

**Conference Summary: Pre-Faculty Development for Diverse Trainees  
10<sup>th</sup> BNGAP Anniversary and 2<sup>nd</sup> Pre-Faculty Career Development Conference  
January 30, 2020 - February 1, 2020**

I'm happy to announce the completion of a new BNGAP publication entitled **Conference Summary: Pre-Faculty Development for Diverse Trainees, 1<sup>st</sup> Edition, 2020**

The development of this report was initiated at BNGAP's 10th Year Celebration on January 30 through February 1, 2020. During the conference, attendees were asked to participate in small groups to discuss pre-faculty development efforts for 10 specific groups (College and Post-Bacc Students, Medical Students, Residents, Asian-Americans, Black/African-Americans, American Indians/Alaska Natives, Hispanics/Latinos/Latina/Latinx, Women, Sexual and Gender Minorities, First Generation and Low Income Individuals). The workgroups were asked to discuss each groups' - a) level of inclusion in academic medicine; b) challenges to pursuing academic careers; facilitators to pursuing academic careers; and opportunities to enhance their representation in academia. Each workgroup then proceeded to supplement their thoughts with a review of the published literature. All groups generated documents, approximately 10-15 pages, summarizing their thoughts and the literature.

As the workgroups are developing their final manuscripts it was decided to abridge each workgroups' documents into individual one-page summaries to help jumpstart dissemination of main findings. The one-page summaries were initially created by Nicholas Brutus (BNGAP Coordinator) and then reviewed by the authors of each workgroup and by J.P. Sánchez MD, MPH.

We hope that you will share and discuss the findings in this document with your learners, staff, and senior leadership as you build your pre-faculty development efforts to diversify academic medicine through pre-faculty development. If you cite the entire document, please use the citation - Brutus N. and Sánchez J.P. Co-Editors. Conference Summary: Pre-Faculty Development for Diverse Trainees, Building the Next Generation of Academic Physicians, 2020. If you cite a particular section, please give proper credit to the co-authors. For example - Yemane L. and Jacobs N. Pre-Faculty Development for Residents, Building the Next Generation of Academic Physicians, 2020.

Learn more about BNGAP and our new **National Center for Pre-Faculty Development** at [www.bngap.org](http://www.bngap.org).

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## **Pre-Faculty Development for College and Post-Baccalaureate Students**

Melissa Gonzales PhD, MS, Margaret Pichardo, Lukejohn W. Day MD

### **Inclusion in the Academic Medicine Workforce<sup>1-4</sup>**

- Increasing the diversity of the physician workforce to reflect the U.S. population was the objective of the 2009 changes to the Liaison Committee on Medical Education (LCME) diversity accreditation guidelines.
- Several studies have shown increases in the percentages of underrepresented minority (URM), female, and economically underserved matriculants to U.S. medical schools compared to the time when the LCME standards were released.<sup>8</sup> However, in states with initiatives against affirmative action laws, they have experienced a 17% decrease in medical school enrollment among students of color.
- To further analyze diversity representation within medical school, one must explore the rate of students of color in premedical tracks, formal post-baccalaureate programs, in gap years, and those who express interest in medical careers to establish a foundation for a trajectory towards academia.

### **Barriers to Becoming Future Faculty and Senior Academic Leaders<sup>5-9</sup>**

- Disparities in accessibility to college and equity university education (e.g. bias in grades, SAT prep, and quality of education);
- Cost of graduate school application/interviews/cost of medical education (including higher debt loads when entering graduate school);
- Lack of diverse faculty involved in the application and matriculation processes;
- Lower educational attainment by URM; four-year medical school graduation rates are significantly lower for URMs compared to non-URMs;
- Various interpersonal barriers such as access to mentors, research opportunities, and experiences of discrimination and microaggressions within institutional climates.

### **Facilitators for Advancement in Academic Medicine<sup>5-9</sup>**

- Increase the diversity of medical school classes to inspire and encourage diverse college students to apply.
- Employ a holistic review process for medical school applications;
- Ensure medical school admissions committee members reflect the demographics and needs of the local, regional, and national community.
- Programs should utilize more creative and targeted marketing to URM students.

### **Opportunities**

- BNGAP provides a network of diverse graduate students and faculty role models and advisors for college/post-bacc students to engage;
- Participation in the BNGAP Academic Career Development Seminar for College/Post-Bacc Trainees;
- BNGAP can assist students in identifying and completing scholarly projects in research, education, or service.

1. Sanchez NF, Callahan E, Brewster C, Poll N, Sanchez JP. Mentoring LGBT Health Professional Trainees. *LGBT Health*, April 2018.

2. Soto-Greene M, Culbreath K, Guzman DE, Sánchez JP, Romero-Leggott V. Diversity and inclusion in the academic medicine workforce: encouraging medical students and residents to consider academic careers. *MedEdPORTAL*. Feb 2018;14:10689. (Views 553; Downloads 51)

3. Ortega G, Smith C, Pichardo MS, Ramirez A, Soto-Greene M, Sánchez JP. Preparing for an academic career: the significance of mentoring. MedEdPORTAL. March 2018;14:10690. [https://doi.org/10.15766/mep\\_2374-8265.10690](https://doi.org/10.15766/mep_2374-8265.10690) (Views 836; Downloads 153)
4. Dickerman J, Sánchez JP, Portela-Martinez M, Roldan E. Leadership and academic medicine: preparing medical students and residents to be effective leaders for the 21st century. MedEdPORTAL. Feb 2018;14:10677. (Views 818; Downloads 171)
5. Paredes Molina CS, Spencer DJ, Morcuende M, Sanchez, JP An introduction to research work, scholarship, and paving a way to a career in academic medicine. MedEdPORTAL. Feb 2018;14:10686. (Views 629; Downloads 136)
6. Nakae S, Soto-Greene M, Williams R, Guzman D, Sánchez JP. Helping Trainees Develop Scholarship in Academic Medicine From Community Service <https://www.mededportal.org/publication/10659/> Dec 2017 (Views 589; Downloads 71)
7. Callahan EJ, Banks M, Medina J, Disbrow K, Soto-Greene M, Sánchez JP. Providing Diverse Trainees an Early and Transparent Introduction to Academic Appointment and Promotion Processes <https://www.mededportal.org/publication/10661/> Dec 2017 (Views 409; Views 45)
8. Fernández CR, Lucas R, Soto-Greene M, Sánchez JP. Introducing trainees to academic medicine career roles and responsibilities. MedEdPORTAL. Nov 2017;13:10653. <https://www.mededportal.org/publication/10653/> (Views 1251; Downloads 144)
9. Zhang L, Lee E, Kenworthy C, Chiang S, Holaday L, Spencer D, Poll-Hunter, N, and Sánchez JP. Southeast and East Asian Medical Students' Perceptions of Careers in Academic Medicine. Accepted in Journal of Career Development – Nov 30, 2017.

