

Critical Shortage of African American Medical Oncologists in the United States

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The Association of American Medical Colleges (AAMC) reported that in 2013 only 2.3% of oncologists in the United States were African American.¹ In early 2015, the American Society of Clinical Oncology (ASCO) released 2013 data showing that African Americans will likely continue to be seriously under-represented in medical oncology and that African Americans composed only 4.0% of hematology/oncology fellows in the United States.² Data from 2012 show a similar pattern for percentages of African American physicians in hematology/oncology in internal medicine (4.0%), pediatric hematology/oncology (4.6%), and radiation oncology (4.2%).³

In contrast, there are somewhat more African American resident physicians in surgery and family medicine (5.3% and 6.8%, respectively), and these rates are increasing.^{4,5} The proportion of African American medical oncology fellows has decreased compared with African American internal medicine residents since 1986 (currently 3.1% v 5.6%).⁶ Together, the AAMC and ASCO reports show a serious under-representation of African Americans in medical oncology and a persistent pattern of reduced diversity despite a greater presence of African Americans in related fields and in the US population (African Americans compose 13.2% of the US population).⁷

To further contextualize these data, we examined the trends of graduating physicians from US medical schools by race.^{8,8a} The number of physicians graduating from US medical schools increased from 15,113 in 1980 to 17,364 in 2011. During this time, the proportion of white medical school graduates declined from 84.6% (12,788) in 1980 to 62.1% (10,783) in 2011, while the proportion of all racial minorities has increased substantially—except for African Americans. The proportion of African American medical school graduates was 5.1% (768) in 1980; by 2011 the proportion was 6.5% (1,129), about a 30% increase. In contrast, the proportion of Asian medical student graduates has gone from 2.7% (412) to 21.7% (3,767), about an eight-fold increase, and the proportion of Hispanic/Latino graduates has more than doubled from 3.1% (462) in 1980 to 7.1% (1,235) in 2011. Even though the proportion of medical school graduates who are American Indian or Alaskan native remains extremely small, it has had a four-fold increase from 33 (0.2%) to 135 (0.8%).

The relatively low number of practicing African American medical oncologists has implications for the oncology workforce and the delivery of quality cancer care. Overall, the supply of

oncologists is not keeping pace with the increasing incidence of cancer diagnoses and prevalence of cancer survivors.^{9,10} The US population is aging rapidly; the number of people age 65 years and older is expected to increase from 35 million in 2000 to 72 million in 2030.¹¹ The commensurate increase in cancer incidence rates by 2030 is estimated at 45% (from 1.6 million in 2010 to 2.3 million in 2030).^{12,13} Yang et al¹⁴ estimate there will be a 40% increase in the overall demand for oncology services by 2025, but the supply of oncologists will only increase by 25%.

The issue of under-representation of African American medical oncologists must also be considered in the context of empirical data regarding the variation in the experience of cancer across races and ethnicities and the role of race in health care consultations. African Americans, compared with whites, experience a greater burden of cancer incidence (480.8 and 468.9 per 100,000, respectively) and cancer mortality (206.4 and 173.3 per 100,000, respectively).¹⁵⁻¹⁹ In addition, a significant body of research in primary care and oncology settings has found that, compared with racially concordant clinic visits (ie, both the patient and physician are the same race), communication in racially discordant clinic visits (ie, an African American patient and a non-African American physician) is likely to be of poorer quality.²⁰⁻³² Specifically, patients in racially discordant clinic visits tend to ask fewer questions²⁷ and are less likely to participate in decision making,²⁰ whereas physicians in these visits tend to be less patient centered,^{21,22} more verbally dominant,²² and more contentious²⁴ and to provide less information.²⁹ Physicians and patients also demonstrate fewer expressions of positive affect²² and relationship-building attempts.³⁰

The National Academy of Medicine (formerly the Institute of Medicine) has reported a relationship between a shortage of minority health care providers and poorer health outcomes for minority patients.³³ The *Journal of Oncology Practice* recently published a summary of the mounting pressures the US cancer care delivery system is currently facing. The authors emphasized that the lack of racial and ethnic diversity in medical oncology, particularly the lack of practicing African American medical oncologists, is problematic and that increased diversity has the potential to expand access to quality care.⁹ When given the choice, most people seek care from physicians with racial and ethnic backgrounds similar to their own.^{34,35} However, for most African American patients with cancer, the small number of

African American medical oncologists severely limits, if not eliminates, that choice.

