On the Outside Looking In: Promoting HIV/AIDS Research Initiated by African American Investigators

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People of color are disproportionately affected by HIV/AIDS, yet African American HIV/AIDS researchers are in short supply. Complex historical, structural, sociocultural, and personal barriers can prevent African Americans from becoming well-trained biomedical, behavioral, and social HIV/AIDS researchers.

Institutional factors that influence the numbers of African Americans conducting HIV/AIDS research include the limitation of early-career decisions and a lack of exposure to research, research socialization, and mentoring. Two individual-level factors that influence the submission of federally funded research proposals are the limited availability of support for culturally congruent HIV research and African Americans' negative perceptions of their own competence and ability to contribute to society.

We discuss progress toward eliminating disparities experienced by African American HIV/AIDS researchers at the individual, academic institution, and sociopolitical levels. (*Am J Public Health.* 2009;99: S48–S53. doi:10.2105/AJPH.2007.131094)

AFRICAN AMERICANS AND other people of color continue to be disproportionately affected by HIV/AIDS.[1] This disparity is particularly apparent for African Americans, who constitute only 13% of the US population but make up 49% of all HIV/AIDS patients.[2,3] Approximately 500 000 African Americans are currently living with HIV/AIDS.[3] Factors that increase their risk for HIV infection and transmission include overrepresentation among homeless and incarcerated people and limited access to health services and health insurance, especially among the working poor.[4]

It is important to target innovative HIV/AIDS prevention interventions to African Americans that incorporate overlooked and understudied strengths of this population. Racial/ethnic-minority investigators who represent the groups most affected by HIV/AIDS may be more familiar with these issues because of shared life experiences. The National Institute of Mental Health (NIMH) has highlighted the need to increase the number of racial/ethnic-minority research scientists who conduct studies to identify and understand factors contributing to HIV/AIDS rates in the United States.

In 1999, African Americans, Latinos, and Native Americans constituted 24% of the US population, but they submitted only 5.2% of applications to NIMH, and of all the applications that received funding, grants to African Americans accounted for only 3.9%. Representation for Asians/Pacific Islanders, who constituted 3.7% of the US population, was slightly better; they received 5.5% of NIMH grants. Funding patterns of other National Institutes of Health (NIH) agencies reflect similar disparities in submissions by and funding to racial/ethnic-minority investigators, but more specific information is not available.[1]

Despite programs designed to create more training and federal funding opportunities, barriers persist. Understanding these may increase the number of racial/ethnic-minority investigators and the research needed to stem the tide of HIV/AIDS.[5] We have identified 4 institutional factors that limit the numbers of African American HIV/AIDS researchers, identified 2 individual factors that limit the submission of federally funded research proposals, and discussed strategies to reduce these disparities. Some of these limiting factors have been cited previously, and NIH and particularly NIMH have instituted new opportunities and programs to resolve them.[1] However, progress needs to be examined to confront ongoing challenges.

INSTITUTIONAL FACTORS

Career Trajectories

Early career trajectories can limit the pool of African American HIV/AIDS investigators, because students often choose clinical careers before they fully understand research training options. Students at universities that focus on teaching rather than research often make early career decisions.

Racial/ethnic-minority groups, particularly African Americans, often begin career trajectories that do not include research training because of (1) a lack of knowledge about how to select the optimal research team with which to collaborate, a lack of knowledge about the existence of postdoctoral fellowships, or a lack of knowledge about minority funding supplements and other training opportunities to help young investigators reach their research goals; (2) conflicting demands of loans that require repayment; (3) the need for health benefits and financial family support that commonly take precedence over research training[6]; and (4) prolonged training that may lead to marginal salaries.[7]

Although the National Research Council (NRC) recommended that NIH develop user-friendly guidelines for a career trajectory in mental health research—such as creating a tracking system to monitor the career progression of NIMH-supported trainees[1]—it did not include specific recommendations for increasing the number of racial/ethnic-minority PhD-level basic (e.g., microbiology, cellular biology, biochemistry, pathology), behavioral, and social science researchers.[8] In addition, the NRC did not emphasize the importance of early research socialization (the way in which a student becomes familiar with the educational, training, and funding environment of research).