## Pre-Faculty Development for Medical Students

Hyacinth Mason PhD, MPH, Yartizy Astudillo MD, Mytien Nguyen MS, Brandy Eggan PhD, Ellen Cosgrove MD, Ann Rutter MD, MS, Yolanda Haywood MD

U.S. medical school enrollment increase since 2002 <sup>1-2</sup>	Medical school graduates that aspire to work as a faculty member/administrator (e.g. Dean/Chair) <sup>2</sup>	Medical School graduates that commit to working in academic setting <sup>3</sup>
30%	45.4%/24.8%	16%

### **Barriers to Becoming Future Faculty and Senior Academic Leaders**<sup>1-9</sup>

- Lack of information and transparency regarding academic medicine as a career path.
- Medical school curriculum does not explore academic medicine nor delineate academia as it does with other career tracks. This leads to a misperception of what an academic career can offer.
- Inadequate access to scholarly research opportunities can vary and be opaque for some trainees.
- Misconceptions such as academia being a strict “publish or perish” environment must be dispelled.
- Greater value afforded to research than community work/teaching/mentoring is a concern. Many students, especially URiM, want to “give back,” however it is seen that not as much “credit” is given to community work, mentoring, and teaching versus scholarly productivity.
- Stereotypes exist in academic medicine and can hinder career progression and contribute to feelings of isolation and exclusion.

### **Facilitators for Advancement in Academic Medicine**<sup>10-15</sup>

- Mentorship is well documented as a factor in contributing to the success of an academic career leading to professional satisfaction, productivity and advancement.
- Increasing publication opportunities during medical school and residency, as co-authoring is associated with becoming a faculty member.
- Positive interactions with faculty and administrators may contribute to “following in the footsteps” of those who had an impact on their own experience. Also affording a diverse set of professional experiences (e.g. shadowing in student affairs, medical education) can support aligning with an academic career.

### **Opportunities**

- Build and sustain enthusiasm for academic careers early in the pipeline at the medical student level.
- Increase medical students access to educational modules and resources aimed at promoting a future in academic medicine.
- Broaden partnerships and collaborations with entities that share BNGAP’s mission to enhance pre-faculty development.
- Increase the visibility of pre-faculty development initiatives in medical education.

1. Sánchez JP, Peters L, Lee-Rey E, Strelnick H, Garrison G, Zhang K, Spencer D, Ortega G, Yehia B, Berlin A, Castillo-Page L. (2010) Racial and ethnic minority medical students' perceptions of and interest in careers in academic medicine. *Acad Med*, 88(9): 1299-1307.
2. Association of American Medical Colleges (AAMC). Graduation Questionnaire. <https://www.aamc.org/media/46851/download> (page 28) Accessed on November 28, 2020.
3. Nivet, MA. (2010) Minorities in academic medicine: review of the literature. *Journal of Vasc Surg*, 50(4): S53-8.
4. Palepu A, Carr PL, Friedman RH, Amos H., Ash AS, Moskowitz MA. (1998) Minority faculty and academic rank in medicine. *J Am Med Assoc*, 280: 767-771.
5. Sánchez JP, Poll-Hunter N, Stern N, Garcia AN, Brewser C. (2016) Balancing two cultures: American Indian/Alaska Native medical students' perceptions of academic medicine careers. *J Community Health*, 41(4): 871-880.
6. Sanchez N, Poll-Hunter N, Spencer D, Lee-Rey E, Alexander A, Holaday L, Soto-Green M, Sanchez JP. (2017) Attracting diverse talent to academia: Perspectives of medical students and residents. *J Career Dev*, 45(5): 440-457.
7. Zhang L, Lee E, Kenworthy C, Chiang S, Holaday L, Spencer D, Poll-Hunter N, Sanchez JP. (2017) Southeast and East Asian American medical students' perceptions of careers in academic medicine. *J Career Dev*, 46(3): 235-250.
8. Rodríguez JE, Campbell KM, Pololi LH. (2015) Addressing disparities in academic medicine: what of the minority tax? *BMC Med Educ*, 15(1): 6.
9. O'Sullivan PS, Niehaus B, Lockspeiser TM, Irby DM. (2009) Becoming an academic doctor: perceptions of scholarly careers. *Med Educ*, 43(4): 335-341.
10. Sambunjak D, Straus SE, Marusic A. (2006) Mentoring in academic medicine: a systematic review. *JAMA*, 296(9):1103-15.
11. Borges NJ, Navarro AM, Grover A, Hoban JD. (2010) How, when, and why do physicians choose careers in academic medicine? A literature review. *Acad Med*, 85(4): 680-86.
12. Havnaeri AG, Chen AJ, Greenberg PB. (2017) Scholarly concentration programs and medical student research productivity: a systematic review. *Perspect Med Educ*, 6:216-26.
13. Solomon SS, Tom SC, Pichert J, Wasserman D, Powers AC. (2003) Impact of medical student research in the development of physician-scientists. *J Investig Med*, 51(3):149-56.
14. Straus SE, Straus C, Tzanetos K. (2006) Career choice in academic medicine. *J Gen Intern Med*, 21(12): 1222-9.
15. Yehia B, Cronholm P, Wilson N, Palmer S, Sisson S, Guilliamas C, Poll-Hunter N, Sanchez JP. (2014) Mentorship and pursuit of academic medicine careers: A mixed methods study of residents from diverse backgrounds. *BMC Med Educ*, 9: 14-26.

## Pre-Faculty Development for Residents

Lahia Yemane MD and N. Nicole Jacobs PhD

### **Representation in the Academic Medicine Workforce (2018-2019; n= 140,391)<sup>1</sup>**

White	Asian or Pacific Islander	Hispanic	Black/African American	Native American/Alaskan
42.3%	17.8%	5.3%	4.4%	0.2%

### **Resident Perspectives on Perceived Barriers to Becoming Future Faculty and Senior Academic Leaders<sup>2-7</sup>**

- Lack of readiness or mentorship (highest);
- Concern over work-life balance and high burnout;
- Job availability and logistics;
- Concern of lack of autonomy or flexibility;
- Competing personal and professional roles;
- Lower financial rewards;
- Politics and bureaucracy.

### **Facilitators for Advancement in Academic Medicine<sup>4</sup>**

- Completion of secondary graduate degree/fellowship or research experience during training;
- Desire to carry out research;
- Desire to teach;
- Desire for intellectual stimulation;
- Influence of a mentor or role model

### **Diverse Residents' Perspectives on Careers in Academic Medicine:<sup>8-11</sup>**

- Mentorship and role models are a critical factor for a successful career in academic medicine, and URiM and female residents seek out mentors of the same race/ethnicity or gender, but have difficulty finding them given smaller representation among academic faculty;
- The impact and complexity of the minority tax on faculty as it relates to disparities in various domains within academic medicine, including mentorship of URiM trainees, engagement in community service, recruitment and selection activities, etc.;
- Minority faculty want to serve as mentors to diverse medical students and residents, but they carry a disproportionate load given lack of representation and they themselves have difficulty accessing mentors and role models.

