Letter from the Editors

Evan Noch, Temple University School of Medicine
Qurat-ul-ain Jelani, New York University School of Medicine
Dylan Nielson, The Ohio State University College of Medicine

In our Winter 2011 issue of Phi Psi, we explore the theme of collaboration as it applies to physician-scientists of all varieties and the ways in which we can all work together to achieve common goals, such as truly translating our tireless toiling in the laboratory into innovative treatments for life’s most perplexing diseases. As the worlds of academia and industry become evermore complicated and as governmental funding shrinks while clinical trials approach exorbitant costs, it has never been more important to forge new bonds, to share common wisdom, and to remember our patients who merely seek new hope for old ailments which often remain disappointingly untreatable. Whether it is here or abroad, working together in new and unique ways will allow us to be most productive and to truly innovate and advance our profession for the future.

We begin with our Letter from the President, Ivayla Geneva, who discusses APSA’s upcoming 8th Annual Meeting in conjunction with the American Society for Clinical Investigation (ASCI) and the Association of American Physicians (AAP) held in Chicago, IL from April 27-29. She also details the many benefits of becoming an APSA Institutional Member and the various new benefits that APSA will afford to its local chapters.

Letter from the President

Ivayla Geneva, State University of New York-Upstate

Dear Friends and Colleagues,

I hope your winter so far has been both productive and fun. Here at APSA, your Executive Council and Standing Committee members have been working hard to ensure that our organization moves forward ever stronger. And of course, everything we do at APSA starts and ends with our membership’s needs as our highest priority. Please read below about some of the most significant accomplishments over the last quarter and about upcoming opportunities for you at APSA.

Let me start with the upcoming 8th APSA Annual Meeting from April 27-29 in Chicago, IL - the grandest among our events. This year the joint meeting of APSA, ASCI (American Society for Clinical Investigation), and AAP (Association of American Physicians) will host more than 20 invited speakers, career development panels and workshops, mentorship

(See President on Page 9)

Evan Noch, Temple University School of Medicine

Collaboration between academia and industry is often a vague concept that few are able to approach in a straightforward and meaningful manner. Often, academicians are wary of working with biotech companies for the fear of compromising their scientific integrity, essentially “selling out.” On the other hand, biotech companies are cautious of entering complex agreements with universities regarding the rights to their pharmaceuticals and the publicity that comes to big-name compounds. However, such collaboration is critical to the goals of translational research, to truly translate benchwork to the bedside, and to be able to tell our patients that we are bringing treatments to their persistently perplexing diseases.

Therefore, why is now an optimal time to enter the field of translational research and to forge collaborative partnerships with industry? According to Dr. Dennis Ausiello, the Jackson Professor of Clinical Medicine at Harvard Medical School, Chief of Medicine at Massachusetts General Hospital, and Chief Scientific Officer of Partners Healthcare, “For the first time ever, this generation of physician-scientists has the human organism as the major experimental model. That is not simply because of the genetic revolution but because of the capacity for minimally invasive and minimally intrusive understanding of the human phenotype.” Thus, there is a great deal of potential in the field of drug discovery and much work that needs to be completed in order to transform drug targets into treatments.

Despite that, we are still confounded by common diseases, whether they are diabetes or heart disease, and there are struggles both from the academy’s point of view as well as from the pharmaceutical point of view.

The overlap between these two often disparate entities is plain to see, though. “The sweet spot between academy and industry is in target validation and target validation in the human organism,” says Dr. Ausiello. “There are no secret targets out there.” We all understand what the “enabling ideas” are because they are available in an open forum. The problem here is the time to bring these ideas to fruition. “The capacity to validate targets has to be both earlier and often in the discovery pathway for us to significantly diminish the risk of entering the billion dollar clinical trial as the FDA is now demanding in many of these cases to validate and ultimately to license this drug,” maintains Dr. Ausiello. “And in that context, the sweet spot is first the disease. The physician-scientist in the academy has the best understanding of the pathways involved. You don’t have to know everything to lead to the outcome, but you have to fundamentally understand what are the differences that will allow us to better selectively target. An enthusiastic partner in the academy who is world-class in both their understanding of the disease model and just as...”

Judicial Review of the Affordable Care Act

Carolyn E. Brokowski, Yale School of Medicine

The Supreme Court of the United States (SCOTUS) has allocated nearly six hours, scheduled on March 26, 27, and 28, to hear oral arguments regarding the constitutionality of the Affordable Care Act (ACA). Typically, SCOTUS grants petitioners and respondents a single hour (thirty minutes each) to present. Thus, it is clear that the Court appreciates the difficulty of understanding, and deciding about, the lawfulness of this legislation. Yet, such a decision is expected by the end of June 2012.

Achieving comprehensive national healthcare reform has been notoriously arduous in the United States. Eight presidents, including Franklin Roosevelt, Harry Truman, John Kennedy, Lyndon Johnson, Richard Nixon, Jimmy Carter, Bill Clinton, and Barack Obama, have attempted expansive, systematic healthcare changes and policymaking. Yet only Johnson, with the successful establishment of Medicare and Medicaid in 1965, and Obama, with the passage of the ACA in 2010, have made potent forays in this arena. On December 24, 2009, and March 21, 2010, the U.S. Senate and House of Representatives, respectively, approved the Patient Protection and Affordable Care Act (PPACA)—remarkable, controversial...

