



# Recruitment and Training of Racial/Ethnic Health Professionals in Rural America

## Problem Statement:

1. Rural populations experience significant healthcare disparities compared to urban counterparts. This is particularly true of the increasing minority populations in rural areas (Spencer, 2011; Truman, Smith & et al, 2011; USDA 2007). Common sense suggests that clinicians who understand the language and tradition of their patients and the communities in which they live may offer more complete and culturally effective health care. Additionally, clinicians of minority and multicultural background contribute more effective care to patients in rural and remote areas (Lakhan and Laird, 2009). There is evidence that a Black or Hispanic patient is more likely to seek care from a clinician of their own race because of personal preference or language, and not only because of geographic proximity. Yet, minorities are seriously under-represented in health professions, and the situation is not improving (Merchant and Omary, 2009). Blacks, Hispanic Americans, and American Indians and Alaska Natives (AI/ANs) as a group comprise nearly 25% of the US population. These populations account for less than 9% of nurses, 6% of physicians, and only 5% of dentists. Similar disparities are found in the faculties of health professional schools. For example, minorities and AI/ANs make up less than 10% of baccalaureate nursing faculties, 8.6% of dental school faculties, and only 4.2% of medical school faculties. The lack of minority and multicultural health professionals is adding to the nation's persistent racial and ethnic health disparities (Smedley, Stith, and Nelson, 2003). A healthcare workforce that is sensitive to the needs and cultures of these many diverse rural populations not only ensures that services are available, but accessible and relevant for the service area or target population.

2. The rural United States is a place of great diversity with many small places scattered across the vast landscape of America. The Office of Rural Health Policy claims over 200 different definitions of "rural". Approximately 51 million (16.5%) of United States residents live in rural settings (Parker, 2011). Racial and ethnic minority populations, including African American, Asian, American Indian and Alaska Natives, Hispanic, and 'Other races' are increasing in number nationwide, in both urban and rural settings. Recent census data reiterate that persons from minority populations are increasing at a higher rate in rural areas than in urban areas. Hispanics (Latinos) are the fastest growing population in the nation, especially the youngest segment of the population. Clinicians in all specialty areas must accommodate emerging population trends to provide the array of services needed. In rural settings, health care professionals of all types are needed to address the health care needs across the lifespan, from preconception to end of life care. Historically these health care needs are not being met, evidenced by health disparities data among rural populations of minority backgrounds (Truman, Smith, & et al, 2011).

3. Along with the lack of various types of health care providers, in particular, providers from minority populations, other factors contributing to restricted access to health care by rural residents include the lack of health insurance, escalating health care costs, not having a usual medical home, and clinicians who are insensitive to the culture and preferences of patients who are of another culture. Evidence shows that clinicians who understand a patient's linguistic traditions and the communities in which they live render more effective care (Thomson and Denk 1999, Dyrbye, Thomas, MD; Eacker, & et al., 2007). The 2010 census further suggests that 23.6 percent of Asian Americans, 24.4 percent of Hispanics, 5.3 percent of Pacific Islanders, 5 percent of American Indians/Alaska Natives and 1.2 percent of Blacks are linguistically isolated. Linguistic and cultural differences can be a barrier to delivering quality services. Factors associated with a patient's distrust of clinician(s) may include: a culturally inappropriate reception on the part of the office staff and/or clinician when meeting the patient, or the patient's preferences for self-care practices and/or traditional healing practices that may conflict with conventional Western health care practices (Truman, Smith, & et al. 2011). According to the Center for Disease Control's (CDC, 2011) report on health disparities, people who live and work in low socioeconomic circumstances are at increased risk for mortality, morbidity, unhealthy behaviors, and have reduced access to health care and inadequate quality of care. Rural populations are more likely to be economically challenged than their urban counterparts (Ware & Spencer, 2011). This is particularly true of rural minority populations who experience poverty levels three times higher than Caucasians (USDA, 2004). Rural inhabitants are less likely to have employer sponsored health insurance benefits. Furthermore, rural inhabitants who are uninsured also have a higher prevalence of substance abuse" (Spencer, 2011; Galvin, et al., 2001). In addition to the lack of health insurance and substance abuse, mental health is frequently identified as a "hole" in the rural safety net. The President's New Freedom Commission on Mental Health, Subcommittee on Rural Issues (2003) finds a confluence of issues relating to rural mental health accessibility, availability, and acceptability that create critical barriers to care for the Americans who reside in non- metropolitan areas across our nation. These barriers result in an "experience of care" for rural Americans that too often includes a delay in care, inconsistent care, or no care.