### **Opportunities**

- Broaden partnerships and collaborations with entities that share a similar mission;
- BNGAP conferences and publications help learners learn about academia and the benefits of careers in academic medicine<sup>20,21</sup>, highlight successful URiM faculty and leaders in academic medicine, and network with congruent role models and advisors;
- BNGAP conferences and publications encourage scholarship, develop networks to support scholarship, and teach residents and fellows on how to complete scholarly projects;
- Development of programs and/or curriculum to build skills related to academic medicine, such as leadership, scholarship, and teaching;
- BNGAP publications help trainees learn how to apply for positions in academic medicine

1. ACGME Data Resource Book. Accessed April 20, 2020. <https://www.acgme.org/About-Us/Publications-and-Resources/Graduate-Medical-Education-Data-Resource-Book>
2. Lin S, Nguyen C, Walters E, Gordon P. Residents' Perspectives on Careers in Academic Medicine: Obstacles and Opportunities. *Fam Med*. 2018;50(3):204-211. doi:10.22454/FamMed.2018.306625
3. Borges NJ, Navarro AM, Grover A, Hoban JD. How, When, and Why Do Physicians Choose Careers in Academic Medicine? A Literature Review: *Acad Med*. 2010;85(4):680-686. doi:10.1097/ACM.0b013e3181d29cb9
4. Straus SE, Straus C, Tzanetos K, the International Campaign to Revitalise Academic Medicine. Career choice in academic medicine. *J Gen Intern Med*. 2006;21(12):1222-1229. doi:10.1111/j.1525-1497.2006.00599.x
5. Reck SJ, Stratman EJ, Vogel C, Mukesh BN. Assessment of Residents' Loss of Interest in Academic Careers and Identification of Correctable Factors. *Arch Dermatol*. 2006;142(7):855-858. doi:10.1001/archderm.142.7.855
6. Cain JM, Schulkun J, Parisi V, Power ML, Holzman GB, Williams S. Effects of Perceptions and Mentorship on Pursuing a Career in Academic Medicine in Obstetrics and Gynecology: *Acad Med*. 2001;76(6):628-634. doi:10.1097/00001888-200106000-00015
7. Neacy K, Stern SA, Kim HM, Dronen SC. Resident Perception of Academic Skills Training and Impact on Academic Career Choice. *Acad Emerg Med*. 2000;7(12):1408-1415. doi:10.1111/j.1553-2712.2000.tb00499.x
8. Dixon G, Kind T, Wright J, Stewart N, Sims A, Barber A. Factors That Influence the Choice of Academic Pediatrics by Underrepresented Minorities. *Pediatrics*. 2019;144(2):e20182759. doi:10.1542/peds.2018-2759
9. Osseo-Asare A, Balasuriya L, Huot SJ, et al. Minority Resident Physicians' Views on the Role of Race/Ethnicity in Their Training Experiences in the Workplace. *JAMA Netw Open*. 2018;1(5):e182723-e182723. doi:10.1001/jamanetworkopen.2018.2723
10. Yehia BR, Cronholm PF, Wilson N, et al. Mentorship and pursuit of academic medicine careers: a mixed methods study of residents from diverse backgrounds. *BMC Med Educ*. 2014;14(1):26. doi:10.1186/1472-6920-14-26
11. Rodríguez JE, Campbell KM, Pololi LH. Addressing disparities in academic medicine: what of the minority tax? *BMC Med Educ*. 2015;15(1):6. doi:10.1186/s12909-015-0290-9



## Pre-Faculty Development for Women\*

*\*Final review has yet to be completed*

Paloma F Cariello MD, MPH, Louisa W Holaday MD, Josephine B Wright MD

Female-identifying First Year Medical School Matriculants <sup>1</sup>	Women that transition to part-time positions or leave medicine within six years of completing training <sup>2</sup>	Representation in cardiology, urology, plastic surgery, and orthopedics <sup>3-4</sup>	Female physicians that hold full-time faculty positions <sup>5</sup>
50.5%	~40%	<20%	37%

### **Inclusion in Academic Medicine<sup>6-8</sup>**

Within academic medicine, women are underrepresented particularly in leadership, and have lower salaries and slower advancement than their male counterparts. Multiple studies have demonstrated that women faculty are compensated less and are promoted at a slower pace when compared to their male counterpart, even when adjusted for age, specialty, education, experience level and geography.

Women have decreased representation in higher academic ranks and leadership positions within medical schools, with the most prominent gap being at the highest-level positions including dean of the medical school, senior associate, vice, or associate dean.

### **Barriers to Becoming Future Faculty and Senior Academic Leaders<sup>9-10</sup>**

- Several interpersonal barriers such as sexual harassment, societal pressures, family and parental planning, household responsibilities, implicit bias, lack of time and support, experience, mentorship, burnout, among others;
- Lack of advocacy, mentorship, and support at an institutional level; and
- Lack of equitable and inclusive policies at a national level.

### **Facilitators for the Advancement of Women in Academic Medicine<sup>11-12</sup>**

- Identification of several highly successful women in leadership positions, the broad use of communication channels and social media, a better understanding of inequities, and recognition of opportunities to advance women with intentional effort;
- Providing avenues for research, hands-on experience, and positive role models;
- Better preparation for upstream pipeline of women faculty;
- Building a repository of the resources that provide guidance regarding professional advancement;
- Increase awareness and spotlight women in academic medicine and their approaches to success.

### **Opportunities<sup>11-12</sup>**

American Medical Women Association (AMWA) offers opportunities for career development, networking, funding, mentoring and education, with the mission of advancing women in medicine, advocating for equity, and ensuring excellence in health care. AMWA has dedicated sessions for premedical students, medical students, residents, and attending physicians.

Mentorship through national organizations such as BNGAP plays a key role in both women's advancement within and entry into academia, and to build a network to connect mentees to women in senior leadership to help demystify the promotion and appointment process.