Qurat-ul-ain Jelani, New York University School of Medicine

There are times when a jolt is enough to move you out of your slumber or to give voice to agitated silence or to galvanize a whole movement. Daniel Ochieng was the jolt that served not only as the premise for the book under review but changed, rather negated, the global health community’s perspectives and consequently their plans on tackling the African AIDS pandemic. The plight of Daniel, a medical student in Kenya, hopelessly suffering from AIDS, lead to a protracted but an ultimately fruitful struggle that ensured HIV/AIDS treatment for the hundreds of thousands of patients in Kenya. This is a book that also highlights the importance of collaboration for the successful initiation and completion of global health initiatives. Two schools, located in two different continents, come together in a difficult yet determined partnership to administer antiretroviral treatment in Kenya. The partnership between the Indiana University School of Medicine and the Moi University School of Medicine in Kenya resulted in one of the most effective programs to combat and control HIV/AIDS in Africa - this program, known as the Academic Model for Prevention and Treatment of HIV/AIDS, or AMPATH, was subsequently nominated for a Nobel Peace Prize.

What strikes the reader during the course of reading this book, as has been noticed and appreciated by the physicians central to this program, was that it was not a one-man show; there were government funds that began to trickle in over a period of years, but more importantly, it was the smaller private organizations that helped this program to take off so that from treating only one patient, Daniel Ochieng, in 2001, AMPATH was treating 70,000 patients by the end of 2008. Today, as readers would read on its website, AMPATH treats not only 140,000 HIV/AIDS patients throughout Western Africa, it also feeds them in partnership with the UN Food program, provides schooling assistance to children affected directly or indirectly by this disease. Daniel Ochieng, now a physician, gave back by joining the same program as the leader of a community outreach initiative.

The history of HIV/AIDS could be tracked as far back as the early 1920s, when it was transmitted from chimpanzees to humans during the process of slaughtering, although in the US, the first known cases of HIV/AIDS date back to the early 1980s, when a cluster of cases of Kaposi’s Sarcoma and Pneumocystis Carinii were reported in New York and Los Angeles. In the 1980s, the disease started to affect wide swaths of the African continent. In the late 2000s in which this account is set, there were about 23 million AIDS patients in Africa - 2.4 million died from the disease that year and 4 million were newly infected. It was at about the same time that antiretroviral therapy practically changed the dismal outlook for HIV/AIDS patients in the United States and elsewhere. Ironically, Africa, which was the worst hit by the AIDS pandemic, was lowest on the priority list of global health agencies, governments, and health care professionals alike when it came to treating the disease. And thus, Africans died by the hundreds everyday - as the book poignantly narrates, in many villages all one would come across would be old people and orphaned children. Global health care experts suggested that the efforts should be focused on prevention rather than treatment, since there was no health care infrastructure in those countries. Barely a couple of years later in the face of all opposition to providing HIV/AIDS treatment, President Bush, in his state of the Union Address in 2003, proposed the President’s Emergency Plan for AIDS relief (PEPFAR) to help the people of Africa. AMPATH was one of many programs to benefit from this, since it already had a framework in place.

As mentioned earlier, this book emphasizes the importance of teamwork and collaboration. While foreign funds were important, they would essentially have been useless if Kenyan and American physicians had not come together to challenge the status quo and do things differently. In the long run, physicians from both countries benefited from this program and still are benefiting. It also details many instances where despite violent ethnic strife in the region, the AMPATH staff either refused to leave the clinics or were willing to venture out in the warzone to find missing AMPATH patients, thus underlining why commitment, empathy, and sincerity are central to the success of a program.

The one aspect about the book that would stay with the reader, and as mentioned by Dr. Paul Farmer in his impressive foreword, is the solidarity shown by the physicians in the situation with Daniel Ochieng (perceived a colleague) at the very beginning of the book and which was the catalyst. As one physician noted, “The anguish of watching a colleague die to do nothing forsakes hope. Yes, the question is where do we draw the line but perhaps in our asking, we will find that we should never draw it.”
Translating Academia (continued from page 2)

anxious to see a new drug developed and ultimately licensed for these diseases is where the legitimacy of these partnerships has to go forward.”

And it is there where the motivation for the academic physician-scientist to collaborate with industry is derived. Since we can now use the human organism as our experimental model, Dr. Ausiello says that “the real driving force for both MD scientists and PhD scientists is that we can interrogate the human in ways we never could before. It’s not that we had some kind of epiphany and said, ‘If we start telling the MD/PhD students this, they’re going to start working for industry.’ I think it’s more that the two are coming together because the patient is now the center of attraction not only for quality care but for quality drug development.” Physician-scientists who are doing the most fundamental science are now driving that into the human at a rate that is astounding compared to the rate twenty years ago. In this new age of discovery, Dr. Steven Paul, the Director of the Helen and Robert Appel Alzheimer’s Disease Research Institute, Professor of Neuroscience, Psychiatry, and Pharmacology at Weill Cornell Medical College, and Former Head of Research at Eli Lilly, believes “academic scientists are excited about the prospects of coming up with a new medicine that might treat a serious disease.” This is the supposed holy grail of translational research, taking one’s research and truly translating it to clinical practice.