Increasing the number of practicing African American physicians has been repeatedly identified as a strategy to reduce the impact of racial bias and disparities in health care.³⁶⁻³⁸ Indeed, diversifying the ranks of medical oncologists will enable clinicians to be more responsive to the increasingly diverse populations for which they provide care,^{39,40} partly because African American physicians tend to demonstrate less racial bias compared with white physicians.^{41,42} In a study of the racial profiles of 142 hospitals and the communities they served, King et al⁴³ found that when racial diversity among hospital staff reflected the racial diversity of the community, patients were treated with more respect and courtesy, which facilitated enhanced quality of care. The authors note that an organization with a staff that is racially similar to the community it serves demonstrates to both staff (and here we include all health care providers who work as a team on behalf of the patients' care and well-being) and patients that it values and supports the population served. A diverse staff may more easily engage with people from various racial backgrounds, which may likely enhance the quality of the care they provide to patients.^{44,45} Diversity in the US patient population is a fact of life. Therefore, diversity among oncology providers is necessary and should be a goal that is respected, managed, and facilitated.^{39,45}

The observation of King et al⁴³ is consistent with the classic organizational systems principle known as the law of requisite variety.^{46,47} This principle states that for complex systems and organizations to remain responsive and viable during periods of environmental turbulence and change, they must possess levels of internal variation and complexity that approximate the variation and complexity in the external environments surrounding them. Without requisite variety and complexity, systems become insulated and unable to efficiently and productively adapt to the rapidly changing needs, demands, and challenges posed by their larger environments.⁴⁷⁻⁵⁰

A problem of this magnitude necessitates thoughtful and collective action from those in positions to enact and facilitate constructive change. The goal of increasing diversity among medical oncologists is achievable but will require that universities, medical schools, professional societies, health systems, and practicing oncologists coordinate their efforts. Continuation of substantial commitments to recruiting and mentoring activities will be essential. We also recommend integrating activities to increase diversity early in medical training and strategies that minimize the negative impact of bias and racial discordance in clinical interactions.

There are clear racial trends in the location and types of practice physicians seek after medical school.^{1,51} Increasing all students' awareness of options earlier and then selecting and guiding interested students toward medical oncology are important steps toward improved diversity.⁵² The recruiting and mentoring of minority medical students should be available at multiple points in a student's experience. Presenting oncology as a career while students from all backgrounds are in high school and college and still exploring their career paths may present previously unconsidered career options. It is also critical to support minority medical school students and to introduce the possibility of oncology as a career choice early in the process.

Many of the major US medical professional bodies have diversity recruitment and mentoring strategies already in place. ASCO's Diversity in Oncology Initiative, launched in 2009, was designed to facilitate

the recruitment and retention of individuals in medicine from underrepresented populations to careers in oncology.⁵³ This initiative is composed of two awards and a mentoring program. The awards include the Medical Student Rotation for Underrepresented Populations and the Resident Travel Award for Underrepresented Populations. Both awards are offered through the Conquer Cancer Foundation of ASCO. The Diversity Mentoring Program, launched in 2014, is a year-long structured program for medical students and residents who are under-represented in medicine. The first mentor/mentee matches were made in 2014, so the evaluation of the program is still under way. The AAMC⁵⁴ and the American Society of Hematology (ASH)⁵⁵ also have initiatives designed to engage, recruit, and mentor individuals who are under-represented in medicine in careers in medicine (AAMC) and hematology (ASH). In partnership with Eli Lilly, Roswell Park Cancer Institute has recently introduced its Methods in Clinical Research Workshop for Minority Physicians.⁵⁶ This workshop aims to train minority researchers in clinical research and provide ongoing mentorship for young minority investigators with workshop faculty. Ultimately, its goal is to reduce cancer health disparities through increased clinical research targeting minority and underserved populations. With the exception of an AAMC initiative, these programs are designed for more advanced trainees who have already chosen to study medicine. In addition, most of these programs are relatively new and thus have limited evaluation data that are publicly available.

Initiatives such as these are important steps toward increasing diversity in the oncology physician workforce. Moving forward, professional medical societies will provide a great service by acting in tandem with universities and medical schools to ensure continuous recruitment and mentorship for those qualified and interested minority students and physicians. A recent review of the effectiveness of minority faculty development programs at US medical schools concluded that, generally, the programs that were effective were federally funded and were in place for longer periods of time (> 5 years).³⁶ Evidence like this should be reviewed carefully, and medical school recruitment and mentoring programs should be developed based on this type of rigorous assessment of effectiveness.

