Reflections on our Premedical
And Medical Education
WELCOME TO THE Fall 2013
EDITION OF JSNMA!

This “Back to School” Edition is focused on reflections on our premedical and medical education. There is much discussion on healthcare education as we move from a traditional curriculum, driven by learning objectives and assessment to a curriculum that is the outcome that is driven by the needs of our health and health delivery systems. Submissions on the theme reflect unique experience taken to enhance one’s premedical or medical education, or include reflections on what can be done to enhance the educational value of the premedical and medical curriculum.

New to this issue are Your Story Matters, a series to introduce the stories of the diverse SNMA membership, and Letters to the Editorial Board, as we continue to welcome letters from our readers.

The Fall 2013 issue also highlights up-to-date events occurring in the Student National Medical Association.

I hope you enjoy the Fall 2013 issue of the Journal of the Student National Medical Association. Consider contributing to our Winter Holiday 2013 edition, “Humanism in Medicine.” As always, we would love to have you as part of the Publications Committee.

Happy 49th Founding Day!

Yours in SNMA,

Oluwakemi Eniola Tomobi, Editor-In-Chief
Journal of the Student National Medical Association
National Publications Committee Co-Chair
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Embracing Integrative Healing Methods for Mental Health Illnesses

Current rates in which African Americans are looking for assistance for mental health illnesses are increasing. According to Jeffrey Gardere, a psychologist in private practice and assistant professor of behavioral medicine at Touro College of Osteopathic Medicine in New York City, in the past ten years there has been a 20 to 25 percent rise in African Americans seeking therapy. In spite of this improvement, whites still receive mental health treatment or counseling at nearly twice the rate of blacks. More details surrounding this supported conjecture is presented in the 2010 National Healthcare Disparities Report. Many African Americans express reluctance in obtaining treatment for mental health illnesses. In addition to the sense of discomfort acquired from the legacy of historical experiments performed on African Americans, solely adhering to spiritual faith and religious principles rationalizes their decision to refrain from seeking treatment in the context of biomedicine. Steps are progressively being taken by mental health care providers to educate and form relationships with authorized leaders of churches and religious organizations, thus merging the two forms of healing for individuals enduring mental health challenges. The notion of integrating biomedicine with cultural or religious methods of healing is one that should be heavily practiced in health care settings. Although classes on cultural competency and cross cultural communication are progressively being implemented into healthcare educational curriculums, so much more needs to be done to acknowledge equality between healthcare professionals and patients. Embracing methods that patients, family/friends of patients, and healthcare professionals contribute to the healing process, not only illustrates the importance of teamwork but also exemplifies the benefits derived from fostering diversity in health care.

Rucca Ademola,
SNMA Associate Member
University of North Carolina
Greetings SNMA Family!

It is my pleasure to welcome you to the 2013 - 2014 administrative year of the SNMA. This year, we will begin to commemorate FIFTY incredible years of pursuing our goal to "Diversify the Face of Medicine". Our awesome mission speaks to not only encouraging and supporting future minority physicians, but also ensuring we are positively impacting on our community right now. With a rapidly changing world, it is important we continue to adapt by finding new ways to study medicine, to connect with our patients and to interact with our healthcare colleagues in order to provide the best care for our patients. This year, we will do this by staying true to the mission of our organization!

Our programmatic theme for this year, "The Next E.R.A. of SNMA", focuses on Engagement of our membership and community, Reflection on our amazing history, and continued Action in the areas we are known for: Academic Excellence, Community Service, and Advocacy. As we move through the year, each level of the organization will participate in activities that will incorporate these three important words. We will work to engage a membership that is truly reflective of the diversity we see in the community we serve. We will remember our past and our purpose for existence while gathering a renewed sense of intention for the future. We will seek and develop innovative ways to better prepare the future physicians of tomorrow with the academic tools, cultural competency, and social awareness necessary to practice excellent medicine. To learn more about our Presidential Initiatives and our programs for the year, please visit:  http://www.snma.org/programs.php.

There are many ways you can join us this year and take part in our programmatic efforts. Reach out to your local or regional leadership for more information about upcoming programs and initiatives. Or consider joining a National Committee to assist with planning on the national level this year. Come join us April 16-20, 2014 in Washington, DC to celebrate our 50th Anniversary Annual Medical Education Conference with the theme of "Fifty Years, One Mission: Diversifying the Face of Medicine". This once-in-a-lifetime experience will be a celebration for our current and alumni members. I look forward to working with all of the incredible leaders within this organization. It is the culmination of all of our efforts, great and small, that has brought us to this milestone. It will be these same efforts that will take us into the next ERA of SNMA!

Courtney M. Johnson

SNMA National President 2013-2014
ABOUT THE STUDENT NATIONAL MEDICAL ASSOCIATION

The Student National Medical Association is the nation’s oldest and largest independent, student-run organization focused on the needs and concerns of medical students of color. Membership includes more than 6,000 medical students, pre-medical students, residents, and physicians. Established in 1964, SNMA is dedicated to both ensuring culturally-sensitive medical education and services, as well as increasing the number of African-American, Latino, and other students of color entering and completing medical school.

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By Denise Asafu-Adjei
M.D. Candidate-University of Michigan '14
MPH Candidate-Harvard University '13

The purpose of the SNMA’s 5th National Advocacy Forum was for future and current medical students to understand their role in health reform, as well as potential solutions to issues of health equity. This two-day forum equipped medical and premedical students with advocacy skills targeted towards minority health policy at the national and local level, with an emphasis on practical skills. We achieved this through skills-based workshops and engaging panel discussions with a wide variety of experts in their respective fields. Students had critical reflections of their personal agency as future physicians and students in advocacy work. The two key issues of the forum this year were diversity in the physician workforce and gun violence control. These events culminated in scheduled meetings with legislators on Capitol Hill, where students advocated for these issues deemed critical to the mission of the SNMA.

This year we boasted 22 attendees from 6 regions, a marked increase from previous years. Students also had the opportunity to take advantage of sessions being hosted at the concurrent NMA Annual Colloquium.

The 2013 National Advocacy Forum was led by the following SNMA members:

HPLA Immediate Past Chair: Walter Wilson Jr.
HPLA Immediate Past Vice Chair: Corrie Burke
National Advocacy Forum Co-Chairs: Denise Asafu-Adjei and Charlotte Gamble, Past HPLA Fellow
National Advocacy Forum Committee Members: Jarrell Gary, Nathan Jones, and Joseph Stringfellow
Thoughts from the National Medical Association Annual Convention & Scientific Assembly in Toronto, Canada. Cortlyn Brown, SNMA Publications Co-Chair

According to good ol’ Webster, the mission of an organization is “a preestablished and often self-imposed objective or purpose.” A mission is, therefore, not to be taken lightly as it the cornerstone of what each organization stands and reaches for. I have paraphrased the SNMA mission below.

To enrich the clinical potential and social empowerment of both our and the next generation of minority health care providers; to address in our own community the persistence of racial health and health care disparities; to help support, through any issue-related events, the understanding within all departments in the university regarding the impact of such disparities; and to help augment the number of skilled lab-to-bedside patient-oriented, socially conscious health care providers.

While it is important to know the mission of any organization that you are a part of, it is also important to look at the mission of other organizations, like the one below.

To advance the art and science of medicine for people of African descent through education, advocacy, and health policy to promote health and wellness, eliminate health disparities, and sustain physician viability.

Upon reading both statements, it is impossible to not notice their similar goals and means for accomplishing these goals. The second mission is that of the National Medical Association (NMA) and I was constantly reminded of, and inspired by, the similarities during my trip to the National Medical Association Annual Convention & Scientific Assembly in Toronto, Canada the weekend of July 27th.

As stated in the SNMA Policy and Procedure Manual (PPM) the, “…. Student National Medical Association (SNMA) will, in all probability, be the National Medical Association (NMA) of tomorrow.” With such a similar heart beating behind each organization, how could this not be true? I cannot count the number of SNMA premedical students that grow into SNMA medical school students who blossom into successful NMA physicians. At this particular conference, there were nine individuals representing SNMA including President Johnson, Vice-President Mpasi, Chair Brown, President-Elect Sampson, Region 5 Director DeShawn Hickman, Internal Affairs Co-Chair Michael Harrell, Region 5 Webmaster Abner Murray, and myself (Publications Co-Chair).

While there were way too many activities to mention (literally over hundreds of events on the schedule) when asked about one fact that you learned/where you learned it many of our members pointed to the Hepatitis C in African American Consensus Panel Workshop. President Johnson described this event by stating that, “During this session, I learned about the disproportionate affect this disease is having on the African American male. 1 in 7 African-American men over the age of 40 are infected with Hepatitis C. These numbers are astounding and it is important that we as students understand the long term effects so that we will be ready to care for our community.”

Another event that was a resounding favorite was the Council on the Concerns of Women Physicians Luncheon. According to Vice-President Mpasi, “My favorite event was the Council on the Concerns of Women Physicians (CCWP) Luncheon lead by speaker Judy Smith, the inspiration for the Scandal Series. The opportunity to sit in a lunch with such remarkable successful African-American physicians was truly empowering. As medicine was once a profession dominated by men, the dedication and perseverance of women that have come before me, have now afforded me opportunities to achieve and be as equally successful. Also, to hear the accomplishments and remarks of the award recipients reminded me of the impact we as African-American physicians have and will continue to have on our communities. And it was great to celebrate the award of our very own National President, who received the 1st annual Student Award from the CCWP.”

This brings me to another very important point. Not only did SNMA members represent but also we represented to the fullest! President Johnson was awarded the prestigious Council on the Concerns of Women Physicians (CCWP) Student Award and Internal Affairs Co-Chair Michael and I were selected as Rabb-Venable Ophthalmology fellows. The Rabb-Venable program is a part of the Ophthalmology Section, which is chaired by our very own SNMA Professional Board Member Dr. Daniel Laroche. The program is designed towards increasing the interest of underrepresented minority medical students in the field of ophthalmology and increasing the number of underrepresented minorities in academic medicine.
In addition to our individual accomplishments, we were able to work as a group and successfully raise $12,000 for the SNMA. According to Vice-President Mpasi, this was accomplished using the “if you build it they will come” theory and we definitely built it only this time “it” wasn’t a baseball diamond under a corn field but rather an extravagant booth at the exhibit hall complete with a banner, SNMA hustlers (us), a cowbell, and a photo booth!

I leave this event with countless connections, memories, and empowering information about disparities affecting our communities. It will, and currently is, our job as SNMA members to fight to ameliorate these disparities. According to Vice-President Mpasi, “The NMA convention reminded me that as physicians we still need to stay involved. As physicians in a new era and different social climate than our predecessors, we will be at the forefront of medical advances, new health policy infrastructures and educational programs that will directly impact our communities. It was wonderful to see all the physicians engaged in workshops, small group sessions and business meetings, heavily engaged in discussion on how to effect change in health care and target health disparities. The conference really enforced my perspective that in order for us to effect change, we must continue to invest in the efforts of the SNMA and NMA in order to promote the mission of our organizations.”

Figure 1 (upper left): Dr. J. Nadine Gracia, 1st SNMA President Emeritus. Figure 2 (upper right): SNMA members enjoy comedy show from DL Hughley. Figure 3 (lower left): SNMA Members at SNMA booth. Figure 4 (lower right): The Council on Concerns of Women Physicians—Student Awardee SNMA National President Courtney Johnson (center).
Oluwakemi Tomobi, SNMA Publications Co-Chair, Editor In-Chief, Journal of the SNMA

“We are all a little hypoxic, that’s why we are so happy,” Dr. Richard Krugman, Professor of Pediatrics and Dean of the University of Colorado School of Medicine joked as he greeted the SNMA family, at the June National Leadership Institute for SNMA leaders and other members. As Dean Krugman went on to describe the school, I was amazed at the newly-constructed and renovated campus. In addition, I found the community very “interprofessional,” in that there were several different professional schools, including the School of Medicine, Pharmacy, Physical Therapy, and others which made up the health campus. Therefore, I sensed there was ample opportunity for multidisciplinary team collaboration, which is crucial for patient care. I also noticed a strong showing and support from pediatric faculty and pediatric subspecialty faculty, an observation important for anyone who would like to pursue pediatrics or its related subspecialties.

Speed networking opportunities abounded with other SNMA leaders as well as attendings and residents from the University of Colorado Medical Center. The following morning, the Medical Center had a residency showcase of different specialties, ranging from anesthesiology to internal medicine, and from pediatrics to emergency medicine. Premedical students, medical students, and residents gathered around with the attendings representing various specialties to get advice on what to do now, to prepare to match into certain residency programs of interest.

Several communication workshops were conducted by internal medicine faculty, such as “Communication: what you can’t get by text” by Dr. Nicole Zhengher. She delivered an amazing, impactful, insightful presentation and workshop on the importance of feedback in education. A story about how Radio Shack employees were fired led to the discussion on reasons for communication, and feedback. Then conference participants engaged in a feedback exercise activity in which they had to draw an image, first without being able to ask for clarifications, and then second with the opportunity to ask for clarifications and get immediate feedback. Participants discovered that in the absence of feedback, there was more uncertainty and frustration in following the directions, whereas in the immediate feedback that came from asking clarifying questions, participants were able to get assurance and guidance on how to draw the image and complete the task. In another presentation, participants worked on different conflict resolution strategies.

Just before lunch, Mr. Michael Jones from the University of Mississippi Medical Center discussed “Community Health Advocacy.” He described that he was passionate about patient engagement. He stated that America needed more primary care physicians to address the underserved population, and that while increasing the number of trainees would help address the physician shortage, he proposed that people in the community should also take a more active role in their healthcare, so that patients can have increased health literacy.

The noontime talk addressed health disparities in Native American populations. Immediately afterward, A research poster forum was conducted and included projects ranging from basic science to medical education to clinical research. The research forum was an initial effort by the SNMA Physician Researcher Initiative to encourage more members to pursue research opportunities and consider careers in academic medicine. In the evening, we had then had a media presentation by producer Mrs. Tanika Gray-Valbrun, where we learned more about what makes a good story for the media.

Throughout this jam packed weekend, SNMA leaders were invigorated in the drive and vision for SNMA moving into this critical celebration year. The SNMA raised money to support science fair projects at Skinner Middle School. In addition, all were further educated about the mission of the SNMA. We have much to do, and even much more to celebrate! Hypoxic or not, we were indeed very happy to be in Colorado, and we are grateful to the students, faculty, and staff who helped to make this event a memorable one.

To follow June NLI, we discuss the 50th Anniversary celebration at the September NLI at Mayo Clinic, in Rochester, Minnesota. We will discuss the 50th anniversary celebration at the January 2014 NLI. The January NLI will take place, at Tuskegee University, in Tuskegee, Alabama.

(Continued with photos on Page 14)
At each National Leadership Institute (NLI), the host SNMA chapter chooses a community service project for NLI attendees and SNMA members. In June, the University of Colorado School of Medicine students chose to support Skinner Middle School and their science fair. Every year, the students struggle to afford participating in their beloved science fair. As a result, SNMA donated some art supplies and $1015.00. Mr. Dominic Martinez, Senior Director of the Office of Inclusion and Outreach, who spoke on the school's behalf during the conference, had the following to say, "I truly want to thank you for supporting Skinner Middle School. The $965.00 that the Student National Medical Association (National Community Service Committee) raised for Skinner Middle School students will go a long way in providing science fair registration fee scholarships. The science fair has not occurred yet, however, 30 Skinner Middle Schools students attended a one week Health Sciences Summer program this year and they were required to research an health issue and than they present it to their family, peer leaders and faculty on the Anschutz Medical Campus. We are proud to have supported the needs of the local community and the academic enrichment of the youth during our conference! During our National Leadership Institute (NLI) at Mayo Clinic in Rochester, MN from September 6th-8th, we had our service event support our TODER protocol. Locate the Be the Match table took place on Saturday, Sept 7th. We raised more awareness about Be the Match as an organization so people can start their own drives at their own institutions. You can still help by educating the local community and minority populations on the importance of increasing the number of minority tissue/organ donors, which will be beneficial for people with conditions such as sickle cell disease, for which a bone marrow transplant is the cure.