Though the climate at many universities is not most optimal for such discoveries to be made, Dr. Ausiello maintains that the prognosis in general is good for these partnerships to blossom in the future. “There are many enlightened universities, and I’m pleased to say, a growing number of bio and large pharmaceutical companies that realize the legitimacy of the partnership between the academy and industry, particularly in target validation and in the quantification of phenotypes, which will not only allow for increased credentialing of these targets but allow us to look for off-target effects on some subsets of disease.” Industry executives are reaching out to academicians for their ideas and collaborative efforts as well. Perry Karsen, the Chief Operations Officer of Celgene, echoes this, “From our perspective at Celgene, we have the attitude that everything’s not invented within the walls of Celgene, and we are reaching out to academic partnerships and have found the ability to forge those. Certainly larger companies are doing the same.” However, the price of such translational research and of these partnerships is as steep as ever. As the cost of clinical trials becomes evermore exorbitant, we are faced with a decreasing number of options in terms of worthy pharmaceuticals to fund and to support. Drug companies are forced to spend billions of dollars developing new therapies, many of which fail and never make it into the larger patient population. “Those 5-8 billion dollars that are being spent at the pharmaceutical companies in so-called R&D, the overwhelming majority is in the ‘D’ part, not in the ‘R’ part,” says Dr. Ausiello. “Once the ideas have been developed in the academy, once those targets have begun to be pursued, it’s in that development space, and it is here where most of the money is spent and where the failures are least tolerable. The heavy lifting is still largely being done by the pharmaceutical industry. Making the drug is incredibly difficult. And part of the problem with the academy is very few people even in our own universities understand what goes into drug development.”

Another major roadblock to effective drug development is the lack of understanding of the difference between the marketing activities of a pharmaceutical company and the academic health care delivery system versus the science and translational component of the drug development process. “To 99% of the world, the pharmaceutical industry is a marketing activity, and for those of us who are in the trenches trying to develop and facilitate the development of these drugs, we understand that the early end of that is really where everything has to occur,” notes Dr. Ausiello. “I think there has been an enlightenment in this time in many universities but more so also in the pharmaceutical industry because they understand that the model that they have been pursuing for decades is not working. They also understand that there are incredibly talented individuals, particularly now that the human organism can be an important target. A lot of failures in the past were due to the fact that things worked wonderfully in mice, rats, and even large animals, but they failed in humans, so everyone is anxious to get into humans earlier. What you want in the academy is a champion who wakes up every day thinking about the same problems that you’re doing. Drug development is the major asset at the end of the day.”

But the question remains: How do we drive translational research when the basic science is largely being done in the academy and the development portion is largely being done in industry? Dr. Ausiello feels that “this is a place that not only the academy needs to be more enlightened in, but also the NIH.” There is tremendous risk now in this field because of the high-stakes funds that are attached to these multi-billion dollar research endeavors. “We don’t apply risk to basic science, you either hit it and it’s exciting, or you move on to something else. Translational research now comes with risk assessment, and it’s in that arena that both industry and the academy have to take stock, and certainly the NIH has to take stock as well.” Some universities are getting very clever and implementing their own methods to contain this risk. Dr. Paul adds that universities are “doing their own venture funds, either venture philanthropy or actually raising funds to actually advance to the point where other companies might be interested.”

Throughout the collaborative process, however, caution must be exercised to avoid future conflict and potential breakdown of the partnership. In academia-industry collaboration, the conflict is often one of public relations, a perception conflict. Dr. Ausiello feels, “the dangers are that we live in a society that has variably valued these kinds of relationships. You need to pay attention to which way the pendulum swings, not only in your institution but in the nation as a
Completing an MD-PhD or DO-PhD program will undoubtedly take a significant time commitment. Time to degree differs between programs, but most will take around 8 years to complete. The variability in length can usually be attributed to the time it takes to complete the PhD portion of training. Some PhD programs can be completed in as little as three years while others may take four years or longer. Before beginning your graduate thesis work, you should consider how much time is necessary to complete training. I sat down with the Director of Northwestern University’s Medical Scientist Training Program, Dr. Dane Chetkovich, MD, PhD. He outlined some important things to keep in mind when embarking upon the long journey of a dual-degree program.

Among the most important things to consider is the faculty member who will serve as your thesis advisor. It is important to have an open and honest conversation with your advisor about how long it will take you to complete your thesis work. You should be careful to choose an advisor who understands the dual-degree training process. Dr. Chetkovich emphasizes, “You must choose a mentor who knows that you are on an accelerated trajectory and must embark on your thesis project as soon as possible. Ideally, this discussion will occur in parallel with conversations with your program directors who are your advocates for finishing as soon as possible and who can help you choose your PhD lab wisely.” It is important this conversation takes place earlier on in your training so that a timeline is established from the beginning.

After choosing your thesis advisor, it is useful to consider what skills you hope to master before graduating. These may include specific techniques or methods. More generally, though, you should learn how to balance a variety of responsibilities. “The most important skill is multi-tasking. You must figure out how to be a clinician, scientist, and still have a life outside of work. This requires you to be efficient, to be able to prioritize, and to be able to say no at appropriate times,” explains Dr. Chetkovich. Learning to balance multiple roles is an essential skill that you will use in your career as a physician-scientist.

