Letter from the Editors
Evan Noch, Temple University School of Medicine
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This Summer 2011 issue of Phi Psi is dedicated to the role of physician-scientists in the field of international research. Participating in this growing area of work is an excellent way to conduct research that can shed light on important diseases not often researched here in the U.S. as well as social issues that remain unaddressed.

We begin this issue of Phi Psi with our Letter from the President, Ivayla Geneva, who details the many projects that are under way in APSA, such as the launch of the F30 survey, the three upcoming fall regional meetings held across the country, and the push to obtain 1,000 APSA members by the end of the year.

Qurat-ul-ain Jelani contributes an article discussing the plight of neglected populations in several countries which do not receive appropriate attention for their medical needs, and Mohamed Ahmed explores Paul Farmer’s work and background as viewed through the perspective of Tracy Kidder in the book, Mountains Beyond Mountains: The Quest of Dr. Paul Farmer, A man who would cure the world.

For our Physician-Scientist Spotlight, Matthew Rysavy interviews an MD/PhD candidate in epidemiology, Naman Shah, who discusses his research and inspiration to be involved in international work. In addition, in No More Boring Data, Thomas Hirschauer describes ways to improve awareness of international research data through various software and visualization strategies.

We also provide a variety of resources to students interested in international research—such as a website designed for students interested in epidemiology, information about the Fogarty International Center, as well many others—that may prove to be useful in the search for international research opportunities and funding.

We continue to look forward to an exciting year for APSA and have many more interesting topics to discuss in our upcoming newsletters. We are always looking for new ideas and stories to discuss in our newsletters and will continue to seek input from the APSA leadership as well as its members to enhance the quality of our publication. Please feel free to contact Evan Noch at evan.noch@physicianscientists.org if you have any suggestions for the newsletter or any ways that we can help you.

From the President
Ivayla Geneva, State University of New York-Upstate

Dear Friends and Colleagues,

I hope the summer has been treating you well!

I would like you to know that your Executive Council and Standing Committees have been working hard this summer to ensure that APSA continues to recognize and meet your academic and career development needs. Collecting data to support policy initiatives aimed at improving your training experience, organizing APSA Regional Meetings for this fall, recruiting mentors from various specialties to soon become available to you, creating new resources and updating existing ones on the APSA website—these are but a few of the many exciting projects in which the APSA leadership is currently engaged. Below, you will find highlights of some of our activities together with a number of opportunities for you to help APSA serve the physician-scientist community in

(See President on Page 7)
In June 2011, the United States Centers for Disease Control and Prevention (CDC) published a list of the top ten global public health achievements, from 2001-2010. Included among these were reductions in child mortality, major advances against vaccine-preventable diseases, and a decline in the number of people affected by the big three (malaria, HIV/AIDS, and tuberculosis). Also included in this list was a group of diseases that by many is considered “diseases of the bottom-billion.” The world’s bottom-billion are people who earn less than $1.25 per day. Seventy percent of the bottom-billion live in Africa. Around one in seven children in the bottom-billion dies before the age of five. Their average life expectancy is just 50 years. In a widely-acclaimed 2007 best-seller, The Bottom-Billion, Paul Collier analyzes the causes of failure of fifty failed states (the bottom-billion countries, home to the poorest people on earth) around the world and identifies a set of traps from which these poor countries fail to emerge. These traps include the “conflict trap,” “the natural resources trap,” “being land-locked with bad neighbors,” and “the trap of bad governance in a small country.”

As a further “wages of poverty,” the bottom-billion are also more likely to suffer from a group of diseases, the so-called neglected tropical diseases (NTDs) – a group that accounts for about half a million deaths per year and debilitates over a billion people. In 2001, HIV/AIDS, malaria, and TB, also known as the “big three,” claimed five million lives, most of them in the developing world. While NTDs might not cause a high death toll, they can cause a major loss of productivity. According to one estimate, the global disease burden of thirteen NTDs is approximately the same as HIV/AIDS. A core of thirteen NTDs results in approximately fifty-seven million disability-adjusted life-years lost, greater than those for malaria and tuberculosis. About 600-800 million children have soil-transmitted helminth infections. In the United Nations Millennium Development Goal Number 6 (MDG6), the NTDs are referred to as “other disease” mentioned after the “big three.” These NTDs only serve to perpetuate the state of poverty of the bottom-billion by causing lifelong disability and disfigurement, reducing childhood survival and agricultural productivity. Workers with lymphedema and blindness ultimately cannot work. Land is often abandoned. Children have cognitive and memory impairments. Low birth weights and increased maternal and infant mortality is caused by maternal infestation. In a recent editorial, Petr J Hotez, co-founder of the Global Network for Neglected Tropical Disease Control, noted that even in the United States, some NTDs are now endemic in impoverished populations – the incidence of toxocariasis in African Americans in the US is 21% when compared to 30% in Nigeria.

