

2019 American Physician Scientists Association Presidential Address

Waiting to “make it” versus “making it happen”: empowering physician-scientists in training

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As trainees, we aspire to be physician-scientists someday. As we progress through our long and intense training pathway, it often seems that “someday” is still too far away. It can become challenging to draw strength from the motivations that initially inspired us to pursue this noble profession. We tend to focus on the external obstacles of the journey. Indeed, belonging to both the medical community and scientific community brings several unique challenges and is further complicated by our highly individualized training experiences. Although understanding these challenges is an important step toward being able to address them, today I task you with shifting the focus toward taking ownership of your training pathway.

Instead of being submissive to these challenges, challenge them in return! The most significant favor you can do for yourself is to be confident in your ability to overcome challenges. Once you do, you will be invincible. Even as a trainee with limited knowledge and experience, you have enabled yourself to learn and you are acquiring the tools needed to get the job done. You are resourceful. You have a voice. You have agency to shape your training experience and career. Take possession of your physician-scientist training experience, embrace self-efficacy, and appreciate the liberties that come with this powerful training. Allow me to share with you how involvement in the American Physician Scientists Association (APSA) is emboldening trainees like me and transforming the physician-scientist training experience.

APSA’s mission is to serve physician-scientist trainees. As we enter our fifteenth year as an organization, we celebrate our growth as a physician-scientist trainee

community and continued progress toward improving physician-scientist training as a whole (1). Importantly, APSA was formed as a means of bringing trainees together as a united front; as such, our organization and initiatives are trainee driven. We advocate for ourselves and recognize that no one understands our needs better than our peers. APSA values the bonds between peers and camaraderie shared among us.

This year, we expanded and strengthened the camaraderie of the physician-scientist training community on an international scale by establishing the International Consortium of Clinician Scientist Training Organizations (ICCSTO). The ICCSTO brings together APSA, the Asian Medical Student Association (AMSA), French Association Médecine/Pharmacie Sciences (AMPS), Swiss MD-PhD Association (SMPA), Clinician Investigator Trainee Association of Canada (CITAC), and European MD-PhD Association (EMPA), with the common goals of creating mutual understanding and support between our organizations; developing international scientific collaborations among clinician-scientist trainees; and enabling equal access to career development resources among trainees worldwide. Through exposure to various systems and mechanisms of physician-scientist training across the globe, ICCSTO ultimately aims to study the outcomes and perceptions of these training models to further inform the physician-scientist community.

Within the United States, APSA is conducting a similar study aimed at determining the prevalence of specific interventions that provide clinical continuity during PhD training for dual-degree (MD-DO/PhD) trainees and recognizing which

of these interventions trainees feel best prepares them for their transition back into clinical training. While physician-scientist trainees begin preclinical curriculum at the same time as their MD-DO track colleagues, dual-degree trainees typically take a leave of absence from medical school to complete the formal requirements of their PhD program. Unfortunately, after several years away from clinical training, many dual-degree students lose confidence and feel unprepared for clinical clerkships at the end of the graduate phase (2). It is recognized that different dual-degree programs use various means of addressing this “major chasm,” yet the specific structure of these curricula is largely understudied. Though we anticipate that the clinical continuity survey of dual-degree trainees and program directors will help to fill in this gap, the more exciting part of this study is how it came about. It was a topic of discussion among APSA institutional representatives on one of their quarterly phone calls. This survey is one of many examples of how APSA serves as the structure by which trainee-driven initiatives are enacted.

Another key example is APSA’s diversity initiative. The long-standing lack of diversity among the physician-scientist community is well known, yet there are still insufficient means of addressing this problem (3). Despite equivalent representation of women and men among medical school trainees, men still outnumber women by about 13% in the population of MD/PhD applicants (4). Similarly, the small number of gender and racial minority groups may be partly explained by lower medical school matriculation rates, lack of representation in early pipeline programs, limited accessibility of mentors, deficient representation in academic leadership roles, and unconscious bias (5). APSA, along with our numerous trainee partner organizations, established the Diversity Working

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Figure 1. APSA outreach to underrepresented minority trainees. Undergraduate attendees at the Bay Area Underrepresented Minority Outreach Event fill the room and listen in on a Q & A session about MD/PhD training programs by a panel of current physician-scientist trainees and established physician-scientists. This represents one of five events sponsored by the Burroughs Wellcome Fund as part of APSA's mentorship program expansion. Panelists (from left to right): Krister Barkovich, PhD (UCSF Medical Scientist Training Program [MSTP] student), Catherine Blish, MD, PhD (Stanford MSTP Associate Director), David Darevsky (UCSF MSTP student), Mitchel Cole (UCSF MSTP student), Mercedes Paredes, MD, PhD (UCSF faculty), Alice Tang (UCSF MSTP student), Mark Anderson, MD/PhD (UCSF MSTP Program Director); not pictured: Misty Montoya (UCSF MSTP student).