In addition to the skills you hope to gain throughout training, your program will likely have requirements that you must fulfill before completing PhD training. At Northwestern University, one of the main requirements is that each student is the primary author on at least one scientific paper. Students usually exceed this requirement by publishing multiple first-author papers and collaborating as contributing authors on other papers. Publishing high-impact papers may be of particular interest to you. Your publication record can have significant impact on your future career as a physician-scientist. In some cases, spending an extra year in your PhD training may afford you the opportunity to publish a paper that will have a larger impact on your field. Balancing the need to graduate on time and the desire to publish the most meaningful research can be difficult. “There are some cases where potential for a higher-impact paper justifies more time in the lab,” claims Dr. Chetkovich. “But overall, students at this phase of their careers should be focused on acquiring competency in as little time as possible.”

Only you can decide what is most important to you as a student. Every student is different and you have the best insight into your particular needs and goals throughout training. It is important to advocate for yourself as a dual-degree student and communicate openly with your thesis advisor and program directors. Although you or your advisor may want you to stay in lab for as long as possible, you should make sure to keep your training in perspective. Dr. Chetkovich points out that “when you finish your residency and fellowship you will almost certainly not be working in the same area as your PhD, it will rarely be beneficial to spend extra years as a pre-doctoral student.” Stay focused on your long-term career goals while making sure to receive the very best training possible.

In the end, your training in a dual-degree program should lay the foundation for a career in which you can maximize your potential as a physician-scientist.
A Survivor’s Guide: 10 Things to Consider When Going on a Mission Trip Abroad

Sean Smirnov, University of Massachusetts Medical School

1. Consider your options.
   - Medical mission trip.
   - Research (epidemiological, seeking collaboration, QC, health and social policy, organization of health care).
   - Establish a longitudinal clinical clerkship.
   - Join community-based service project.
   - Classes (e.g. Spanish/Portuguese, unique medical/research expertise).

2. Assess how much time you will need and could devote to the trip. Most of the time the former will drastically exceed the latter, which seems to be the karma of a medical school student. Some projects are just too long for a 10 days trip, while some others of a longer nature could have a tremendous impact on the place you are volunteering at.

3. Talk to the advisers at your school.
   Many schools have a faculty member devoted to creating educational opportunities abroad for its students, who helps the students at every level of trip organization, including but not limited to helping identify the project and the source of funding, and providing you with the contacts in the country of your interest.

4. Get your funding straight. Before investing your personal hard-earned dollars, consider other resources:
   - School
   - Program
   - Independent grants
   - Fundraising (sell T-shirts, cupcakes or smiles to diminish the financial burden on your own pocket)

5. Pack what you will need. Remember, it is not a regular Hawaii trip. You might not have access to all the supplies you need once you get there (e.g. toilet paper, insect repellent, medications), and you would not want to stress the home-stay, clinic, or the research center in which you will be living or working.

6. Make sure your vaccinations are up-to-date. Some of the diseases that have been eradicated in the US decades ago might still haunt people in your host country.

7. Attempt to speak the language. It will be appreciated and taken as a sign of respect for host culture. It also could be a necessity. Do not expect everyone to speak English where you go. Many of the senior physicians and researchers will almost undoubtedly speak decent English but it is not necessarily true about most of the people. If you think you will need a translator, make arrangements prior to your visit.

8. Know your environment. Have someone meet you at the airport. Ask your host contacts about places that are safe or potentially unsafe. Don’t go out alone at night, especially if you are a woman. Make sure you know which cabs are safe and do not flag on the street. Ask about the best clinics to receive care.

9. Study other culture. Remember that the message you send purposely or inadvertently can be misinterpreted by the recipient due to the cultural differences. In his book, Visit to America, Jawaharlal Nehru wrote “If we seek to understand a people, we have to try to put ourselves, as far as we can, in that particular historical and cultural background.”

   Indeed, when Mexican children simultaneously viewed tachistoscopic pictures of a bullfight and a baseball game, they only remembered seeing the bullfight. Guess what American children remembered? Long “stare” - looks by people in Latin countries can make Americans uncomfortable, while inability to meet it might be perceived as lack of trust or trustworthiness by locals. The same look (or simply an attempt to establish eye contact) can be considered offensive in some countries, e.g.

Russia. While it is probably not possible, or entirely necessary, to get fully culturally immersed on a short trip, google’ing “10 cultural lapses in Siberia” could facilitate communication, or even prevent you from embarrassment. Read travel guides, search online, talk to your adviser or people who have worked there before.

10. Enjoy your trip! After all, it is an opportunity for you not only to master your skills in an unfamiliar milieu and learn but to get your head out of the textbooks. Try local food, local drinks (no ice and nope, Coke does not qualify), sing local songs, and dance local dance.

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@physicianscientists.org. All members regardless of training status can submit entries.
Medical Student Volunteerism: The “Other” Perspective
Rebecca Lumsden, University of Massachusetts Medical School

Over 25% of American medical students travel abroad for elective opportunities. As the fad of “global health” grows and more international opportunities arise for medical students, it is crucial to consider the purpose and impact of our role in working abroad. While there are many flaunted positives of medical volunteerism including enhanced clinical skills, increased language ability, and even the vague “cultural competency” boost, the benefits mostly affect medical students. There is rarely mention of the impact of our trips on our patients, their communities or the greater health system.

