Introduction: The Case for Diversity in Research on Mental Health and HIV/AIDS

This introductory article provides background and sets the stage for the mentoring programs described in this special supplement. The goal of these programs is to develop scientists from racial/ethnic groups underrepresented in the area of HIV/AIDS research on issues related to mental health.

We describe recent epidemiological trends associated with HIV infection in diverse populations, the need for mentoring programs to study disparities, and the ongoing mentoring programs supported by the National Institutes of Health targeting investigators underrepresented in the workforce. We also provide a summary of the content of the articles to follow. We conclude with a comment on future needs and actions. (*Am J Public Health.* 2009;99: S8–S15. doi:10.2105/AJPH.2008.153536)

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THE UNDERREPRESENTATION of African Americans, Hispanics, and Native Americans in the scientific workforce has become a national crisis. Over the past decade, reports published by the American Association for the Advancement of Science,[1] the National Science Board,[2] and the National Science Foundation[3] have underscored the importance of diversity in our country's continued success in science. As the population of the United States continues to become more ethnically diverse, recognition is growing that diversity in the research workforce is linked to improving health care quality and access for socially disadvantaged racial/ethnic populations. Government agencies, as well as private foundations and educational institutions, will continue to be challenged to develop programs that effectively recruit, train, and retain high-quality research scientists from underrepresented racial/ethnic groups.

Despite a number of government-sponsored initiatives, progress in diversifying the scientific workforce has been hindered by the challenges often facing scientists in their career paths. The programs described in this supplement, intended to aid in the development of scientists from racial/ethnic populations that are underrepresented in the scientific workforce, will help close the crucial gaps in the area of scientific research.

NEED FOR DIVERSITY IN RESEARCH ON DISPARITIES

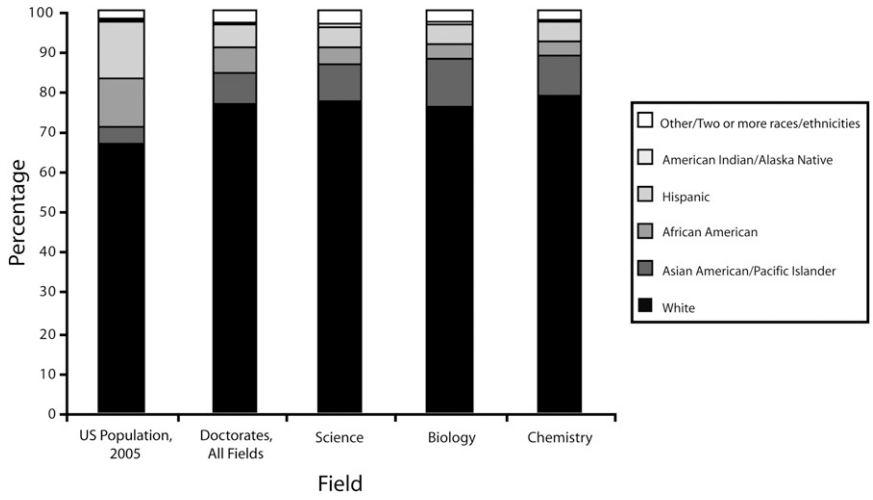
A diverse pool of scientists is essential to address health disparities and yield new perspectives and experiences that enhance scientific excellence. According to data from the *National Healthcare Disparities Report*,[4] disparities related to race, ethnicity, and socioeconomic status continue to permeate the nation's health care system with respect to a range of indicators, including quality of care, access to care, and levels and types of care. The racial/ethnic disparities in health and health care that are prevalent in nearly all fields of medicine and public health have serious societal consequences in the United States.

The hundreds of articles describing this phenomenon have been summarized in several seminal reports, such as the Institute of Medicine's *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*[5] and the Sullivan Commission's *Missing Persons: Minorities in the Health Professions*.[6] These reports argue that diversity in the clinical and research workforce is needed to address the changing multicultural demographics in the United States and the emerging challenges associated with health disparities.