October has arrived! It is time to focus on the Obesity Prevention Protocol, and we are encouraging all chapters to participate in The Weight of the Nation, which is also a Presidential Initiative. If you obtained a DVD kit, host a screening in your community this month. Even if you have not received a DVD kit, you can stream the videos from theweightofthenation.hbo.com. We've created a quick summary of the DVD content to make it easier for you to identify videos you feel speak best to your audience. It can also be found on our committee webpage. Start viewing and let us know how your showing went! Photos encouraged as well. If you have any questions, feel free to contact us at communityservice@snma.org.

Additionally, don't forget to apply for the Fall Community Service Grant! Deadline is October 15th.

Avianne Mills Bunnell and Raina Wallace, SNMA Community Service Co-Chairs

From Left to right. Figures 1&2, poster projects from Skinner Middle School Students in Denver, Colorado. Figure 3: Be the Match bone marrow drive at the Mayo Clinic in Rochester, Minnesota.
Andrew Taylor Still, MD is the founder of osteopathy and established the first American school of Osteopathic Medicine in 1892 at Kirksville, MO. Dr. Still, Civil War Surgeon, founded Osteopathy on the principal that the best way to fight disease was by naturally stimulating the body’s immune system because he believed the human has the ability to self heal. One of his first lessons is osteopathy: “So I let the rope down to about eight inches off the ground, threw the end of a blanket on it, and lay down on the ground and used the rope for a swinging pillow. So thus I lay stretched on my back, with my neck across the rope. Soon I became easy and went to sleep, got up in a little while with my headache all gone.” This technique that he then discovered is now known to us as the Occipitoatlantal Myofascial Release.

Recognition as an osteopathic physician did not come easy and did not come without a fight. By 1973, DOs were given full practice right in all 50 states, after Mississippi passes law granting full practice rights to DOs.

Now you ask, what is osteopathic medicine? Osteopathic medicine is a distinct form of medical practice in the United States. Osteopathic medicine provides all of the benefits of modern medicine including prescription drugs, surgery, and the use of technology to diagnose disease and evaluate injury. It also offers the added benefit of hands-on diagnosis and treatment through a system of therapy known as osteopathic manipulative medicine. Osteopathic medicine emphasizes helping each person achieve a high level of wellness by focusing on health promotion and disease prevention.

Osteopathic physicians, also known as DOs, work in partnership with their patients. They consider the impact that lifestyle and community have on the health of each individual, and they work to break down barriers to good health. DOs are licensed to practice the full scope of medicine in all 50 states. They practice in all types of environments, including the military, and in all types of specialties, from family medicine to obstetrics, surgery, internal medicine, orthopedics and aerospace medicine.

Techniques used by osteopathic physicians focuses on the musculoskeletal system to encourage the self-healing mechanisms of the body. It is a hands-on treatment that is utilized to diagnose and treat patients. Osteopathic Manipulative Medicine (OMM) can be used to alleviate sore back, sore neck, headaches, GI problems, etc…

As the osteopathic profession continues to grow, many physicians and organizations within this field of medicine have made their mark, leaving future DOs with big shoes to fill. Latoya Branam, OMS-III wrote a piece for black history month highlighting a great physician, mentor and dear friend, Dr. Anderson. She writes “Dr. William G. Anderson is one of the most revered black physicians in history, not only for his strides in medicine but for his role in the civil rights movement as well. He championed the fight for civil rights as the founder and first president of the Albany Movement and worked alongside Dr. Martin Luther King Jr. In his medical career he has broken down barriers by becoming the first African American member of the Board of Trustees for the American Osteopathic Association (AOA) and the first African American to serve as president of the AOA. He has served as chairperson and advisor to several boards and has served as associate dean of Kirksville College of Osteopathic Medicine. Dr. Anderson is held dear to the hearts of National Osteopathic medical Association (NOMA) and its member as he also founded NOMA in 1992.” The purpose of NOMA is to provide leadership to and improve the representation of minorities at all levels within the osteopathic profession; and to heighten the awareness of the osteopathic profession in the minority community.

“I went to an osteopathic medical school because I believe in the whole person approach to patient care. A lot of times, a doctor’s only focus is on the problem at hand, which can lead to a missed diagnosis or missing another problem that may be contributing to the patient’s main chief complaint. Osteopathic medicine has taught me to dig deeper and get the whole story to make a better informed decision that will impact the patients care for the better.”- Emelia Solomon, OMS-III
(Reminiscing our Past—continued)

I will now leave you with the Four Tenets of Osteopathic Medicine:

1. The human being is a dynamic unit of function.
2. The body possess self-regulatory mechanisms, with inherent self-healing properties.
3. Structure and function are inter-related at all levels. Rational therapy is then based upon this understanding of body unity, self-regulatory mechanisms and the inter-relatedness of structure and function.

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References:
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The Student National Medical Association Presents Before Accreditation Board

By: Charee’ N. Howard, OMS-IV, M.Sc.

On April 6, 2013, past Osteopathic Schools Committee Co-Chairs – Charee’ Howard and Rodrick Stewart – traveled to Chicago, Illinois to present before the Commission on Osteopathic College Accreditation (COCA) Standards Review Committee in an effort to increase diversity in osteopathic medical schools.

This invitation was prompted by a letter sent on behalf of the Student National Medical Association (SNMA) to implore COCA to follow the precedent set by the Liaison Committee on Medical Education (LCME) by establishing diversity requirements for the accreditation of osteopathic medical schools. In 2009 the LCME established diversity requirements for accreditation of all allopathic medical schools. The new standards for accreditation include language requiring all allopathic institutions issuing Medical Doctor degrees to recruit and retain students and faculty from diverse backgrounds.

During the presentation, the SNMA was able to define diversity, provide statistics demonstrating the exponential growth of the osteopathic medical profession, and discuss about the disproportionate number of under-represented minority (URM) medical students, faculty and staff. In addition, we were able to highlight best practices and models from institutions that promote diversity - such as the University of Medicine and Dentistry of New Jersey School of Osteopathic Medicine and Ohio University College of Osteopathic Medicine.

Various members of the Standards Review Committee of the COCA noted that the presentation was effective and applauded the efforts and gumption of SNMA. The Standards Review Committee will review the proposed changes more extensively and present to the COCA Board for further consideration. The SNMA is working to ensure the lines of communication remain open between both organizations.
National Leadership Institute

From Left to Right, starting from the upper left, ending at the far lower right figure. Figure 1: NLI Conference Attendants. Figure 2: Faculty Lead discussion on conflict resolution skills. Figure 3. Conference Attendants during a break. Far left—SNMA National Secretary, Dea Sloan, center, Region 9 Director Hope Taitt. Figure 4: National SNMA President–Elect Topaz Sampson at Research Forum. Figure 5: Speed Networking with Students, Residents and Attendings at the University of Colorado Medical School. Figure 6: 2013-2014 SNMA Regional Directors pose after a Board of Directors Meeting.
There is an ever-growing need for diversifying the healthcare fields to meet the growing needs of diverse patient populations. I would like to share one way the Student National Medical Association (SNMA) has decided to address this issue. The Pipeline Mentoring Institute (PMI) is the formal collection of SNMA-supported programming meant to address the educational pipeline of underserved youth from elementary school to college, with the ultimate goals of igniting an interest in health and science, distributing science and healthcare-related tools supportive to their education, and to provide pre-medical students with mentors and guidance to assist their entry into medical school.

Pipeline programming has always been a cornerstone to SNMA’s mission. Student leaders have recognized the need to lend a hand to those students that follow them, whether in second grade or second year of college. The subcommittee and I are here to be resources for chapters, from those looking to start a program with no funds to those wishing to step-up their activities to those with the top resources and wanting to share. While there are many great programs out there with much larger budgets, my role as PMI Dines Fellow is to know what is going on in chapter programming across the country. This collection of information is so that best practices can be shared from coast to coast, raise awareness, and reward chapters for their efforts.

Objectives for this piece:

To provide chapters an understanding of PMI in regards to its mission, programming, and structure
To highlight activities from the 2012-2013 year, including the previous PMI Grant award winners
To overview the goals and plan of action for the 2013-2014 academic year

PMI 101

Some of the goals of PMI are to:

- Increase visibility of already-established and effective PMI programming on the national level.
- Increase visibility of the PMI opportunities for local SNMA chapters.
- Increase feasibility of chapters to take on the responsibility of the PMI through the pursuit of increased funding, development of program evaluations, and expansion of the resources available through the PMI protocol manual.

The Fellow and PMI subcommittee are not here to oversee details of the strong programming already taking place across the country. We want to take a national look at the collective force in order to better provide support to those chapters. Additionally, we are meant to be resources for those chapters beginning to form pipeline programs.

Within PMI, there are three main program areas to address the needs of the underrepresented students at the elementary and middle school level, the high school level, and the college and post-baccalaureate level.

The Youth Science Enrichment Program (YSEP) includes lessons led with elementary and middle school-aged children to expose them to the broad category of the sciences and motivate them for the future.

The Health Professions Recruitment & Exposure Program (HPREP) includes lessons geared towards high school students to increase their awareness of professions in health careers.

The Pre-medical Minority Enrichment & Development (PMED) programs are focused towards college and post-bac students with the goals on enrolling and excelling in medical school. These are programs run by the SNMA chapters. Also, embedded within this area are the Minority Association of Pre-medical Students (MAPS) chapters. These chapters are run by the pre-medical students with support and guidance from their base SNMA chapter. On a national level within SNMA, their MAPS leaders; PMI serves as another outlet to support that programming.

The Brotherhood Alliance for Science and Education (BASE) is another set of pipeline programming run through another national coordinator. This program is structured to support chapters with the goal of increasing the number of minority males to enter medicine and other health careers.
I’d like to clarify a common misconception about the definition of these programs. YSEP, HPREP, and PMED/MAPS are the SNMA official titles for programs geared at the specific age groups. Your chapter is likely already doing amazing things with pipeline programs. When it comes to documenting, even if you refer to it by another name, we track (via your quarterly reports) the successes under these categories. While there is currently no set curriculum within the three PMI programs, the heart of any PMI programming is long-term mentoring. PMI programs are where your chapter members interact with the same group of students (more or less) over multiple sessions. Nevertheless, for documentation, still mention your other activities as other pipeline programs but help distinguish those with a larger mentoring component versus only tutoring or one-time events.

2012-2013: Year in Review

The past academic year was a success in many ways for PMI. For starters, five chapters (six programs) were awarded Pipeline Grants to support their ongoing work: **Columbia University’s Young Docs** program (YSEP & HPREP), **Cornell Medical College’s HPREP and Science and Medicine Enhancement Program** (YSEP), **Florida State University’s Science Students Together Reaching Intellectual Diversity and Excellence** (HPREP), **Ross University’s Mini-Med School Project** (HPREP), and **University of North Carolina’s MAPS**. These programs all exhibited amazing goals for the year with their programs and then easily exceeded those goals based on their reports.

**Columbia’s Young Docs**: Working in Washington Heights in New York City and reaching over 100 students in the programs, Columbia’s SNMA members led events at local elementary schools, covering topics such as anatomy/physiology and motivations for entering medicine. They even spoke with the students about leadership and how to stand out for their communities! They also conducted workshops for high school students with hands-on skills related to medicine, including basic first aid and measuring vital signs. At the core of both of their programs was a focus on exposure, as the student saw that there is more to medicine than just seeing sick patients; there can be community work and service, leadership, research, and even entrepreneurial endeavors.

**Cornell’s HPREP**: In working with high school youth in New York City, these SNMA members led 80 high school students through ten lecture events and five other mentoring workshops. The lectures led students through topics on healthcare and applying to college. At the start of every lecture, students had workshops on the basics of a single chronic disease, covering not just the basic and clinical science behind the disease, but also the epidemiology, social, and policy impact associated with it. One of their goals for the upcoming year to integrate a problem-based learning session with these students, allowing the high schoolers to think through a clinical case, just as we do in medical school.

**Cornell’s Science and Medicine Enhancement Program**: In another separate program, Cornell works with middle school students using the philosophy of learning through action and then placing that learning into action. In a multi-tiered program within a local school, they worked with 15-20 students from each grade (6th-8th). They were engaged throughout the year in hands-on activities, developing lessons for each grade of students based on their levels. These included different organ systems, basic science lectures, and even problem-based learning. At the end of the year, the students (with mentors support) presented within a Community Health Fair.

**Florida State’s Science Students Together Reaching Intellectual Diversity and Excellence (SSTRIDE)**: Over multiple sessions, Florida State worked with middle and high school students from rural and underserved communities. Sessions occurred at both their schools and on the medical school campus, allowing these students to really experience the medical student life. One of their larger events for the year was a Summer Institute Fitness Fair with students enrolled in a university summer program. Students were led through stations centered on leading healthy lifestyles, including nutrition, exercise, and the science and costs of obesity.

**Ross’s Mini-Med School**: Ross had over 80 high school students visit the campus during multiple Mini-Med days. High school students received campus tours and presentations by a variety of individuals from the university. In groups led by the medical students, the participants engaged in hands-on experiences through their anatomy lab and simulation lab.
UNC’s MAPS: UNC hosts an extensive pre-medical student relationship with four different MAPS chapters as well as four other associate chapters. The cornerstone of their achievements was their ability to match nearly 70 MAPS participants with their own individual medical school mentor in their Big Buddy Program. To help foster these relationships, they hosted numerous social outings for all participants. They hosted educational events for the MAPS students, including career panels, application advice, and skills workshops. Additionally, they were able to sponsor ten MAPS members to attend the SNMA Annual Medical Education Conference (AMEC) in Louisville.

As you can see we have a diverse group of programs working within different levels of PMI. In addition to programs sponsored by each school, through the subcommittee, we were able to host GenNext, a single pipeline event for high school students in the area around AMEC that has been a component of the past three conferences. Over 40 high schoolers from Louisville attended. We had volunteers from across the country, representing MAPS members, SNMA members, and attendings. The students had breakfast with MAPS, toured the exhibitor halls to speak with medical schools (and even hear about their programs geared towards high school and undergraduate scholars), had special sessions for them on leadership, and met some amazing mentors to shadow for part of the day.

2013-2014: Action Plan

For the upcoming year, we want to continue some of the best practices and expand our organizational outreach. Last year, 20% of the SNMA chapters filled out surveys about the community service and pipeline programming. One of the most outstanding things to me was that while 80% of the respondents were hosting pipeline programming of some sort, only 15% knew a PMI protocol was available. Even worse, only 7% knew that the Pipeline grant existed! So in response to the surveys, the PMI subcommittee will have its work cut out for us to increase our knowledge of the different resources we have. This article is the first attempt!

Here is an overview of upcoming events as we anticipate a larger rollout for the fall, so be on the watch.

PMI Manual: Part of the rollout will include a basic guide to PMI. One of the big pieces people asked for was information on how to get started, as chapters can always use more tips to further success. The manual will also include best practice tips from chapters who have hosted successful programs and want to share their findings. There will be some specific lessons included in the basic manual as well. While this will not be a part of the rollout, we also will be working on shareable lessons and a way for chapters to share their best practices.

PMI Grants: As a continuation from previous years, over $10,000 will be disbursed in PMI Grants. While details will be finalized, there will be larger grants for larger projects, grants set aside specifically for chapters wanting to start a program, and grants available for chapters hosting single events, like fairs or “Med Days.”

PMI @ AMEC: From my history with pipeline and AMEC, the 50th AMEC would not be complete without PMI programming for high school students. Stay tuned. There will be many high school students present with us. There will be opportunities for CHAPTERS to lead them through a few sessions.