As students we tend to idealistically think we are helping the locals by bringing medical care to underserved areas. The reality is that more often we are the ones benefiting. The need for medical care can be so apparent in resource-poor settings that students are often pushed beyond an appropriate (or ethical) limit to perform procedures, practice advanced skills, or educate patients beyond what would be allowed in the US. Learning how to do a pap-smear in the back of a bus or counseling a newly diagnosed diabetic patient are skills that we gain on our travels, but they carry the risk of harm to our patients. Even under the most supervised and supported conditions, our care is temporary. We are the ones leaving with the new stories, understanding, and experiences, while our patients are left waiting for the next group of foreign “doctors” to arrive with temporary and no patient history.

We are trained to treat a set of symptoms presented to us. We are not trained how to understand or address the surrounding context: the political, economic, and cultural atmosphere of our practice. But how do you instruct someone to take a pill when they have no access to clean water? How do you deliver results of an abnormal pap-smear when there is no option for follow-up care? Without addressing the greater context in which we are delivering care, we run the risk of harming the public health system as a whole. Continued medical volunteerism runs the risk of creating a permanent dependence on foreign medicine. It is crucial to understand why (and if) we are needed. Are we metaphorically bandaging a festering wound? What happens to our patients after we depart for home is just as important as our ability to treat their symptoms. But what is our responsibility once we are gone?

These questions have no easy, right, or wrong answer. Surprisingly, I am not advocating against international medical trips. Sometimes foreign medical students are an immediate resource in areas where medical care is not otherwise available. Medical volunteering, too, is a powerful building block for inspiring future doctors to continue our passion for working with underserved patients. What I am advocating is that we reflect on our goals before volunteering. We need to ask ourselves who is benefiting from our experiences. Our patients often teach us more than we provide them. Without considerations about our roles as students, foreigners, and caregivers abroad, we may be limiting our contribution to the improvement of health in the countries that we visit.

This paper discusses the role of heme peroxidase and NADPH oxidase 5 in nitric oxide mediated killing of Plasmodium ookinetes (the stage of the malaria life cycle which infects mosquitoes). Nitration of ookinetes as they pass through the endothelial lining of the mosquito’s gut sensitizes the ookinetes to killing by the mosquito’s complement-like system.

Carolina V. Barillas-Mury received her M.D. from Universidad Francisco Marroquin de Guatemala in 1985 and her Ph.D. in biochemistry from the University of Arizona in 1992. She is the Chief of the Mosquito Immunity and Vector Competence Section at the National Institute of Allergy and Infectious Diseases.

2. A haploid genetic screen identifies the major facilitator domain containing 2A (MSFD2A) transporter as a key mediator in the response to tunicamycin
Jan H. Reiling, Clary B. Clish, Jan E. Carette, Malini Varadarajan, Thijn R. Brummelkamp, and David M. Sabatini
Proceedings of the National Academy of Science, July 19th, 2011
Tunicamycin (TM) is a drug widely used in the laboratory setting to elicit endoplasmic reticulum stress and activate the unfolded protein response. A genetic screen identified MSFD2A as a critical mediator of TM toxicity. Additionally, mutant analysis found transmembrane helical amino acid residues essential for TM sensitivity, indicating localization to the plasma membrane. Future work will explore the regulation of MSFD2A expression, trafficking and interaction partners in order to define a physiological role for this transporter.

Spotlight on MD/PhD Research
We are starting a new section featuring research by MD/PhD researchers and trainees. If you publish a paper and would like to be featured in this section, send an email to: Dylan.Nielson@physicianscientists.org.

1. Epithelial Nitration by a Peroxidase/NOX5 System Mediates Mosquito Antiplasmodial Immunity
Giselle de Almeida Oliveira, Joshua Lieberman, Carolina Barillas-Mury
Science, February 17th, 2012

David Sabatini is Associate Professor of Biology at the Massachusetts Institute of Technology and Member of the Whitehead Institute for Biomedical Research. He received his M.D. and Ph.D. in neuroscience from the Johns Hopkins University and was selected as an HHMI Investigator in 2008.
Translating Academia (continued from page 4)

whole. We have driven away young people from thinking that it’s going to be legitimate working with industry because there are too many pangs of fear that something bad is going to happen or that someone is going to accuse them of something. It’s not the outcome of the relationship itself; it’s the perception of doing it in the first place that dissuades people from getting involved in industry.”

But the conflicts extend to more tangible areas as well. The rights to intellectual property can often lead to considerable argument, the solution to which is typically patenting. “Often in academia,” says Dr. Paul, “when we discover something interesting that we will want to publish and we will publish, if it’s proprietary and it has some value, we’ll often file a patent on it which is not unlike what happens in industry.” And this patenting does not always interfere with the collaborative agreement, either. The pharmaceutical companies will gladly develop a strong compound that is patented to a university because the important aspects of this collaboration, according to Dr. Ausiello, are the quality of the molecule and the time to market. With favorable findings in these areas, these relationships can be mutually beneficial for both parties involved.