The underrepresentation of scientists from socially disadvantaged racial/ethnic populations is evident from the data presented in Figure 1, which shows that the percentages of doctoral degrees awarded to members of underrepresented groups are disproportionately small and that this disparity is marked, especially in biological and social sciences. The lack of doctorates may contribute to the underrepresentation of scientists from socially disadvantaged racial/ethnic groups in the ranks of principal investigators funded by the National Institutes of Health (NIH; Figure 2).

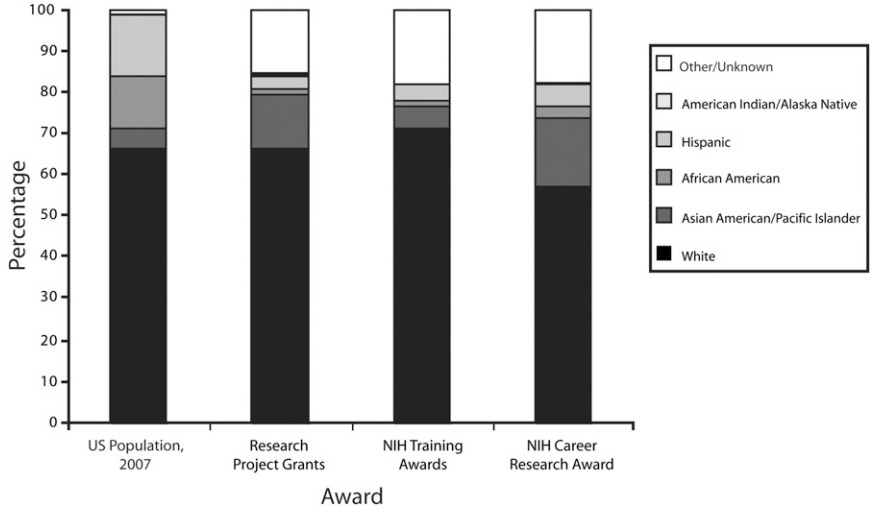
The widely held belief of research educators (and experienced scientists) that effective mentoring facilitates successful competition for NIH funding among members of socially disadvantaged racial/ethnic populations has been supported by sophisticated methods of statistical concept mapping.[7] Shavers et al.[7] surveyed barriers to NIH research funding among diverse groups of individuals and documented inadequate mentoring as among the most important barriers to funding, even more important than barriers related to miscommunication and insensitivity, institutional bias, competitiveness, and environmental or sociocultural obstacles.

Furthermore, survey data from the National Science Foundation on bachelor's and master's degrees conferred from 1966 to 2006 in the United States[8] provide insight into the source of the problem. These data indicate that the training pipeline functions more like a funnel, given that there are major reductions in racial/ethnic group representation as individuals climb the academic ladder and proceed toward higher research and educational milestones. These reductions suggest that retention



Note. Data reflect total doctorates awarded, science doctorates awarded, chemistry doctorates awarded, and biological sciences doctorates awarded. Data were derived from the 2005 US Census Bureau American Community Survey (www.census.gov/acs) and the National Science Foundation Survey of Earned Doctorates (www.nsf.gov/statistics/srvydoctorates).

FIGURE 1—Percentages of doctorates awarded among various racial/ethnic groups and representation of these groups as a percentage of the overall US population: 2005.



Note. Because all grant data on race/ethnicity were collected as optional data elements, the completeness of this information can be questioned. Grant data undergo extensive corrections and additions as revisions to the classification standards are applied. Thus, counts may increase or decrease over time. Grant data may also be corrected by any self-reporting individual registered in the NIH Commons, an online interface where grant applicants, grantees, and federal NIH staff share administrative information relative to research grants. Percentages for non-Hispanic groups are based on numbers of individuals reporting race and indicating a non-Hispanic ethnicity; percentages for Hispanic groups are based on numbers of individuals reporting Hispanic ethnicity (any race). Both US population and NIH funding award race data may include individuals reporting more than 1 race; these individuals are represented in more than 1 race group here. Grant data were derived from the NIH Division of Information Services (the official version of this figure is retained by the Division of Information Services); US population data were derived from the Population Division of the US Census Bureau.

FIGURE 2—Selected National Institutes of Health (NIH) funding awards, by racial/ethnic group: Fiscal Year 2007.

efforts at succeeding stages may in fact help us achieve greater diversity. One of the major goals of the articles included in this supplement is to describe programs that attempt to overcome some of the barriers that impede the career development of researchers from underrepresented racial/ethnic groups.