Recently, NIMH has developed several programs that support racial/ethnic-minority investigators at all educational levels. These programs have included research

project grants to promote diversity among those conducting health-related research; recipients of these grants include high-school, undergraduate, graduate, and medical students; postdoctoral fellows; clinical residents; and independent scientists. Specific examples include individual predoctoral fellows supported through the federally funded F31 programs and those in the minority research infrastructure support programs known as R24. However, recently developed programs have not existed long enough to have effected change, and other programs, such as the "new minority faculty awards" known as K01, have been discontinued. A confusing or complex application process for the few programs that do exist for racial/ethnic-minority students is another problem to be solved.

It is as important to examine why programs are discontinued or why some programs receive no applications as it is to identify factors that help applicants apply for federal grants. For example, significant attrition of racial/ethnic-minority students occurs at a higher rate than the national average even during high school.[1] High school graduation is a critical crossroad for many students who may have the interest and potential to become researchers but who face multiple barriers. A comprehensive examination of the recruitment and retention of potential HIV/AIDS researchers, specifically, will help improve planning of programs that target racial/ethnic-minority investigators, especially African Americans.

The "pipeline" problem of potential candidates for postgraduate HIV/AIDS research is further complicated by a need for students who have research training and exposure to faculty with the skills needed to produce HIV/AIDS researchers. Efforts to expose students to research before, during, and beyond high school appear to have a beneficial effect. For example, undergraduate students who conducted research reported an increased understanding of and confidence in conducting research. They reported a greater awareness of what to expect in graduate school and were more likely to anticipate obtaining a doctoral degree.[9]

These pipeline problems limit the numbers of African Americans with doctoral degrees. One study found that African Americans constituted only 4.8% of all those with doctoral degrees other than education degrees.[10] This finding raises the potential issue of inadequate numbers of African American investigators in all fields, including HIV/AIDS research.

Exposure to Research

Limited or late exposure to research and grant writing restricts the opportunities of African American HIV/AIDS investigators to seek research training and grants. The socialization process, or the manner in which students familiarize themselves with acquiring the skills for research and grant writing, is not readily available to every student, regardless of ethnicity. Because smaller numbers of African Americans participate in research, African American students may not have role models to mentor and guide them through these unfamiliar territories. Exposure to research should be ongoing and embedded within all educational levels so that new theories, methodologies, and grant opportunities will be accessible.

In 2005, NIMH recognized the growing disparity in the numbers of African American investigators who were receiving NIMH funding by supporting the African American Mental Health Research Scientist (AAMHRS) Consortium. This program, developed from the NIMH Office for Special Populations, had previously supported a similar program for Latino NIMH-funded investigators.

The 5-fold purpose of the AAMHRS Consortium is to (1) create a national infrastructure to organize, collaborate, and communicate with selected AAMHRS core members, affiliates, young investigators, mid- and senior-level scientists, NIMH, and other public and private institutions; (2) increase the number of new submissions by and awards to African American scientists; (3) increase researchers' and health and service providers' training in cultural competence (i.e., expertise in effective approaches in diverse ethnic and cultural groups) and cultural congruence (knowledge and appropriate use of cultural beliefs and values), mentoring opportunities, and grantsmanship skills relevant to underserved populations; (4) transform the grant review process to better reflect ethnic and cultural congruence as related to mental health research; and (5) increase the number of researchers and clinicians who are engaged in evidence-based interventions with underserved populations.

A few other programs have attempted to address the lack of diversity of racial/ethnic-minority investigators. The R25 funding mechanism provides support for several programs targeting racial/ethnic-minority students. One such program, Mentoring Programs to Diversify the Mental Health and Substance Abuse HIV/AIDS Research Workforce Through Innovative Educational Initiatives, resulted in several diversity programs targeting racial/ethnic-minority investigators and developed a network of senior mentors.

The Research Initiative for Scientific Enhancement Program (under R25) facilitates racial/ethnic-minority student development at minority-serving institutions and attempts to increase the number of students from underrepresented groups who earn doctoral degrees in biomedical and behavioral research. The program supports grants that incorporate developmental activities such as laboratory research experiences. Specialty courses with a focus on critical thinking and the development of research skills, research career seminars, and travel to scientific meetings are supported.