I hope that every chapter is able to read this and share widely. In order for us to supply more resources to help you at the chapter level, we need to know what’s going on so that we can continue to support you in any way possible. Even funding possibilities are tied to how much we know about your programs. So do be kind, fill out the surveys and CRF forms about your events. We will grow this even larger! Be on the lookout for the PMI rollout this fall. If you have any thoughts, questions, or interest in being more involved with pipeline at the national level, email PMI@SNMA.org.
Figure 1 (to the right): Students from Columbia’s Young Docs program are hard at work teaching these elementary students about the bony anatomy.

Figure 2 (to the left): Some Florida State University students working with the SSTRIDE program are taking secondary school students through the basics of using a microscope.

Figure 3 (to the right): The Dines Fellow of the Pipeline Mentoring Institute, Robert Trevino, showing his intubation skills to a student in Rush Medical College’s HPREP.
Tour for Diversity in Medicine: Motivating and Captivating!

Kameron Leigh Matthews, MD, JD, Co-Director, Tour for Diversity in Medicine; Past SNMA National President; Member, SNMA Strategic Planning Council
Brandon Henry, MD, Tour for Diversity in Medicine; Past SNMA Region 6 Director; Member, SNMA Strategic Planning Council
Charnell Cain, DO Candidate, Lincoln Memorial University-DeBusk College of Osteopathic Medicine; Tour for Diversity in Medicine
Alden Landry, MD, MPH, Co-Director, Tour for Diversity in Medicine; Past SNMA Premedical Board Member: Past SNMA Professional Board Member

Conceived by a former Student National Medical Association (SNMA) National President and Premedical Board Member, the Tour for Diversity in Medicine (T4D) was created in response to a great need. Beyond the mere desire to diversify the workforce with increasing numbers of underrepresented minorities in medicine, we recognized the need to reach out to students that were not within the current reach of SNMA. While SNMA has historically made a significant impact on medical school campuses and surrounding undergraduate institutions by means of Minority Association of Premedical Students (MAPS) chapters, there was an obvious need to connect with premedical students that were outside of that umbrella. How were we going to help those students that SNMA could not reach, that may have weak advising systems but not be exposed to our Premedical Forum, that may not be near those academic medical centers that offer volunteer programs or shadowing experiences? We needed to step outside of our box and go directly to those students. And we decided to do so by bus!

T4D specifically visits those campuses and seeks out those students that are not in the large cities, that do not have strong track records for medical school admissions, and that need additional sources of motivation. Our mission of meeting a national need for diversification of the healthcare workforce by making local connections is epitomized by our decisions regarding where we host our programming. While we do not feel that our programming is a single solution to this national priority, we do feel that we provide our student audiences with personalized exposure and motivation that will assist them along their paths to medicine and dentistry. These student audiences are an untapped resource for our future - and we enjoy sharing our experiences and our resources with each individual student.

T4D brings along young physicians and medical students with phenomenal backgrounds and strong presentation skills - our purposeful recruitment is also key to our success. Our students and physicians are from a wide range of specialties, are life members and/or alumni of SNMA, Latino Medical Student Association (LMSA), Summer Medical and Dental Education Program (SMDEP) and National Medical Fellowships (NMF), have multiple dual degrees, represent multiple Greek letter organizations, and practice around the nation. We are proud of our own diversity - and how our unique stories are able to further encourage others to obtain their dreams.

Students as well as other organizational leaders from the SNMA and LMSA are key players in the successful model that T4D promotes. T4D could not exist without the commitment of its SNMA and LMSA members and is continually looking to include more medical students in its programming. Students represent the very next generation of healthcare professionals, so it is fundamental that they become and remain active in the process of inspiring other future professionals and diversifying the profession. Having medical students from every year provides a real-life depiction of medical school from which physicians are sometimes disconnected. Medical students can share their recent application and interview anecdotes, share current curriculum hints, and provide insight on current medical school trends. Our physicians therefore not only seek to motivate our premedical audiences, but also mentor our carefully selected medical students who are willing to sacrifice their vacation time to our mission.
We learned a lot on that first Tour. It seemed very easy to stand in front of an eager group of students and give lectures about what you should do to be successful in getting into medicine and dentistry. We started by presenting very vague information: “if you do A, B, C, D, all the way to Z, you too will make it and be successful.” All the while, we pictured that the students were sitting there shaking their heads and either thinking to themselves: “It’s easy for them to say that because they have made it,” or “there is no way that I can do all of this; they don’t understand my situation.” We quickly understood that this method was an easy way to lose students and have them disengaged. We also learned from the questions posed about our personal stories and individual paths. We soon adjusted our presentation style and information to include personal storytelling, mentoring, and relationship building; as a result, the Tour became a force to be reckoned with!

Using this model of curriculum and emphasizing mentor connections really captivates our students. One of our favorite and most common comments quickly became “I can do this!” Many times students who are going through this process feel as though they are alone and that nobody understands their struggles; however when you have young physicians, dentists and medical students who look like you and have been in your circumstances (or some even worse), you can see yourself in them. We share our stories with the students so they can feel empowered and know that they can and will make it. We share our stories to give hope to that student that feels hopeless. We share our stories because we hope to make an impact on people in a way that will change their lives for years to come.

In September 2012, we engaged students at Georgia State University, Fisk University, Kentucky State University, Indiana University Bloomington, Central State University, and University of Michigan-Dearborn. We expanded our audience beyond just HBCUs to larger state schools where students can sometimes feel alone and want a little more support. Further expansion in February 2013 included several Hispanic Serving Institutions. Focus only on the great state of Texas, we travelled to University of Texas at El Paso, University of Texas at San Antonio, Texas A&M International University, Texas A&M University Corpus Christi, Prairie View A&M University, and Texas Southern University.

At all of these campuses, we have made considerable efforts to make connections with the advisors. We realize that our curriculum is only meant to supplement their dedicated efforts. A single day of workshops is not enough to assure our students success. Instead we provide our insights to the local advisors in an effort to assist them in the daily relationships that they form with our diverse student population. Our partnership with the National Association of Advisors for the Health Professions (NAAHP) assists with our efforts as we include enthusiastic advisors on the Tour as well.

T4D aims to be a refreshing source of information and motivation to students who have the potential but still need a little guidance. Students get lectured enough in school and are often merely given the basic steps to apply to medical school without a focus on context. T4D differentiates itself by adding another layer of knowledge, emphasizing actual experiences, motivation, and mentoring. Each physician, dentist and medical student on the Tour recognizes the importance that mentoring has held in their own life. We are neither afraid nor ashamed to tell our stories; we seek to be upfront and real with our students. Students at a T4D stop finish a day with the Tour understanding that it will be a tough road, but they have a better sense of how others have been made successful despite obstacles. This is how T4D makes its connections with our students and this is why T4D without a doubt is a game changer!

On our September 2013 Tour, we reached out to a new audience and worked with high school students to foster interest in careers in the health professions. T4D is constantly searching for fresh faces with interesting stories to join our team and motivate the next generation of dentists and physicians of diverse backgrounds. If you are interested in becoming involved with the Tour for Diversity in Medicine or with our expanding portfolio of mentoring activities, visit our website at www.tour4diversity.org and connect with us on Facebook, Twitter, and YouTube for more information!
My Fabulous Medical Summer in Houston, Texas

By Krystel Edwards, B.A Candidate, The City College of New York

I didn’t know what to expect when I got off the plane at Houston Hobby International Airport. I was filled to the brim with mixed emotions and trying to sort out the truth about Texas. Did students really wear cowboy hats to class? Are the people friendly? Would this program confirm my decision to go to medical school? I didn’t know and I couldn’t wait to find out.

I have wanted to do the Summer Medical and Dental Program, or SMDEP for short, since the beginning of my freshman year at the University of Miami. I originally applied for University of Washington and UCLA but I got rejected for both programs and had to wait another year until I apply again. I did not let that rejection stop me. I made sure I had my application ready before the online application was up for the 2013 deadline. I knew I wanted to travel and see more of the United States as well as see if the medical field really fit for me. The application wasn’t difficult but it was long. Two essays were required for admission and even some short answer questions. The application tried to gauge not only your reason for going into medicine but how will you help combat health disparities particularly in the minority community. I conveyed how determined I was in helping the inner-city community I grew up in as well as my passion for travelling all over the world. I wasn’t expected to get accepted especially when I had been rejected before, but in February I found out that I had been accepted into two programs- Howard University as well as the University of Texas-Houston. I had to make a hard decision between going to Houston and Washington D.C. Most of my family members urged me to go to Washington D.C. because of its historical significance, its close proximity to NYC where I am from and the fact that Howard was one of the top schools for practicing and learning medicine. However, I went against their guidance craving to get out of my comfort zone and explore an area that I was totally unfamiliar with. That decision led me to come to Houston.

I was shell-shocked when I finally entered The Texas Medical Center. I had never seen so many hospitals in one place. The street was literally lined with different institutes ranging from the Texas Children’s Hospital to the Memorial Herman Heart and Vascular Institute. What made it even better was the fact that it was within walking distance from the Rice University Campus which is where we stayed. After seeing where I would be spending the next six weeks at, I felt ultimately blessed to have this opportunity. Not only would I get to attend medical seminars on disparities, health policies, and how to get into medical school, I would be getting opportunities to shadow and interact with clinicians in a multitude of areas.

The first two weeks were hectic. We had class everyday Monday-Friday from 8 am to 6pm. This program gave us the full medical school experience. We had five classes- Microbiology, Human Anatomy, Organic Chemistry, Physics, and Statistics that we rotated through every day. I was happy about the course selection because I had not taken those courses before. Another experience that was valuable was shadowing a physician. I got to shadow a pediatric ophthalmologist and find out on a more personal level about getting into medical school and the difficult but rewarding journey of becoming a doctor, and shadowing helped me put things into perspective and really get a feel of what I might be doing for the rest of my life.

Though I was homesick at first in the beginning of the program, being surrounded by the same 80 students everyday helped me bond with everyone. These students became my family. I am normally a shy and quiet girl but I became more outgoing the more I spent time with my fellow peers. Though, the staff did not take us on any formal trips. Many of the students arranged trips to the zoo, the beach and the arcade. There was never a dull moment at the SMDEP House. I encourage every minority pre-medical student to apply for SMDEP and to not become discouraged if they don’t get into the program on the first attempt.. This is an amazing opportunity even if there might not be as much clinical exposure as expected or planned activities. It is still a great program that contains a wealth of knowledge and will only aid in your journey into becoming a well-established physician.
Howard University SMDEP Program
Clementine Namba, SNMA Associate Member, B.S. Candidate, Binghamton University

I have always told myself that every summer I should be involved in a program or activity that would provide and enhance the qualities I have to becoming an exemplary physician. After my freshman year, I had the opportunity to work in a lab at Binghamton University with the purpose of testing different therapies that can improve the treatment of Parkinson’s disease. The following summer, last summer, I decided that I wanted to take a closer look at medicine. With advice from my advisor, mentors and my own personal investigation, I applied to the Summer Medical and Dental Education Program (SMDEP). SMDEP’s mission is to increase the number of highly qualified medical and dental school applicants from minority groups that were underrepresented in medicine and dentistry.

I participated in the Howard University Program. To begin with, I was amazed and proud to see others that looked just like me with the motivation and ambition to become successful physicians and dentists. Throughout the 6 week program, we took courses such as Biochemistry, Organic Chemistry, Genetics, Physics, Health Disparities and Communications, all of which were favorable in improving our science skills while preparing us for the upcoming school year. We also visited the National Institutes of Health (NIH) in Bethesda, Maryland to learn more about post baccalaureate programs and what steps you can take if you don’t directly apply to medical school after getting the Bachelor’s degree. We had weekly town hall meetings to keep us informed about upcoming activities, and, more importantly, offer feedback on how to make the program better for next year. Most rewarding to me were the weekly clinical rotations and getting a deeper exposure to medicine. All 78 undergraduate students were assigned different rotations of their choices every two weeks. I shadowed doctors in orthopedics, internal medicine and Physical Medicine and Rehabilitation (PM&R).

Howard University School of Medicine and Dentistry has a mission to serve the underserved population. Before starting my clinical rotations, I was comfortable with my understanding of the meaning of “underserved ”. Little did I know that it had nothing in particular with race or financial status but mostly refers to populations which are disadvantaged because of their ability to pay, to access care ability, to access comprehensive healthcare or other disparities. They usually reside in rural areas and most of the time do not have access to preventive and primary care services and a regular source of care.

While working with that particular population during my shadowing experiences, I was able to see that a physician is not just someone who treats a disease, but someone who treats a person. There were patients that would not follow the treatments that they were given but doctors never let them down but addressed the issue with understanding. The conversation they had with those particular patients was the main part of the healing process and through that they were able to gain trust from those patients and at the end help them help themselves. I remember one of the SMDEP scholars asked a dentist, “Are you not tired of repeating the same thing to a same patient and seeing him coming back for the same issue because he chose not to put the treatment he was given to follow in practice?” I was anxious to hear her answer. Her reply was “I never get tired to repeat something that would help my patients that is my job; my duty and I do it with love, that’s the way to save lives”. To be honest, I have always wondered if a physician was a normal person and wondered how they made it. I learned that physicians are normal human beings, they have normal lives but the only differences is that they have to deal with the complexity of the human body as bank consultants would deal with an individual bank account. They made the choice to care for human’s health. This is just to say that there is not an easy road to success. How did they make it? They learn, apply that knowledge and practice with passion.

My fellow undergraduate pre medical students, the road may be long but not impossible. There is a huge need for care and you can start within your respective communities, educate those who do not about health and how they can take care of themselves. It is with that kind of response that brings about change.

I would like to thank the Robert Wood Foundation. Without it’s funding we would not have such opportunities that nourish our goals to become future physicians or dentists. Every year they motivate thousand of students to discover their interests and most importantly, motivate students to keep their eyes and minds toward succeeding in whatever they desire. As of now I can proudly say that I am an SMDEP alumnus and soon will join the league of hardworking and diligent physicians.
Duke University SMDEP

By Kareem Alexis, Georgia State University ‘15, 2013-2014 MAPS Chapter President

During the Fall 2012 tour of the Tour for Diversity in Medicine, an initiative geared towards motivating and inspiring future health care professionals, a team of dedicated physicians and medical students paid a visit to the campus of Georgia State University located in Downtown Atlanta, Georgia. It was during this very informative program that I was informed of the Summer Medical and Dental Education Program, or SMDEP. SMDEP is a 6-week long summer enrichment program designed for first and second year college students who are interested in careers in medicine and dentistry. This free-of-charge program has been sponsored by the Robert Wood Johnson Foundation since 1989 and is celebrating its 25th Anniversary this upcoming summer. After hearing about this incredible opportunity from the mentors of the Tour for Diversity, I immediately began the application process.

Of the twelve program sites offered, I applied to Howard School of Medicine, UCLA School of Medicine, and Duke School of Medicine. Initially, I was denied admission to all three program sites. However, a week after the April 1st decision date, I received an invitation from the Duke School of Medicine in Durham, North Carolina to participate in their SMDEP program for Summer 2013. I was ecstatic to be reconsidered for this invaluable opportunity. The program site provided a transportation allowance by air or train of two-hundred dollars and a six-hundred dollar stipend broken up into two disbursements. Breakfast and dinner were provided along with an allowance good for lunch at any of the on-campus eateries. Based on the content of your academic transcripts, the coordinators of the Duke program placed the participants into one of five tracks named after prominent minority figures in science and medicine. I was placed into the Shirley Ann Jackson Track, which was comprised of courses in Biochemistry and Physiology. The other tracks were composed of courses such as Cell Biology, Organic Chemistry and Physics. All of the scholars participated in interactive lectures on health care policy, testing skills, ethics, health disparities, personal essay writing, and mathematics.