1. The Majority of US Medical Students Are Women, New Data Show [press release]. AAMC, 12/9/2019 2019.
2. Edmunds LD, Ovseiko PV, Shepperd S, et al. Why do women choose or reject careers in academic medicine? A narrative review of empirical evidence. *The Lancet*. 2016;388(10062):2948-2958.
3. Diane Magrane M. The Changing Representation of Men and Women in Academic Medicine. *Association of American Medical Colleges*. 2005;5(2).
4. Kane L. *Medscape Physician Compensation Report*. 2020.
5. AAMC. *Faculty Roster: U. S. Medical School Faculty*. 2019.
6. Larson AR, Kan CK, Silver JK. Representation of Women Physician Deans in U.S. Medical Schools. *J Womens Health (Larchmt)*. 2019;28(5):600-605.
7. Farkas AH, Bonifacino E, Turner R, Tilstra SA, Corbelli JA. Mentorship of Women in Academic Medicine: a Systematic Review. *J Gen Intern Med*. 2019;34(7):1322-1329.
8. Shillcutt SK, Parangi S, Diekman S, et al. Survey of Women Physicians' Experience with Elected Leadership Positions. *Health Equity*. 2019;3(1):162-168.
9. Altieri MS, Salles A, Bevilacqua LA, et al. Perceptions of Surgery Residents About Parental Leave During Training. *JAMA Surg*. 2019.
10. Hoops HE, Brasel KJ, Dewey E, et al. Analysis of Gender-based Differences in Surgery Faculty Compensation, Promotion, and Retention: Establishing Equity. *Ann Surg*. 2018;268(3):479-487.
11. AMWA. American Medical Womens Association. <https://www.amwa-doc.org/> Accessed.
12. Farkas AH, Bonifacino E, Turner R, Tilstra SA, Corbelli JA. Mentorship of Women in Academic Medicine: a Systematic Review. *J Gen Intern Med*. 2019;34(7):1322-1329.

## **Pre-Faculty Development for Lesbian, Gay, Bisexual, and/or Transgender Individuals**

Nelson Felix Sanchez MD, Samuel Bunting MSHA, Danilea M. Carmona Matos MS,  
Jilyan Decker MD, Edward J. Callahan PhD

### **Representation in the US<sup>1</sup>**

- 4.5% of the US population identified as LGBT in 2017, up from 3.5% in 2012;
- Among 2019 matriculating medical students 5.0% identify as bisexual, 3.8% as gay or lesbian, and 0.7% identify with a gender identity different from the one assigned at birth.

### **Inclusion in Academic Medicine<sup>2-5</sup>**

- Historical hurdles have contributed to the lack of data on self-identified LGBT individuals in academic medicine. Societal pressures have pushed individuals to hide their identity because expression could be viewed as criminal, immoral, or as indication of mental illness.
- Historically LGBT individuals needed to be closeted to gain acceptance to medical school, excel in residency, or progress through the steps necessary to join faculty or remain a faculty member.
- Since the emergence of GRID/HIV/AIDS there has been increased documentation of the health disparities experienced by LGBT patients. However, sexual orientation and gender identity (SOGI) of faculty is not documented in any ongoing database in academic medicine.

### **Barriers to Becoming Future Faculty and Senior Academic Leaders<sup>6-7</sup>**

- LGBT trainees and professionals have expressed poor access to concordant LGBT mentors or LGBT-friendly mentors.
- LGBT networking opportunities have been limited at trainees and professionals' home institutions.
- Trainees and professionals have reported lack of support and recognition of LGBT scholarship activities such as LGBT focused research, educational activities, and community service.
- Perceptions that "prestigious specialties" are less LGBT friendly may dissuade applicants to apply to these fields.
- Fear of the consequences of being "out" in their career development, such as not being accepted into specialty training or uncertainty in promotion, may discourage disclosure of sexual orientation/gender identity.

### **Facilitators for Advancement in Academic Medicine<sup>6-7</sup>**

- Recognition of LGBT health scholarship (e.g. institutional and organizational awards recognizing LGBT health research, education, clinical care, or leadership; <http://bngap.org/award/>);
- LGBT-inclusive experiences in academic settings that develop research, teaching and administrative skills;
- Culturally nuanced education about advancement in academia for LGBT individuals<sup>5</sup> (LGBT Health Workforce Conference - <http://bngap.org/lgbthwfconf/>);
- Leadership development trainings (e.g. Executive Leadership in Academic Medicine for LGBT community);
- Participation in LGBT health research career trainings (e.g. learn best practices in grant writing, project completion, publishing; SGM Cancer Care Workshop - <http://bngap.org/sgm-cancer-care-2021-workshop/>).

### **Opportunities**

- SOGI microaggressions education to teach trainees how to handle discriminatory events during their graduate school and junior faculty years;
- Graduate schools can create their own curricula on best practices in LGBT health or host webinars to improve LGBT trainees' awareness of best practices in research, clinical care, leadership and teaching;
- Promote activities that facilitate LGBT trainees meeting with congruent faculty for career development advice;
- Participation in LGBT identified fellowship programs and national conferences that gather trainees and academicians to support mentorship and the sharing of career development best practices.

1. Meerwijk EL, Sevelius JM. Transgender Population Size in the United States: a Meta-Regression of Population-Based Probability Samples. *Am J Public Health*. 2017;107(2):e1–e8. doi:10.2105/AJPH.2016.303578
2. <https://news.gallup.com/poll/234863/estimate-lgbt-population-rises.aspx>
3. <https://www.census.gov/library/stories/2019/09/where-same-sex-couples-live.html>
4. AAMC Matriculating Student Questionnaire. <https://www.aamc.org/media/38916/download> Accessed on November 28, 2020.
5. Sánchez NF, Sánchez JP, Lunn MR, Yehia BR, Callahan E. Meeting Report: First Annual LGBT Health Workforce Conference: Empowering Our Health Workforce to Better Serve LGBT Communities. *LGBT Health* March 2014, 1(1): 62-65.
6. Sánchez N, Rankin S, Callahan E, Ng H, Holaday L, McIntosh K, Poll-Hunter N, Sánchez JP. LGBT Health Professionals Perspectives on Academic Careers – Facilitators and Challenges. *LGBT Health* December 2015, 2(4); 346-56.
7. Sanchez NF, Callahan E, Brewster C, Poll N, Sanchez JP. Mentoring LGBT Health Professional Trainees. *LGBT Health* 5(3), April 2018.

## Pre-Faculty Development for Black/African American Identified Individuals

Dennis Spencer MD, PhD, Hyacinth Mason PhD, MPH, CHES, Ewoma Ogbaudu, Carmin Powell MD, and Sherree Wilson PhD

U.S. Population <sup>1</sup> 13.4%	Medical School Matriculants <sup>2-3</sup> 7.1%	Active Physician Workforce <sup>2-3</sup> 5%	Allopathic Faculty <sup>2-3</sup> 3.6%
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### **Inclusion in Academic Medicine<sup>4</sup>**

- Total full-time faculty included 2% of professors, 3.3% of associate professors, 4.5% of assistant professors, and 4.2% of instructors.
- Most senior faculty are present at historically black medical institutions.

### **Barriers to Becoming Future Faculty and Senior Academic Leaders<sup>5-6</sup>**

- Lack of awareness of careers in academic medicine and pathways;
- Lack of role models to engender interest;
- Lack of congruent role models, advisors, mentors especially in faculty and senior ranks;
- Lack of a welcoming environment, including perceived and/or demonstrable bias and discrimination;
- A lower proportion entering into graduate programs which impacts pool becoming faculty.