Of course, the impact from improved recruiting and mentoring on the diversity of the oncology workforce will not be apparent for many years. In the meantime, strategies are needed to reduce the potential negative impact that poor-quality communication in racially discordant clinic visits has on the quality of patient care. We emphasize that although physician racial bias has been shown to influence communication with and treatment decisions for African Americans, it does not necessarily do so.⁵⁷ This means that the negative impact of bias is not inevitable and that strategies are available to minimize that impact.

Notably, research that will continue to inform these approaches is under way. For example, Drs van Ryn and Dovidio and their colleagues are currently conducting the Medical Student Cognitive Habits and Growth Evaluation Study (CHANGES).^{58,59} CHANGES is a national longitudinal study tracking medical students' well-being, experiences, and attitudes between their first year of medical school and their last year. Identification of factors contributing to or altering bias while future physicians are still in training may help inform the minimization of the negative impact of bias in racially discordant clinic interactions as these students progress to become practicing physicians.

Penner et al¹⁵⁷ recently reported a number of evidence-based approaches to reduce the impact of bias in clinical interactions. They summarize approaches that focus on the physician, the patient, the clinical relationship, and the system, because all of these have been shown to introduce bias into medical care.⁶⁰⁻⁶² One example is to provide physician training on how to engage in patient-centered communication, which requires the development of a positive interpersonal relationship. Patient-centered communication focuses on the patient's needs and perspectives but does not ignore the race of the patient, because that denies an important part of an individual.

Finally, although we describe the problem of underrepresentation of African Americans in the oncology physician workforce, we also suggest tools with which we, as a community, can use to address it. Given ASCO's position within the field of oncology, it would be appropriate for the organization to take the lead in the creation of a highly visible working group composed of other key stakeholders (eg, AAMC, ASH, American Board of Internal Medicine) to begin to develop and implement strategies such as those discussed here.

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REFERENCES

- Association of American Medical Colleges: Diversity in the physician workforce: Facts and figures 2014. <http://aamcdiversityfactsandfigures.org/>
- American Society of Clinical Oncology: Key trends in tracking supply of and demand for oncologists, 2015. http://www.asco.org/sites/www.asco.org/files/workforce_information_system_0.pdf
- Brotherton SE, Etzel SI: Graduate medical education, 2012-2013. *JAMA* 310:2328-2346, 2013
- Wong RL, Sullivan MC, Yeo HL, et al: Race and surgical residency: Results from a national survey of 4339 US general surgery residents. *Ann Surg* 257:782-787, 2013
- Day CS, Lage DE, Ahn CS: Diversity based on race, ethnicity, and sex between academic orthopaedic surgery and other specialties: A comparative study. *J Bone Joint Surg Am* 92:2328-2335, 2010
- Deville C, Chapman CH, Burgos R, et al: Diversity by race, Hispanic ethnicity, and sex of the United States medical physician workforce over the past quarter century. *J Oncol Pract* 10:e328-e334, 2014
- US Census Bureau: State and County QuickFacts. <http://quickfacts.census.gov/qfd/states/00000.html>
- Ansell DA, McDonald EK: Bias, black lives, and academic medicine. *N Engl J Med* 372:1087-1089, 2015
- Association of American Medical Colleges: Diversity in Medical Education: Facts and Figures 2012. https://members.aamc.org/eweb/upload/Diversity%20in%20Medical%20Education_Facts%20and%20Figures%202012.pdf
- American Society of Clinical Oncology: The state of cancer care in America, 2015: A report by the American Society of Clinical Oncology. *J Oncol Pract* 11:79-113, 2015
- Levit L, Smith AP, Benz EJ, et al: Ensuring quality cancer care through the oncology workforce. *J Oncol Pract* 6:7-11, 2010
- He W, Sengupta M, Velkoff VA, et al: 65+ in the United States: 2005. <http://www.census.gov/prod/2006pubs/p23-209.pdf>
- Smith BD, Smith GL, Hurria A, et al: Future of cancer incidence in the United States: Burdens upon an aging, changing nation. *J Clin Oncol* 27:2758-2765, 2009
- Cavallo J: Who will care for patients with cancer? The confluence of looming oncology workforce shortages just as demand for cancer care explodes has experts searching for solutions. *ASCO Post* 5:146-147, 2014
- Yang W, Williams JH, Hogan PF, et al: Projected supply of and demand for oncologists and radiation oncologists through 2025: An aging, better-insured population will result in shortage. *J Oncol Pract* 10:39-45, 2014