As a group, we went on field trips to a nearby water park, skating rink and a recruitment fair at University of North Carolina-Chapel Hill. The program encompassed four hours of weekly clinical exposure at the adjoining Duke Hospital in areas from the Pediatric Intensive Care Unit to the Emergency Room. We engaged in dialogue with local physicians at the evening sessions titled “So You Want to Be A Doctor?” Each week, we had the opportunity to practice patient interviewing with standardized patients with seasoned actors who presented with complex and intriguing issues. The classes offered at Duke School of Medicine this summer were challenging and engaging. The Physiology course was taught in a systems format and each lecture was lead by a physician in that respective field. I gained a wealth of knowledge from those lectures and had the opportunity to network with professionals from a wide range of fields. Each week in recitation, our physiology class was broken up into groups and asked to diagnose patients based on a vignette around the week’s lesson. Biochemistry was taught in an interactive format, also. My classmates and I illustrated metabolic pathways and chemical structures during recitation. We played Jeopardy to study for our exams and even made songs and mnemonics to memorize pathways.

Of all these amazing resources provided at Duke, what I appreciated the most was the support systems in place to ensure our success. Teaching assistants were present for each class section and held weekly review sessions. The professors also made themselves very available to answer any questions we had. Although the classes were graded, the most emphasis was placed on one’s improvement in performance for the duration of the program. The faculty at Duke met my classmates and me where we were at and took every step necessary to build our study skills, academic performance and confidence. Mr. Richard Wallace, the Assistant Director of Admissions for Duke School of Medicine, delivered a moving speech at the Larry B. Keith Health Professions Recruitment Fair at University of North Carolina-Chapel Hill. His charge to all of the scholars present from SMDEP, SEP and other summer programs was to “never let our lights go out”. This message impressed upon me the importance of perseverance in the pursuit of a career in healthcare.

SMDEP was a unique and enriching experience and I highly encourage anyone who has ever considered a career in healthcare to apply to the program. It has reaffirmed my desire to become a physician and sparked my interest in health policy and ethics. I formed lifelong friendships at this program and we continually support and motivate each other through our Facebook group. Not to mention, the opportunities for networking provided at SMDEP were endless. The application for SMDEP opens in early November and is due by March 1st. The application requires an official transcript, two essays and two recommendations. Be sure to apply early and visit www.SMDEP.org for more information on the Robert Wood Johnson Foundation, the various program sites and their offerings.
Applying to Medical School: Today’s Questions, Tomorrow’s Acceptance

Quo Vadis M. Webster, MA, LPC

For over fifteen years, Xavier University of Louisiana in New Orleans—the only college in the United States that is both historically Black and Catholic—has been successful in placing African-American students into medical school. My role as a premedical adviser at Xavier is to encourage students to take full ownership of the application process well in advance of application submission to AMCAS (American Medical College Application Service) or AACOMAS (American Association of Colleges of Osteopathic Medicine) during the summer between junior and senior years of college. In fact, the series of advising activities conducted by Xavier’s Premedical Office begin day one of freshman year and continue throughout enrollment, with guidance based upon when the student hopes to enter medical school. This approach is proactive not reactive, allowing premeds to constantly “assess” and “tend to” medical school application tasks every semester and summer session to maximize readiness and competitiveness. Premedical Advising at Xavier is guided by two (2) very important questions that are often asked by medical school admissions committees. Prospective applicants should therefore continually use these questions, detailed below, to increase the likelihood of acceptance.

**Question #1: Can the applicant handle the academic load?** Medical school is HARD!!! Proving that you have what it takes to be successful in medical school, based upon your undergraduate academic performance, is paramount. You should consider…

**Academic Performance:** The first semester for a typical “premed” at Xavier is about 17 semester hours, with 4-8 of those hours in “science” or BCPM (Biology, Chemistry, Physics, Math) courses. The first semester of medical school is equivalent to about 40 semester hours—of science classes! Daphanie Taylor, a Xavier graduate entering her third year of medical school at the University of Texas Medical Branch at Galveston, offers this description of the academic load:

> “An adequate analogy of the differences between undergraduate and medical school workload would be the challenge of eating a half pound hamburger in an hour versus consuming a 72 ounce steak and loaded back potato in the same time frame. One must be able to digest, comprehend, and apply a semester’s worth of information in a matter of weeks.”

It is imperative that you maintain an awareness of the academic load in medical school and plan undergraduate coursework accordingly. Stay abreast of course requirements for medical school by using the most recent editions of requirement books published by the Association of American Medical Colleges (AAMC) and the American Association of Colleges of Osteopathic Medicine (AACOM). Also, be aware that when undergraduate academic performance is analyzed semester-by-semester by admissions committees, they will not only evaluate overall semester GPA, but they will also pay attention to BCPM GPA, total number of semester hours, total number of BCPM hours, and the types of courses taken in a given semester. At Xavier, students pursuing any major may follow the “premedical” curriculum, which includes required courses for most medical schools and some recommended upper-level science courses. In addition to their major and “premed” courses, Xavier students are required to fulfill sixty (60) semester hours of “core” courses across a variety of disciplines, thus broadening their knowledge for tests like the MCAT. Make wise decisions regarding the courses you take and when you take them in relation to application to medical school.

**MCAT:** The Medical College Admission Test (MCAT) is a standardized exam that is used to assess an applicant’s potential for success in medical school and the medical profession. Merely saying “MCAT” can be anxiety producing, sometimes elicting the “I don’t do well on standardized tests” response. By all means, avoid making this statement (or any variation of it) in relation to your application. Why? Committing yourself to medical education means that you are also committing yourself to some type of standardized testing throughout your medical career (e.g. United States Medical Licensure Exam, board certification). Do not give admissions committees a reason to question your ability to prepare for and do well on standardized tests. If you have faced challenges with standardized testing in the past, use that knowledge to adequately prepare in advance for success on the MCAT. Contrary to what some may believe, preparation for the MCAT does NOT begin when you enroll in an MCAT review course. Instead, preparation should commence as soon as you enroll in the required courses for medical school and courses related to specific MCAT content areas. Not only are BCPM courses important but also non-science courses, particularly since they provide an additional platform to cultivate the comprehension and critical thinking skills necessary for the MCAT. Xavier premeds are encouraged to begin preparing for the MCAT freshman year by a) taking all of their undergraduate courses seriously and b) taking steps to routinely cultivate their verbal reasoning skills.
**Letters of Evaluation:** While the terms “recommendation” and “evaluation” are often used interchangeably, the Premedical Office at Xavier prefers the latter because it suggests a more comprehensive assessment of the applicant. Medical school letters of evaluation, particularly from individuals who taught you undergraduate courses, can provide admissions committees with perspective of you as a student. Understand that such evaluations not only take into account your academic performance but also other observations of you by the letter writer. Interaction with classmates, attendance, and even how a student dresses for class are examples of such observations. Be mindful of how you present yourself, at all times and in all ways, to faculty and other potential evaluators. Finally, because no one is required to write a letter of evaluation on your behalf, be considerate by a) asking the faculty if he/she would be willing to write the medical school evaluation; b) giving the evaluator adequate time to write the evaluation (Xavier students begin securing medical school letters in the fall of junior year); and c) providing the evaluator with specific instructions and supplemental items to provide a more thorough evaluation (e.g. personal statement).

**Question #2: Will the applicant be a good physician?** Grades and MCAT scores, while important predictors of ability to successfully complete medical school and pass board examinations, are not indicative of those non-cognitive factors which can show an applicant’s potential to deliver compassionate care. You should consider…

**Post-Secondary Experiences:** Medical schools want to see that you have taken steps in college (i.e. post-secondary) to demonstrate your interest in medicine. If you are “passionate” about medicine, as is often suggested in personal statements, it is imperative to actively demonstrate your interest before you apply the summer between junior and senior years. How can an admissions committee take an applicant seriously if he/she has had little or no post-secondary experience? Involvement in medical and non-medical extracurricular activities that you are genuinely interested in can shape who you are as a person and who you could be as a professional. For example, devoting time to volunteering or working in settings where you have direct contact with patients can substantiate your interest in medicine. Likewise, you must also engage in other experiences that demonstrate your willingness to serve others and nurture your leadership skills. Be careful not to sacrifice your grades for the sake of garnering experience. I often remind Xavier premeds that their experiences are “icing on the cake”; admissions committees will care nothing about the “icing” (i.e. experiences) if there is no “cake” (i.e. good grades and MCAT scores)! Remember, quality and duration of experience trump the quantity or actual number of experiences. It is wise to keep an on-going record of your activities in preparation for application. Xavier premeds are encouraged to use our special Post-Secondary Experiences Form so that this information will be readily available in an AMCAS/AACOMAS format.

**Personal Statement and Other Written Portions of the Application:** Articulating motivation for medicine and who you are as a person that would make you a good physician is easier said than done for many applicants. The personal statement is a work in progress, and this is why Xavier students are encouraged to write and submit first drafts of this essay in the fall semester of freshman year. By doing so, students are ready to apply to summer programs as freshmen and have a “starting point” for continual revision to take place throughout enrollment. As a student has new experiences and evolves academically and personally, so should the personal statement. The academic year before students apply to medical school (i.e. junior year) is fraught with application tasks such as doing well in their coursework, devoting time to an MCAT review course, etc. It is therefore wise to put time and effort into the personal statement early on. The Premedical Office critiques personal statements and other application components for Xavier students, providing feedback on content, grammar, and usage. Applicants are encouraged to utilize available resources for reviewing the written portions of their applications before submitting to application services.

**Letters of Evaluation:** Evaluations from individuals who can speak to your involvement in post-secondary experiences may be useful to admissions committees. Research mentors, work supervisors, and organizational advisers are examples of such evaluators. Be advised that these non-faculty evaluations do not take the place of evaluations from people who actually taught you.
September was National Sickle Cell Disease Awareness Month. Let’s continue to raise awareness about sickle cell disease and move towards the cure!

(Applying to Medical School - Continued)

If the sum of the responses to these questions, across semesters and summer sessions, is “YES,” then the applicant is poised to be more appealing to admissions committees and may be offered medical school interviews to breathe life into the application. It is imperative for applicants to proactively address these questions beginning freshman year until they are accepted into medical school. A lot of time and money must be invested into the process of applying, and applicants who take the process seriously take the time to cultivate SERIOUS applications. As the medical school applicant, you are the most valuable asset to the application process, and the questions you ask yourself today will propel you into the future you are destined for tomorrow.

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A pilot study of graduating medical student confidence in fulfilling internship responsibilities and the impact of an internship preparation elective.

Robert Beaulieu, Topaz Sampson, Raymond Ten Eyck, MD, MPH, FACEP

By: Topaz Sampson, President-Elect, MD Candidate, Wright State University Boonshoft School of Medicine,

Objective: Does participation in an elective aimed at better preparing medical school graduates for internship increase confidence in performing procedures and managing physician responsibilities upon graduation?

Background: The transition from medical school to internship presents recent graduates with a new role in patient care, increased responsibility, and the need to master a skill-set that they may have only been permitted to observe as a student. Studies have shown that many medical school graduates do not feel adequately prepared to take on these new challenges. Previous work investigating WSU Boonshoft School of Medicine (BSOM) graduates from 2011 showed confidence in performing basic procedures, interpreting images, communicating and documenting effectively, and working as a member of a team. Graduates had decreased levels of confidence in their ability to place peripheral IV lines, run codes, and perform more advanced procedures. A survey of WSU BSOM residency program directors supported these findings. The Department of Emergency Medicine developed an elective in 2011 to help improve the confidence and preparedness of BSOM graduates for internship responsibilities. Eight members of the class of 2012 completed the elective. We designed a survey for 2012 BSOM graduates to determine their level of confidence in performing procedures and handling common clinical scenarios as well as to compare results between graduates who participated in the elective and those who did not.

Methods: Following IRB approval, we asked BSOM graduates from the class of 2012 to anonymously complete an on-line survey. Graduates were asked to rank their level of confidence in their ability to perform each of 31 specific clinical functions using a 5-point Likert scale. They were also asked if they participated in the internship preparation elective and to list any additional educational opportunities that they thought they needed. Results from the two groups (Figure 1) were compared for trends. The Mann-Whitney U test was used to assess for statistical significance (p < 0.05).

Results: There was no statistically significant difference found between the two groups. There was a trend toward greater confidence in the elective group for central line placement, endotracheal intubation, chest tube placement, cardioversion and defibrillation, prioritizing tasks, assessing acute complaints, delivering bad news, running a code, understanding physician rights and obligation, and handling common tasks faced on overnight call (Figure 1). The majority of graduates felt confident performing basic procedures, interpreting images, performing searches for standards of care, communicating effectively, writing orders, documenting in the medical record, obtaining consent, working as a member of a team, and handling stress (Figures 2 &3). Graduates felt less confident in placing peripheral IV lines and using ultrasound. Graduates lacked confidence in performing advanced procedures (Figure 4). Common themes identified by respondents that could better prepare medical students for internship included: more experience writing orders and dealing with issues faced during overnight call and hand offs; more practice dealing with procedures and resuscitations; and an increased level of responsibility and independence.

Conclusion: Although results between the two groups were not statistically significant, response trends help provide feedback regarding potential areas of impact of an elective focused on internship skills. Many areas of confidence among 2012 graduates were consistent with the study of 2011 graduates. This pilot-study data can be used to help determine an appropriate sample size for a larger study designed to assess statistical significance. Furthermore, tailoring medical school experiences to address the areas of concern identified in the survey results may help improve the confidence of future interns and better prepare them to handle potentially problematic situations and procedures encountered during internship.

References:
A pilot study of graduating medical students confidence in fulfilling internship responsibilities and the impact of an internship preparation elective (continued)

Figure 1: Skills Showing a Trend for Greater Confidence in Elective Participants
Figure 2: Communication and Management Skills
Figure 3: Basic Procedures and Skills
Figure 4: Advanced Procedures and Skills
Medical Student-Led Problem-Based Learning Curriculum on Community Health and Health Disparities

Howa Yeung, MD; Chelsea Brown, BS/MD candidate; Arielle Elmaleh-Sachs, BS/MD candidate; Talha Khan, BS/MD candidate; Nicole Sample, MD candidate; Pyser S. Edelsack, LMSW.

Practicing medicine in the context of complex health systems and diverse communities, today’s physicians, particularly primary care physicians, are called to address the health needs of not only individual patients, but also those of the population from which patients arise. Reports from the Institute of Medicine highlighted critical unmet needs to integrate public health into primary care and to eliminate health disparities to improve health quality and equity in the United States. While these concepts have been increasingly taught in medical education, 22-30%, 15-19%, and 13-16% of graduating U.S. medical students in 2009-2013 considered their respective instruction in public health, community medicine, and health disparities to be inadequate. Numerous innovative strategies have been proposed to improve the integration of public health into medical curricula. At the Sophie Davis School of Biomedical Education at the City College of New York, undergraduate medical students have successfully developed and implemented a student-led, problem-based learning (PBL) curriculum to teach about community-oriented primary care.

In creating this PBL curriculum, we hoped that it would engage students to learn about social determinants of health and health disparities and to empower them to address these subjects as students, teachers, and future clinicians. In this article, we synthesized our experiences as past teaching assistants (TA’s) of the course and aimed to 1) describe the student-centered PBL curriculum and its impact on student interest and learning experience, 2) illustrate the dynamic process behind its continuous improvements based on student feedback, and 3) reflect on the TA experience and its influence on our personal growth as physicians in training.

Our curriculum was a part of a required course in community-oriented primary care research methods. It was tailored to students at Sophie Davis, a unique accelerated BS/MD program aimed to expand access to medical careers among inner-city youths and minorities and to encourage practicing primary care in medically underserved areas. The course has had a long tradition of using student TA’s to spark student interest in community health and health disparities since 2000. In its previous lecture-based format, each student in the course was required to complete an individual community health assessment (CHA), with an extensive paper that focused on important issues often beyond the scope of a traditional biomedical curriculum, e.g., socioeconomic status, race and ethnicity, gender, behavioral health, health care access, etc. Consequently, many students in the past had thought of CHA as an arduous and daunting task for which they were underprepared and required additional support. The use of student TA’s in leading the course, in and of itself, demonstrated that past medical students were able to not just “survive” conducting a CHA, but to accomplish a milestone that empowered them to further community health and health disparities education.