### **Addressing misconceptions<sup>7</sup>**

- Black/African-Americans are more likely than other racial groups to indicate a preference to work with underserved communities. There is a misperception that becoming a faculty member doesn't allow you to serve your community.

### **Facilitators for Advancement in Academic Medicine<sup>8-9</sup>**

- Increasing pre-faculty development pipeline/pathway programs during college and graduate school;
- Visible Black/African-American faculty and senior leaders role models, advisors, and mentors;
- Transparent explanation of the appointment and promotion processes.

### **Opportunities**

- The perceptions of trainees towards pursuing a career in academic medicine has been inadequately assessed in the literature. This therefore presents an opportunity to conduct foundational studies to better delineate the unique experience of Black/African-American trainees and formulate focused programming.

1. United States Census Bureau. American Fact Finder[Internet]. Available from:<https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>. Accessed 4/18/2020.
2. AAMC Diversity & Inclusion in Medicine. Facts & Figures 2019. <https://www.aamc.org/data-reports/workforce/interactive-data/figure-15-percentage-full-time-us-medical-school-faculty-race/ethnicity-2018>. Accessed 4/18/20.
3. AAMC Diversity & Inclusion in Medicine. Facts & Figures 2019. <https://www.aamc.org/data-reports/workforce/interactive-data/figure-18-percentage-all-active-physicians-race/ethnicity-2018>. Accessed 4/18/20.
4. Association of American Medical Colleges. Faculty Roster [Internet]. FacultyRoster.2019.Availablefrom:<https://www.aamc.org/data/facultyroster>
5. Nivet, MA., et al. "Diversity in academic medicine no. 1 case for minority faculty development today: Diversity in academic medicine no. 1." Mount Sinai Journal of Medicine: A Journal of Translational and Personalized Medicine: A Journal of Translational and Personalized Medicine 75.6 (2008): 491-498.
6. Nivet, MA. "Minorities in academic medicine: review of the literature." Journal of vascular surgery 51.4 (2010): S53-S58.
7. Komaromy, M., Grumbach, K., Drake, M. et al. The role of black and Hispanic physicians in providing health care for underserved populations. N Engl J Med. 1996; 334: 1305-1310
8. Rao V, and Flores G. "Why aren't there more African-American physicians? A qualitative study and exploratory inquiry of African-American students' perspectives on careers in medicine." Journal of the National Medical Association 99.9 (2007): 986.
9. Hallock VH. Perceptions of the professoriate: anticipatory socialization of undergraduate students from underrepresented groups. 2003. Digital DissertationsProQuest, (UMI Dissertation Information Service, No. 3081643).

## Pre-Faculty Development for Asian-American (AA) Identified Individuals

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U.S. Population (2010 Census) <sup>1-2</sup>	College Students (2019) <sup>3</sup>	Medical School (2018) <sup>5-6</sup>	Physicians (2019) <sup>7-8</sup>	Faculty (2019) <sup>8</sup>	Deans (1997 to 2008) <sup>9</sup>
5.6%	7.6%	22%	17%	16.7%	<1%

### **Inclusion in the Academic Medicine Workforce<sup>1-14</sup>**

- Asian-Americans (AAs) overall are the second largest racial group in medical institutions and are also well-represented in medical school, residency positions, and academic faculty positions.
- Although AAs are well-represented in the physician workforce, senior leadership positions at academic institutions (i.e. department chairs and deans) are noticeably deficient.

### **Barriers to Becoming Future Faculty and Senior Academic Leaders<sup>20-30</sup>**

- AAs are not classified as URMs as a consolidated racial group. However, many AA's would be considered URMs if desegregated data is considered. Research on AA academic workforce data has generally neglected to account for differences by ethnic subgroups, socioeconomic status, immigrant generation, or English proficiency.
- Social determinants and challenges commonly exist for AA in regard to family income, education, language, health system awareness and social support systems, especially for AAs who are first-generation college graduates.
- The Model Minority stereotype bias may lead superiors to subconsciously hold AA applicants to higher standards than other groups leading to unfair assessments.
- AA applicants may receive lower scores on being personable due to weaker letters of recommendation, which suggests bias on the part of teachers, coaches, and other superiors. They are less likely to be described with standout words such as "exceptional" or "outstanding," or caring words such as "empathetic" or "compassionate."
- Discrimination and harassment still exist for AAs in the United States.

### **Facilitators for Advancement in Academic Medicine<sup>20-30</sup>**

- Many AAs consider themselves to be diligent, have good perseverance and a strong work ethic. This belief could embolden them to successfully pursue academic medicine as a career.
- AAs commonly believe that skills like self-management, decision making, communication, leadership and well-being are crucial for career development.
- AAs with multilingual capability may make them more attractive to employers. Multilingual capability is perceived to help with memory, attention span, and multitasking capabilities.
- Early exposure to appropriate race/ethnicity concordant role models, mentors and a professional network is beneficial in fostering emotional intelligence and aiding career advancement.
- Early experiences and achievements in high school and college can help in fostering continued achievements in knowledge, attitude, skills and self-efficacy.

### **Opportunities**

- Promote and inspire AA students to pursue academic medical careers starting in high school and college.
- Recruit and identify AA students interested in pursuing academic medical careers starting in college and medical school.
- Disaggregate Asian demographic data to expose the myth of the model minority race and prevent the simplification of Asian-Americans' diversity from obscuring social and educational disparities among Asian subgroups. Race and ethnicity are fundamental factors to professional identity development.
- Provide unconscious and implicit bias assessment and training for medical school faculty and medical school admission committees, inclusive of Asian-identifying individuals.