Similarly, the Initiative for Maximizing Student Diversity Program (under R25), a student development program for research-intensive institutions, attempts to increase the number of students from underrepresented groups in biomedical and behavioral research. Another funding mechanism includes an administrative supplement for underrepresented minority investigators. Supplements provide mentorship and research guidance and reward investigators by supplementing the parent grant with additional funding. This additional funding can be a source of support for junior racial/ethnic-minority investigators.

Additionally, several valuable resources are available, namely, *How to Write a Successful Research Grant Application*[11] and a video on peer review at NIH.[12] These resources provide information on how NIH grant applications are reviewed for scientific and technical merit and discuss how outside reviewers assess applications to ensure fairness.

Since the inception of the AAMHRS program in 2005, 2

cohorts of 10 mentees each have completed the program. The third cohort has also completed the program, but data will not be available for another 2 years. Twenty-nine federal applications from the first 10 mentees have been submitted, and 4 grants (1 each for R01, R21, K01, and R43) and 2 NIH loan repayment awards have been received, for a funding rate of almost 21%. This program has been especially helpful to mentees with limited or no research mentorship at their universities.

Although AAMHRS appears to be beneficial, much more work is needed to provide quality mentorship and to recruit applicants. The current mentor-mentee dyad, based on common research interests, may not allow on-site supervision and thus, may limit frequent mentor access.[5] Although face-to-face mentorship is optimal, combating HIV/AIDS health disparities in African American communities will require a variety of programs for distance learning and ongoing contact in order to train adequate numbers of investigators.

Career Socialization

Many people—for example, funders, department chairs, and administrators—consider career socialization into the specialized world of research, especially the world of HIV/AIDS research, to be "too late" for doctoral graduates. The importance of HIV/AIDS prevention and funding has attracted the interest of behavioral science and public health researchers who have completed their education and training in other areas. However, opportunities and resources to specialize in HIV/AIDS research may be introduced when interested faculty and scientists already hold positions in which academic careers and research are not a primary focus. Funders and administrators often do not encourage researchers' efforts to "retread" or to gain skills not obtained during graduate study or efforts to redirect the research focus; they deem it too late for obtaining new or additional specialized training, even for recent doctoral graduates.[5]

At least 1 resource, the NIMH National Center for Research Resources, provides clinical and translational investigators (those who "translate" basic molecular and cellular research into patient-oriented clinical research) with the training and tools to transform basic science research into improved human health. This center, although supportive of racial/ethnic-minority investigators, has broad interests. It does not address the needs of established investigators who want to develop a new focus on HIV/AIDS. Despite the existence of this center, resources emphasizing HIV/AIDS research in historically African American or minority-serving institutions are also limited.

Scarcity of Mentors

The scarcity of African American mentors in HIV/AIDS research limits African American students' acquisition of research socialization skills. Mentoring is a critical component of preparation for a career in HIV/AIDS research.[13–15] The unavailability of effective mentoring by African American faculty is a result of their underrepresentation in academic institutions. African Americans represent 5.3% of all full-time faculty in American higher education; in historically African American colleges and universities, they represent 60%.[6]

Disparities in faculty promotion are also evident in academic medicine, where HIV/AIDS research is commonly based. One report indicates that racial/ethnic-minority medical school faculty were promoted at lower rates than were faculty belonging to other ethnicities and were likely to be in lower-level academic positions.[16] Given that African Americans represent 12% of total student enrollment in institutions of higher education but only 5.3% of full-time faculty, the African American faculty members may mentor students out of a sense of obligation grounded in an awareness of racial and ethnic disparities but find too little time to do so adequately. Excessive mentoring demands can place a mentor in jeopardy of marginal career advancement.