4. The President's New Freedom Commission (2003) points out that it is often difficult to recruit and keep professionals in rural areas. Although there have been government-subsidized programs (e.g., student loan repayment), they have only had a minimal effect in solving the health workforce shortage in rural areas. Furthermore, as with all providers, it is often difficult for mental health providers with spouses or partners to find work for both people. For those brought up or currently living in urban or suburban areas, the transition to life in a rural or frontier area can be difficult. Lower salaries and a more limited range of social and other outlets may be disincentives to move to such areas or motivators to return to urban centers.

#### Demographics

5. According to the National Rural Health Association (NRHA), fewer than 10% of all U.S. physicians practice in rural areas. Minority providers are more likely than whites to practice in minority and medically underserved areas (Komaromy et al, 1996). In the United States, ethnic minorities (with the exception of some Asian ethnicities) are woefully underrepresented in health care professions. In 2010 census data, African-Americans comprise 12.6% of the population yet 2008 American Medical Association (AMA) data shows only 3.5% of physicians are African American, American Indian and Alaska Natives Americans comprise 0.8% of the total

population and 0.16% of the physicians, and Hispanics comprise 16.3% of the population yet only 4.9% of physicians. Pharmacy professionals reflects similar under-representation. According to 2008 data from the U.S. Department of Health and Human Services: African-Americans comprise only 6.2% of the pharmacists, Asian Americans 14%, and Hispanics 3.7% (USDHHS, 2010). African Americans are slightly better represented among physician assistants and registered nurses though they are underrepresented in these vocations as well. There are almost 3 million licensed registered nurses in the United States, about 4.2 percent are African American; (Dept. of Health and Human Service, 2009) 5 percent of all physician assistants were African American (“Household data annual,” 2010). Only 1.7% of registered nurses identify themselves as Hispanic (Minority Nurse, 2009). Health professionals who most likely will choose rural practice are those who originate from these areas and/or have student clinical experiences in these areas (Wade, Brokaw, Zollinger, and et al., 2007). Studies of graduate level medical students in the U.S. show racial and ethnic minority physicians, in general, are more willing to provide care to patients who have no insurance or public insurance such as Medicaid, (Lakhan and Laird, 2009).

#### Higher Education Admissions Criteria

6. The inability of the health professional workforce to keep pace with the changing demographics of the nation is a major contributing factor of the persistent inequities in access to quality care for ethnic and racial minorities in the U.S (Couns, Mittman & Sullivan, 2011). Moreover, the percentage of minority students who are enrolled in health professional programs offered by public institutions of higher learning has stagnated over time (Lakhan and Laird, 2009). The controversy surrounding affirmative action (i.e., race-based admission policies) has the potential of exacerbating this disparity (Jencks and Phillips, 1998). The Hopwood case (Hopwood v. Texas, 1996) propelled the states of Texas and California to put forth propositions limiting affirmative action in admission procedures. The Supreme Court of the United States (2003) made a decision to uphold affirmative action policy use with the exception of quota plans (Grutter v. Bollinger, 2003). Although the Hopwood decision was overturned in 2003, this decision set a precedent for continued discrepancy in population equality by race/ethnicity. Cutting of federal funds during 2006-2008 reduced monies for programs addressing this issue (e.g. HRSA funded Health Careers Opportunity Program was defunded). These programs encouraged under-represented minorities to pursue health careers; thus, funding reduction weakened attempts to educate under-represented minority students in the health professions. Efforts to address such historical trends must be strategic and determined. Existing admission criteria to professional schools must be examined to have a more inclusive student enrollment that represents cultural and socioeconomic variations. Professional school curricula must be evaluated to determine if the content is culturally and linguistically attuned to the growing diversity and modified as needed to educate students about effective interaction with underrepresented people. The use and benefits, along with the potential risks of alternative and complementary healing preferences must be addressed in the education of health practitioners. Traditional customs and treatment interventions must interface with nontraditional and alternative healing practices. Education of clinicians should incorporate culturally sensitive health promotion activities addressing mental and behavioral health, along with disease prevention and health maintenance. It is critical that existing rural and minority population health initiatives be evaluated to identify gaps and determine needs. The findings from these studies and

descriptions of best or effective practice models must be disseminated for others to learn from and adapt in other contexts.