1. US Census Bureau. American Fact Finder. 2019.
2. Lopez G, Ruiz N, Patten E. Key facts about Asian Americans, a diverse and growing population. Pew Research Center;2017.
3. Budiman A, Cilluffo A, Ruiz N. Key facts about Asian origin groups in the U.S.: Pew Research Center;2019.
4. American Association of Colleges of Osteopathic Medicine. AACOMAS Applicant Pool Profile. 2019.
5. American Association of Colleges of Osteopathic Medicine. AACOM Reports on Matriculants 2018.
6. American Association of Colleges of Osteopathic Medicine. 2016-17 Osteopathic Medical College Faculty by Race/Ethnicity. 2017.
7. American Association of Medical Colleges. Diversity in Medicine: Facts and Figures 2019.
8. American Association of Medical Colleges. Workforce Data and Reports. 2019.
9. Yu PT, Parsa PV, Hassanein O, Rogers SO, Chang DC. Minorities struggle to advance in academic medicine: A 12-y review of diversity at the highest levels of America's teaching institutions. *The Journal of surgical research*. 2013;182(2):212-218.
10. American Association of Medical Colleges. Underrepresented in Medicine Definition—Initiatives—AAMC. 2004.
11. American Association of Medical Colleges. Liaison Committee on Medical Education Accreditation. 2010.
12. Association of American Medical Colleges. Assessing medical school admissions policies: implications of the US Supreme Court's affirmative-action decisions. 2003.
13. Lu F, Lee L, An C, Zhang L. Increasing Asian Inclusion in Academic Medicine and Leadership. 2018.
14. Rodríguez JE, López IA, Campbell KM, Dutton M. The Role of Historically Black College and University Medical Schools in Academic Medicine. *Journal of health care for the poor and underserved*. 2017;28(1):266-278.
15. Kaplan SE, Raj A, Carr PL, Terrin N, Breeze JL, Freund KM. Race/Ethnicity and Success in Academic Medicine: Findings From a Longitudinal Multi-Institutional Study. *Academic medicine: journal of the Association of American Medical Colleges*. 2018;93(4):616-622.
16. Nakayama DK. Asian Americans in Leadership Positions in Academic Surgery. *Annals of surgery*. 2012;255(3).
17. Butler PD, Longaker MT, Britt LD. Major deficit in the number of underrepresented minority academic surgeons persists. *Annals of surgery*. 2008;248(5):704-711.
18. Ginther DK, Schaffer WT, Schnell J, et al. Race, Ethnicity, and NIH Research Awards. *Science*. 2011;333(6045):1015-1019.
19. Valantine H, Wilson MR. NIH Scientific Workforce Diversity Actions and Progress: 2014-2019. 2019.
20. Federal Glass Ceiling Commission. Good for Business: Making Full Use of the Nation's Human Capital. US Department of Labor;1995.
21. Hyun J. *Breaking the Bamboo Ceiling: Career Strategies for Asians*. HarperCollins 2009.
22. Pennic F. Report: Gender and Racial Disparities Still Prevalent in Physician Compensation. 2018.
23. *Myth of the Model Minority: Asian Americans Facing Racism*. Paradigm; Rosalind Chou, Joe Feagin.
24. Museus SD, Park JJ. The continuing significance of racism in the lives of Asian American college students. *Journal of College Student Development*. 2015;56(6):551-569.
25. Poon O, Squire D, Kodama C, et al. A Critical Review of the Model Minority Myth in Selected Literature on Asian Americans and Pacific Islanders in Higher Education. *Review of Educational Research*. 2016;86(2):469-502.
26. Chen C, Rao A, Ren I. Glass Ceiling for the Foreign Born: Perspectives From Asian-Born American R&D Scientists. *Asian American Journal of Psychology*. 2013 ; 4: 249.
27. Ko M, Ton H. The Not Underrepresented Minorities: Asian Americans, Diversity, and Admissions. *Academic Medicine*. 2020;95(2).
28. Sánchez JP, Peters L, Lee-Rey E, et al. Racial and ethnic minority medical students' perceptions of and interest in careers in academic medicine. *Academic medicine: journal of the Association of American Medical Colleges*. 2013;88(9):1299-1307.
29. Zhang L, Lee ES, Kenworthy CA, et al. Southeast and East Asian American Medical Students' Perceptions of Careers in Academic Medicine. *Journal of Career Development*. 2017;46(3):235-250.
30. Yehia BR, Cronholm PF, Wilson N, et al. Mentorship and pursuit of academic medicine careers: a mixed methods study of residents from diverse backgrounds. *BMC Medical Education*. 2014;14(1):26.



## Pre-Faculty Development of Hispanic, Latino/a, Latinx-Identified Individuals

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U.S. Population (2010 Census) <sup>1</sup>	Medical Students (MD) <sup>2-3</sup>	Residents <sup>2-3</sup>	Academic Faculty <sup>2-3</sup>	Faculty in Senior Leadership <sup>4-5</sup>
16%	6.2%	7.5%	5.5%	4%

### **Inclusion in the Academic Medicine Workforce**<sup>1-5,10</sup>

- Medical school matriculants and faculty are not reflective of the current growing Hispanic population. Higher education has long been considered a key driver of socioeconomic mobility and a means for achieving equity in our society.
- Disparities in Hispanic educational attainment impacts the pipeline for pre-faculty development and is essential to provide opportunity to achieve equity and improve the health and well-being of the nation.
- Attending to language concordance is an important step in achieving health equity for the growing Spanish language patient population and in obtaining the best quality of care in the U.S. health system.

### **Barriers to Becoming Future Faculty and Senior Academic Leaders**<sup>6-19</sup>

- Low socioeconomic status does not allow for the cost of higher education and professional schools without the challenges of taking out large loans and/or working during school.
- Diversity of Hispanic life experiences, such as first-generation college, may influence access and quality of mentorship for students in UME and GME programs.
- Hispanic cultural experiences may vary significantly across regions and may limit how willing students, residents, and fellows are to pursue and accept opportunities outside their region.
- Messaging targeting potential Hispanic academicians may be insufficiently broad to target all Hispanic communities.
- Hispanic IMGs may lack knowledge on navigating the visa system in the US and often find that sources of research funding for IMG's are limited.

### **Facilitators for Advancement in Academic Medicine**<sup>19-20</sup>

- *Diversity as an opportunity:* Hispanics have a unique perspective on how America will be shaped in the 21st Century. They can lead by example and to influence how academic medicine views the Hispanic community going forward.
- *Language skills:* Hispanics who speak Spanish are in demand by institutions. Given that over 40 million people speak Spanish natively, they have the unique opportunity to lead better care for their communities and increase health equity.
- Exposure to Hispanic role models, mentors, and professional networks can be critical for educational and career advancement.
- Early work experiences, networking, and education pipeline opportunities can build self-efficacy to catapult Hispanics to pursue academic medicine.
- Research opportunities for those underrepresented in medicine not only offer the opportunity to innovate and impact the next advances in science but to address health inequities.

### **Opportunities**

- a. Increase recruitment and retention of Hispanic faculty and leaders in academic medicine (Academic Medical Centers)
  - i. Establish interest specific workgroups with mentorship for Hispanic trainees that will align with scholarly activities, evaluation, and publication goals;
  - ii. Expand and enhance enrichment and mentoring activities from K-16 through medical school with racial/ethnic and gender role models leading the activities.
- b. Expand the pipeline of Hispanics interested in academic careers
  - i. Expand and enhance enrichment and mentoring activities, inclusive of community-centered opportunities, from K-16 through medical school with racial/ethnic and gender role models leading the activities;
  - ii. Develop and implement workshop in support of undocumented learners.
- c. Encourage Hispanic IMGs to consider academic medicine and engage them in Pre-Faculty Development workshops.