When universities fail to promote mentoring as an important contribution to academic diversity, pressure increases disproportionately on racial/ethnic-minority faculty to satisfy the overt and behind-the-scenes requirements of career mentoring. Racial/ethnic-minority faculty are often expected to be "experts" on all issues related to race and culture that emerge within their departments and, sometimes, their campus.[5,17] They are often assigned to racial/ethnic-minority students on the basis of ethnicity or language matching. In addition, racial/ethnic-minority faculty often serve on numerous committees and consult on projects, sometimes without the proper compensation needed to foster their own academic advancement.[5,18]

When they have to choose between obtaining tenure and mentoring racial/ethnic-minority students, racial/ethnic-minority faculty often face a no-win situation. If they choose to limit their racial/ethnic-minority student mentoring, these students may perceive them as having "forgotten their ethnicity." The advancement of racial/ethnic-minority students appears to rest on the shoulders of racial/ethnic-minority faculty when the students pursue research skills in a system that is reluctant to recognize the needed socialization process and support required for success.

Although many non–racial/ethnic-minority faculty mentor African American students, there are no universal guidelines for the cultural competence needed or requirements for the inclusion of historical, structural, and sociocultural factors relevant to HIV/AIDS health disparities. Conducting culturally congruent research that identifies and builds on a community's values and beliefs that may be in conflict with HIV/AIDS prevention requires skills that even racial/ethnic-minority faculty and investigators do not necessarily have. Commonly held assumptions that knowledge of ethnic and culturally congruent research strategies come with ethnic identity, or that ethnic matching of students and faculty will generate the knowledge and skills needed, are not based on any empirical or anecdotal evidence. We need to explore the importance of race/ethnicity matching in providing quality training to students.

Historically, African American colleges and minority-serving universities have been credited with awarding more graduate degrees in science to African Americans than institutions that enroll primarily non–racial/ethnic-minority students.[19] However, few data are available to determine how many faculty teach and mentor scientifically trained racial/ethnic-minority students and provide an empirically based curriculum relevant to HIV/AIDS research.[5]

In general, racial/ethnic-minority students are most likely to choose racial/ethnic-minority faculty as mentors.[18] Although there is limited research examining the importance of an ethnically matched mentor in the quality of training provided to students, evidence on the concordance between medical providers and patients suggests that it might make a difference.[20] One study found that a racially diverse sample of physicians were 23% more verbally dominant and engaged in 33% less patient-centered communication with African American patients than they were with White patients.[20] The dynamics of ethnically concordant mentor–mentee relationships compared with nonconcordant relationships needs to be examined further.

It is essential for the small number of faculty who teach and mentor racial/ethnic-minority students to avoid "career sacrifices" in order to increase the numbers of federally funded racial/ethnic-minority HIV/AIDS researchers. African American faculty are found to have the skills needed to train an aspiring investigator, but they represent only 4% of full and associate professors in higher education, whereas Whites represent 87%.[18]

These statistics are also reflected in the number of tenured African American faculty at Ivy League and other prestigious universities. The percentage of African American tenured faculty at Ivy League universities increased from 5% to 6% from 1993 to 2003, but African American faculty members were 4 times more likely to receive non–tenure track positions.[21]

Unfortunately, statistics are not available on the number of senior African American researchers conducting HIV/AIDS research and mentorship. Anecdotal evidence, however, supports the need to increase the pool of minority researchers through programs such as the Centers for Disease Control and Prevention's Minority HIV/AIDS Research Initiative.[22] This program attempts to increase the number of African American and Latino researchers in community-based HIV/AIDS research and provides technical assistance to those researchers.

INDIVIDUAL FACTORS

Self-Perceptions

Negative perceptions of their own competence and ability to contribute to society can discourage African American investigators from pursuing HIV/AIDS research opportunities. According to Bronfenbrenner's ecological model,[23] an individual operates within several interpersonal multidimensional levels that can influence self-perceptions. Research initiated by African American investigators can shape their perceptions of their own personal worth.[24–26]

The 4 institutional factors previously described can influence how investigators perceive the possible and real contributions that they can make to HIV/AIDS research. The productivity and success of an HIV/AIDS investigator are affected by several variables, some of which are not commonly considered. The status of faculty members may depend upon the quality of their research, number of publications, caliber of the academic institution, and value placed on their research.[18] Some of these criteria are subjective and thus are problematic. Perceptions of what is important and valued varies. Despite achieving tenure, a landmark of academic success, evidence suggests that African American faculty tend to be marginalized.[18] As such, the work of racial/ethnic-minority students who are being mentored by unrecognized or controversial researchers can be perceived as less empirical or speculative, especially if the theories, measures, or concepts are nontraditional.