### Challenges

7. Any health care workforce initiative focusing on rural contexts must take into consideration the need for a full array of professional and paraprofessional practitioners, including but not limited to, physicians in particular primary care, nurse generalists and nurse practitioners, physician assistants, dentists/oral hygienists, pharmacists, optometrists, skilled health personnel, public health personnel, and mental/behavioral health practitioners, etc. Also to be considered are ethical recruitment and retention strategies which address the needs of various patient populations. The health professional needs will probably vary and be distinct from one rural context to another (Simpson and McDonald 2011).

The 2004 Rural Health Quality Report calls for both the Federal government and rural communities to pursue new approaches to maintain quality in rural health care, citing strategies in five key areas including: 1) Address personal and population health needs at the community level, 2) Establish quality improvement support structure, 3) Strengthen the rural health care workforce, 4) Provide adequate and targeted financial resources and 5) Utilize information and communications technology.

Over-emphasizing health professional shortages ultimately could have a negative effect of recruiting an appropriate healthcare workforce for a given region. Along with an emphasis on physicians, financial decisions also need to address the recruitment of other types of healthcare workers. For instance, should primary care physicians be given more incentives and recruited more heavily compared to other types of essential health professionals, such as nurses who are needed to sustain the viability of a small hospital that is fiscally vulnerable (Simpson and McDonald, 2011)?

8. The challenges to the successful infusion of students from minority populations in health careers are numerous, including lack of:

- Adequate pre-college preparation for higher education during grade school and high school
- Financial support towards higher education
- Parental and peer support towards pursuing health service careers
- Health care role models both locally and in mass media which rarely portrays health professionals from minority populations
- Awareness of opportunities for health careers
- Health Professions Schools Admissions standards that select for these populations.
- Institutional and environmental incentives (Barr, Gonzalez, & Wanat, 2008; Chang, et. al., 2011). (e.g. positive experience in chemistry course).
- Urban-based under-represented faculty and administrators in health professional programs.

Ultimately this perspective leads to insensitivity towards the rural perspective/context and the particular health service/care needs of rural populations.

Efforts to overcome barriers in preparing individuals from minority populations for admission and the successful completion of higher education and health career majors can be effective in the practices of elementary and high school preparatory programming for under-represented students. College admission examinations such as ACT's and SAT's are shown to correlate strongly with socioeconomic status. People from minority populations are under-represented in the socioeconomic categories most highly selected for college attendance through these

admissions tests. The educational preparation for college needs to change for lower socioeconomic status students in order to more closely reflect the educational experience of the upper middle and high income students, or the criteria for admission to college need to change for equity in access to higher education. Given the lack of action to change admission standards for college and professional school, multiple efforts have focused on interventions to increase the success of under-represented students in applying, gaining admission to, and attending college and professional school.

#### Exemplary Best Practice Models

9. Health Resources and Services Administration (HRSA) has provided funds to numerous institutions of higher education for over 30 years to provide pre-college educational enrichment and social support for disadvantaged students interested in health careers. Through these and other means, colleges and universities have shown some success.

For example, Louisiana State University School of Medicine has a summer science program for Louisiana high school students from underrepresented minority populations. Of the 1,150 past participants, 849 responded to a survey on chosen field of study. Of these respondents, 450 chose a science/pre-health field of study. An estimated 432 of 665 students chose education paths in medicine, another health profession, or science since 1985 (Helm et al, 1999).

10. Another example is, in 1994, the Health Sciences and Technology Academy at West Virginia University initiated a highly successful 9th-12th grade program to improve the success of under-represented rural students attending college and pursuing health careers (Chester and Dooley, 2011). Since then, 1,560 students (32% African American and Other [multiracial], 68% rural, disadvantaged Appalachian white) from West Virginia were given social support and academic enrichment for four years prior to college. While in high school, these students performed significantly better than their peers on the standardized WESTEST for both math and language arts (Smith, 2011). Ninety four percent of these students are currently in college or have completed college while only 57.5% of their peers went to college. Sixty one percent are majoring in pre-health career majors with average grades fully one half a point higher than their peers majoring in the same fields who were not in the program (McKendall et al 2000). Similar results are shown for Hawaiian Natives (Little et al, 1999) Hispanics, and Asians/Pacific Islanders (Vilarejo & Barlow 2007; Villarejo et al, 2008; Fredrich 2009). These results show that just a little special attention in grades K through 12 has a tremendous impact.