Currently, some of the most striking disparities are seen in the epidemiology and prevention of HIV/AIDS and the treatment and care of patients from underrepresented and underserved populations, particularly African Americans and Hispanics. The demographics of the HIV epidemic indicate that there is a disproportionate impact of HIV infection and transmission on racial/ethnic populations, yet investigators from socially disadvantaged racial/ethnic groups remain significantly underrepresented in the NIH research and training grant portfolio (Figure 2). According to the Centers for Disease Control and Prevention, the rate of AIDS diagnoses among African American men is 7 times the rate among White men, and African American women are diagnosed at a rate 21 times that among White women.[9]

Hispanics are now the largest underrepresented and underserved group in the United States. Although they make up only about 14% of the US population (and that of Puerto Rico), they accounted for 19% of all AIDS cases diagnosed between the beginning of the epidemic and 2004.[10] Asian Americans and Pacific Islanders account for approximately 1% of all HIV/AIDS cases in the United States, but in recent years the number of AIDS diagnoses in this group has increased steadily.[11] In 2005, Native Americans had the third highest rate of HIV/AIDS diagnoses in the

United States. They also are more likely than individuals with HIV/AIDS from other socially disadvantaged racial/ethnic groups to receive treatment at later stages of the disease and to have shorter life spans.

Thus, health disparities persist as socially disadvantaged racial/ethnic communities continue to bear a disproportionate share of the AIDS epidemic. Although there is little agreement on a definition of health disparities, there is widespread agreement that a range of factors lead to such disparities and that these factors operate at the patient, provider, and system levels. It has become clear that race and ethnicity are not, by themselves, risk factors for HIV infection.

Studies have shown that members of disadvantaged racial/ethnic groups are more likely than their White counterparts to face multiple challenges associated with HIV infection, and these challenges may help explain health-related disparities. Examples include high rates of sexually transmitted diseases, substance abuse, and other medical or neuropsychiatric comorbidities; low socioeconomic status; limited access to high-quality health care; poverty- and gender-related power imbalances; and cultural and language barriers.[12] Eliminating disparities has emerged as a major health policy goal, and it has been identified as a priority in the *Healthy People 2010* initiative of the US Department of Health and Human Services.[13] Disparities in HIV/AIDS, together with the lack of racial/ethnic diversity among HIV researchers, are the driving forces behind this supplement.

BENEFITS OF DIVERSITY

A compelling argument for racial/ethnic diversity is based not only on philosophical principles—ideals of fairness and equity and a commitment to social justice—but also on the benefits of ensuring full societal participation by our citizenry. We discuss some of these benefits, as summarized by others with respect to medical school admissions,[14] and apply them to HIV/AIDS and how diversity can be enhanced to varying degrees by the mentoring programs described in this supplement.

Diversity Addresses the Needs and Concerns of Underrepresented Groups

Diversity in the research workforce promotes research that is sensitive to and inclusive of the needs and concerns of underrepresented racial/ethnic groups. Much of the literature to date on disparities regarding the unmet needs of underrepresented populations has focused on defining areas where they exist, but much less has been done to identify the multiple factors that contribute to these disparities, and not enough has been done to develop and evaluate interventions to address them. Because the available evidence is quite clear that underrepresented racial/ethnic groups have relatively greater unmet needs for HIV care than do less disadvantaged groups, there is a need for improvement in the research agenda so that promising practices and solutions to disparities can be identified, ensuring that the needs and concerns of underrepresented groups are satisfactorily met.

Diversity Broadens the Research Agenda

Increasing the diversity of the research workforce can accelerate and strengthen advances in public health research on HIV/AIDS by bringing a diverse set of outlooks and experiences with respect to the complex problems associated with the disease. Knowledge gained through actual observation and personal experience can serve as an important source of research questions on disparities as well as new insights and ways to conceptualize problems. To a large measure, investigators conduct research on problems that they "see" and in which they have an interest. What excites one's curiosity is greatly influenced by one's cultural and ethnic filters.