Given the staggering figures and debilitating effects of NTDs, the question often arises about whether the world is doing enough to help prevent, control, eliminate, or eradicate these diseases. Would the United Nations be able to realize its Millennium Development Goals when the world’s poorest are seemingly

(See Neglected on Page 6)

Book Review: Mountains beyond Mountains—The Quest of Dr. Paul Farmer, A man who would cure the world
by Tracy Kidder
Mohamed Ahmed, Syracuse University

In Creole, Deye mon gen mon (beyond mountains, there are mountains) is a metaphor of life. A Haitian proverb, to describe an obstacle is followed by another obstacle. Mountains Beyond Mountains, by Tracy Kidder, available here from Random House, Inc. is the type of book that might leave the reader questioning the horrendous injustice in the world, and maybe shivering and furiously yelling nonsense for the same reason. While it is true that such inexcusable conditions in Haiti, Peru, and prisons in Russia will turn you away, Kidder did not. Kidder did not shy away from it; rather, he immersed himself thoroughly into Dr. Farmer’s life. He depicts Dr. Farmer, who holds a PhD in anthropology and is a true physician-scholar, together with his companions at Partners In Health in a way that seems to rival even the biographies of Mother Teresa and other renowned heroes in history.

Kidder’s description of Farmer’s early years in academia, his brilliance, and career at Harvard Medical School showed that Farmer was destined to make a difference. During his childhood, Farmer encountered his first Haitian migrant, but due to circumstances, Farmer’s family moved to Florida. The experience in Florida proved to have prepared him for later challenges

(See Book Review on Page 5)
Tell us about yourself.

I’m a student in the MD/PhD program at the University of North Carolina. After four years of course work, I’m finally working on my dissertation in epidemiology.

Tell us about your research.

Much of the traditional emphasis in translational research has been towards producing new tools. Yet, for many diseases now, we have effective interventions but aren’t able to get them to those who need them. It is the operational research needed to bridge this know/do gap which I’m focused on. My current work seeks to improve the control of malaria in India. I work with the government on evaluating, from both epidemiological and economic perspectives, the case detection strategies used in the surveillance system to help make the most of what is available.

At present, active case detection, which involves house-to-house visits by a health worker, is used to collect 60% of the nearly 100 million blood screenings done for malaria in the public sector. This strategy, as opposed to passive case detection at health facilities, was well suited when health facilities were sparse, or detecting all foci of transmission was paramount. With present program goals, however, active case detection is not well suited for rapid diagnosis and effective treatment with follow-up and its role in surveillance needs to be re-evaluated. The MD/PhD training has prepared me for this sort of scenario—medical doctors are well poised to lead public health efforts with a broad health base and understanding of health service delivery, and the epidemiological training allows me to design studies and analyze data to reach generalizable findings that can set policy.

What inspired you to become involved in your research?

I think growing up around stark contrasts, whether in the United States or abroad, can make one sensitive towards questions of justice and how our world today should be. I combined that disposition with a joy for science to find medicine, and a terrific mentor broadened that interest to public health. The population perspective attracted me—you can apply insights from individuals towards broader theories and vice-versa by incorporating the experience of communities towards understanding a patient. The payoff is rather quick and it’s a natural fit for the physician-scientist.

What do you expect to do in the future with the skills that you have acquired during training?

It’s tough. I enjoy teaching, research, and

(See Spotlight on Page 7)
The effective communication of scientific information is one of the central principles of the scientific method. Accordingly, it is the obligation of investigators to disseminate the results of their research. But what is the duty of the physician-scientist in promoting the implementation of medical discoveries in the community? There are two phases of translational research that are essential to using scientific discoveries to improve clinical practice.