With all of this discussion of the role of physician-scientists in the collaboration between academia and industry, however, the strong clinician should not be excluded. “I think the seat of research going forward is the patient,” says Dr. Ausiello. “The person who is both closest to and capable of assessing the nuances of phenotypic differences and perturbations in disease is the clinician, and so I think that it is absolutely essential that the environment supports what I would call the inquisitive physician around the nature of the patient’s phenotype in both health and disease that then facilitates the interrogation along whatever route, basic pathways, or drug discovery that the physician-scientist wants to ask. The importance of the inquisitive physician who is willing to ask what we don’t know about the patient as much what we know about the patient aligned with the basic scientist who can move freely between the bench and the bedside is absolutely essential.” According to Dr. Ausiello, these clinicians are often the thought leaders, and it is increasingly clear that industry as well as scientists at this time seek out their advice and input into their own work.

Though we often focus on high-tier faculty or industry executives as the major driving forces behind these collaborations, is there any role for us physician-scientists-in-training in these collaborative efforts? According to Dr. Ausiello, “The reality is that if you are interacting at the research level, it is almost certainly going to be through your mentor or the collaborators of your mentor, and if you are in an environment where your mentors and senior leaders are doing that, it’s a good experience to participate in that because it’s going to be a growing enterprise for your generation of physician-scientists to be involved in.” That being said, this does not mean that we should be demanding that that happens if we are indeed interested in collaborating with industry later on in our careers, but Dr. Ausiello hopes that many institutions will embrace these common goals and that our mentors embrace them as well. MD/PhD students are not trained specifically to do translational medicine, but they are trained to acquire the skill sets and tool kits to allow them to work with the human organism, which will prove beneficial in future collaborative efforts.

Regardless of what type of collaboration in which you are involved, Dr. Ausiello has a solitary criteria, “Be excellent.” He believes that “whatever you’re going to be good at, you’re going to spend 75-80% of your time doing. The person who is actually going to do the work to get the excellent mark next to their name is going to have to spend a lot of time doing it, whether it’s being a great doctor, a great teacher, or a great researcher. You have to go into these fields understanding that.” This collective environment is critical because wisdom gets exchanged, and there is deep dialogue around patient care with ideas that are obtained at the bedside and that are taken back to the bench and later returned in the form of innovative therapeutics. The key to collaboration, in any profession, is essentially an open forum where thoughts are shared and innovation, creativity, and honesty are encouraged. And in the field of translational research, no time is better than the present for such partnerships to be forged.

Editor (continued from page 1)

As the summer approaches, we included two articles relating to international research. In the first, Sean Smirnov provides a checklist of items that are critical to any physician-scientist-in-training who is traveling or performing a rotation abroad. In the second, Rebecca Lumsden contributes an article in which she discusses some of the inherent issues with performing clinical rotations abroad and several areas in which caution should be exercised in order to provide the best care for our patients while working at international sites. Finally, in our new Spotlight on MD/PhD Research, Dylan Nielson, one of our newsletter editors, provides two recent fascinating articles from top-tier journals highlighting the work of some of our own physician-scientist colleagues.

As always, thank you for reading our APSA newsletter and for following our posts on Facebook. If you have any ideas for ways to improve APSA and to spread the word about this great organization, we would love to hear from you! Please feel free to contact Evan Noch at evan.noch@physicianscientists.org if you have any suggestions. We have had a successful and fun-filled year with APSA thus far, and we are greatly looking forward to seeing all of you at the APSA Annual Meeting at the end of April in Chicago!
President (continued from page 1)

gatherings with established physician-scientists, and much more. If you have not yet done so, please consider registering here.

APSA is pleased to announce that this year, we were able to add 13 new travel awards through collaboration with our partners at the IDSA (Infectious Disease Society of America) and SAEM (Society for Academic Emergency Medicine). These 13 new awards are in addition to the 60+ travel awards provided by APSA, ASCI, and AAP each year that ensure easier access for trainees to the conference. Also, please don’t forget that the time of the year has arrived when APSA initiates its annual leadership recruitment. Applications for leadership positions for the APSA Executive Council, Standing Committees, and Institutional Representatives are now being collected. To submit yours, please click here. If you want to learn more about APSA’s leadership positions, please click here and refer to an essay I wrote a couple of years back, called APSA – The Leadership Experience.

If you are looking for more ways to further engage your school with APSA, here are a couple of options to consider. You could encourage your school to become an Institutional Member of APSA thus opening membership to a larger number of trainees at your school (more information can be found here), and you could encourage research-friendly residency programs at your school to participate in the Residency Luncheon during the APSA Annual Meeting (if interested, please contact APSA’s Annual Meeting Committee Vice-Chair for more information at susan.meclory@physicianscientists.org).

In conclusion, I would like to encourage you once again to talk to APSA’s Executive Council members and myself in particular – we 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 e-mail (ivayla.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 APSA! Together, we can accomplish anything!

Affordable Care Act (continued from page 2)

healthcare legislation whose text spanned nearly one thousand pages. Shortly thereafter, Congress amended the PPACA by the passage of the Health Care and Education Reconciliation Act, which was signed into law by President Obama on March 30, 2010. Taken together, these Acts constitute what is now commonly referred to as the ACA. This law provides a framework for expanding access to healthcare and insurance coverage for nearly thirty-two million out of the fifty million people who lacked coverage previously.