Because they often have a special interest in and motivation to understand their community, individuals from diverse racial/ethnic groups frequently dedicate their careers to increasing knowledge about their community. Such long-term dedication can greatly increase our understanding of disparities. Diverse perspectives help address gaps in HIV/AIDS research such as social and behavioral determinants of health and their interaction with biological factors, the characteristics of populations affected by poor health, the relationship between disparities in health care and differences in health status, and causes of disparities in HIV care. Achieving greater diversity among investigators is virtually certain to broaden the HIV/AIDS research agenda to appropriately engage all members of society who are infected with or affected by HIV.

Diversity Leads to Culturally Appropriate Health Care

Increasing the proportion of scientists from socially disadvantaged racial/ethnic populations will aid in preparing a culturally appropriate health care workforce. Scientists from diverse racial/ethnic groups may also have certain advantages because of their long-term dedication, motivation, and personal investment, which facilitate a scientific understanding of health disparities. A more diverse workforce greatly increases the ability to conceptualize problems and improves the likelihood that research questions and issues will capture the complexities of different cultural and contextual realities. Diversity improves research by contributing to "cultural sensitivity," that is, awareness and appreciation of cultural differences among racial or ethnic groups.

A body of knowledge is needed to delineate the impact of sociocultural factors, race, ethnicity, and limited English proficiency on HIV/AIDS health and clinical care. Programs should be developed to integrate concepts of culture with experiential learning, providing investigators with the knowledge, skills, attitudes, and behaviors necessary to conduct cross-cultural research or to care for individuals from different cultures, consistent with the notion that "culture counts."[15]

Diversity Improves Access to Health Care

Current evidence supports the notion that greater workforce diversity may lead to improved public health and a potentially positive impact on patient outcomes, primarily through greater access to care for underserved populations and better interactions between patients and health professionals. Moreover, research has shown that a disproportionately high percentage of providers from underrepresented populations choose to dedicate their careers to the underserved and uninsured.[16] When patients from socially disadvantaged racial/ethnic groups have the option, they are more likely to choose a provider of their own background; moreover, racial/ethnic concordance

between provider and patient results in greater patient satisfaction.[17] Racial/ethnic concordance may be associated more with mistrust in the health care system than with trust in the provider, and its main role may be to help patients understand and navigate the health care system rather than to enhance their personal relationship with a single provider.

Research on health disparities must take into account that equal access to health care providers does not necessarily guarantee equal quality of care. Moreover, even if access to high-quality care were universal, we must ensure that all people take equal advantage of the available health care services.

DIVERSITY-ENHANCING PROGRAMS

Recognizing the significant underrepresentation in biomedical and behavioral research of scientists from socially disadvantaged racial/ethnic populations, NIH has for many years engaged in attempts to diversify the research workforce. These efforts have sought to enhance the recruitment of the most talented researchers from all groups, to improve the quality of the educational and training environment, to balance and broaden research priorities, to increase the recruitment of participants from diverse backgrounds into clinical research protocols, and to improve the country's capacity to address and eliminate health disparities.

The National Institute of Mental Health (NIMH) as well has long encouraged the recruitment, training, and retention of members of underrepresented racial/ethnic groups in the biomedical and behavioral workforce. NIMH has convened special work groups (e.g., the National Advisory Mental Health Research Council) to provide strategic recommendations on how to most effectively increase the diversity of its research workforce across multiple approaches and levels of analyses.[18,19]

Among the NIH institutes and centers, the National Center for Research Resources (NCRR) has perhaps the longest history of providing support for interdisciplinary resources and expertise in strengthening research capacity for the study of causes of health disparities in underrepresented racial/ethnic communities. The ultimate objective of NCRR-supported programs, such as the Research Centers for Minority Institutions, is to develop a national resource for research infrastructure that will foster the education and training of the next generation of diverse scientists.

NIH-supported diversity programs involve 3 primary objectives: increasing the general participant pool by stimulating students' interest at multiple stages, starting as early as middle school; retaining the participant pool via remediation, bridging of programs, support services such as tutoring and financial aid, and activities designed to motivate individuals to pursue scientific careers; and strengthening the participant pool via acquisition of knowledge, academic enrichment, and development of skills important for success as a scientist. Mentoring programs, the focus of this supplement, are essential in achieving these objectives, and we present examples of NIH-supported diversity programs with a significant mentoring component in Table 1.