- Ghafoor A, Jemal A, Ward E, et al: Trends in breast cancer by race and ethnicity. *CA Cancer J Clin* 53:342-355, 2003
- Jemal A, Siegel R, Ward E, et al: Cancer statistics, 2006. *CA Cancer J Clin* 56:106-130, 2006
- Ward E, Jemal A, Cokkinides V, et al: Cancer disparities by race/ethnicity and socioeconomic status. *CA Cancer J Clin* 54:78-93, 2004
- Siegel RL, Miller KD, Jemal A: Cancer statistics, 2015. *CA Cancer J Clin* 65:5-29, 2015
- Howlander N, Noone AM, Krapcho M, et al: SEER Cancer Statistics Review, 1975-2011, Bethesda, MD, National Cancer Institute, 2014. http://seer.cancer.gov/csr/1975_2011/
- Cooper-Patrick L, Gallo JJ, Gonzales JJ, et al: Race, gender, and partnership in the patient-physician relationship. *JAMA* 282:583-598, 1999
- Cooper LA, Roter DL, Johnson RL, et al: Patient-centered communication, ratings of care, and concordance of patient and physician race. *Ann Intern Med* 139:907-915, 2003
- Johnson RL, Roter D, Powe NR, et al: Patient race/ethnicity and quality of patient-physician communication during medical visits. *Am J Public Health* 94:2084-2090, 2004
- Oliver MN, Goodwin MA, Gotler RS, et al: Time use in clinical encounters: Are African-American patients treated differently? *J Natl Med Assoc* 93:380-385, 2001
- Street RL Jr, Gordon H, Haidet P: Physicians' communication and perceptions of patients: Is it how they look, how they talk, or is it just the doctor? *Soc Sci Med* 65:586-598, 2007
- Wendler D, Kington R, Madans J, et al: Are racial and ethnic minorities less willing to participate in health research? *PLoS Med* 3:201-210, 2006
- Penner LA, Albrecht TL, Orom H, et al: Health and health care disparities, in Dovidio JF, Hewstone M, Glick P, et al (eds): *The Sage Handbook of Prejudice, Stereotyping and Discrimination*. New York, NY, Sage, 2010, pp 472-490
- Eggy S, Harper FW, Penner LA, et al: Variation in question asking during cancer clinical interactions: A potential source of disparities in access to information. *Patient Educ Couns* 82:63-68, 2011
- Eggy S, Barton E, Winckles A, et al: A disparity of words: Racial differences in oncologist-patient communication about clinical trials. *Health Expect* [epub ahead of print on August 2, 2013]
- Gordon HS, Street RL Jr, Sharf BF, et al: Racial differences in doctors' information-giving and patients' participation. *Cancer* 107:1313-1320, 2006
- Siminoff LA, Graham GC, Gordon NH: Cancer communication patterns and the influence of patient characteristics: Disparities in information-giving and affective behaviors. *Patient Educ Couns* 62:355-360, 2006
- Penner LA, Eggy S, Griggs JJ, et al: Life-threatening disparities: The treatment of black and white cancer patients. *J Soc Issues* 68:328-357, 2012
- Penner LA, Manning M, Eggy S, et al: Prosocial behavior in cancer research: Patient participation in cancer clinical trials, in Schroeder DA, Graziano WG (eds): *The Oxford Handbook of Prosocial Behavior*. New York, NY, Oxford University Press, 2014
- Smedley BD, Stith AY, Nelson AR: *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington, DC, National Academies Press, 2003
- Laveist TA, Nuru-Jeter A: Is doctor-patient race concordance associated with greater satisfaction with care? *J Health Soc Behav* 43:296-306, 2002
- Saha S, Taggart SH, Komaromy M, et al: Do patients choose physicians of their own race? *Health Aff* 19:76-83, 2000
- Guevara JP, Adanga E, Avakame E, et al: Minority faculty development programs and underrepresented minority faculty representation at US medical schools. *JAMA* 310:2297-2304, 2013
- Chapman EN, Kaatz A, Carnes M: Physicians and implicit bias: How doctors may unwittingly perpetuate health care disparities. *J Gen Intern Med* 28:1504-1510, 2013
- Roberts LW, Maldonado Y, Coverdale JH, et al: The critical need to diversify the clinical and academic workforce. *Acad Psychiatry* 38:394-397, 2014
- Milliken J, Martins LL: Searching for common threads: Understanding the multiple effects of diversity in organizational groups. *Acad Manage Rev* 21:402-433, 1996
- Morrison AM: *The New Leaders: Guidelines on Leadership Diversity in America*. Jossey-Bass Management Series. San Francisco, CA, Jossey-Bass, 1992
- Sabin JA, Nosek BA, Greenwald AG, et al: Physicians' implicit and explicit attitudes about race by MD race, ethnicity, and gender. *J Health Care Poor Underserved* 20:896-913, 2009
- Green AR, Carney DR, Pallin DJ, et al: Implicit bias among physicians and its prediction of thrombolysis decisions for black and white patients. *J Gen Intern Med* 22:1231-1238, 2007