In particular, four of the ACA’s provisions have spawned inflammatory controversy and litigation. First, the individual mandate is scheduled to take effect on January 1, 2014, and requires most U.S. citizens and legal residents with a certain level of income (above the threshold for filing federal taxes) to obtain health insurance or pay a fine. Exceptions are made for the following circumstances: individuals who generate incomes below 100% of the federal poverty line, those who have not had coverage for less than three months of the year, persons receiving Medicare or Medicaid, or those who cannot afford coverage. Also, the mandate does not apply to dependents, individuals with religious objections, military families, or those who already obtain health insurance from their employers under a sufficiently qualified plan.

Second, the ACA holds that Medicaid eligibility will be extended to U.S. citizens and legal residents under sixty-five years of age that is not subject to annual or lifetime limits and complies with various requirements—without concern for the health status of the individual. Fourth, Subpart F of Title I, known as Quality Affordable Health Care for All Americans, establishes and expounds standards for individual and employer responsibility for insurance coverage.

Opposition to the ACA continues to be pronounced. For instance, currently, governors or attorneys general of at least twenty-eight states (Alabama, Alaska, Arizona, Colorado, Florida, Georgia, Idaho, Indiana, Iowa, Kansas, Louisiana, Maine, Michigan, Mississippi, Missouri, Nebraska, Nevada, North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Texas, Utah, Virginia, Wisconsin, and Wyoming) are acting to pursue lawsuits that oppose health provisions of the ACA. In addition, review of this law by the U.S. Supreme Court was requested in five cases (TABLE), though the Court agreed to hear only Florida v. United States Department of Health and Human Services (Florida v. HHS)—a lawsuit that was brought on behalf of Florida, joined by twenty-five states, challenging the constitutionality of the ACA. In particular, the Court will address (1) whether the ACA’s penalty for not obtaining health insurance is a tax, and thus under the Tax Anti-Injunction Act, cannot be challenged in court until the tax has been assessed; (2) whether the individual mandate is constitutional; (3) matters regarding severability; and (4) the constitutionality of the state expansion of Medicaid.

The Tax Anti-Injunction Act (TAIA) states, “No suit for the purpose of restraining the assessment or collection of any tax shall be

(See Affordable Care Act on page 10)
Affordable Care Act (continued from page 9)

maintained in any court by any person, whether or not such person is the person against whom such tax was assessed.” A taxpayer cannot file a lawsuit in a federal court challenging a federal tax provision if it has not gone into effect and has not been applied to a particular taxpayer. No pre-enforcement challenge is allowed. The ACA’s individual mandate provision is not scheduled to go into effect until January 1, 2014. And until a penalty or fine has been issued—for example, because of not complying with the mandate—no suit may be filed. In fact, a suit may be filed only when noncompliance has occurred, which likely would not be until 2015, since this is when federal tax returns would be done. Therefore, if the TAIA were to apply, arguably, the Court would be without jurisdiction to hear the challenges to the ACA. Interestingly, federal circuit courts have disagreed about whether the Act obstructs jurisdiction, though SCOTUS has granted writ of certiorari and is scheduled to hear the case shortly. While it is not impossible for the ACA’s challenges to be barred by the Court until at least 2015, it seems unlikely because the Court has agreed to hear the case.

Next, there is the question of whether the individual mandate provision is constitutional. Article I of the U.S.

### TABLE 1: NOTEWORTHY CASES

<table>
<thead>
<tr>
<th>CASE</th>
<th>PROVISION COURT</th>
<th>U.S. DISTRICT</th>
<th>APPELLATE COURT</th>
<th>SCOTUS REVIEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Florida v. HHS</td>
<td>Individual mandate</td>
<td>I. Unconstitutional-mandate not upheld under the Commerce Clause &amp; not severable from rest of ACA; law must be struck down</td>
<td>I. Unconstitutional-same holding as district court, but held that the provision could be severed from rest of the law</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ii. Constitutional-Medicaid expansion not coercive to states</td>
<td>ii. Constitutional-district court’s ruling upheld</td>
<td></td>
</tr>
<tr>
<td>2. Thomas More v. Barack Obama</td>
<td>Individual mandate</td>
<td>Constitutional-Congress has authority under the Commerce Clause</td>
<td>Constitutional-upheld district court’s decision</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dismissed-courts do not have jurisdiction for a time, due to the Anti-Injunction Act</td>
<td>No</td>
</tr>
<tr>
<td>3. Liberty University v. Timothy Geithner</td>
<td>Individual mandate</td>
<td>Constitutional-Congress has authority under the Commerce Clause</td>
<td>Dismissed-Virginia possessed no legal right to sue</td>
<td>No</td>
</tr>
<tr>
<td>4. Virginia v. Kathleen Sebelius</td>
<td>Individual mandate</td>
<td>Unconstitutional-mandate not upheld under the Commerce Clause, but is severable from rest of ACA; parts of the ACA may stand</td>
<td>Dismissed-Virginia possessed no legal right to sue</td>
<td>No</td>
</tr>
<tr>
<td>5. Susan Seven-Sky v. Eric Holder</td>
<td>Individual mandate</td>
<td>Constitutional-Congress has authority under the Commerce Clause</td>
<td>Constitutional-upheld district court’s decision</td>
<td>No</td>
</tr>
</tbody>
</table>
Constitution offers textual support for the lawfulness of the ACA by at least two critical clauses. First, Section 8, commonly known as the Commerce Clause, grants Congress the power “[t]o regulate commerce… among the several states.” 13 Accordingly, Congress’ power to regulate interstate commerce justifies its ability to regulate the health insurance market, whose expenditures occupy a significantly high percentage of the total gross domestic product. Medical equipment, electronic records, insurance claims, and pharmaceuticals regularly cross state lines throughout the United States. Moreover, out-of-pocket expenses incurred from health care costs may cause bankruptcies, decreased consumer spending, and unemployment.