For physician-scientists, the first phase (T1), “the transfer of new understandings of disease mechanisms into the development of new methods for diagnosis, therapy, and prevention,” is usually the most important. This bench-to-bedside transition, usually in the form of a clinical trial, often signifies the last contributions of the biomedical researcher before passing the baton to the physician or public health scientist. However, the second phase of translational research (T2), “the translation of results from clinical studies into everyday clinical practice and health decision making,” is equally important to affecting health outcomes in the community. In the United States, obstacles to this transition are that physicians and organizations are often slow to adapt new methods and that infrastructure must be altered and resources must be reassigned to reflect the changing need.

So what does this mean in the setting of global health? This T2 phase of translational medicine can be extended to include improving both the access to and the quality of healthcare in developing countries. The problems that people from these countries face in gaining access to medicine seem to parallel the obstacles found in developed countries. But in the developing world, the challenges are not with adapting infrastructure, but with building it; not with allocating resources, but with acquiring them; and not with organizational inertia, but with an overall lack of adequate organization.

The surest way to gain public support for addressing these issues is by making the state of healthcare in developing countries better known. Meticulous data has been collected by various organizations, such as the United States Agency for International Development (USAID) Demographic and Health Surveys. So the information exists; it has just not been effectively disseminated. Of course, for those who go looking for it, global health data can still be found buried deep in government spreadsheets, United Nations databases, and scientific literature tables. But to gain support for global health interventions, awareness of global health issues must be raised both in the medical community and among the general public.

For this reason, Hans Rosling, MD, PhD, has made it his mission to liberate these data. Through a combination of animation, increased accessibility, and search functions, the Gapminder Foundation’s free Trendalyzer software is achieving its goal of “linking data to design.” Through an intuitive display of five-variable data, this plotting software brings to life global health, economic, and societal data, mined from the World Health Organization, World Bank, International Labour Organization, USAID, and various other databases. Dr. Rosling’s frequent and visually stunning contributions at the TED Conferences, a nonprofit organization devoted to the mission of “ideas worth sharing,” have helped focus attention on the plight of healthcare in the developing world. During these talks, which are available

![An example of the visual display of epidemiological data by Gapminder World.](data:image/png;base64,iVBORw0KGgoAAAANSUhEUgAAA...)

Hans Rosling at the Swedish Pavilion at the Shanghai Expo 2010.
in life, especially in Cange. Kidder’s story-telling capability allows us to shadow Dr. Farmer as he works in Haiti, Peru and Russia, yet it also shows the evolving relationship between Farmer and Kidder without losing sight of the larger global context.

In Cange, Farmer’s identity crisis was sorted out, his goals in life were clear. Farmer’s philosophy toward life showed a great change. Kidder showed that Farmer sought to understand the belief system of Haiti, such as Voudn’s Faith. Farmer believes that understanding Haitians is the key to curing them. Farmer’s ideology toward religion is summarized as he says, “the fact that any sort of religious faith was so disdained at Harvard and so important to the poor – not just in Haiti but elsewhere, too – made me even more convinced that faith must be something good.”

Farmer went on to found Partners in Health (PIH). A memorable quote from the book, one of the PIH members said, “Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it’s the only thing that ever does.” PIH’s purpose is to bring healthcare to the poorest people. In accordance, their mission is to “provide a preferential option for the poor in healthcare.” The author focuses especially on Dr. Farmer, his story, ideology, and the foundations of PIH. Farmer showed a personality like no other, helping him to overcome hardship and different perspectives on life choices. Farmer also showed an extraordinary ability to challenge some healthcare models. However, Kidder warned against drawing a comparison with Farmer. Dr. Jim Kim, an MD/PhD anthropologist, co-founder of PIH, and president of Dartmouth College, asserted that Paul Farmer is an inspiration, not a model. In other words, it is impossible to hold yourself to the same personal standards as Farmer; rather, find a level of commitment that fits you. Running out of fuel doesn’t help anyone.