1. Humes KR, Jones NA, Ramirez RR. Overview of Race and Hispanic Origin: 2010 [Internet]. {US Census Bureau}; 2018 Sep [cited 2020 Jun 25]. Report No.: C2010BR-02.
2. Figure 8. Percentage of matriculants to U.S. medical schools by race/ethnicity (alone), academic year 2018-2019 | AAMC [Internet]. AAMC. [cited 2020 Jun 25]. Available from: <https://www.aamc.org/data-reports/workforce/interactive-data/figure-8-percentage-matriculants-us-medical-schools-race/ethnicity-alone-academic-year-2018-2019>. Accessed on 2020 Jun 25
3. Brotherton SE, Etzel SI. Graduate Medical Education, 2017-2018. JAMA. 2018 Sep 11;320(10):1051–70.
4. Figure 15. Percentage of full-time U.S. medical school faculty by race/ethnicity, 2018 | AAMC [Internet]. AAMC. [cited 2020 Jun 25]. Available from: <https://www.aamc.org/data-reports/workforce/interactive-data/figure-15-percentage-full-time-us-medical-school-faculty-race/ethnicity-2018>. Accessed on 2020 Jun 25
5. AAMC Faculty Roster. Table 3: U.S. Medical School Faculty by Rank and Race/Ethnicity, 2018 [Internet]. AAMC; 2019.
6. Sánchez JP, Poll-Hunter NI, Acosta D. Advancing the Latino Physician Workforce-Population Trends, Persistent Challenges, and New Directions. Acad Med. 2015 Jul;90(7):849–53.
7. Addressing disparities in academic medicine: what of the minority tax? BMC Med Educ. 2015 Feb 1;15:6.
8. Mahoney MR, Wilson E, Odom KL, Flowers L, Adler SR. Minority faculty voices on diversity in academic medicine: perspectives from one school. Acad Med. 2008 Aug;83(8):781–6.
9. Toledo P. The US needs more Hispanic medical students [Internet]. Quartz. Quartz; 2014 [cited 2020 Apr 28]. Available from: <https://qz.com/201360/the-us-needs-more-hispanic-medical-students/>. Accessed on 2020 Apr 28
10. Bustamante AV, Beltran LF. Latino Physician Shortage in California: The Provider Perspective. Latino Policy and Politics Initiative; 2019 Mar.
11. Hadinger MA. Underrepresented Minorities in Medical School Admissions: A Qualitative Study. Teach Learn Med. 2017 Jan;29(1):31–41.
12. Rodriguez JE, Campbell KM, Fogarty JP, Williams RL. Underrepresented minority faculty in academic medicine: a systematic review of URM faculty development. Fam Med. 2014 Feb;46(2):100–4.
13. Palepu A, Carr PL, Friedman RH, Amos H, Ash AS, Moskowitz MA. Minority faculty and academic rank in medicine. JAMA. 1998 Sep 2;280(9):767–71.
14. Lypson ML, Gruppen L, Stern DT. Warning signs of declining faculty diversity. Acad Med. 2002 Oct;77(10 Suppl):S10-2.
15. The Latino Physician Shortage: How the Affordable Care Act Increases the Value of Latino Spanish-Speaking Physicians and What Efforts Can Increase Their Supply. J Racial Ethn Health Disparities. 2018 Feb;5(1):170–8.
16. Sánchez JP, Peters L, Lee-Rey E, Strelnick H, Garrison G, Zhang K, et al. Racial and ethnic minority medical students' perceptions of and interest in careers in academic medicine. Acad Med. 2013 Sep;88(9):1299–307.
17. Amgad M, Man Kin Tsui M, Liptrott SJ, Shash E. Medical Student Research: An Integrated Mixed-Methods Systematic Review and Meta-Analysis. PLoS One. 2015 Jun 18;10(6):e0127470.
18. Mentorship and pursuit of academic medicine careers: a mixed methods study of residents from diverse backgrounds. BMC Med Educ. 2014 Feb 9;14:26.
19. Maton KI, Pollard SA, McDougall Weise TV, Hrabowski FA. Meyerhoff Scholars Program: a strengths-based, institution-wide approach to increasing diversity in science, technology, engineering, and mathematics. Mt Sinai J Med. 2012 Sep;79(5):610–23.
20. Holden L, Rumala B, Carson P, Siegel E. Promoting careers in health care for urban youth: What students, parents and educators can teach us. Inf Serv Use. 2014 Jan 1;34(3–4):355.
21. Ortega P. Spanish Language Concordance in U.S. Medical Care: A Multifaceted Challenge and Call to Action. Acad Med. 2018 Sep;93(9):1276–80.

## Pre-Faculty Development for American Indian/Alaska Native (AI/AN)-Identified Individuals

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U.S. Population (2010 Census) <sup>1</sup>	College Students (2019) <sup>2</sup>	Medical School (2018) <sup>3</sup>	Physicians (2019) <sup>4-5</sup>	Faculty (2019) <sup>4-5</sup>	Deans (1997 to 2008) <sup>6</sup>
1.7%	1%	0.2%	0.4%	0.2 %	0%

### **Inclusion in the Academic Medicine Workforce<sup>1-6</sup>**

- American Indians/Alaska Natives continue to be disproportionately underrepresented in the academic medicine workforce. There are a multitude of reasons for these trends, however much of this is driven by the low and decreasing numbers of AI/AN who are enrolling for a college education and entering the medical field. Also, the college dropout rate for AI/AN is high.
- The U.S. workforce continues to have a small number of practicing AI/AN physicians. This is coupled with the fact that AI/AN have some of the highest mortality rates due to preventable causes, lower rates of access to healthcare, and a higher physician shortage and vacancies in AI/AN communities.

### **Barriers to Becoming Future Faculty and Senior Academic Leaders<sup>7-11</sup>**

- The colonization of the Americas led to the destruction of AI/AN family systems through such policies as forcing children to attend boarding schools, loss of AI/AN land, and subjugation of AI/AN people;
- Lack of culturally responsive educational systems in the U.S. schools and colleges that rarely respect or honor American Indian/Alaska Native culture;
- Poor support throughout the medical school experience for AI/AN students has contributed to a negative psychological climate;
- Several myths and stereotypes are perpetuated by society.

### **Facilitators for Advancement in Academic Medicine<sup>11</sup>**

- Key to increasing the number of AI/AN physicians in the U.S. is to have a greater number of AI/AN faculty; also working with AI/AN tribal councils to increase recruitment for college education and medical school education.
- Financial stability and economic development of AI/AN communities which provides access to necessities of life – food, water, sanitation, and quality education;
- Good personal health and wellbeing and multilingual capability;
- Access to novel early childhood education that provides students with the skills necessary for mainstream academic success and helps students develop knowledge, pride, and skills in traditional AI/AN culture;
- Access to race concordant role models, advisors, and mentors;
- Exposure to academic enrichment programs at primary, middle, high school, and undergraduate level.

### **Opportunities**

- *Historical acknowledgement:* Institutions should have processes in place to acknowledge history;
- *Cultural support:* Implementation of culturally responsive academic enrichment programs;
- *Financial support:* Proving AI/AN student federal loans for the cost of attendance of medical school;
- *Develop a pro-diversity institutional mission statement to inform admissions policies:* Equitable access to resources and accurate information about the medical school application process;
- *Access to race and culture congruent role models/advisors and mentors:* Provide academic and career guidance to build future AI/AN academic medicine leaders;
- *Leadership and community engagement are essential:* Leaders within AI/AN communities and at institutions must work together to make sustainable changes.