43. King EB, Dawson JF, West MA, et al: Why organizational and community diversity matter: Representativeness and the emergence of incivility and organizational performance. *Acad Manage J* 54:1103-1118, 2011
44. Ghosh A: Interpersonal cross-cultural contact: Exploring the role of cultural encounters as antecedent to cultural competence at workplace. *Management Labor Studies* 38:81-101, 2013
45. Schneider B: The people make the place. *Pers Psychol* 40:437-453, 1987
46. Contant RC, Ashby RW: Every good regulator of a system must be a model of that system. *Int J Syst Sci* 1:89-97, 1970
47. Weick KE: *The Social Psychology of Organizing* (Topics in Social Psychology Series). New York, NY, McGraw-Hill, 1979
48. Ashby WR: Requisite variety and its implications for the control of complex systems. *Cybernetica* 1:83-99, 1958
49. Buckley W: Society as a complex adaptive system, in Buckley W (ed): *Modern Systems Research for the Behavioral Scientist*. Chicago, IL, Aldine, 1968, pp 490-513
50. Weick KE: The generative properties of richness. *Acad Manage J* 50:14-19, 2007
51. Marrast LM, Zallman L, Woolhandler S, et al: Minority physicians' role in the care of underserved patients: Diversifying the physician workforce may be key in addressing health disparities. *JAMA Intern Med* 174:289-291, 2014
52. Saha S: Taking diversity seriously: The merits of increasing minority representation in medicine. *JAMA Intern Med* 174:291-292, 2014
53. American Society of Clinical Oncology: ASCO diversity in oncology initiative. <http://www.asco.org/practice-research/asco-diversity-oncology-initiative>
54. Association of American Medical Colleges: Diversity and policy programs. <https://www.aamc.org/download/368724/data/dppbriefingbook20132.pdf>
55. American Society of Hematology: Minority recruitment initiative. <http://www.hematology.org/Awards/Career-Training/406.aspx>
56. Roswell Park Cancer Institute: Methods in clinical research workshop for minority physicians. <https://www.roswellpark.edu/education/diversity-clinical-research-workshop>
57. Penner LA, Blair IV, Albrecht TL, et al: Reducing racial healthcare disparities: A social psychological analysis. *Pol Insights Behav Brain Sci* 1:204-212, 2014
58. van Ryn M, Hardeman RR, Phelan SM, et al: Psychosocial predictors of attitudes toward physician empathy in clinical encounters among 4732 1st year medical students: A report from the CHANGES study. *Patient Educ Couns* 96:367-375, 2014
59. Hardeman RR, Burgess D, Phelan S, et al: Medical student socio-demographic characteristics and attitudes toward patient centered care: Do race, socioeconomic status and gender matter? A report from the Medical Student CHANGES study. *Patient Educ Couns* 98:350-355, 2015
60. Gaertner SL, Dovidio JF: A common ingroup identity: A categorization-based approach for reducing intergroup bias, in Nelson TD (ed): *Handbook of Prejudice, Stereotyping, and Discrimination*. New York, NY, Psychology Press, 2009, pp 489-505
61. Gaertner SL, Dovidio JF, Houlietter MA: Social categorization, in Dovidio JF, Hewstone M, Glick P, et al (eds): *The Sage Handbook of Prejudice, Stereotyping and Discrimination*. New York, NY, Sage, 2010, pp 526-543
62. Penner LA, Gaertner S, Dovidio JF, et al: A social psychological approach to improving the outcomes of racially discordant medical interactions. *J Gen Intern Med* 28:1143-1149, 2013

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