In 2007, under the leadership of the course director Pyser Edelsack, a Harvard Macy scholar trained in PBL, a group of TA’s took on the challenge to revamp the course from a traditional lecture-based format to a PBL format. PBL is a student-centered model of learning that uses an interactive case study structured in real-life clinical context, in order to promote students’ intrinsic motivation and enquiry and to encourage self-directed learning and problem solving skills. The PBL curriculum was unique because the TA’s played central roles to its development and implementation. The TA’s created an extended pilot case study simulating a community health assessment (CHA) based on the neighborhoods of Inwood and Washington Heights (I/WH) and facilitated six weekly hour-long small group workshops using the case. I/WH were chosen because they were the underserved communities around the Sophie Davis campus in New York City. Each week, concepts in community health were introduced through the case, including community history, physical environment and infrastructure, demographics, socioeconomic status, and health indices. City and state-wide data, extracted from Census Bureau and Department of Health, were used to provide context for comparison with local data provided in the case. Students prepared for small group sessions by completing assigned readings and reviewing pertinent community data. They discussed and summarized case finding under TA guidance, considered their implications to population health, and worked together to seek additional data and resources to gain a better understanding of the community. At the last workshop, students identified sub-populations and health conditions of concern and brainstormed potential community solutions to improve health in I/WH. Applying the skills learned from the case study, students then produced a CHA assignment on the neighborhood where they grew up. After the course ended, students who excelled in the course and demonstrated strong interests in community health and health disparities became TA’s for the next cohort of students the following year.
Medical Student-Led Problem-Based Learning Curriculum on Community Health and Health Disparities (continued)

The PBL curriculum incorporated numerous strategies to motivate student learning: First, by using a familiar community as the basis of this PBL, it motivated students to discover health information about the community in which many of them lived, studied, and worked. By placing the responsibility onto students not just describe data but also synthesize ideas and solutions in the workshop, it urged them to actively demonstrate competency for understanding social and structural determinants of health. Students were readily provided with support and could approach TA’s with questions without the hesitation they might have with professors. In facilitating the discussion, TA’s instilled their fund of experience, advice, and resources for community health research in their students, particularly those with less initial motivation or self-efficacy. Whether on how to inquire about prevalent health concerns from community stakeholders, how to analyze population-based data sets, how to identify health needs of communities and specific sub-populations, or how to brainstorm solutions to address endemic health disparities, the students and TA’s worked together to demonstrate the feasibility of community health research and the impact that it might generate. Witnessing first-hand how a model CHA was conducted, students could begin to appreciate how community medicine could be personally relevant, valuable, and approachable in ways that lectures hardly conveyed. By the end of the course, many students and TA’s took pride in gaining insights from their TA’s and their own communities and in cultivating their passion for community-oriented primary care.

Nevertheless, we realized that the pilot PBL curriculum was imperfect and needed student-centered processes for continuous improvement. The TA’s, especially those who just completed the class themselves, were very perceptive about how students could learn more effectively in the class and offered new ideas on how to keep the course vibrant and relevant. Each year during the weeks before the course began, new and existing cohorts of TA’s would meet with the course director to provide extensive feedback to modify the course structure and its learning objectives. This longitudinal feedback system created an iterative process for student TA’s to reflect on the pros and cons of the course, to revise its format in facilitating student-centered learning, and to drive new initiatives tailored to student interests.

For example, many students chose to analyze communities outside New York City for their CHA. Because the pilot I/WH case study mainly only used data from New York City, the data gathering skills that these students gained had limited direct relevance for their own CHA assignment. Motivated students at the time were called to explore additional resources themselves and they have analyzed primary data from New York State Cancer Registry and other local community surveys. Several of those students then became TA’s and incorporated these resources in a novel, parallel case study based on a CHA on Hempstead, a suburban town on Long Island, NY. This new case study introduced similar data gathering and analytical skills as the I/WH case study, but also engaged students interested in communities outside NYC to explore additional local- and state-level resources to assess their health needs. We believed that the development of this parallel case study might extend the generalizability of our PBL curriculum as an educational tool for studying community health to beyond our institution.

As another example, several TA’s extended the I/WH and Hempstead case studies by examining obesity as a significant community health concern that mediated disparities in health outcomes. After identifying obesity as a prevalent concern in these communities with significant implications to disparities in health outcomes, students scrutinized its potentially modifiable mediators, such as disparities in healthcare access and delivery for obese patients. By exploring a multitude of factors that may contribute to disparities as related to obesity, students gained insights on the social, behavioral, and cultural factors of community sub-populations that put them at risk of obesity and its related disease. They also became more aware of the roles that they could play, as future clinicians, in creating or mitigating the health disparities.

The student-led PBL curriculum not only improved the education of our students in community health and health disparities, it also empowered the TA’s to pursue public health applications in clinical medicine. As the traditional medical adage goes: “see one, do one, teach one.” Teaching the course not only allowed us to solidify the core concepts of community health and its application in clinical medicine, it fostered deeper understandings of the complexities behind social determinants of health and health disparities. Indeed, many of the Sophie Davis students and TA’s
have continued training in public health and/or advocacy as they progressed in their medical careers, including internship in health policy, research fellowship in epidemiology, MD with concentration in health disparities, concurrent MD and Master of Public Health, etc. As many Sophie Davis students grew up from minority, immigrant, poor, and/or other underserved communities, this practical opportunity in community health assessment – to identify and understand community health needs, to define and prioritize areas for change, and to plan for community-based solution – helped us visualize our potential impact as community-oriented clinicians in improving health for our patients and our communities as a whole.

As community health and clinical medicine continue to converge, physicians need to understand and apply public health concepts to improve the health of their patients. This student-led problem-based learning curriculum demonstrated that medical students, under faculty supervision and support, were able to successfully develop and implement an effective PBL curriculum to teach community health and health disparities, and to improve student-centered learning by maintaining the relevance of its content to students. Based on our positive experience with this student-driven PBL curriculum, we implore other students to take initiatives in incorporating community health and health disparities in their medical education, in order to ensure quality and equitable care for our future patients and communities.

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Medical Students’ Knowledge and Perceptions of Health and Healthcare Disparities in the African-American Community

Sharise Richardson, Janelle Menard PhD

Abstract: It is of importance to have an idea of the baseline knowledge students possess in regards to disparities in the African-American community when shaping cultural competency training. In this study a survey was used to assess both the knowledge and perceptions of University of Central Florida College of Medicine (UCFCOM) medical students in regards to healthcare disparities in the African-American community. The survey used a total of 28 questions and 78 of 176 eligible students (44%) completed the survey. Results suggest that while students are highly aware of health disparities resulting from inadequate health insurance coverage and socioeconomic status, they are less aware of how provider factors, healthcare systems, policies, and built environment can contribute to disparities. Results also underscore the need to critically evaluate the concept of “race” in medical education.

Background and Rationale: Preventable chronic and infectious diseases remain problematic among racial minority groups and populations of lower socioeconomic status. Minorities shoulder a greater burden of disease and often experience poorer health outcomes. In particular, persons categorized as “Black” or “African-American” suffer disproportionately in almost all major disease categories. Among the many contributing factors assessed in the literature, one of particular interest is the role of the provider in fostering disparity. Ayayan et al. showed that African-Americans are less likely to be informed and/or referred for kidney transplants. Other studies have shown that African-Americans were less likely to have their pain accurately assessed and treated by healthcare providers. These examples are a part of a growing body of literature that supports the need for more culturally aware and competent physicians. To best prepare future healthcare providers, issues related to health disparities should be critically examined as part of the curricula of medical schools. While some medical curricula currently incorporate concepts of cultural diversity and competency, attempts to understand the underlying differences in disease outcomes and burdens seem to be more common in public health graduate curricula. It is equally beneficial for future physicians to understand the contexts that give rise to health disparity, so that they can provide the best possible care to diverse patients. This study sought to assess both the knowledge and perceptions of medical students in regards African-Americans and the root causes of healthcare disparities. Research such as this is important because it can be used to shape medical curricula.

Methods: A brief survey consisting of closed- and open-ended items was administered via Survey Monkey, a simple, web-based survey tool. Prospective participants received an email containing the link for the survey on Tuesday January 24, 2012. The email message contained a brief explanation of the overall purpose and aims of the survey, informed consent and information on participation incentives. Participants were required to answer all questions in order for the survey to be considered complete and to receive a $10 incentive. Survey responses did not collect student names, student identification numbers or any other data that could be used as a personal identifier. Surveys did collect other personal data such as race/ethnicity, country of origin, age and year in medical school in order to describe participant demographics. The UCF IRB evaluated this study and approved it as exempt.

All enrolled UCFCOM students were eligible to take part in this survey. We offered participation to all UCFCOM students, as opposed to a random sample, for a couple of reasons. First, although ethnic diversity is limited within the current medical school student population, we wanted to explore any potential differences in response patterns among whites and ethnic minority students. Because ethnic minority students at UCFCOM are underrepresented, it is critical that everyone in this small population had an opportunity to take part in this survey. Second, the overall population size (n=176) is relatively small for statistical analysis purposes, and we wanted to maximize the potential response rate. Lastly, this study is exploratory, and we felt that maximizing participation opportunities was more important and would offer more meaningful findings than to attempt randomization.

Results and Analysis:
Participant Demographics. A total of 77 participants fully completed the survey. Participants ranged in age from 20 to 34 years (mean=24.63). Students from all three UCFCOM classes took part, with those from the 2015 class representing the highest completed participation (n=34; 44%). Approximately 27% (n=21) of participants were foreign-born, and roughly 35% (n=27) were ethnic minorities.

Survey Items. The survey used three principle modalities to assess the knowledge and perception of students: Likert scaled responses to closed-ended statements, rank-order listing and open-ended comments. The “knowledge” portion of the survey consisted of 19 statements that were compiled based on the UCFCOM curriculum and literature review. Participants were asked to indicate their level of agreement based on a 5-point Likert scale. The “perception” section consisted of one question that required participants to rank factors proposed in the literature to contribute the health disparities and two additional questions that required participants to indicate how often they feel African-Americans are discriminated against in the healthcare realm based on several factors. Participants were also given options to provide comments after certain questions when appropriate. Empirically-based example statements were used to gauge participants’ awareness and knowledge of medical and public health disparities by assessing levels of agreement. Diseases targeted in example statements were chosen because they were specifically addressed in lecture within the first two years of medical education at the UCF COM. Lastly, one
Lastly, one item assessed participants’ interpretation of the statement “African-American race is a risk factor for cardiovascular disease,” by asking for open-ended text response. Means were derived for Likert scale responses, so that the average direction of agreement/disagreement could be assessed for each item. For each item, we assessed the average response in consideration of whether or not the statement was supported by the literature. The mean number of correct responses to the 19 statements in the knowledge section among all survey participants was 7.51 (sd=3.02) and the number of incorrect responses was 10.99 (sd=3.22). True example statements were those that were supported by literature and false statements were those that were directly contradictory to literature. A participant’s response was considered “correct” if the participant indicated a level of agreement 1 or 2 for false statements and/or a level of 4 or 5 for true statements. Incorrect responses were those in which the participant indicated any other number other than those described above with respect to true or false statements. There were no significant differences noted with respect to demographic characteristics.

Participants also ranked 6 variables in decreasing order of importance for their power to explain the health disparities witnessed in the African-American community. Nearly half (49%) of all participants ranked socioeconomic status first in order of importance to explain health disparities, and the same proportion ranked race/ethnicity as the 6th or least important variable to explain disparities. We also asked participants to indicate how often they felt that African-Americans experienced unfair treatment due to a series of similar factors. Similarly, the majority of participants felt that structural factors such as insurance status and level of income were more frequent reasons that African-Americans experienced unfair treatment by the healthcare system, as opposed to biased treatment stemming primarily from race/ethnicity or gender. However, students who were ethnic minorities were more likely to indicate that African-Americans do experience unfair treatment based on race/ethnicity ($C^2=5.593; df=1; p=.018$). No other associations where noted when other demographic characteristics were examined.

Lastly, we asked students to describe, in their own words, their opinions of the meaning of the following statement: “African-American race is a risk factor for cardiovascular disease.” We asked this particular question to qualitatively assess students’ interpretation of race/ethnicity as a predictor or independent variable for CVD. We reviewed all responses for emergent themes. Responses coalesced around three main interpretive themes. These themes are as follows: Theme 1: Race is a biological category that underlies genetic predispositions to certain diseases and is the reason for higher prevalence and incidence of specific diseases. “African-Americans are at higher risk for cardiovascular disease due to specific genes.” Theme 2: Race denotes multiple social and biological variables associated with higher disease risk. “Genetic and socioeconomic factors lend AAs to higher rates of incidence of CV disease compared to other race/ethnic groups. Contributing to this, they may have less availability to health resources for earlier intervention or be less inclined to seek available resources.” Theme 3: Explicit acknowledgement that race is a social, not biological, construct that serves as a proxy for multiple other variables combining to increase disease risk. “I don't believe it’s the race that increases the risk of CV disease, rather it is the socioeconomic factors associated with the race that increase the risk of CV disease.”

**Discussion:**

Our findings illustrate that knowledge and perceptions of health disparities among African-Americans varies, and there is an incomplete understanding of traditional epidemiologic concepts such as risk factors, and importantly, differentiating between population and individual level risk.

This study has a number of limitations. Because we did not randomly sample, our results are not generalizable to the broader medical student population. We also recognize the inherent potential for self-selection bias with the use of an online data collection method; however, our choice to use this data collection methodology was based upon students’ expressed preferences, citing ease of participation. Our use of a smaller range, 5-point Likert scale for assessing agreement on many of our survey items may likely have limited any measureable variability in participant responses, resulting in several items approaching the mean value of 3. Future measures should expand the scale to allow for more potential variability. In addition, the small population size and the even smaller number of minority students was a large limiting factor that may have hindered our ability to determine whether significant differences existed based on race/ethnicity. While minority participants better had calculated scores on the knowledge questions the small number of minority participants (n=12) did not allow for extraction of significant data. In addition since the survey questions were not piloted and population focus groups were not conducted there is the possibility that survey items were not as clear to participants as hoped.

In spite of limitations, we feel that the results described in this paper highlight the need for key topical areas, essential to contemporary medical education, to be enhanced in medical curriculum, particularly those related to concepts of race, health disparities and cultural and social contexts of illness. Furthermore, the lack of significant variation in the number of correct responses in the knowledge portion of the survey based on demographic characteristics underscores the need for a baseline level of education to be given to all students on these issues. In closing the ultimate goals of this survey were both reached and surpassed. The main goals of this survey was to both use this information as a launching pad for further research in this area and for providing a map to allow for further refinement of the cultural competency training of medical students.

**References**

Parkinson’s disease (PD) is a neurodegenerative disorder characterized by the deficiency of dopamine (DA) in the striatum that leads to characteristic signs and symptoms, such as bradykinesia, postural instability, muscle rigidity and tremor (Savitt et al., 2006). Dopamine serves as a chemical messenger in the brain that allows communication between the substantia nigra and another area of the brain called the corpus striatum. This communication coordinates smooth and balanced muscle movement. With a deficiency of dopamine, an individual cannot perform normal, controlled movements. The cause of PD has yet to be found; some scientists have identified a genetic or environmental cause of (Warner et al. 2003).