Group in our efforts to promote diversity in the physician-scientist trainee community. Our session at the 2018 APSA Annual Meeting experienced an amazing turnout, significant interest, and candid discussion of issues facing trainees from underrepresented groups. The meeting, scheduled for one and a quarter hours, ran almost forty-five minutes overtime, as trainees shared their personal encounters with barriers in their pursuit of a physician-scientist career. The passionate discussion at this meeting spawned the idea of having a formal conference to bring together the key stakeholders in physician-scientist trainee diversity.

With the generous support of the Burroughs Wellcome Fund (BWF), we are hosting the inaugural BWF-APSA Physician Scientist Trainee Diversity Summit on June 21–22, 2019. This event marks a significant milestone in our progress toward a diversified physician-scientist training pipeline by strategically bringing together 50 to 60 individuals with the expertise and resources to effect change across the training pipeline. These individuals are experienced in addressing barriers to successful physician-scientist careers and include representatives of the NIH, Association of American Physicians (AAP), American Society for Clinical Investigation (ASCI),

Student National Medical Association (SNMA), Latino Medical Student Association (LMSA), American Medical Student Association (AMSA), American Medical Women's Association (AMWA), and Clinical Investigator Association of Canada (CITAC). The major goals of this summit are to utilize human-centered design thinking sessions as a mechanism for developing a strategic plan, coordinating a research study to address questions related to physician-scientist diversity, and to codify outcomes from our discussion for publication. This summit will not only give APSA an opportunity to convene its stakeholders and discuss the important topic of diversity in the physician-scientist community, but will also enable individuals from diverse backgrounds to support one another across various stages of training.

The theme of diversity is also reflected in this year's AAP/ASCI/APSA Joint Meeting. In addition to including prominent physician-scientist speakers on the themes of Inflammation and Big Data, the Joint Meeting ventures, for the first time, into discussions of the social climate surrounding us in science and academic medicine. In light of the National Academies report on sexual harassment and gender diversification (6) and the #MeToo movement (7),

we look forward to the timely discussion of how sexual harassment and unconscious bias affect us and how we, as physician-scientists, can best tackle these issues. These plenary sessions are a landmark achievement in our fifteen-year evolution as a Joint Meeting, reflecting the needs and concerns of the members we represent. Indeed, the diverse topics and speakers on our agenda this year serve as an indicator of our continued efforts to comprehensively support the physician-scientist community.

Another means by which APSA promotes peer support of trainees is through the mentorship program. The mentorship program has seen a tremendous growth in participants in recent years, many of whom are from underrepresented groups. During the 2017–2018 term, over 700 individuals participated in the program, with diverse representation of mentees: 74% women, 33% underrepresented minority, and 33% first-generation college students (8). With the generous support of the BWF, we were able to encourage further interactions across peer groups, with local informal “meet-ups” aimed at promoting networking opportunities between undergraduates, trainees at the medical school level, and established physician-scientists. The first of these sessions was piloted in the Boston area in 2017 and was a tremendous success. We now have five meet-ups in the works, spanning from coast to coast — the first of which, the Massachusetts Physician Scientist Student Symposium, brought together over one hundred participants. Similarly, the Bay Area Underrepresented Minority Outreach Event (a collaboration between the University of California, San Francisco, and Stanford University) was met with much enthusiasm from its 70 participants (Figure 1). The high degree of participation in these events reflects the underlying need for advocacy and networking among trainees.