In reality, Paul Farmer’s brilliance and reputation could allow him, if he chose, to be one of the highest-paid consultants. However, he chose to dedicate his life, his intelligence, to help the poor, calling himself “the poor people doctor.” At the beginning, we might think that his drive to help others is just a need to satisfy his internal conflict, yet it is an unfair judgment. We are left questioning how to be like Dr. Farmer, leaving the reader with nothing, but only the works of Paul Farmer.

The book’s purpose is to serve as a reminder of what medicine aspires to be. The reader might have been warned of considering Paul Farmer as a model, but this story is proof that nothing is impossible in front of a committed individual.

In a world where war and greed leave us hopeless, Dr. Farmer and his colleagues are a signal of the power within all of us. Though a large percentage of MD/PhD students involved in the social sciences and humanities are interested in global health, whether spending time performing research or teaching or working with international humanitarian organizations, Farmer’s story is proof that hard work and dedication can often pay off in ways that are greater than one can imagine. This book is a must-read for those who want to regain hope of what medicine can be. To echo a topic about social progress, George Shaw said, “The reasonable man adapts himself to the world. The unreasonable man persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man.”

Dr. Paul Farmer is the unreasonable man, who will cure the world.
Neglected (cont. from page 2)

trapped forever in an infested state? Experts in NTDs often argue that the world cannot fight poverty successfully by ignoring NTDs, that to treat or eradicate NTDs is to help people lead a more meaningful, prosperous, and productive life.

One of the reasons often blamed for the stilted progress in treating and preventing the NTDs is the lack of research funding. Existing treatments might be ineffective, expensive, unavailable, or inconvenient (e.g., the only way to treat dracunculiasis, a parasitic infection, is to tie it around a tape once it starts emerging, a painful process that can take months and which can leave sores in its wake that are prone to develop tetanus). Similarly, new drugs are hard to come by – the fact seemingly overlooked by many is that treatments/drugs for NTDs have one of the highest benefit-to-cost ratios. In Asia, for example, the cost of deworming has been shown to be between $0.03-0.12 per person per year. Inssofar as eradication is concerned, this cost-effectiveness is demonstrated yet again – $4 billion for polio eradication compared to $175 million spent on dracunculiasis eradication. Presently, both of these diseases remain endemic in only four countries around the world. According to the Carter Foundation (a not-for-profit organization that leads the Guinea worm global eradication program in conjunction with other organizations) predicts that dracunculiasis would be the first parasitic infection to be eradicated and the first disease to be eradicated without the use of a vaccine or medical treatment. In a hard-hitting and thought-provoking article in 2008, David H Molyneux also criticizes the current research as being misdirected and unbeneficial. He argues that it should focus on existing options and make the best use of them. While the debate on the lack of funding and other resources for the fight against NTDs continues, the world continues to witness some positive progress too.

Eradication, considered by many to be the holy grail of disease prevention, has been achieved only twice in human history; in 1980, the deadly smallpox and only recently in 2011, rinderpest, the bovine-equivalent of measles, were declared eradicated. Among NTDs, three diseases are marked for eradication or elimination – dracunculiasis, onchocerciasis (river-blindness), and lymphatic filariasis. The UN and World Bank are increasingly supportive of research programs to help devise new community-based interventions and effective drug development. It is being increasingly recognized that to control the “big-3,” the “other diseases” would have to be tackled equally aggressively.

In agreement with Paul Collier, “an impoverished ghetto of one billion people will be increasingly impossible for a comfortable world to tolerate.” A comfortable world would be a responsible world, a humane world, and a world that is genuine. Considering the misery that the world around us is steeped in, that responsible world certainly cannot be comfortable until all of the problems of the ghetto are addressed!

Data (cont. from page 4)

online at TED.com, the information is presented unforgettably with Dr. Rosling’s sportscaster-like commentary. It is safe to say that the bar has been raised for dissemination of global health data in the medical and public health communities. While some critics have lamented a lack of statistical rigor in Trendalyzer’s presentation of data, it is still hard to ignore how powerful clearly presented data can be.