Second, the Necessary and Proper clause maintains that Congress has the power to “make all laws which shall be necessary and proper for carrying into execution the foregoing powers, and all other powers vested by this Constitution in the government of the United States.” 14 Congress has the authority to create legislation that is necessary and proper to carrying out its responsibilities. Hence, the individual mandate provision is necessary and proper to achieve Congress’ goal of requiring health insurers to accept all applicants regardless of health status. The ACA reforms the insurance market by prohibiting both denial of coverage and charging high premiums to persons with pre-existing conditions. Consequently, the mandate is necessary for the reforms to function, since it ensures that health insurance spreads the risk amidst the whole U.S. population: the larger the pool of individuals purchasing health insurance, the more stable the premiums. Risk pools function well only when they include enough healthy individuals to keep overall expenses lower than premium costs. 15

In order for the individual mandate to be struck down by SCOTUS, opponents will have to show that Congress has no authority by either clause to maintain it. 16 One well-known objection to this provision is that, under the Commerce Clause, Congress has the authority to regulate economic activity only. Yet the individual mandate provision, it might be argued, is not a manifestation of congressional control of activity, but instead, of inactivity. That is, even if Congress has the power to regulate healthcare commerce, Congress has not and cannot demand that individuals enter into an economic transaction with entities like corporations; thus, Congress cannot force persons, who were previously unengaged and “inactive,” to become engaged and “active” 17 in this way. Such critics contend that there is no judicial precedent for the individual mandate provision. The narrow of this slippery slope-like argument has become the following mantra-like question: If through the individual mandate, Congress can force individuals to purchase health insurance, then what is there to stop Congress from forcing us to eat broccoli? Put another way, if it is permissible for Congress to create laws obliging individuals to purchase something, then there seems to be no limitation on what else they may require of us.

In addition, there is the concern regarding severability. If the Court were to decide that a portion of the bill is unconstitutional and therefore nullified, the Court then would have to determine the fate of the remainder of the bill and its other provisions. In earlier drafts of the ACA, a severability clause was present, but was later removed after revisions. 18 Since the ACA has no severability clause, if certain key provisions, such as the individual mandate, were removed, Congress would have to determine whether the remaining parts would stay functional, and, if so, whether those parts would be operating as Congress had intended. Even if certain provisions within the ACA were held as unconstitutional, because of the vast expanse of the bill, it appears unlikely that it would implode entirely. Still, the extent to which the ACA survives, if at all, remains to be decided.

The fourth question that SCOTUS will address is whether the state expansion of Medicaid is constitutional, as the lawsuit brought by Florida has challenged the ACA’s mandatory Medicaid-expansion requirements. Central to Florida’s challenge is the Constitution’s Spending Clause. 19 Legislation that involves the spending power of Congress is in the form of a contract: states agree to comply

(See Affordable Care Act on page 11)
Affordable Care Act (continued from page 11)

with federally imposed conditions in return for federal funds. Even though Congress is authorized with the extensive power to decide matters concerning spending, at least two requirements hold. First, federal conditions must be unambiguous, so that states are given fair notice of their obligations when they accept federal funds; this is so that states can exercise their choice about whether to participate in a fully informed way. Second, the federal government may not employ the spending power in such a way as to “coerce” the states into compliance with federal objectives. Though the government has no authority to force states to participate in federal programs, financial incentives may be used to pressure states into complying with government objectives. Importantly, before SCOTUS agreed to hear Florida v. HHS, the United States Court of Appeals for the Eleventh Circuit found that the Medicaid-expansion provision was “pressure,” but not “coercion,” thus rejecting the challenge. Still, SCOTUS has agreed to hear the case despite this ruling, signaling that the Medicaid-expansion requirement, among other controversies about the lawfulness of the ACA, remain unresolved.

Without question, the Court’s decision either way will have profound implications for healthcare policy in America. If the Court decides that it does not have jurisdiction to hear the case now, suits pertaining to federal penalties for not obtaining health insurance will not be heard by SCOTUS until at least 2015. Also, it is possible that the ACA, in its entirety, will be struck down. If this were to happen, many of the benefits, such as the non-discrimination and non-exclusion requirements applied to health insurance coverage, would be lost. Yet even if the Court were to strike down certain provisions such as the individual mandate or the expansion of Medicaid, but left the rest of the law intact, the ACA would be weakened substantially.

References:

12. Id.
15. Gostin & Garcia, supra note 9, at 370.
16. Interview with I. Glenn Cohen on the Constitutional Challenge of the Affordable Care Act that Will Heard by the United States Supreme Court in March, supra note 12.
17. Id.
18. Curfman et al., supra note 5, at 2.

**APSA Member Achievements!**

Kazi Rahman, PhD, from the Department of Community Health and Epidemiology at the University of Saskatchewan, was recently published as a co-author on a publication that examined patterns of depression during pregnancy and post-partum.


---

**8th Annual APSA Meeting**

**April 27-29, 2012**

**Chicago, Illinois**

Register [here](#) for this great meeting TODAY!