many social, economic and other burdens, and it really takes some good insight and leadership to champion some of those marginal, but highly impactful problems," said al'Absi. "So I hope Fogarty and NIDA continue to champion these issues."

## “Tik” takes a toll in South Africa

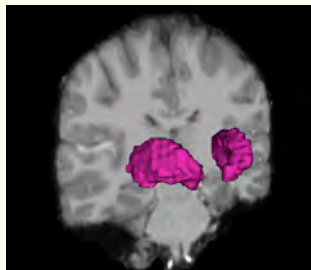
The Republic of South Africa faces large public health challenges, among them the prevalence of HIV/AIDS and tuberculosis. An epidemic of methamphetamine use among youth in the Western Cape Province has focused on brain changes from drug use and spotlighted the connection between substance abuse and risky sexual behavior.

Deborah Yurgelun-Todd, a professor of psychiatry and director of cognitive neuroimaging at The Brain Institute of the University of Utah medical school, is studying the effects of cannabis and methamphetamine abuse on the adolescent brain and how this may contribute to the spread of HIV/AIDS. Fogarty’s “Brain Disorders in the Developing World: Research Across the Lifespan” program has allowed her to expand the research to track brain changes from adolescence to adulthood.

Scans by Deborah Yurgelun-Todd



*Methamphetamine users in Cape Town, South Africa were examined using magnetic resonance imaging.*



*In meth users, an area of the brain called the putamen was enlarged, indicating an increased desire for the drug.*

Estimates suggest as many as 200,000 methamphetamine users in Cape Town, with 70 percent of those under 20 years of age, according to the country’s Medical Research Council. The majority of teenagers seeking drug treatment in Cape Town are mainly using methamphetamines. Yurgelun-Todd and her South African colleagues said they had “an arguably unique opportunity” to examine drug users in the 13 to 17-year-old range.

Meth is known locally as “tik,” an Afrikaans word that mimics the sound made by the crystals in glass receptacles used to heat and inhale the drug’s vapors.

The question Yurgelun-Todd is exploring concerns the impact of methamphetamine on the developing brain. The consequences of heavy methamphetamine use—with or without cannabis—on the adolescent brain function and structure “remain poorly understood.” With more than 1.5 million regular meth users in the U.S., it’s a topic highly relevant to Americans.

Subjects were tested using magnetic resonance imaging

(MRI) and functional MRI, which measures blood flow and metabolic changes. Forty subjects were scanned: 10 were tik and pot users, 10 used cannabis and 20 were controls.

From the structural imaging or MRI data, researchers found that, in the meth-pot users, a part of the brain called the putamen was enlarged. “This area has been related, in other studies as well, to reward circuitry, or the desirability of the drug,” said Yurgelun-Todd. “Changes in this region secondary to drug abuse initiation may be associated with reduced sensitivity to the rewarding properties of drugs and lead to increased drug taking.”

Assessing the data from the functional MRI scans, the tik-and-pot using subjects activated a part of the brain called the posterior cingulate. This suggests that normal controls on impulsivity to act out are lacking and there is a loss of self-control or inhibition.

So are these changes to the brain permanent or long lasting? “That’s an area that we’re continuing to study,” she said. “We’ve done some preliminary work with adult cannabis users after a 28-day washout and it shows there is a residual effect even if you discontinue the drug use. But it also appears there’s a significant impact as far as when you start using.”

Yurgelun-Todd said that she had been doing some research in the United States funded by the National Institute on Drug Abuse (NIDA) and wanted to see whether some of the hypotheses they found would hold true in different populations. When she became aware that NIDA and Fogarty had a collaborative program to study brain disorders internationally, she applied for a grant because she wanted to study adolescents in South Africa.

Her project includes training her South African partners in the use of their first-ever imaging equipment and how to analyze results, critical to building research capacity.

“We think during these maturational years your brain is more vulnerable to these drugs than it would be if you made it through the maturational period without drug use,” she said.

The research may help scientists understand how substance abuse changes the brain in a way that makes further abuse more likely and why early intervention with drug users may be crucially important. Yurgelun-Todd said they’ve completed the collection of data from the study and are submitting manuscripts.