Efforts to prepare ethnic and racial minority students for professional school have been effective in the Historically Black Colleges and Universities. In 2003, for example, Xavier University alone produced as many successful African American medical school applicants (84) as the University of Maryland, Harvard, and Johns Hopkins Universities combined (84). In 2004, five of the top 25 producers of African American medical school applicants are United Negro College Fund member institutions (UNCF FY10 Legislative Briefing Materials).

Undergraduate programs and post-baccalaureate programs in majority institutions scattered across the nation provide minorities and other under-represented youth academic enrichment and social support towards health careers beginning the summer before coming to college and following them through professional school. For instance, since 1988, 547 students have graduated from the Stanford Medical Youth Science Program's (SMYSP) Summer Residential Program (Winkleby, 2007). Longitudinal data show that among the 97% who have been followed for up to 24 years, 100% are from low income families, 86% have earned a 4-year

college degree (excluding those, currently attending college), and among college graduates, 43% are attending or have completed medical or graduate school, and 42% are working as or training to become health professionals. Likewise, the University of Virginia Medical Academic Advancement Program for minority and disadvantaged students has been successful in increasing the number of under-represented minority students matriculating into and continuing in medical education. Over the years of the program since 1994, 2,899 have participated, of whom 583 have already obtained their doctorate degrees in medicine. Twenty-four of the program alumni are medical school faculty members, including a former chairman of Ophthalmology, two assistant deans, an associate director for a residency program in medicine, and an assistant director for a residency program in Obstetrics and Gynecology. Two of the program alumni are University of Virginia School of Medicine faculty (“University of Virginia,” 2011).

Southern Illinois MEDPREP is a successful post-baccalaureate program. Others programs also illustrate successful approaches at the pre-matriculation level (Williams, 1999). This program establishes high expectations for student progress, designs individual curricula, offers extensive academic and personal counseling, has its own teaching faculty, and operates in a specially equipped designated facility. Since 1972, MEDPREP has served 1,264 educationally or economically disadvantaged students. Ninety-eight percent of the current students are members of the Association of American Medical Colleges-defined under-represented minority groups (URMs). Over the course of its nearly 40-year history, 72% of the students have been accepted to professional schools (SIUMED website, 2008). When Jackson et. al. reported in 2003, 92% were accepted to medical schools and attended 90 different medical schools in the country. Of those accepted to professional schools, 88% have graduated or are expected to graduate in 2011. Research indicates that these students show significant improvement, 2 to nearly 6 times greater in MCAT retakes than non MEDPREP students (Jackson, McGlenn, Rainey, & Bardo, 2003).

11. In 1995 the Master’s Program in Health Administration at the Medical University of South Carolina, with funding from HRSA’s Health Administration Training grant, developed a Health Administration Internship Training program in partnership with rural/medically underserved communities. During the 5-year grant program (1996-2001), 56 students completed one or more service-learning experiences. Of these, 44 (79%) completed internships; 18 students identified themselves as minority. After graduation, 15 (27%) accepted rural administrative residencies and 15 (27%) others accepted positions in rural and medically underserved community health care entities. These experiences prepare administrators to accept positions in rural areas as well as contribute in a meaningful way toward building an effective rural health care delivery system (Forti & White (2001).

The academic pipeline for high school students on through undergraduate education and then on through professional school education is long and demanding. Consequently, a variety of tailored reinforcements and supports are essential to support individuals as they progress through this multi-year academic pipeline. Even maintaining a database from high school through graduate school or medical residency is an enormous challenge, but necessary if support efforts are to accurately reflect the results.

The Sullivan Commission’s 30 recommendations (Sullivan, 2004), were developed to attract broad public support and to encourage academic and professional leadership to share the Commission’s vision for a health system modeled on excellence, access, and quality for all people. Three overlying principles are noted to fulfill that vision.

(1) To increase diversity in the health professions, the culture of health professions schools must change.

Our society is experiencing a significant and rapid demographic shift. The culture of our nation is changing. So too must the culture of our health institutions. As colleges, universities, health systems, and others examine these recommendations, they must also examine the practices of their own institutions.