DA replacement therapy with Levodopa (L-dopa) is one of the most common treatments for PD patients. Unfortunately, L-dopa’s long-term benefits are compromised by side effects such as hyperkinetic abnormal involuntary movements (AIMs), also known as L-DOPA-induced Dyskinesia (LID). Recent studies have shown that individually, serotonin 5-HT1A receptor agonists and 5-HT2A receptor antagonists reduce LID. However, these compounds alone were found to have suboptimal effects. Findings suggest that 5-HT1A receptor stimulation in levodopa-treated parkinsonian patients can modulate striatal dopaminergic function and that 5-HT1A agonists may be useful as levodopa adjuvants in the treatment of PD (Dupre et al., 2011; Kannari et al., 2001; Ansah et al., 2011). On the other hand, 5-HT2A antagonist controls the amount of dopamine release in the striatum.

Given that these receptor systems both impact function of the brain’s motor circuitry, it is possible that targeting both receptor subtypes may have utility.

Therefore, the purpose of the current study was to determine whether co-administration of sub-therapeutic doses of the 5-HT2A antagonist M100907 and the 5-HT1A agonist ±8-OHDPAT with L-DOPA synergistically would reduce LID without compromising L-DOPA’s anti-parkinsonian benefit.

Methods/ Experimental design

To conduct this experiment, 8 Adult male Sprague-Dawley rats were needed. Before receiving any treatments, the rats were made hemiparkinsonian. It is a process of confining manifestation of Parkinson’s disease to the left or right side of the body. This was effectuated through all rats receiving a unilateral infusions of the neurotoxin 6-OHDA (12µg/4µL) into the medial forebrain bundle (MFB) to deplete striatal DA. To observe the rat’s behavior and reaction to each treatment, we used two different tests. The Forepaw Adjusting Step (FAS) was used first. It consisted of testing the motor performance of each rat. Rats’ hindquarters were lifted and the forepaw being tested was placed on a tabletop surface. Rats were then moved laterally (90 cm in 10 sec). “Adjusting steps”, for both the fore- and backhand were counted 3 times in both the intact and lesioned forepaws.

The Abnormal Involuntary Movements (AIMs) were performed next. AIM tests were done to rate the rats’ level of Levodopa Induced Dyskinesia (LID). Dyskinetic movements were scored using a scale from 0(absent) – 4(severe) based on behaviors such as Axial (Asymmetric Postural Twisting), Limb (Affected forepaw “flailing”), and Orolingual (Asymmetric tongue protrusions).

The treatments were given as followed:

Three weeks after DA lesions, rats received daily injections of L-DOPA (12 mg/kg + benserazide, 15 mg/kg, sc) for 7 consecutive days to induce stable AIMs. On subsequent test days, L-DOPA(6 mg/kg + benserazide 15 mg/kg, sc) was given 1 hr before the FAS tests and just prior to AIMs tests. M100907 was injected 30 min before L-DOPA and ±8-OHDPAT was given 5 min before L-DOPA.

The 1st experiment consisted of testing the dose response of LID testing. Rats were monitored as followed through AIMs testing;

The 5-HT2A antagonist M100907 (0.3, 1.0, and 3.0 mg/kg, i.p) + L-DOPA (LD, 6 mg/kg, s.c)

The 5-HT1A agonist ±8-OHDPAT (0.03, 0.1, and 0.3 mg/kg, i.p) + LD

The 2nd experiment, was the combined drugs LID study and was done as followed; Vehicle (VEH) + LD

M100907 (3) + ±8OHDPAT (0.1) + LD

The last experiment consisted of looking at the combined drug motor performance. FAS tests were conducted for 4 days with at least a 1 day interval between each test. The treatment was administered as followed:

VEH + VEH
VEH + L-DOPA
M100907 (3) + ±8OHDPAT (0.1) + VEH
M100907 (3) + ±8OHDPAT (0.1) + LD
Discussion/Conclusion

In experiment 1, only 1 dose of the 5-HT1A agonist ±8-OH-DPAT (0.3 mg/kg) significantly reduced ALO AIMS (Figure 1). The 5-HT2A antagonist M100907 had no significant effects.

Therefore, the drug dose combination chosen for the experiment 2 was M100907 (3.0 mg/kg) and ±8-OH-DPAT (0.1 mg/kg) as they were the highest doses of each respective drug that did not significantly reduce dyskinesia.

Combined administration of sub-threshold doses of M100907 and ±8-OH-DPAT significantly reduced ALO AIMS (Figure 2).

In experiment 3, rats given the combined drugs with the L-DOPA performed better than those receiving vehicle or L-DOPA treatment alone (Figure 2), indicating this pharmacological approach can reduce LID while maintaining L-DOPA’s efficacy.

These results suggest that LID may be reduced by the synergistic interaction of the 5-HT1A agonist ±8-OH-DPAT and the 5-HT2A antagonist M-100907.

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The acne keloid
Acne keloidalis nuchae (AKN), also known as the acne keloid, is an inflammatory dermatosis that classically affects young African American males, although two cases have been reported in African American females. The prevailing belief is that entrapped hair shafts in connective tissue cause a foreign body reaction. This inflammatory process is mediated by perifollicular neutrophils; bacterial superinfection may result and complicate the course by forming a draining sinus tract or abscess. However, the specific pathogenesis of the acne keloid is unknown and debated in literature.

The acne keloid is a mixture of inflammatory papules and plaques that are typically located on the neck or posterior scalp. Fitzpatrick skin types IV, V, and VI along with coarse, curly hair are risk factors. What differentiates the acne keloid from acne vulgaris is that the acne keloid lacks comedones. Because of this, the acne keloid is more prone to scarring alopecia and hypertrophic, keloidal papules, which is common in African American dermatoses.

Systemic disease is rarely seen with the acne keloid.

Medical treatments
The standard of care for the acne keloid is oral antibiotics, local antiseptics, or intralesional steroids, all of which have limited success in reducing the hypertrophic process and severe scarring that may occur with the dermatosis. A potent topical fluorinated corticosteroid ointment or lotion is traditionally used for nightly application. A topical antibiotic, preferably clindamycin, is used if pustules are present.

Silicone gel sheeting has also been used as a first-line treatment due to its mechanism. Administration of fluorouracil, bleomycin, and other cytotoxic agents into the keloid have also been successful by inhibiting rapidly proliferating fibroblasts.

Imiquimod cream prescribed daily for five consecutive days for a total of eight weeks have been successful in a few patients.

Surgical treatments
Excision with primary excision has been successful in several studies. Excision and second-intention healing of the acne keloid yielded superior results in one study. Of the six patients investigated, five had complete closure of the wound. Two of the six patients had a nonelliptic excision, both of which resulted in an inferior cosmetic result. The best results occurred with a horizontal elliptical excision of the posterior aspect of the scalp and posterior hairline.

Cryotherapy using liquid nitrogen may be successful in treating the acne keloid, but several treatments are often required to see any improvement, thus lowering patient compliance. In African Americans, there is a significant risk of permanent hypopigmentation with cryotherapy, making it an unsatisfactory treatment option for that patient population.

Wide excision followed by grafting has been shown to have a relatively high cure rate with a low recurrence rate. Cold steel surgical excision and healing by secondary intention was successful in a 44-year-old African American male with tumor stage acne keloidalis. There was no recurrence at 7 months post operation.

The ND: YAG laser, a laser indicated in those with higher skin pigmentation, has been successful in treating the acne keloid. In 25 male patients, a 31% reduction in AKN lesions has been observed as early as the second ND: YAG 1064 nm laser session. A 68.2% reduction was noted after the fourth laser session. There was a 90.9% reduction by the end of treatment. These results indicate that long pulsed ND: YAG laser 1064 nm has efficacy in treatment of AKN in males.

Excision with skin grafting has been shown to have an inferior outcome.

Conclusion
Treatment of Fitzpatrick skin types IV, V, and VI is difficult due to the propensity to develop post-inflammatory hypopigmentation and keloids. Treatment of AKN is no exception. While there are several medical and surgical treatments available for this dermatosis, surgical treatment of excision with secondary-intention healing has shown to be of superior efficacy.

References
I recently attended the CDC Millennial Health Leadership Summit where I learned of the current issues on minority health and health disparities. The summit introduced me to the most recent national data available on racial and ethnic health disparities. Seminars highlighted both current and future opportunities as well as challenges that health professional and policy workers will face in the coming years as our nation moves to care for our increasingly diverse population. Although health indicators such as life expectancy and infant mortality have improved for most Americans, minorities groups experience a disproportionate burden of preventable disease, death, and disability compared with non-minorities.

The US Department of Health and Human Services (DHHS) introduced the Healthy People 2020 which includes an overarching goal aimed at achieving health equity, attaining the highest level of health for all people, eliminating health disparities, and improving health in all people in the United States.

The invitation to this summit came to me as a surprise, but I was very eager and excited to be representing Brown University as a minority who has particular interest in health disparities. As a second year Master’s in Public Health community health scholar in Brown University’s School of Public Health, I have a thesis focused on why health disparities exist among minority women afflicted with gestational diabetes mellitus (GDM). I initially joined this program because I had an initial interest in women’s health, particularly maternal health. Growing up in Providence, I had access to working with at risk communities as a volunteer throughout high school and college. I have dedicated my skills and knowledge as mentor to teenage mothers, and currently as a diabetes educator for ethnic minorities of low socioeconomic status. Working with these populations has presented me with multiple challenges, but also with many rewards.

As a first generation immigrant from Guatemala, first in my family to attend college and seek a further professional degree it is important to me to able to reach out to these communities; currently as a public health educator and in the future as a physician. Watching my parents’ health deteriorate over the past decade and having them be part of the diabetes statistic hurts me but at the same time it motivates me to use my personal insight to help address some of these issues. Though there is no single solution to addressing the vulnerabilities faced by populations groups affected by health disparities, I am excited to be a part of the change that targets these avoidable inequalities, historical and contemporary injustices, and health care disparities.

Being a part of the Student National Medical Association has given me the opportunity to meet others like me; whether we share similar backgrounds or life stories, we are aiming to be part of the same change that targets these very real disparities.

From top to bottom: Figure 1: At the Nutritional Rescue Center at Hope of Life International (HOL), Zacapa, Guatemala. Figure 2: With HOL staff assisted in rescuing this 14yo girl who we found weighed no more than 24lbs. Figure 3: At the Nutritional Rescue Center at Hope of Life International feeding a baby that was recently rescued from a local dump site. Figure 4: Holding a Sexual Health and Reproduction information session to the woman of the village in Zacapa, Guatemala.
Support in the Case of Primary Care

Karyn Haynes, SNMA Associate Member, BS Candidate, SUNY College at Old Westbury

I have yet to apply to medical school when I expressed to a fellow coworker, a nurse, that I am a premedical student. As expected she asked what specialty I was interested in pursuing. I told her I was not sure but I liked surgical specialties like orthopedics. I also expressed my interest in anesthesiology, and I said I am really considering a career as a primary care physician. The nurse flat out responded that there is no money in primary care. I was shocked by such a response. Though money is always a very important factor when making any decision, this statement astonished me for many reasons. First, it reinforces the national perception among health care providers that primary care providers are overworked and that there is little return on investment when compared with physicians who are subspecialists. Physicians in general are one of the highest paid professionals in the United States. Doing what you love should always surpass your projected income. Second, I felt that this comment reinforced the perception that primary care physicians are frowned upon by subspecialists. It is not as prestigious to be a primary care physician as it is to be a cardiologist. It is important to remember that often primary care physicians are usually the first healthcare providers that individuals see when a patient has a health problem. They also form longer relationships with patients. All physicians must complete four years of medical school, a grueling residency, in some cases fellowship, and they must pass the United State Medical License Exams. Through strides have been made, there should be a national conversation to change this idea, to reinforce that one specialty is not better than another. Excellent primary care can alleviate and better manage chronic health problems, which ultimately promotes healthier Americans.

These sentiments have been reflected in medical student culture as well. According to the New England Journal of Medicine, there has been a decline in the percentage of U.S. Medical School graduates that pursue postgraduate year positions in primary care. One reason for this is because students want to quickly pay off student loan debt incurred from attending medical school and feel that pursuing primary care specialties makes this difficult. Many organizations have acknowledged the impending shortage of primary care physicians and have responded by offering loan forgiveness programs. Others organizations have competitive scholarships such as the military’s Health Professions Scholarship Program. Finally, by implementing programs such as the accelerated three year M.D. program, similar to Texas Tech University to individuals pursing primary care at more medical schools will hopefully encourage individuals to pursue these specialties.
Innovation and Flexibility: A Unique Medical School Curriculum

Warren McCauley, M.D Candidate, Duke University School of Medicine

As aspiring physicians, a well-outlined set of experiences define much of our journey. One must complete four years of undergraduate work, four years of medical school and at minimum, three years of residency. Along the way, we are bombarded with what seems like mandatory late night study sessions and inevitable conversations with family and friends which always seem to include disbelief and dismay at how busy we truly are. Not to mention the slew of standardized tests and interviews required to progress through our various stages of training. Without a doubt, these aspects leave many longing for flexibility—the kind of flexibility that allows for a seemingly individualized path toward one's goals and aspirations as a medical professional.

Many medical school administrators are beginning to realize that such flexibility may not only yield more engaged students, but ultimately ones that think critically and are more independent. The Duke University School of Medicine realized this notion in the 1960s when it pioneered the innovative curriculum that embraces today’s students. While most medical students across the country spend the first two years in the classroom learning basic science material followed by clinical rotations in the subsequent two years, Duke students move through the medical curriculum at a more accelerated pace.

During our first year, we learn all the core basic sciences, and while it may sound intimidating, it is definitely manageable. The information is condensed and broken down into four academic blocks: Molecules and Cells (6.5 weeks; covers biochemistry, cell biology and genetics), Normal Body (12.5 weeks; covers gross anatomy, microanatomy and physiology), Brain and Behavior (4 weeks; integrates neurobiology and human behavior) and Body and Disease (20 weeks; covers microbiology, immunology, pathology and pharmacology). Furthermore, there’s great diversity in the ways in which the information is presented ranging from traditional lectures and case-based discussions to small group and team-based learning. There’s even a pass/fail grading system which is a welcomed change from the chaos and competition reminiscent of pre-medical studies. The only drawback… a measly three week summer vacation!

Duke’s second year parallels that of most medical schools’ third year—the much coveted clinical year. During this 13-month long year we complete eight core clerkships: internal medicine, surgery, pediatrics, obstetrics and gynecology, psychiatry, family medicine, neurology and radiology. Additionally, students complete two, 2-week “selectives”, which are elective opportunities that allow for specialty exploration. By completing the core clinical clerkships in the second year, many are able to determine which specialty they ultimately want to practice a year sooner than their colleagues around the country. For others, the lengthy and meticulous process of trying to decide between multiple specialties simply begins sooner.

Still, the subsequent third year is truly the most unique and innovative aspect of Duke’s curriculum. Many would even say it was the determining factor in their decision to matriculate. This entire year is devoted to a 10-12 month scholarly experience, with the only requirement being a thesis at the year’s end. Students can essentially do anything they please! This is a rare opportunity to focus one’s education on their ultimate career goals. The vast majority of students conduct basic science or clinical research, both in the United States and abroad, while others partake in more unique projects like the development of iPhone applications. For those considering competitive specialties such as dermatology or orthopedic surgery, the opportunity to conduct research is especially beneficial as many submit manuscripts for publication in peer reviewed journals and/or present their research at national meetings. A significant number of my classmates elected to pursue additional degrees instead of solely conducting research and do so in one year less than would be required elsewhere. This popular option has resulted in students earning their Masters in Public Health, Masters in Business Administration, Masters in Divinity and Masters in Global Health at prestigious national and international universities. The third year culminates in a poster session where students showcase their various projects and accomplishments.
Innovation and Flexibility: A Unique Medical School Curriculum

(continued)

The third year is also when we take part one of the United States Medical Licensing Examination (USMLE Step 1). This is another factor that many, including myself, considered heavily prior to matriculating due to the importance of USMLE Step 1 scores in the residency application screening process\(^1\). While most medical schools require that their students take USMLE Step 1 during the few weeks or months between second year and the beginning of clinical rotations in their third year, we can take the test at any time during our third year. For many, the added time and flexibility coupled with the clinical exposure during second year proves to be invaluable.