Limited Support

Limited support for culturally congruent research results in prolonged gaps between publications and grant awards. Most of the HIV research methodology has been endorsed for more than 2 generations by very few African American investigators. The premise is that what has worked in reducing the rates of HIV/AIDS in some populations is useful in all populations.

HIV/AIDS interventions have been supported with evidence-based research and disseminated into communities with high HIV/AIDS rates. However, the historical, structural, mental health, and sociocultural factors related to health disparities among African American populations have largely been neglected. Most interventions for adults and adolescents include little reference to health-related beliefs that vary by age, developmental level, ethnic group, and region. Overlooked factors such as the availability of within–ethnic-group partners, historical mistrust of the health care system and non–racial/ethnic-minority health care providers, perceived racial discrimination in health care, or racial socialization that buffers discriminatory attitudes are rarely included. Additionally, histories of incarceration, substance use, or other factors, such as sexual or physical abuse or the consequences of disclosure of sexual orientation—particularly among groups that are poor, recently immigrated, and uninsured—are often not addressed.

African American investigators in HIV/AIDS research often choose to use more traditional prevention approaches to obtain funding. The alternative is for NIH, NIMH, or the Centers for Disease Control and Prevention to promote more innovative methodologies through calls for grant proposals that address pertinent issues of racial/ethnic-minority populations.[27] Endorsement for innovation that is supported by a review process would better enable racial/ethnic-minority investigators to conduct HIV/AIDS research that overcomes methodological limitations. Currently, most HIV/AIDS research does not include ethnic and culturally specific mediators and moderators that may highlight other risk factors for HIV/AIDS.

WHERE DO WE GO FROM HERE?

African Americans are as underrepresented among HIV/AIDS researchers as they are overrepresented among those at risk for or living with HIV/AIDS. Institutional- and individual-level factors and barriers have an established history in secondary, undergraduate, and postgraduate training programs. Consequently, relatively few recent graduates are aware of research career options and HIV/AIDS research funding. Increasing the number of racial/ethnic-minority NIMH-funded investigators can be facilitated with the following institutional measures:

1. Research funding that fosters partnerships with the National Medical Association, the Association of Black Psychologists, and other health care organizations with historically African

American and minority-serving institutions. Those who have provided services to or who have educated racial/ethnic-minority community members and scientists should have a voice in (1) defining the cultural competence training needed to conduct HIV/AIDS research and reviewing grant proposals that best capture the issues of communities at risk for or living with HIV/AIDS and (2) influencing the direction of HIV/AIDS prevention by reducing health care disparities and developing strategies to mobilize African Americans to participate in HIV testing, clinical trials, or research interventions.

2. Extended retraining for established investigators who wish to acquire the specific skills needed for HIV/AIDS research. Programs similar to the AAMHRS Consortium should also be created for high school students. Scholarship opportunities to offset financial problems and to help outstanding students focus on college preparation are needed.
3. Loan repayment programs for graduate education. These programs should offer graduate and professionally trained students an opportunity to reduce their debt if they pursue careers in HIV/AIDS research.
4. Graduate and professional programs that include teaching and research mentorship as part of their curricula. Teaching and mentorship would be inherently required of faculty. Additionally, junior investigators should be provided with the time to augment their educational and research skills by enrolling in courses and attending training seminars.
5. Acknowledgment of mentors whose mentees become trained in and pursue HIV/AIDS research. Universities and training programs should be encouraged to recognize the contributions of faculty who mentor aspiring investigators. Likewise, an NIH award that recognizes the contribution of African American investigators in HIV/AIDS prevention would increase the attention to and appreciation of work at the university and community level.
6. The development or use of culturally congruent theories and measures. These should be encouraged through calls for research proposals that identify mediators and moderators to high-risk HIV/AIDS behaviors and practices for racial/ethnic-minority groups.
7. Encouragement of ongoing training in cultural competence for federal staff, reviewers, and mentors. Culturally congruent strategies that may be more relevant to HIV prevention for African Americans at risk for or living with HIV/AIDS are also needed.