# Brain drain: heroin use in Bulgaria

Bulgarian-born Dr. Jasmin Vassileva lived in Sofia for 25 years under communism before leaving for the West. But her native country posed challenges irresistible to a neuropsychologist: researching a link between the spread of HIV/AIDS and impulsivity triggered by heroin use—in a country where research is scarce and her own field is barely recognized.

Photo by Scott Wallace/World Bank



*Heroin is relatively cheap in Bulgaria, where the unemployment rate is high among young male adults, especially the Roma.*

“We’re hoping to identify the people who are most at risk for getting infected with HIV in particular, which will be very useful for Bulgaria given their very limited resources for funding,” said Vassileva, who teaches at the University of Illinois at Chicago. “Research is almost nonexistent in Bulgaria.”

Vassileva began studying the effects of antisocial and psychopathic tendencies on decision-making and other cognitive functions in heroin addicts. After communism, heroin became a significant public health problem in Bulgaria due to its location on the Balkan drug route between the poppy fields of Afghanistan and western Europe. Studying heroin users in Bulgaria was also ideal in that they are typically not polysubstance users. In Chicago, between 70 and 80 percent of heroin addicts are also addicted to crack cocaine.

“This allows us to investigate the unique effects of a drug on neurocognitive functioning without having the issue of additional drugs,” said Vassileva. She said two of her studies in Bulgaria were funded by Fogarty and the National Institute on Drug Abuse as part of the “Brain Disorders in the Developing World: Research Across the Lifespan” program, which develops collaborative research and capacity building projects on brain disorders throughout life in low- and middle-income countries.

The research in Bulgaria promises to add important

findings to the study of addiction. Results from the current research, Vassileva explained, can be used to determine whether and how heroin and amphetamines contribute to impairment of neurocognitive functions and thus increase the likelihood of getting HIV. “By identifying the people who are most impaired we can identify the ones who should be targeted first by drug prevention programs before they become infected or before they infect others with HIV and other hard to treat diseases,” she said.

In the current study, comparing heroin users to amphetamine users, researchers are looking at neurocognitive impairments associated with the long term pharmacological effects of the two different types of drugs. Would stimulant users be more impulsive than heroin users? The study goal is to test 300 subjects and they are about halfway there after three years, with two years remaining. Preliminary data reveal that amphetamine users have a more impulsive personality style and show greater risk-taking on neurocognitive tests, whereas heroin users tend to engage in more risky drug and sexual behaviors that increase their risk for HIV and other diseases such as hepatitis C.

Interestingly, the greater engagement of heroin addicts in risky behaviors appears to be driven not so much by impulsivity, but rather by diminished self-efficacy in implementing safer sex and drug use behaviors, Vassileva noted. A goal is to develop biological and psychological interventions for substance-dependent individuals.

Last year, Vassileva’s researchers began extracting DNA from participants. They don’t have funding for genotyping, but colleagues at the Medical University at Sofia are storing the DNA. This will allow time to apply for an additional grant to look for a genetic link between impulsive behavior and addiction to particular drugs.

Another goal for Vassileva is to help young people learn about neuropsychology and diseases of the brain, so during her two or three yearly visits to Bulgaria she organizes small workshops for researchers. She’s hoping that some of these budding scientists will choose to stay, rather than seeking opportunities in countries where research is better established.

Vassileva has been invited to give the keynote address at the November meeting of the Bulgarian Psychological Association. “Even psychologists don’t think of addiction as a brain disease,” she said, “so that’s one of the main goals of my speech.”

# New hope for African medical education

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



It was extraordinarily moving to participate recently in the landmark gathering of African leaders in Johannesburg, where we launched a new program aimed at transforming medical education in sub-Saharan Africa. I'm pleased and proud that Fogarty is jointly administering the Medical Education Partnership Initiative program with the Health Resources and Services Administration, with funding

from the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and NIH.

The meeting convened an amazing group of luminaries and illustrated how this new program is not only doing wonderful things for medical education, it's also bringing African leaders in biomedical education together to talk about issues they have in common. They realize they share many of the same problems but have addressed them with different and sometimes novel approaches.