The fourth year at Duke is similar to most other curriculums. Students return to the wards to complete their sub-internships and advanced clinical rotations. The residency application process ensues, the angst and anxiety that is Match Day unites us with the rest of our colleagues around the country and in May we become newly minted M.D.’s.

Whether your goal is to become an outstanding practitioner, medical educator, noble prize-winning investigator, pioneer in public health or healthcare administrator, many schools have recognized the opportunities created by slight alterations to the standard four-year medical curriculum. As such, schools have employed truncated pre-clinical curriculums, eliminated formal grading during preclinical years\(^4\) and even offered three-year medical school curriculums aimed at those interested in pursuing primary care\(^5\). The belief that flexibility within the curriculum can lead to equally, if not more passionate and empowered physician learners, is finally being realized.


“¿Quieres mis manos? (Do you want my hand?)” I discretely whispered to a patient as beads of sweat dripped from her forehead. She smiled politely and shook her head. I nodded sympathetically, adjusted her gown, but remained at the bedside as her contractions intensified. My goal was to be a supportive presence—a rare sight in a dilation room full of moaning women assuming the gynecological position. Family, friends, and significant others were not permitted in the main wings of the community hospital. In essence, Ecuadorian women were experiencing the harrowing event of delivery, alone. My patient was a 42 year-old Afro-Ecuadorian woman, para 3, with uterine fibroids. Even though this process was not foreign to her, it was clear through smiles and looks of worry when I seem to step away, that my presence was appreciated. As her contractions got closer together, I found different ways to distract her from the pain. We practiced breathing techniques, talked about her children, and my purpose in Ecuador. After about an hour, without warning, she grabbed my hand. Her dark brown eyes stared at me intensely—it was time. The resident, sensing the impending urgency, checked her cervix and declared, “Parto! Parto! (Delivery! Delivery!)” Nurses immediately pushed her roller bed down the hallway and into the delivery room. I ran with the group because my hand was still gripped by the patient. After about 10 minutes of ear-piercing screams, I witnessed, through teary eyes, my first vaginal birth. Dr. Marquez, the chief OB/GYN, turned to me, and with an earnest smile said, “¡Bienvenido al hospital de maternidad! (Welcome to the maternity hospital!)”

This is one of the memorable clinical experiences I had in Quito, a city in Ecuador where nearly 60% of the population lives in poverty. The Office of the Vice President for International Affairs at Indiana University awarded me an International Enhancement Grant to fund my participation in the Intensive Beginner Spanish and Healthcare program. This program was established by Child Family Health International, a non-governmental organization (NGO) in Special Consultative Status with the Economic and Social Council (ECOSOC) of the United Nations. During my month-long stay, I learned Spanish, with an emphasis on medical terminology; worked in a school for children; and shadowed physicians at a community maternity hospital and a family clinic. I pursued this opportunity to gain global health exposure, augment my clinical skills and most importantly, expand my cultural competency. Health disparities in the United States and abroad leave vulnerable populations that need advocates—individuals that can educate communities and provide interventional and preventative health strategies. However, these strategies are not effective if they do not address the cultural, linguistic and socio-economic needs of diverse populations.
For example, a study conducted by Sentell et al. found that Latinos in California that spoke no English were 85% less likely to receive mental health services compared to the general, English-speaking population\(^1\). However, language does not exist in a vacuum; other factors, such as customs and beliefs are equally impactful. In Ecuador, there was a stark contrast between the socio-economic status of a physician and his/her patient. Regardless, a genuine exchange took place. The physicians didn’t merely listen to the patients, but in their own way, empathized with their plight. It was the nodding of the head, elegant, yet purposeful hand gestures, and direct eye contact that demonstrated attentiveness to the patient’s circumstances. In return, the patient showed deference, not solely due to the intellectual capabilities of the physician, but out of a deep-rooted respect and appreciation. This humanism is essential to cultural competency and furthermore reducing health disparities. Diversity training and global health exposure, though great opportunities, are not consistently available on a wide-scale. Therefore, health providers must put their stereotypes and pre-conceived notions aside in order to fully embrace different cultures and their associated health concerns. My experience in Ecuador not only broadened my context of health care as it relates to the United States and developing countries, but also deepened cultural awareness.


Figure 1: Garen Wolff (left) and Dr. Marquez (right), Hospital de Maternidad,
I first became fascinated with global health after reading Tracy Kidder’s “Mountains Beyond Mountains”, which documents the triumphs and hurdles Dr. Paul Farmer and his organization, Partners in Health, faced as they sought to decrease the morbidity and mortality of tuberculosis in Haiti, Peru, and Russia. Inspired by Dr. Farmer’s decision to step outside American medicine to treat the sickest of the sick living oceans away, I decided that when the opportunity for a medical mission presented itself that I would make myself available to be a part of such a meaningful experience. Fortunately, that happened in the summer of 2012. With 11 VCU medical students, a physical therapy student, and a physician, I joined the Rural Education and Community Health (R.E.A.C.H.) for Ghana team to develop mobile medical clinics in five villages in the Volta region and provide health education to students and adults in these communities.

Clinic days were bustling with activity. When our bus pulled into the villages, there would be an average of 100 or more patients waiting for us to organize our stations for history-taking and focused physical exams, measure vital signs, meet with a physician or nurse practitioner, and dispense medications. Rotating through each of these stations certainly helped me gain more technical experience in these areas and provided me with insight into how some patients coped with illness when access to care was a barrier. While taking a history, a patient shared with me how she would eat dirt whenever she had a severe headache since a pharmacy was not within walking distance of her home. That statement gave me pause. At our clinics, I also began to recognize the trust that patients placed in me as a health provider and as result I developed the confidence to be a resource for them. For example, when I measured blood pressure, I was commonly asked whether the readings were normal. When a patient’s blood pressure was elevated, I would inform the patient as to what that meant and then counsel them as to ways they could lower it. That was significant for me because on campus, it was easy for me to convince myself that as a first year medical student that my knowledge is limited and that there is not much that I could offer to patients. But, in this community where I did not always have a physician or an upperclassman to reaffirm my explanation, I was forced to be accountable. I felt the onus to make sure that I first understood the ramifications of high blood pressure and then convey that information in an accurate and clear manner as a physician should.
Effective communication even carried over into our health education seminars with the students. Prior to the trip, a teammate and I created a curriculum that emphasized age-appropriate topics, like hand hygiene for the 3-6 year olds or Sexually Transmitted Disease (STD) prevention for those ages 11 and up. Despite all of our preparation, I had not fully contemplated how to deliver this information to the kids. Through both trial and error, and observing some of my colleagues who had more experience with kids, I began to learn how to tailor health messages to different age groups and bear in mind what resources they had at their disposal to implement these points. The latter became increasingly important as our team over time recognized that we would be doing a disservice to the students if we did not factor in what commodities (i.e. well water vs. pond water, soap, etc) existed in that community. Overall, R.E.A.C.H. for Ghana was a transformative experience that motivates me to be a physician who is not only technically proficient but is a cognizant of the patient’s experience and level of understanding of disease, and the role of the community and health systems has in contributing to health outcomes. I definitely intend to participate in more medical missions throughout my career and encourage any medical student to get involved as it raises your awareness of health disparities and your role as a health provider in closing the gaps. To learn about R.E.A.C.H. for Ghana, please visit: http://www.reach4ghana.org/.

Figure 2: Ashley McWilliams (center) at the clinic.
Neuroscience Education: What We Know and What We are Still Discovering

Cecilia Huang, B.S. Neuroscience

The first written record of the word “brain” dates back to circa 1700 BC, when the Edwin Smith surgical papyrus documented the anatomy of the brain and described the meninges, spinal cord, and cerebral spinal fluid (CSF) in Egyptian hieroglyphs. However, man’s perception of and interest in the neural system has undergone much evolution through the past 3,700 years. Over 1,300 years after the initial Egyptian analysis of the brain, Aristotle taught his students in Greece that the heart was the center of mental processes. In fact, it was not until the late 19th century that the “neuron doctrine” was conceptualized by the Spanish anatomist Santiago Ramon y Cajal, which stated that the brain consisted of individual cells, later named neurons, marking the beginning of modern neuroscience as we understand and investigate it today.

Neuroscience is a broad field of study regarding the brain, spinal cord, and peripheral nervous system. Neuroscience research and knowledge has expanded exponentially in the past two centuries, with scientists now specializing in sub-genres of neuroscience such as molecular/cellular components; nervous system development and plasticity; neural circuits; systems neuroscience, including cognitive and behavioral neuroscience; and the neurobiology of disease, which focuses on how the aforementioned processes can become pathological.

The field of neuroscience has been rapidly expanding through the past decades and is in a significant growth phase in terms of research and discovery. The growing interest in this field is demonstrated by the now widespread availability of undergraduate majors in neuroscience, with the first introduced as recently as 1973 by Amherst College. Undergraduate neuroscience students take classes on targeted topics in neuroscience, such as developmental neuroscience, neuropharmacology, synaptic transmission, and the neurobiology of aging, in addition to traditional science courses such as organic chemistry and cell biology.

However, there is also much room for further investigation, as the brain, the most complex organ in the body, is still the least understood. In fact, novel neurobiological findings arise daily, so that neuroscience course instructors use current research articles to supplement textbooks, which are already outdated to new research by the time of publication. This is rarely seen in other undergraduate science courses where most fundamental principles are already well established.

Some theories about the brain were thought to be true for generations and became a part of general knowledge but have been disproven in recent times. For example, it was thought that after brain maturation in adolescence, no new neurons were made and the ones that were lost were “gone for good.” However, it has now been shown that hundreds of new brain cells are generated every day. Also, a common neuroscience myth is that humans only use 10% of their brain. In fact, people use 100% of their brains, as has been shown by multiple neuroimaging studies – however, not all of the brain is used at one time for specific tasks. Along with disproven theories are gaps in knowledge that have been mysteries throughout the history of neuroscience and stand to this day. For example, it is still not known how the general anesthesia used in surgeries works to block consciousness. Also unknown is the cause of chronic pain, although rapid advances are closing this gap in knowledge. Perhaps the largest gap in understanding is how to translate the measured activity of neural circuitry into understanding the formation of complex behaviors like thought and consciousness.

It is informative to get a general understanding of the field of neuroscience by discussing the findings and current research within the roughly delineated sub-fields.

In cellular and molecular neuroscience, each cell is investigated as a complete individual entity or one half of a synapse. Intra- and inter-neuronal information is transmitted via a system of ion channels, electrical impulses, and molecular neurotransmitters. This is the sub-field of research where the classic “wet lab” techniques of patch clamping and electrophysiology are done. In 1976, Neher and Sakmann pioneered the patch clamp technique to study the function of a single ion channel on a single neuron, leading to the discovery of the pivotal roles ion channels have in neuron activation, signaling, and homeostasis, which won them the Nobel Prize in 1991. Scientists in this field also study neurotransmitters, which are the chemical signals neurons use to communicate with one another. A current research study published in Science by Ramirez, et al., details the implantation of a false fear memory in mice using genetically engineered, light-sensitive ion channels in the mouse hippocampus.

Circuit and systems neuroscientists study the formation and modulation of the neural networks of cells that govern complex functions such as perception and behavior. The visual circuitry has been one of the oldest studied neuronal circuits, with the formation of an inverted retinal image formed from a real image first described by Johannes Kepler in 1604. The visual circuit is now known to travel from the retina via the optic nerve to the thalamus to the primary visual cortex, then to association cortices that process the spatial location and recognition of the image.
Behavioral and cognitive neuroscientists fall under the umbrella of systems neuroscience but with a more specific focus. Behavioral neuroscience attempts to understand the biological basis for the normal and abnormal behaviors of humans, and cognitive neuroscience focuses specifically on the functions of the brain that govern such things as sensory perception, learning, memory, and language, or, how we interact with the world around us and interpret sensory information gathered from our external environment. Typically the lines between neuroscience, psychology, and psychiatry are blurred when studying these subfields. Research in cognitive and behavioral neuroscience can be more accessible to the layperson and is commonly used in neuroscience outreach. Interesting topics used for outreach and public education include the phenomena of optical illusions, or how we “see with our brains, not with our eyes,” the difference between introverts and extroverts, how a certain sound or smell can trigger a long-forgotten memory, and how music can soothe stress response and emotional state. A recent study published in Cognitive, Affective, and Behavioral Neuroscience (CABN) by Brandt, et al., used fMRI imaging to monitor brain activity during memory retrieval of recent past actions and imagined actions, in an attempt to explain why people falsely remember performing a task, such as locking the front door behind them.

The study of neurodevelopment focuses on how the brain, spinal cord, and peripheral nervous system form from the ectodermal layer of the blastocoel in the embryonic phase through adolescent development. MRI imaging studies in the late 1990s showed that different cortical areas mature in a temporally and spatially predictable manner throughout development, and that neurodevelopment in the pre-frontal cortex, responsible for decision-making and planning, continues past adolescence and into a person’s early 20s. Recent studies have been able to engineer a mouse with fluorescently tagged classes of neurons, making it possible to track how a specific neuron type within the brain develops in time and location.

Neuroplasticity details how neurons and neural networks can change in response to external stimuli even after full developmental maturation, and is related to neuron repair and compensatory systems. An example of neuroplasticity in the brain is long-term potentiation, an event that occurs when two neurons fire at the same time, strengthening the signal and connection between the two. This was first described by Bliss and Lomo in 1973 and is thought to underlie the basis of learning and memory. A recent study by Spalding, et al., published in Neuron, describes the use of carbon-14 dating in post-mortem human tissue to show that 700 neurons are born daily in the adult hippocampus, a revolutionary finding that upsets the historical idea that the brain does not have new growth after adolescence.

Each of these myriad fields of analysis also fall under the study of neurobiology of disease, which includes pathological processes that occur within and between cells, systems, and during development. This abnormal state leads to impaired cognition, atypical behavior, and problems with neuroplasticity and repair. The study of the neurobiology of disease is the most applicable to those entering or in the medical field, and the analysis of disease-states often require the understanding and synthesis of many subfields in neuroscience.

For example, schizophrenia, a disorder characterized by delusions, hallucinations, social and emotional dysregulation and cognitive deficits, has been classically seen as a behavioral disorder. It is now known that cognitive deficits represent a defining characteristic of the disease, arising early in life and untreatable by current gold standard antipsychotics. Schizophrenia is also currently being studied as a neurodevelopmental disorder where it is thought that pre-adolescent developmental deficits in the brain that produce a system vulnerable to future external triggers that initiate adult psychosis.

Multiple sclerosis is a disease where the myelin sheaths on neurons, which are responsible for the fast relay of information within the neural network, are attacked by the immune system of an affected individual, leading to symptoms ranging from numbness to paralysis and lack of vision. This degenerative disease highlights the importance of correct neural circuitry and the necessity of the fast transmission of neural electrical signal.

It can be seen when studying neuropathology that the delineations made for the sub-fields of neuroscience are blurred and that there is great overlap between the fields of study. This makes neuroscience a most complex and interesting discipline, and one that requires its scholars to be able to learn and apply a broad range of approaches to reveal its obscurities. This area of study has seen so many discoveries in the recent past, but burgeoning neuroscientists will have no shortage of avenues to explore in this scintillating field.
References:


SNMA Leaders at the SNMA Booth at the National Medical Education Conference in Toronto.
As I entered medical school, I hadn’t specifically thought about which specialty in the medical field I would choose. During medical school I had a number of international experiences that helped to shape my decision.