The articles in this supplement describe and critically analyze new mentoring programs that provide unique opportunities to diversify the workforce addressing mental health and HIV/AIDS. In this introductory article, we have set the stage for these mentoring programs by discussing recent epidemiological trends, the need for mentoring programs to study disparities, and ongoing NIH-supported programs. In the article to follow, Zea and Belgrave[20] discuss mentorship from the perspective of the trainee, perhaps the most important but often neglected voice, and compare mentoring and research capacity experiences with the process of acculturation.

Next, a series of 3 analytical essays provide a context and theoretical foundation for interpreting the subsequent contributions. Manson[21] presents a person–environment interactional model of academic persistence as a guide for research training and early career development. Noting the limitations of mainstream mentoring models designed to enhance diversity, Alegria and Woo[22] argue in favor of alternative research paradigms and atypical research strategies with unconventional research approaches and broader theoretical insights for mentors. Given that there is no established definition of what constitutes good scientific mentoring, Jeste et al.[23] concentrate on a much neglected area, the development of the mentoring skills needed to overcome the barriers with which we are faced.

The subsequent series of articles deals with mentoring programs across diverse populations. The first 2 articles are not population specific. Kahn and Greenblatt[24] encourage a multidisciplinary translational research approach to mentoring in which mentees are matched with an HIV scientist from another discipline to promote early career development in HIV/AIDS research. Dolcini et al.[25] discuss the challenges and effectiveness of a program that joins postdoctoral and early career scientists with established investigators at mentoring institutions in an effort to enhance diversity through the development of culture-specific theoretical models of HIV prevention.

The next group of essays targets specific underrepresented populations. In exploring the barriers faced by African Americans, Wyatt et al.[26] identify institutional and personal factors that limit career development and discuss strategies to address disparities in the area of HIV/AIDS research. Recognizing that historically Black colleges and universities contribute disproportionately to the African American health care and scientific workforce, Treadwell et al.[27] describe a novel institutional partnership for a "virtual" national network of mentors in the fields of HIV/AIDS, mental health, and correctional health. Flanigan et al.[28] describe a transdisciplinary collaboration between Miriam Hospital (Brown Medical School) and Jackson State University, a historically Black university, to train African American predoctoral students; they also discuss the challenges in developing such a collaboration and the successes achieved.

Bernal and Ortíz-Torres[29] describe the methodological, language, cultural, and institutional barriers confronting Latino investigators in the context of an infrastructure development program intended to enhance capacity building and the conduct of HIV/AIDS mental health research at the University of Puerto Rico, Rio Pedras. Rabionet et al.[30] use a competency-based training model to describe a multifaceted approach to mentoring across 3 schools of medicine in Puerto Rico.