We also aim to continue this program's expansion to cover all stages of the training spectrum — from undergraduate through junior faculty — recognizing that the transitions into residency, fellowship, and junior faculty are particularly vulnerable times for aspiring physician-scientists (4). To address these “leaky” areas in the pipeline, APSA has forged a strong partnership with a group of active Physician Scientist Training Program (PSTP)/Research in Residency (RiR)



Figure 2. APSA's initiative to increase crosstalk between trainees and Physician Scientist Training Program/Research in Residency directors. APSA trainee leaders speak on behalf of physician-scientist trainees to PSTP/RiR program directors and promote further discussion among representatives from internal medicine, pediatrics, and umbrella PSTP/RiR programs.

directors. These directors represent the leaders of formalized postgraduate medical training programs that offer protected research time for residents and/or fellows. Years ago, we recognized the need for a centralized resource of information regarding these research-intensive programs and established a Research Residency and Fellowship Program Database in an effort to compile all of the pertinent information regarding PSTP/RiR programs for prospective applicants. Since 2015, APSA has also been present at the table to advocate for trainees at the Alliance for Academic Internal Medicine (AAIM) Research Pathways Directors Workshops (9) and the Association of American Medical Colleges (AAMC) Graduate Research, Education, and Training Meetings (10). Our presence at these workshops prompted the establishment of an annual meeting of PSTP/RiR directors at the Joint Meeting. The first of these meetings took place in 2018, when APSA compiled a list of questions from our members specifically addressed to PSTP/RiR directors. The content of the questions revealed a substantial disconnect between the desired messages sent by the directors and the trainees' understanding of what PSTP/RiR programs are all about. The rich discussion yielded a collaborative perspectives piece, published in *JCI Insight* (11) (Figure 2). This year, we are encouraging further trainee-director crosstalk during a

Q&A panel session at the Joint Meeting. We will have another meeting with the program directors as well. Here, we will take the initiative of establishing a centralized resource for prospective applicants one step further by discussing potential improvements to the Electronic Residency Application Service (ERAS) system, with our recommendations ultimately collated and sent to the AAMC for further review. Our ultimate goals are to clearly define research-intensive residency programs and modify the application process so that all programs are readily identifiable. These changes will revolutionize the accessibility and visibility of PSTP/RiR programs, streamline the residency application process, and hopefully promote an increase in applications from non-dual-degree trainees — a particularly critical population for sustaining the physician-scientist workforce.

Collectively, the described examples demonstrate how our initiatives are indeed trainee driven. APSA takes its role as a trainee organization seriously and is continuously improving the means by which we encourage trainee action. In addition to our quarterly town hall conference calls and policy resolutions processes, we have also sought a framework within our leadership governance to directly incorporate member-driven initiatives. Ad hoc committees are formed and dissolved on an as-needed basis to reflect the representativeness of trainee needs. For

example, if a member has a particular passion for further studying issues concerning mental health in dual-degree trainees, we welcome the formation of a committee solely dedicated to that purpose. This way, APSA members have the ability to drive initiatives with the support of the national organization. Whatever your passion may be, APSA has a place for you.

Even with highlighting only select initiatives, APSA has evidently made great strides in improving physician-scientist training over our fifteen-year history, and we must continue these efforts to sustain our community. However, we are only as strong as our participation, which is why the passion and commitment of our trainee volunteers drive this organization. We welcome your voice. To echo the message of my predecessors, realize your potential and become a trainee leader (12, 13). For those of you trainees in attendance at the Joint Meeting, I urge you to take a few moments to appreciate all of the grassroots efforts that your peers poured into making our presence known. For fifteen years, APSA has sat trainees side-by-side with Nobel laureates and their peers alike (1). We represent all trainees to the NIH and AAMC, program directors, and leaders from the most important stakeholders in your training. We are here for you. We are invested in your success and fulfillment.

I encourage you to now go one step further. After taking those few moments to appreciate what APSA has become, think about who *you will* become. On a personal note, being a leader of APSA transformed me. I used to be that quiet, shy, uncertain graduate student sitting in the last row at conferences. I now not only sit in the front row, but I also hand out business cards and am not afraid to express my thoughts. I am definitely stronger than I used to be, and I attribute that strength to knowing that I represent something much bigger than myself: I represent all of you. It is my job to act in our best interest. It is my job to serve as a voice for each trainee and advocate for policy change. It is my job to be strong for all of us. I encourage you to do the same — use leadership to help you discover your potential and step out of your comfort zone.

We often talk about how long and confusing the path is, but what we forget to remind ourselves of is the liberty to carve our own path and future — what

a magnificent opportunity! There is a whole world waiting for us to take the lead and develop. We are not being held back, we are being trained for a future of liberated exploration as critical thinkers. We can leverage our training in the scientific method to expand medicine — from the level of cells to patients, populations, and entire healthcare systems. We are becoming physician-scientists because we are driven by the idea of making critical strides and improving the health outcomes of the world around us; I invite you to do this in all areas of your life. Become the physician-scientist leader you inspire to be “someday.” Someday is now. We do not have to wait forever to “make it” — it is up to you to make it happen and know that APSA is here to support you along the way.

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