The first international experience was in the summer after my first year of medical school, in Soweto, South Africa. I gained experience working with the HIV Vaccine Trials network. During this experience I had a firsthand look at tropical medicine and its effects on a population. After spending the summer witnessing the dermatologic manifestations of HIV, I realized the importance of using the skin, the largest organ in our bodies, as a diagnostic tool. Not too long after my first experience in Africa, I did a rotation in Dermatology at my home medical institution, the University of Rochester School of Medicine and Dentistry, in Rochester, N.Y. There, I became even more fascinated by the skin as a window to evaluate medical conditions. I further developed my passion for healthcare with the skin. My interest in dermatology increased and I decided to get even more exposure to dermatology opportunities to see if this was the right field for me, and to learn even more about dermatologic conditions.

The second international experience was in the summer of 2008, the summer after my second year of medical school. My passion for dermatology led me to participate in the Diversity Mentorship Program through the American Academy of Dermatology. The Diversity Mentorship Program is an excellent program for medical students interested in the Dermatology specialty. The program gives medical students the opportunity to work under dermatologist mentors of their choice, in settings of their choice. Through the stipend provided by the mentorship program, I was able to study tropical dermatology in Malawi, Africa for 4 weeks. I was under the mentorship of faculty from the University of Chicago Dermatology Program. In a small clinic in the village of Lilongwe Malawi, I quickly appreciated the challenges in treating a vast array of skin diseases, ranging from highly infectious diseases such as chicken pox to other conditions such as leprosy. By the end of my experience I understood the complexities that are part of managing dermatologic disease in a poverty stricken environment.

The Diversity Mentorship Program enhanced my medical education because it allowed me the opportunity to broaden my dermatology knowledge, network with others in the field of dermatology, and prepared me to be a strong candidate for a successful match into dermatology residency, one of the most competitive residencies to match in today.

More information about the award can be found on the American Academy of Dermatology website.

http://www.aad.org/members/residents-and-fellows/diversity-mentorship-program-information-for-medical-students
Neuroscience and Medical Education Today

Oluwakemi Eniola Tomobi, SNMA Publications Co Chair, Editor-In-Chief, JSNMA

Neuroscience is the study of the nervous system. The core of this system is the brain, which makes us as humans functionally different from other species. The brain is more than the master control center for the body. It controls our conscious and unconscious thought processes. This system regulates our movements, reactions to immediate and chronic stresses, fears, and addictions. Healthcare specialties have long relied on the field of neuroscience to treat patients in neurology, psychiatry, neurosurgery, anesthesia, and physical medicine and rehabilitation.

Brain development and neuroplasticity are topics of interest in neuroscience research, specifically for educators. How our brains respond is shaped by environmental influences which in turn influence gene expression. In fact, a person’s ability to adapt to changes in brain development is less likely to be genetic and more likely to be shaped by environmental experiences after birth. In infancy and in old age, there exists a window of opportunity for changes to make lasting effect on the brain. The brain is always adapting its structure and activity. One prime example of this neuroplasticity is what we call learning. Neuroscience research is a valuable and essential tool in education – both how we learn and how to teach in order to maximize learning.

A well-studied example of how learning affects the brain is practicing a musical instrument. Musicians develop habits that increase their expertise. This refining requires increased growth and recruitment of neurons, changes in neuron synapses in order to build stronger neural pathways. When the activity ceases, that brain growth disappears. The study of neuronal networks has advanced enough that we can evaluate and use most of brain research to improve education. Increase in number of cells yields a greater increase in interconnections that is activity-dependent.

Advances in neuroscience can be applied to how people learn in general. The BRAIN Initiative is underway to get more information on mapping out the human brain. This is groundbreaking work because in many ways, the brain is a mystery for scientific researchers and medical professionals alike. The human brain is complex. Therefore, we need more information to understand how the brain functions in healthy and in disease states.

How can we effectively get the most out of our education? This is a question relevant to all levels, from the pre-kindergarten to the university and to the continuing adult learner. For the adult learner, issues of learning and training are especially relevant to a group of people in a highly specialized, demanding area of work: the health professions. Trainees in the health professions are learning as they care for patients. This group may train for as many as 80 hours a week, and still be expected to assimilate all the information needed to make a competent healthcare provider. To improve how this group trains, and thus improve our healthcare, we can look to the research on healthcare education. Such research supports the use of concept maps, emotional connection, simulation, feedback, and awareness of bias to enhance the educational value of health professions training, and will be further addressed below.
In the medical field, knowledge is constantly changing. Trainees have to demonstrate a commitment to “lifelong learning.” There is the added complexity of healthcare. In lectures, it is harder to assimilate all the new info along with the old. Studying with concept maps may help to enhance learning. These maps represent a visual representation of how knowledge is organized and represented in human memory, with circles and nodes of concepts linked with lines as the links between the concepts. One can take information, analyze it, and organize it in a way to make it stick. Concept maps allow trainees to understand the big picture, instead of getting lost in the details. Then one can organize novel versus familiar information and create patterns, and therefore integrate new information into cognition.

When medical students used concept maps as part of problem based learning, the students better understood physiology concepts than the students who did not use concept maps (Veronese, Richards, Perner, Sullivan, & Schwartzstein, 2013). Physiology is a course which requires more than surface knowledge of isolated fact, but a great understanding about how living things work. To understand how the human body works, learners need to understand how different concepts relate to one another in health and in disease. Finally, use of concept maps in a residency curriculum improved critical thinking and problem solving skills, allowing residents to better transition from novices to experts, as compared to residents who did not use concept maps (Cutrer, Castro, Roy, & Turner, 2011).

Taken together, these findings suggest that concept maps help people to organize information for better retrieval during problem-solving and help them to develop expertise in the subject. Concept maps help educators identify knowledge gaps, therefore, is an opportunity for feedback another technique addressed later. Finally, concept maps create and attach meaning to what is learned.

**Emotional Connection**

Another factor into making knowledge more meaningful is establishing an emotional connection to what is being taught (and learned). Isolated knowledge of facts (rote memorization, such as with cramming) is not remembered in long term memory and is not linked to a preexisting cognitive framework, whereas meaningful learning is. Stress and fear play a role in learning, and they affect memory and decision making (Immordino & Damasio, 2007). Certain activities, such as storytelling and other arts, are positive activities that provide an emotional connection to learning. This is because information that comes to the brain is first processed in the limbic system, the emotional center of the brain, before it is processed in the thinking center, in the frontal lobe of the brain. For example, pulmonologists in an Intensive care Unit at Glenfield’s Hospital were observed initially provide low-quality care to asthma patients because less than half of the pulmonologists were not using the asthma care guidelines. A pulmonologist made a music video to the tune of “Breakfast at Tiffany’s” by Deep Blue Something, a tune his hospital staff could relate to. He named it “Breakfast at Glenfield’s.” Two months after the song was shared, 80% of the doctors used the guidelines, all the doctors were able to answer all the guideline questions correctly, and the quality of care improved at this hospital (Mukherjee T. et al, 2013). This finding suggests that putting words to music makes the guidelines easier to remember.

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*Figure 2: Examples of Blank Concept Maps*
Furthermore, a Princeton study revealed that when there was a connection between the speaker and listener, the relationship was better, and the therapeutic relationship improved, thus resulting in better care (Stephens, Silbert, & Hasson, 2012). An fMRI brain study recorded brain activity from both speakers and listeners, and revealed that the brains had similar levels of activity, in similar areas of the brain and nearly occurring at the same time. Thus, telling a story can plant emotions, thoughts, and ideas. The same can be said for teaching students, where if an emotional connection is made through the speaking, the learner will learn more from the speaker (Stephens et al., 2012). These findings have benefits for both teaching and healthcare. Establishing an emotional connection adds meaning to what we learn. It helps the student who does not see the point in learning what he or she is learning. Storytelling and the arts help to make it stick and make it relevant to what the learner already knows.

Simulation

Even if connection and meaning is attached to knowledge acquisition, a “disconnect” may still exist between the classroom and clinical environment. Simulation is necessary to expose trainees to situations similar to those encountered in the clinical setting. Simulation is an instructional process that substitutes real patient encounters with artificial ones. Patient safety is of concern in training, thus there must be opportunities to experiment with trial and error without harming patients (Okuda, Bryson, DeMaria, Jacobson, Quinones, Shen, et al., 2009). Simulation does not replace the learning from real patients, but is useful to teach the necessary clinical skills in a safe and controlled environment. There is a neuroscientific basis for simulation use in training. As mentioned earlier, activity-dependent recruitment of neurons, such as with practicing a musical instrument, can help to hone skills. Certain exercises and practices can target and improve specific brain functions. For example, surgeons must learn to make decisions under changing circumstances in the operating room (Pugh, DaRosa, Santacaterina, & Clark, 2011). The opportunity to simulate such clinical skills before working with patients allows trainees to learn from experimental trial and error and not on real patients. Some simulators may involve equipment and may even provide tactile feedback, such as when learning to place an epidural for anesthesia (Magill, Byl, Hinds, Agassounon, Pratt, & Hess, 2010). Trainees learn to anticipate the feel of passing a needle through tissue and learn to stop advancing the needle once the tip enters the epidural space. As trainees practice and become familiar with this skill, trainees develop and maintain a mental model of the spinal anatomy and be able to identify transitions from one tissue plane to the next. (Magill et al, 2010). When the task becomes automatic, it requires less cognitive attention than when originally learning the task. In summary, simulation allows one to closely resemble the situations encountered in clinical medicine.
Feedback

Simulation provides opportunity for experiential and context-specific feedback. Other forms of feedback are also helpful. The process of feedback involves identifying the cause of the performance gap between the trainee’s observed and desired actions, with the intent to improve the trainee’s performance (Van de Ridder, Stocking, & McGaghie, 2008). Feedback is necessary to the learning process, and has a significant impact on forming long term memory (Murdoch-Eaton & Sargent, 2012). Feedback is one of the most important variables for motor learning, such as with suturing. There is immediate feedback, given during the experience, versus terminal feedback (not to be confused with the delayed feedback given at the end of a clinical rotation), which is input given immediately at the end of a skill performance. Based on a study with pathology residents in a medical tutoring system, residents made significant learning gains with immediate feedback than with terminal feedback, but the improvement was gone as the immediate feedback was taken away (El Sadaawi, Azevedo, Castine, Payne, Medvedeva, Tseytlin, et al, 2010). Another study suggested that terminal feedback was more beneficial than immediate feedback in learning technical skills, for example, in medical students learning to perform a colonoscopy (Walsh, Ling, Wang, & Carnahan, 2009), further revealing the importance of the timing of feedback for skill performance. This finding supports the guidance hypothesis, showing that concurrent feedback is helpful initially to guide learning and enhance initial performance. But if the learner continues to rely on this immediate feedback, the skill is not learned. Terminal feedback allows the learner to focus on the sensory components of self-regulated, intrinsic feedback, and not be distracted by immediate feedback as the learner becomes more of an expert. Overall, feedback is helpful for learners to eventually become better self-regulated learners with the ability to sense when doing things correctly or making errors.

Awareness of Bias

In addition to feedback from others, learners need to be aware of their own thought processes. This could influence medical education and healthcare. Bias is natural, and is shaped by unconscious cognitive processes. Subconscious bias can affect patient care as it is involved in perpetuating health disparities, for example. Based on our own life experiences, we can be selectively attentive to certain things and inattentive to others. We then tend to see what we are sensitive to, while missing other important things. The solution is to increase awareness. Self-reflection in multicultural education was noted to increase self awareness, change professional behavior, close healthcare disparities, and improve healthcare delivery to a diverse patient population (Manag-Garcia, Harell, Garcia, Gizzi, & Simms-Macky, 2005). Other opportunities for reflection, including writing, may help. Even the physical act of writing increases brain activity to cause you to pay attention. This area of increased activity is in a collection of brain cells, known as the reticular activating system. When this area is activated during writing, the writer pays increased attention to what he or she is writing, and tends to remember the information better. These efforts to raise awareness may reduce bias and improve the quality of patient care.

So should we advise pre-health students to study neuroscience before pursuing their careers? No. Should neuroscience be taught separately in the curriculum? No, but it should definitely play a role in how we design the curriculum for our adult learners in the health professions. When we consider best educational practices, let us consider what neuroscience has brought to the discussion. Educators and researchers should team up to develop the best approaches to allow education to accomplish specific goals.
References:


Helen, Mary; Young, Immordino; and Damasio, Antonio. (2007). “We feel, therefore we learn: The Relevance of Affective and Social Neuroscience to Education.”


The Osteopathic Residency Application Process and How to Excel Part 1

By Jessica Edwards, SNMA Region 3 Director, OMS-IV

The Residency Application process is hectic enough but is even more hectic when there are 2 matches. The purpose of this article is to give some insight into the Osteopathic process and some tips on how to get the Osteopathic residency program you want!

1. Research!

This is the most important step in the whole process. During second year, I started looking up residency programs and eliminating them by location. All of the AOA residency programs can be found on the AOA Opportunities website so you can search by specialty and even state. If you are unsure about a city, look it up! Wikipedia and google maps will be your best friend. Google how far it is from a big city, the job opportunities (if you have a spouse or significant other) and just ins and outs about the location. Also, visit the program's website and don't be alarmed if there is limited information on the website. My top choice had limited information and it's a great program! Be proactive and call to find out more information. If you have no intention of rotating there but will be in the area, schedule a visit. That gives both the program director and the residents an opportunity to lay eyes on you and see how the vibes match. I did this for my 2nd and 3rd choices.

2. Get your stuff together early!

Honestly, your Curriculum Vitae should be in the works by the end of 2nd year. Add things throughout 3rd year if needed. This way, you don't have to try and remember everything from the last 7 years when it's time to apply for Residency. Also, have an advisor look over it and they will help you figure out what to keep in and what to consider taking out.

3. Letters of Recommendation

This (along with a couple of things) are the few things in this process that are beyond your control. At the end of Rotations you feel that you performed well in, ask if the preceptor/attending would feel comfortable writing a STRONG letter of recommendation on your behalf. Follow up in March of 3rd year with a formal request and set a deadline of May 15th so even if it's received June 15th, that is one less thing you have to worry about.

4. Get your face out there!

Unlike a lot of Allopathic residency programs, Osteopathic Programs have a heavy emphasis on completing rotations at their program. However, each program is a bit different. Once I narrowed down my top 3 programs, I had rotations set up before March of my 3rd year.

Some important dates:

- ERAS opens on July 1 and you can also begin submitting applications at that time.
- Programs can start requesting your information July 15th.
- Don't be alarmed if your application has been downloaded but you haven't been contacted yet. Dually accredited programs seem to start sending out invites closer along the lines of the Allopathic Match.

My story:

I am a 4th year medical student at Texas College of Osteopathic Medicine applying for Family Medicine through the Osteopathic match because I wanted to have the opportunity to continue to perfect my Osteopathic Manipulation skills throughout Residency. I submitted my application on July 7th and by August 7th, I had 3 interviews set up.

My next article will be about the interview season. Please feel free to email me at region3director@snma.org if you have any questions!
Get Published in the Journal of the Student National Medical Association (JSNMA) for our Winter 2013 / Spring 2014 Editions.

The Journal of the Student National Medical Association is looking for original submissions from National SNMA members (associate and active members) for its upcoming JSNMA issue and jsnma.org!!! Medical/Public Health submissions preferred; exceptional non-medical/health submissions will be considered as well.

*You must be a paid national member to be published!!!

The Winter 2013 JSNMA edition theme is "Humanism in Medicine" and is an opportunity to share how people demonstrated moments of empathy, caring to others, acts of service and kindness, and further developing the non-technical side of being a physician, and any efforts taken to further understand the doctor-patient relationship. The Winter JSNMA edition date of submission deadline will be November 25th, 2013 at 11:59pm.

The Spring 2014 edition will be a commemorative piece highlighting the "50th Anniversary of the Student National Medical Association and the deadline for submission will be January 31, 2014 at 11:59pm.

Do you have original:

- Artwork, Poetry Short creative writing
- Research, abstracts, case reports, case studies, etc.
- Critical essays
- Articles
- Photography

Send submissions and any questions that may arise to jsnma@jsnma.org.
www.jsnma.org

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