TABLE 1—Examples of NIH-Supported Diversity-Enhancing Programs

Program	Focus
NIH: Research Supplements to Promote Diversity in Health-Related Research (http://grants1.nih.gov/grants/guide/pa-files/PA-08-190.html)	Supports predoctoral and postdoctoral individuals and eligible investigators from underrepresented or disadvantaged populations, promoting career development and strengthening parent grants.
NCI	
Feasibility Studies for Collaborative Interaction for Minority Institution/Cancer Center Partnership (http://grants.nih.gov/grants/guide/pa-files/PAR-07-230.html)	Supports partnerships between minority-serving institutions and NCI-designated cancer centers for feasibility studies of collaborations in cancer-related research and training.
NIH-Supported Centers for Population Health and Health Disparities (http://grants.nih.gov/grants/guide/rfa-files/RFA-CA-09-001.html)	Supports transdisciplinary specialized research centers in cancer and cardiovascular disease in the area of health inequities with the purpose of contributing directly to improved health outcomes and quality of life.
NCI Mentored Clinical Scientist Research Career Development Award to Promote Diversity (http://grants.nih.gov/grants/guide/pa-files/PAR-09-050.html)	Provides support and "protected time" to individuals from underrepresented groups who have a clinical doctoral degree for an intensive, supervised research career development experience in the fields of biomedical and behavioral research, including translational research.
NCI Mentored Patient-Oriented Research Career Development Award to Promote Diversity (http://grants.nih.gov/grants/guide/pa-files/PAR-09-051.html)	Provides support and "protected time" to individuals from underrepresented groups who have a health professional doctoral degree for an intensive, supervised research career development experience in patient-oriented cancer research.
NCI Mentored Research Scientist Development Award to Promote Diversity (http://grants.nih.gov/grants/guide/pa-files/PAR-09-052.html)	Provides support and "protected time" to individuals from underrepresented groups who have a basic doctoral degree for an intensive, supervised career development experience in the biomedical, behavioral, or clinical sciences.
Comprehensive Minority Institution/Cancer Center Partnership (http://grants.nih.gov/grants/guide/rfa-files/RFA-CA-09-501.html)	Supports partnerships between minority-serving institutions and NCI-designated cancer centers to develop a stronger national cancer program for understanding cancer disparities and their impact on underrepresented or disadvantaged populations.
NCI Transition Career Development Award to Promote Diversity (http://grants.nih.gov/grants/guide/pa-files/PAR-09-069.html)	Supports applications from individuals of groups that are underrepresented in biomedical, behavioral, clinical, or social sciences to provide "protected time" for an initial cancer research program or for mentored experience in NCI intramural programs.
NCMHD	
Research Infrastructure in Minority Institutions (http://grants.nih.gov/grants/guide/rfa-files/RFA-MD-07-002.html)	Supports research infrastructure and research training capacity of minority-serving institutions in clinical, biomedical, and behavioral research.
NCMHD Community-Based Participatory Research Initiative in Reducing and Eliminating Health Disparities: Intervention Research Phase (http://grants.nih.gov/grants/guide/rfa-files/RFA-MD-07-003.html)	Supports community-based participatory research on interventions for health disparities.
Loan Repayment Program for Health Disparities Research (http://grants.nih.gov/grants/guide/pa-files/PA-07-439.html)	Supports repayment of educational loan debts through the conduct of health disparities research.
NCMHD Disparities Research and Education Advancing Mission Career Transition Award (http://grants.nih.gov/grants/guide/rfa-files/RFA-MD-09-001.html)	Supports the transition of NCMHD loan repayment program recipients from postdoctoral trainees to independent scientists in health disparities research.
NCRR	
RCMI (http://www.ncrr.nih.gov/research_infrastructure)	Develops and enhances the research infrastructure of minority institutions to expand their capacity for conducting biomedical research.
Clinical Research Education and Career Development in Minority Institutions (http://grants.nih.gov/grants/guide/rfa-files/RFA-RR-07-005.html)	Supports curriculum-dependent programs in minority institutions for doctoral and postdoctoral candidates in clinical research.
RCMI Infrastructure for Clinical and Translational Research (http://grants.nih.gov/grants/guide/pa-files/PAR-08-262.html)	Facilitates the development of clinical and translational research capacity and improves coordination and synergy between clinical and translational research and research training activities at RCMI institutions.