For example, Uganda and Zambia are engaging all their medical education institutions, along with the ministries of health and education, in their effort to expand and improve training capacity and bring together all medical schools. MEPI aims not only to improve the quality but also the breadth of medical education, to fill gaps in key areas such as pathology, emergency medicine and basic science. The University of Stellenbosch is addressing South Africa's massive need to work on HIV/AIDS. They're scaling up training for all levels of personnel so that clinical officers and nurses can initiate and monitor patients on treatment, allowing expansion of programs to underserved rural areas, where so many are suffering.

All the participants in MEPI are in senior positions and have been engaged with trying to improve medical education in their countries, but have been hampered by lack of resources. At Makerere University in Uganda, enrollment hasn't changed in 30 years. They didn't have the capacity to expand. The MEPI program provides the opportunity for medical school deans to do things they have only been able to imagine until now. It will allow them to

reach out to support the five other medical schools in the country. It's terribly exciting and could really transform medical education and ignite innovation.

Some incredible people are engaged in this effort. They are so wise; they have been thinking about how to do this and have been striving within the limits of what they could achieve for decades. Now, MEPI is breathing new life into their efforts, expanding their horizons, removing hurdles and placing resources and responsibilities in the hands of local leaders. Through this partnership, they will be better able to match their educational needs with the needs of their country's health system and the unique health issues of their own population. They'll be able to better calibrate the supply of the health care work force with the demands of the health system. Perhaps most importantly, this program is formalizing their ability to network and learn from each other by sharing curricula, best practices and research discoveries.

**"This visionary program and extraordinary investment in African institutions puts the responsibility where it belongs, with the local leaders who have the creativity and the vision to transform how they train doctors, nurses, scientists and health care workers to better meet the needs of the people they serve. I have great hopes for what can be achieved."**

MEPI is also transformative in terms of broadening the available expertise to better meet the growing tide of chronic illness. So many of the projects we're engaged with are vertical and focus exclusively on malaria, HIV/AIDS or immunization, with training focused quite narrowly on the associated tasks required. This is providing the funding so faculty can broaden the training they offer to generate health care workers with the skills that are needed.

This visionary program and extraordinary investment in African institutions puts the responsibility where it belongs, with the local leaders who have the creativity and the vision to transform how they train doctors, nurses, scientists and health care workers to better meet the needs of the people they serve. I have great hopes for what can be achieved.

## PEOPLE

Global  
HEALTH Briefs**Ranganathan in new role at NIH**

Dr. Rajesh Ranganathan has been appointed Senior Adviser for Translational Research to NIH Director Dr. Francis S. Collins. Ranganathan will lead the planning of NIH-wide priorities that translate discoveries from the bench to the bedside, Collins noted. Ranganathan comes from Novartis Institutes for Biomedical Research Inc., where he was global head of the Scientific Education Office.

**Dexter Collins new Fogarty EO**

Dexter Collins has been named Fogarty's new Executive Officer. Collins was previously Deputy E.O. and Deputy Associate Director for Administration at the National Institute of Child Health and Human Development. Collins has served in a variety of key management positions at NIH since his arrival in 1989. He has a master's in public administration from American University.

**Musgrove dies**

Dr. Philip A. Musgrove, who worked at Fogarty from 2002 to 2005 as an editor on the Disease Control Priorities Project, died March 21 in a boating accident at Iguazu Falls in Argentina. He was 70 years old. An expert in global health, Musgrove was deputy editor of the journal *Health Affairs*.

**Yamada departs Gates Foundation**

Dr. Tachi Yamada, president of the Global Health Program of the Bill & Melinda Gates Foundation, is leaving in June. Yamada oversaw a tripling of the global health grant portfolio and has transformed the way the program tackles the diseases and health conditions of the poor, the foundation said in a statement.

**Illinois Senator Dick Durbin honored**

Sen. Richard J. Durbin (D.- Ill.) is the recipient of Research!America's 2011 Edwin C. Whitehead Award for Medical Research Advocacy. The three-term senator and veteran House member was honored for his longstanding commitment to global and public health research. He fought for funding and legislation to address HIV/AIDS in the U.S. and globally.

**Honor for Weeks**

Biology professor Dr. Janis Weeks, a long-time reviewer for the Fogarty International Research Collaboration Award (FIRCA) program, has been awarded the Martin Luther King Jr. prize by the University of Oregon. Weeks has promoted neuroscience research and solutions to global health problems and was recognized for exemplifying the ideals of the late Dr. King in her teaching.