HIV/AIDS research conducted by highly trained African Americans should be the norm and not the exception. Such researchers add an important voice and level of expertise to HIV prevention that can only be enhanced by implementing programs to increase the representation of African American investigators in NIH-funded research. A concerted effort to remove barriers to funding and career trajectories to ensure that HIV/AIDS research addresses the needs of the most affected populations is needed. ■

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Contributors

G. E. Wyatt conceptualized the themes of the article, presented a version at an NIMH conference in 2006, supervised all authors, and developed recommendations. J. K. Williams wrote sections on career paths and limited exposure to research and grant writing. T. Henderson wrote sections on financial barriers. L. Sumner wrote sections on the dearth of African American faculty and the need for culturally congruent research. All authors edited drafts of the article.

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Leadership Development for Health Researchers at Historically Black Colleges and Universities

Historically Black colleges and universities (HBCUs) have traditionally been a magnet for Black students at all levels nationwide and have been an exemplar of mentorship models for preparing leaders in many fields.

A research career development program for junior faculty scholars that leverages the unique strengths of HBCUs has the potential to promote diverse leadership in health research and advance practical understanding of how to address HIV/AIDS and related health challenges that ravage vulnerable communities. A program that creates institutional bonds between HBCUs and other academic institutions can create a groundbreaking framework for more-effective community-based participatory research.

We present a rationale for supporting an HBCU-led collaborative research program, one that both advances junior faculty and explores the interrelationship between HIV/AIDS, mental health, and substance abuse through research in correctional facilities. (*Am J Public Health.* 2009;99:S53–S57. doi:10.2105/AJPH.2008.136069)

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HISTORICALLY BLACK colleges and universities (HBCUs), if adequately funded, can work to recruit and retain more Blacks in the medical research workforce, thereby alleviating their underrepresentation in this field. HBCUs give high priority to mentoring throughout the educational process. A greater appreciation for the value and role of HBCUs in reducing health disparities may be gained by reviewing their history and contributions to date. Furthermore, an examination of the roles that graduates of HBCUs play in research and service shows the wisdom of increased investment in these institutions.

The Higher Education Act of 1965 defines HBCUs as those institutions of higher education established before 1964 whose principal mission was, and remains, the education of Blacks.[1] Many HBCUs were founded in the 19th century. They have a proud history of both educating generations of promising young people at a time of widespread racial discrimination and of serving their surrounding communities.

Today, the 105 institutions of higher education designated as HBCUs have a record of distinguished scholarship that continues to attract students and faculty members who reflect the Black communities they serve.[1] In addition, these institutions have impressive graduation rates for Black undergraduate and graduate students. Although HBCUs represent only 3% of America's 4084 institutions of higher education, they account for approximately 14% of all Black students and provide nearly one fourth of all undergraduate degrees received by Black students.[2]

HBCUs have a unique perspective on how to bring out a student's potential and groom future leaders.[2,3] These institutions have created a robust pipeline of students who are well qualified for further study at the predoctoral and postdoctoral level. Of Black holders of master's and professional degrees, 1 of 6 received their degrees at HBCUs.[2] A National Science Foundation report concluded that Blacks who graduate from HBCUs have a greater likelihood of pursuing graduate degrees.[3] In science and engineering, the report noted, HBCUs awarded advanced degrees to 17% of all Black students enrolled in a graduate program.

Postgraduate enrollment data document how HBCUs have played a significant role in diversifying the racial/ethnic composition of the nation's health care and medical research workforce. In 2006, about 21% of all Blacks accepted to medical school had earned their undergraduate degrees from HBCUs. Similarly, during the period 2002 to 2006, 16% of all Black students who graduated from medical school received undergraduate degrees from HBCUs.[4] As Table 1 indicates, HBCUs play a pivotal role in developing a more culturally competent medical workforce.

One worrisome trend apparent in Table 1 is a decline in the number of Black men with undergraduate degrees from HBCUs enrolling in medical school. Although enrollment in medical school by graduates from other institutions of higher learning has remained virtually unchanged, it dropped by nearly 30% from 2002 to 2006 among those who graduated from HBCUs. A scarcity of Blacks in the medical research workforce has implications for research in diseases that disproportionately affect them, and it can deepen their historic distrust in health care systems that has resulted from discrimination in access to care.[5,6]