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TABLE 1—*Continued*

NHLBI	
Summer Institute Program to Increase Diversity in Health-Related Research (http://grants.nih.gov/grants/guide/rfa-files/RFA-HL-07-012.html)	Supports summer institute programs for faculty and scientists from underrepresented racial/ethnic groups or with disabilities in basic and applied sciences relevant to behavioral sciences and lung and sleep disorders.
Short-Term Training Program to Increase Diversity in Health-Related Research (http://grants.nih.gov/grants/guide/rfa-files/RFA-HL-08-016.html)	Supports short-term research training opportunities for individuals from underrepresented or disadvantaged populations in cardiovascular, pulmonary, hematological, and sleep disorders research.
Minority Institutional Research Training Program (http://grants.nih.gov/grants/guide/rfa-files/RFA-HL-08-017.html)	Supports predoctoral and health professional students and individuals in postdoctoral training at minority schools in cardiovascular, pulmonary, hematological, and sleep disorders research.
NIDA	
Diversity-Promoting Institutions Drug Abuse Research Program (http://grants.nih.gov/grants/guide/pa-files/PAR-09-011.html)	Supports programs to strengthen institutional infrastructure, provide educational enrichment and research experiences, and increase the drug abuse and addiction research capacity of institutions that historically have served or currently serve students from diverse and disadvantaged backgrounds.
NIDDK:	
NIDDK Short-Term Education Program for Underrepresented Persons (http://grants.nih.gov/grants/guide/rfa-files/RFA-DK-06-008.html)	Supports short-term research education and training for high school and undergraduate students from underrepresented or disadvantaged groups in NIDDK mission areas including diabetes, endocrinology, metabolism, nutrition, obesity, and digestive, liver, urological, kidney, and hematological diseases
NIGMS	
Initiative for Maximizing Student Diversity (http://grants.nih.gov/grants/guide/pa-files/PAR-06-553.html)	Supports biomedical and behavioral research among underrepresented individuals in doctoral programs.
Minority Access to Research Careers Undergraduate Student Training in Academic Research, Institutional National Research Service Award Research Training Grant (http://grants.nih.gov/grants/guide/pa-files/PAR-07-337.html)	Supports research training of undergraduate science/mathematics students from minority and minority-serving institutions pursuing doctoral degrees and careers in biomedical and behavioral research.
Bridges to the Doctorate Program (http://grants.nih.gov/grants/guide/pa-files/PAR-07-410.html)	Supports undergraduate students in their development as scientists in biomedical and behavioral fields and promotes interinstitutional partnerships between community colleges and colleges and universities granting baccalaureate degrees.
Bridges to the Baccalaureate Program (http://grants1.nih.gov/grants/guide/pa-files/PAR-07-411.html)	Supports individuals from underrepresented groups who have recently obtained their baccalaureate degrees in completing doctoral degree programs in biomedically relevant sciences through extensive academic enhancements and research experience.
Minority Access to Research Careers Ancillary Training Activities (http://grants.nih.gov/grants/guide/pa-files/PAR-08-118.html)	Supports individuals from underrepresented groups or faculty from minority-serving institutions in program-related scientific conferences, short courses, or other well-defined ancillary training activities in biomedical-related research careers.
Support of Competitive Research Research Advancement Award (http://grants.nih.gov/grants/guide/pa-files/PAR-08-026.html; http://www.nigms.nih.gov/Minority/MBRS)	Supports a developmental program in biomedical and behavioral research to increase the research competitiveness of faculty at minority-serving institutions and the institution's faculty research capabilities.
Research on Interventions That Promote Research Careers (http://grants.nih.gov/grants/guide/rfa-files/RFA-GM-09-011.html)	Supports intervention research to promote biomedical and behavioral research careers, particularly among individuals from underrepresented populations.
NIGMS Postbaccalaureate Research Education Program (http://grants.nih.gov/grants/guide/pa-files/PAR-07-432.html)	Supports undergraduate students in their development as scientists in biomedical and behavioral fields and promotes interinstitutional partnerships between community colleges and colleges and universities granting baccalaureate degrees Supports predoctoral students in their development as scientists in biomedical and behavioral fields and promotes interinstitutional partnerships between institutions granting master's degrees and those granting doctoral degrees.
NIMH	
Advanced Centers for Mental Health Disparities Research (http://grants2.nih.gov/grants/guide/pa-files/par-04-060.html)	Supports core research projects and mentored pilot research projects to promote the enhancement of established research infrastructures and investigator-initiated research aimed at understanding and ameliorating mental health disparities.