**Planning for chronic disease session**

Elevating chronic diseases onto the global stage requires planning for September's U.N. High-Level Meeting on Noncommunicable Diseases. A new report by the Center for Strategic & International Studies offers four proposals for ensuring success in lifting the world profile of NCDs.

Full report: <http://bit.ly/h9ZXqZ>

**Gap in mental health workers**

All low-income countries and 59 percent of middle-income countries surveyed by the World Health Organization were found to have far fewer professionals than they need to deliver core mental health care. The study used data from 58 countries and a hypothetical core service package to estimate how many psychiatrists, nurses and psychosocial care providers are needed.

Full report: <http://bit.ly/hpu6BH>

**Saving lives at birth**

USAID launched a new partnership to reduce maternal and newborn deaths. The coalition, including the Government of Norway, the Bill & Melinda Gates Foundation, Grand Challenges Canada and the World Bank, plans to invest at least \$50 million over five years to find groundbreaking methods of saving the lives of pregnant women and newborn babies globally.

Full report: <http://bit.ly/fN6EWX>

**Investing in young improves health**

Investing in young people now can help improve health and alleviate poverty, according to UNICEF's annual State of the World's Children report. Financial support for education and to alleviate health risks for the world's 1.2 billion adolescents—88 percent of whom live in the developing world—can save lives.

Full report: <http://bit.ly/eUFIQM>

**Totaling Trachoma's Tide**

An online global atlas is now available showing the distribution and prevalence of trachoma, the world's leading cause of infectious blindness. The open-access Trachoma Atlas shows 49 country maps with population-based data on trachoma.

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



## Funding Opportunities

Program	Contact	Receipt Date	Eligibility
International Research Ethics Education and Curriculum Development (BIOETHICS) (R25) PAR-10-174	Barbara Sina, Ph.D. Barbara.Sina@nih.gov	March 10, 2011	The applicant should have documented experience in international research ethics and be capable of providing both administrative and training leadership to the proposed research education program. More than one PD/PI may be designated.
Chronic, Non-Communicable Diseases and Disorders Across the Lifespan: Fogarty International Research Training Award (NCD-LIFESPAN) Full awards (D43) Planning grants (D71) PAR-10-257	Kathleen Michels, Ph.D. Kathleen.Michels@nih.gov	Sept. 21, 2011	Applications from U.S. institutions must demonstrate collaborations with institutions in low- and middle-income countries. Foreign applications will only be accepted from LMIC institutions.
Global Infectious Disease Research Training Program (GID) Full awards (D43) Planning grants (D71) PAR-10-260 PAR-10-262	Barbara Sina, Ph.D. Barbara.Sina@nih.gov	Sept. 21, 2011	D43-U.S. institutions with a demonstrated collaboration with a researcher in low- and middle-income country and foreign institutions in LMICs may apply. Applicant institution must have active, ongoing research (18 months of funding remaining at the time of applicant submission). D71-Appllicants may only be submitted by foreign institutions in LMICs and foreign applicants should apply in collaboration with U.S. institutions.

For more information, visit [www.fic.nih.gov/funding](http://www.fic.nih.gov/funding)

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### New website to assist unfunded NIH applicants

A new website is now available to assist unfunded NIH applicants in finding other funding opportunities. Called "HealthResearch-Funding.org," the database will allow applicants to enter some basic information about their unfunded NIH grant applications in order to make that information available to other potential funding organizations.

The new site was announced by the National Health Council (NHC). Members of the NHC will initially have access to the database to be able to assess funding possibilities. The members include more than 40 patient advocacy organizations—from the Alzheimer's Association to the Spina Bifida Association—representing a diverse group of potential funders who wish to take advantage of the rigor of the NIH peer review process to identify promising proposals. Ultimately, the NHC plans to expand access to their database to include other types of funders.

Grant applicants will visit the website, register and create a password and enter basic project information, such as an abstract and score from the NIH peer review process.

**Website:** <http://healthresearchfunding.org/>

**Member roster:** <http://bit.ly/FcsYf>

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