Another data visualization pioneer, Dr. Edward Tufte, author of Beautiful Evidence, advocates the need to present data in a way that clearly reveals general patterns while preserving individual data points. Similar work is being done by David McCandless, another TED speaker, who also promotes the use of graphic design to improve data visualization. The lack of accessible data in global health has also been addressed by the University of Washington’s Institute for Health Metrics and Evaluation, which has created the Global Health Data Exchange to provide a resource for sharing global health data. In the context of the United Nations Millennium Development Goals, sufficient health and economic data are required to monitor progress and to determine which intervention methods are most effective. Improved data accessibility and presentation are especially important in the field of global health, since public awareness directly relates to the availability of funding to address these issues. As physician-scientists, part of our role is to bridge the gap between the research laboratory and the clinician’s office, and this includes educating our colleagues and the public about the most recent advances in medical knowledge, both here and abroad. Now, we have more interesting and interactive options than ever.
President (cont. from page 1)

ever-improving ways.

Just a few weeks ago, we launched our F30 survey, which is part of APSA’s effort to expand the NIH NRSA F30 funding mechanism for physician-scientist trainees. We are surveying current MD/PhD and DO/PhD program trainees as well as graduates to determine the NIH institutes under which their research falls. By identifying significant gaps in funding opportunities, APSA will be able to serve its membership by advocating for the expansion of the number of NIH institutes that offer F30 pre-doctoral fellowships. You can access the survey here, and don’t forget that APSA is offering survey incentives to participants.

Further, as you may already be aware, there will be three APSA Regional Meetings this fall – in the Southeast, in the South, and in the Northeast. These are one-day long events that focus on career development, networking, and cutting-edge scientific research. They are geared towards MD(DO)/PhD students, MD and DO students involved in research, and undergraduate students interested in learning more about physician-scientist career paths. The APSA Regional Meetings will be FREE for APSA members. You can view more details here. I hope to meet with many of you at these grand events in the fall.

I am also very excited to share with you that thanks to your help and support, APSA now has no less than 900 members – the largest number since the introduction of membership dues a few years ago! Please help us reach our goal of 1,000 members this year by renewing your membership upon expiration and by convincing your MD(DO)/PhD programs to purchase one of APSA’s highly discounted Institutional Memberships. More information on Institutional Memberships is available here.

Other ways for you to support APSA and its mission is by helping us make good use of our advertisement options – we now accept advertisements from a variety of physician-scientist-relevant entities, including but not limited to MD(DO)/PhD programs, research-friendly residency programs, scientific journals, job providers, and others. For more information, please follow the link here. Further, to help ensure your organization’s sustainability and to see us grow, please consider donating to fund APSA’s mission and our various ambitious projects.

In conclusion, I would like to remind you that your Executive Council and myself in particular would love to hear your comments and suggestions and to answer any questions you may have. Therefore, don’t ever hesitate to contact me over email at ivay-lia.geneva@physicianscientists.org, schedule a phone call, or suggest an in-person meeting. I encourage you to friend me on Facebook and join my LinkedIn network, both of which offer excellent platforms for interaction and sharing of information.

Thank you for being part of our great association!

Spotlight (cont. from page 3)

practice, both clinical and program management. I can’t imagine how to integrate them all in one career, but my training will prepare me for any option. I imagine I’ll be working for the government in some level of the public health system and I’d like to keep ties with local universities, which many staff are able to do.

What advice do you have for medical students interested in using their science knowledge and skills to address global health issues?

Just get out there—whether it’s a local health department, community-based research project, or policy work—working in the thick of things is the best way to learn and open doors. Take time to go away from the university setting (it can be near or far) and experience public health implementation. And never forget, your peers are your best resource—be sure to reach out.

Do you have any significant achievements or contributions to the medical or scientific community that you would like to share with APSA?

We would like to publicize our members’ many successes, and we will feature them in a special section in each newsletter.

Please send any submissions, complete with your name, institution, contribution/achievement/significant publication, and a brief description to Qurat-ul-ain Jelani at qurat-ul-ain.jelani@physicianscientists.org. All members regardless of training status can submit entries.
International Research Resources
Compiled by Matthew Rysavy, University of Iowa; Dylan Nielson, The Ohio State University College of Medicine; and Evan Noch, Temple University School of Medicine

MD/PHD Students Develop New Ways to Connect

It is important that MD/PhD students collaborate and learn from each other. This is one of the major benefits of conferences such as those put on by APSA. The internet has also provided innumerable ways to do this.