1. Imam M XI, Fair MA, Nivet MA. Faculty diversity in U.S. medical schools: progress and gaps coexist. Analysis in Brief. December 2016; Volume 16, Number 6. Available at: <https://www.aamc.org/download/474172/data/december2016facultydiversityinu.s.medicalschooolsprogressandgaps.pdf>.
2. [https://nces.ed.gov/pubs2008/nativetrends/ind\\_6\\_1.asp](https://nces.ed.gov/pubs2008/nativetrends/ind_6_1.asp) - college students AI/AN
3. <https://www.aamc.org/data-reports/workforce/data/table-8-us-medical-schools-20-or-more-american-indian-or-alaska-native-graduates>
4. AMN Healthcare. Clinical Workforce Survey: A National Survey of Hospital Executives Examining Clinical Workforce Issues in the Era of Health Reform. San Diego CAHh, MainSite/Content/Healthcare\_Industry\_Insights/Industry\_Research/executivesurvey13.pdf. Accessed May 23, 2020.
5. <https://www.ama-assn.org/practice-management/physician-diversity/native-americans-work-grow-their-own-physician-workforce>
6. Sánchez JP, Poll-Hunter N, Stern N, Garcia AN, Brewster C. Balancing Two Cultures: American Indian/Alaska Native Medical Students' Perceptions of Academic Medicine Careers Journal of Community Health Feb 2016. =
7. Saha S, Komaromy M, Koepsell TD, Bindman AB. Patient-physician racial concordance and the perceived quality and use of health care. Arch Intern Med. 1999;159(9):997-1004.
8. Rabinowitz HK, Diamond JJ, Veloski JJ, Gayle JA. The impact of multiple predictors on generalist physicians' care of underserved populations. Am J Public Health. 2000;90(8):1225-8.
9. Steinbrook R. Diversity in medicine. N Engl J Med. 1996;334(20):1327-8.
10. Reshaping the Journey American Indians and Alaska Natives in Medicine. [https://store.aamc.org/downloadable/download/sample/sample\\_id/243](https://store.aamc.org/downloadable/download/sample/sample_id/243). Accessed May 23, 2020.
11. Warne D, Frizzell LB. American Indian health policy: historical trends and contemporary issues. American Journal of Public Health. 2014;104(S3):S263-S267.
12. Rhoades ER, Rhoades DA. The public health foundation of health services for American Indian and Alaskan Natives. American Journal of Public Health. 2014;104(S3):S278-S285.
13. <https://ajph.aphapublications.org/doi/full/10.2105/AJPH.2013.301767>.
14. Center for Native American Youth. 2017 State of Native Youth Report: Our Identities as Civic Power. Washington, DC: Center for Native American Youth at the Aspen Institute; 2017.

## **Pre-Faculty Development for First-Generation College Graduates and/or Low-Income Medical Trainees (FGLI)**

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### **First Generation and low-income individuals in medicine<sup>1-5</sup>**

- First-generation college graduates are broadly defined as students who are first in their family to attend college.
- Socioeconomic status (SES) is a contributing factor to student development and success throughout higher education. FGLI individuals' have less access to professional development and clinical training opportunities.
- First-generation students experience obstacles such as high attrition rates, less financial support, and less guidance in pursuing secondary education.
- First-generation students are twice as likely to leave medical school in the first two years, regardless of MCAT score, compared to continuing-generation students.

### **Barriers in Pursuing Academic Medicine<sup>6-7</sup>**

- The high financial cost of preparing for graduate school (e.g. high application fees and expensive standardized tests) is prohibitive to low-income students who lack financial resources to navigate the path to graduate school.
- FGLI students often juggle multiple responsibilities, including part-time or full-time work and school.
- Challenges associated with low SES are debilitating not because people's talents are diminished, but because they limit the opportunity for talent to fully actualize.

### **Facilitators for Advancement in Academic Medicine<sup>8-9</sup>**

- FGLI students can flourish under the guidance of advisors and mentors who understand the unique social and cultural context of a limited-resource background.
- Family support is an important predictor for a student's educational success as it promotes wellbeing and facilitates student engagement. FGLI students often come from families that operate as a team, providing them with the foundational support to pursue challenging academic medicine positions.
- FGLI students are insightful and reflexive, characteristics built from their lived experiences. Their self-awareness is critical for success during career changes into academic medicine positions.

### **Opportunities**

#### *Pre-Medical Education:*

- Provide resources for FGLI students to learn about the breadth of opportunities in academic medicine;
- Design and adopt long term strategies to identify, mentor, inform, nurture, and recruit local FGLI high school to medicine and to foster their interest in an academic medical career.

#### *Undergraduate Medical Education:*

- Create a learning environment that not only attracts FGLI trainees but provides them with the knowledge, attitude, tangible skills, and mentorship that allows them to thrive and successfully complete their undergraduate medical training and develop interest in academic medicine;
- Transform the FGLI experience from having a negative connotation for students, faculty, and administrators alike to a positive, assets based one that encourages visibility and advocacy.

#### *Graduate Medical Education and Transition to Faculty:*

- Provide professional development and mentorship opportunities catered to the needs of FGLI trainees;
- Socio-economic background can shape the cultural transition to medical school, residency, and the first academic position. Create peer and faculty mentorship opportunities for FGLI trainees as they navigate the academic physician pathway.

1. Horowitz J, Igielnik R, Kochhar R. *Trends in income and wealth inequality*. Pew Research Center; 2020.
  2. American Association of Medical Colleges. *AMCAS® 2018 Application*. 2018.
  3. Brewer L, Grbic D. Medical Students' Socioeconomic Background and Their Completion of the First Two Years of Medical School. *Analysis in Brief*. 2010;9(11).
  4. White C. Doctors from underprivileged backgrounds are poorly represented in medicine. *BMJ*. 2013;347:f6348.
  5. Puddey IB, Playford DE, Mercer A. Impact of medical student origins on the likelihood of ultimately practicing in areas of low vs high socio-economic status. *BMC Med Educ*. 2017;17(1):1.
  6. Millo L, Ho N, Ubel PA. The Cost of Applying to Medical School — A Barrier to Diversifying the Profession. *New England Journal of Medicine*. 2019;381(16):1505-1508.
  7. McKnight J. *The Careless Society*. 1996.
  8. Garrison NJ, Gardner DS. *Assets First Generation College Students Bring to the Higher Education Setting*. Association for the Study of Higher Education (ASHE) Annual Conference; 2012.
- Soria KM, Stebleton MJ. First-generation students' academic engagement and retention. *Teaching in Higher Education*. 2012;17(6):673-