Continued

TABLE 1—*Continued*

Mental Health Dissertation Research Grant to Increase Diversity (http://grants.nih.gov/grants/guide/pa-files/PAR-06-217.html)	Supports mental health dissertation research for predoctoral students from underrepresented or disadvantaged populations in biomedical and behavioral sciences.
Mentoring Programs to Diversify the Mental Health and Substance Abuse HIV/AIDS Research Workforce through Innovative Educational Initiatives (http://grants1.nih.gov/grants/guide/pa-files/PAR-07-386.html; http://grants1.nih.gov/grants/guide/pa-files/PAS-06-447.html)	Supports network of mentors and special summer institute of didactics and research in thematic HIV/AIDS, mental health, or substance abuse areas for graduate students, postdoctoral fellows, and early career investigators.
NIMH Career Opportunities in Research Honors Undergraduate Research Training Grant (http://grants.nih.gov/grants/guide/pa-files/PAR-08-093.html)	Supports research training program for undergraduates leading to research doctorate in biomedical, neuroscience, behavioral, or clinical sciences relevant to mental health research.
NINDS	
Collaborative Neurologic Sciences Award (http://grants.nih.gov/grants/guide/pa-files/PAR-07-357.html)	Supports collaborative neuroscience research between scientists at minority institutions and scientists from external research laboratories that have NIH grant support.
Diversity Research Education Grants in Neuroscience (http://grants.nih.gov/grants/guide/pa-files/PAR-07-456.html)	Supports research educational programs for underrepresented or disadvantaged populations and cross-disciplinary integration of neuroscience, including basic, translational, behavioral, revention, clinical, and treatment research.
Career Development Award to Promote Diversity in Neuroscience Research (http://grants.nih.gov/grants/guide/pa-files/PAR-09-065.html)	Promotes diversity in neuroscience research participation by providing support and "protected time" for an intensive, supervised career development experience in the biomedical, behavioral, or clinical sciences leading to research independence.
NINR AREA for Health Disparities Research at Minority Serving Institutions (http://grants.nih.gov/grants/guide/pa-files/PA-08-171.html)	Supports research on health disparities and minority health (small-scale health-related research projects) at minority-serving schools of nursing that do not participate extensively in NIH programs.

Note. NIH = National Institutes of Health; NCI = National Cancer Institute; NCMHD = National Center on Minority Health and Health Disparities; NCRR = National Center for Research Resources; RCMI = Research Centers in Minority Institutions; NHLBI = National Heart, Lung, and Blood Institute; NIDA = National Institute on Drug Abuse; NIDDK = National Institute of Diabetes and Digestive and Kidney Diseases; NIGMS = National Institute of General Medical Sciences; NIMH = National Institute of Mental Health; NINDS = National Institute of Neurological Disorders and Stroke; NINR = National Institute of Nursing Research.

Walters and Simoni[31] describe a culturally grounded mentorship program, Three Sisters, that seeks to overcome individual, community, and institutional barriers in the interest of integrating Native American values, principles, and ways of relating into the larger academic system. Baldwin et al.[32] focus on the challenges involved in building partnerships between indigenous communities and universities and the lessons learned from the cyclical research process of continual community involvement to enhance the long-term capacity of communities in conducting HIV/AIDS and substance abuse prevention research.

Yanagihara et al.[33] describe some of the barriers and obstacles confronting institutions that predominantly serve Asian Americans and Pacific Islanders (e.g., the University of Hawaii at Manoa) and discuss how research infrastructures need to be improved through reducing or overcoming such barriers. In the final analytic essay, Forsyth and Stoff[34] review existing challenges and advocate a multilevel strategy for maintaining a robust mentoring pipeline of new trainees that targets funding agencies, academic and research institutions, mentors, and mentees.

FUTURE NEEDS AND ACTIONS

The wide range of topics covered in this supplement will serve to articulate the state of the art for mentoring programs in mental health and HIV/AIDS and will help to identify scientific and programmatic opportunities and directions for moving the field forward. Future mentoring programs should incorporate an evidence-based approach to effective mentoring and the knowledge base of social science research. In concert with mentoring programs, partnerships must be built across all levels of government and between a range of public-sector and private-sector institutions and departments if resources for improving the health and well-being of socially disadvantaged racial/ethnic populations are to be harnessed. It will also be important for existing institutional infrastructures and resources to be identified and linked to mentoring programs.

Successful mentoring and capacity development require a sustained commitment in terms of financial resources and faculty and institutional support, and they must occur in the context of infrastructure development and partnering between institutions as well as between institutions and the communities they serve. At an institutional level, a culture of mentoring needs to be fostered as a revered core value. Greater collaboration and strategic partnerships will be required to build a consensus regarding the social determinants of HIV in disadvantaged communities and the strategies necessary to overcome them. Finally, committed leadership at the highest levels in these communities and at

all levels of government will be essential. ■

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