Recently, a website was created for MD/PhD students in epidemiology to connect with each other and with potential applicants to epidemiology MD/PhD programs. The website was created by students at the University of Iowa and the University of North Carolina. For current students, it allows for the sharing of contact information and research interests. And for applicants, it provides basic information on schools’ programs by listing schools’ graduates and their work.

The website can be found at http://epimstp.wikispaces.com

We hope to find and support continued efforts by MD/PhD students to connect with fellow students interested in epidemiology work.

The Fogarty International Center

Fogarty International health initiatives at the NIH are coordinated through the Fogarty International Center, which, according to their mission statement, seeks to “support and facilitate global health research conducted by U.S. and international investigators, build partnerships between health research institutions in the U.S. and abroad, and train the next generation of scientists to address global health needs.” The Fogarty Center was established in 1968, commemorating the commitment of Representative John E. Fogarty to the NIH and fulfilling his desire for “the creation of an international health research institute to promote the study of global health problems.” Representative Fogarty served as the Chair of the Appropriations Subcommittee with responsibility for health funding for twenty years from 1949 until his sudden death from a heart attack in 1967. Under his oversight, the NIH budget grew from $37 million dollars to $1.24 billion dollars.

The Fogarty Center funds many international health efforts, with significant impact around the world. Efforts of Fogarty-supported researchers in China and the US on smoking cessation have led to a ban on smoking in public places in China (where, according to the WHO, 3,000 people die every day of smoking-related illnesses) and changes in the national policy on tobacco sales. Work in Jordan supported through the International Cooperative Biodiversity Group at the Fogarty Center have validated a local folk remedy, determining that the red soil found in ancient fields there has antibiotic properties, possibly mediated by bacteria contained in the soil. There are many more programs than we have space to describe here, some dealing with tracking and treating disease, others with health problems caused by the toxins released from indoor cook stoves used in developing countries, and still others addressing mental health and suicide.

The Fogarty Center also acts as an information store for funding opportunities. There are grants available from the Fogarty Center across almost all areas of interest and levels of training for international health work; if you are interested, check out the listing at www.fic.nih.gov/Funding/Pages/Fogarty-Funding-Opp.aspx. The Fogarty Center also keeps a listing of funding available for international health through other organizations, which can be found at www.fic.nih.gov/Funding/NonNIH_Pages/default.aspx. The Fogarty Center can also act as a jumping off point for investigating the international health initiatives of the individual institutes and centers at the NIH, www.fic.nih.gov/Global/Global-Health-NIH/Pages/default.aspx. With all of the resources available, those considering international health research should definitely explore the Fogarty Center.

Other Resources

Internationalscholarships.com
Details scholarship offerings in a broad array of topics in North America and abroad.

HHMI Grants for Individuals
http://www.hhmi.org/grants/individuals
Supports biomedical research students working outside the United States

International Research Fellowship Program (IRFP) of the National Science Foundation
http://nsf.gov/funding/pgm_summ.jsp?pi ns_id=5179&org=OISE
Aims to introduce scientists and engineers in the early stages of their careers to international collaborative research opportunities, thereby furthering their research capacity and global perspective and forging long-term relationships with scientists, technologists, and engineers abroad.

Fulbright Scholar Program
http://www.cies.org
The flagship international educational exchange program sponsored by the US government and is designed to “increase mutual understanding between the people of the United States and the people of other countries.”

Institute of International Education
http://www.iie.org/
Implements many prestigious and innovative scholarship programs in a fair, open, and transparent manner and provides access to leading institutions of higher education around the world.
Upcoming APSA Regional Meetings

Southeast Regional Meeting
Saturday, September 17th, 2011
Emory University
Atlanta, GA

South Regional Meeting
Saturday, November 5, 2011
University of Texas Medical Branch
Galveston, TX

Northeast Regional Meeting
Saturday, November 19th, 2011
Temple University School of Medicine
Philadelphia, PA

Couldn’t make it to this year’s National APSA Meeting?

Save the date for 2012!

8th Annual APSA Meeting
April 27-29, 2012
Chicago, Illinois