(2) New and nontraditional paths to the health professions should be explored.

In some health professions, it takes between 10 and 12 years to fully educate and train a provider. The Commission calls for major improvements in the K-12 educational system, with the realization that the degree of diversity in health professions schools cannot remain stagnant while these improvements take shape.

(3) Commitments must be at the highest levels.

Change can happen when institutional leaders support the change. In 1966, Duke University School of Medicine was one of the last two medical schools in the South to admit a black student. Today, Duke University School of Medicine has become a model of diversity and has used its leadership to bring other institutions along a new and inclusive path toward excellence. The Institute of Medicine (IOM) recommended increasing the number of minority health professionals as a key strategy to eliminate health disparities. A number of strategies were identified to make education and training in the health professions more attainable and affordable for minority students, including shifting from student loans to scholarships; reducing dependency on standardized tests for admission to schools of medicine, nursing, and dentistry; and enhancing the role of two-year colleges (Sullivan, 2004).

To strengthen patient-provider communication and relationships, the IOM committee also recommended developing provider training programs and tools in cross-cultural education. These recommendations are rooted in evidence that minority providers are more likely than whites to practice in minority and medically underserved areas, and that when patient and providers are of the same race there is greater satisfaction and adherence to treatment (Komaromy et al., 1996).

## 12. Recommendations:

The NRHA makes the following recommendations:

I. Offer financing and payment mechanisms for economically disadvantaged rural students from minority populations, (example- tuition fee waivers; pay back scholarships, etc.).

II. Depict individuals from minority populations in the marketing and media materials for health professionals.

III. Develop and disseminate culturally and linguistically attuned career community initiatives targeting minority populations.

IV. Support innovative initiatives that focus on recruitment and retention of the diversity of rural multiracial and multicultural students at the pre-college, college and professional school levels. Promote programs that offer financial support to academic programs that expose students to rural settings and communities that ‘grow their own’ as an approach to recruit and retain health professionals in their locale.

V. Encourage professional school linkages with rural minority populations and communities.

VI. Facilitate linkages among the Senate Indian Affairs Committee, Congressional Black/Hispanic and rural health caucuses and other Congressional leaders who are sensitive to health inequities confronting multiracial and multicultural populations that are exacerbated in

rural settings.

VII. Develop, support and evaluate admissions policies and procedures that do not have an urban/rural/minority/socio-economic bias (i.e. adapt policies where MCAT requirements for admission are in line with MCAT scores of successful graduates from under-represented populations. Provide opportunities for provisional admission based on performance; develop targeted remediation programs that enhance potential for academic success.)

VIII. Develop, support and evaluate health professional residency/preceptorship/mentor-ship transition to practice programs in rural, medically under-served areas.

IX. Advocate for federal, state, tribal, local and private entities to provide academic loan forgiveness programs for practitioners who work in rural under-served populations.

X. Expand existing programs that support practitioners and educational programs that target multiracial and multicultural youth in rural communities to develop future generations of health services/care practitioners in rural America. Disseminate findings to identify and market best practice models.

XI. Advocate for HRSA to fund Health Careers Opportunity Programs and Area Health Education Centers, National Health Service Corps loan repayment and scholar programs as well as School to Work Programs that target multiracial and multicultural youth in rural communities at a higher level, to develop future generations of health care practitioners to provide care to the under-served.

XII. Encourage federal agencies to collect and analyze data on the educating, recruiting, hiring and retaining various disciplines in the health professions in rural settings. Disseminate findings that are meaningful to various audiences (e.g., elected federal/state, tribal officials, program administrators, and community leaders).

XIII. Implement infrastructures to develop competent communities who advocate on their own behalf to identify local needs and initiate solutions to those concerns, in this case educating, recruiting and retaining health professionals.

XIV. Encourage the federal government (e.g. Office of Rural Health Policy, Office of Minority Health, the Department of Education, and other funding agencies) to convene a health professions conference or other venue to discuss the mechanisms of increasing health professions' education for multiracial and multicultural populations.

XV. Encourage federal agencies to collect and disseminate data on the number of model rural programs that institutions provide for rural clinical experiences through internship and residency programs and assist with a mechanism to develop strong connections between medical schools and universities.

### 13. References

Barr, D. A., Gonzalez, M. E., & Wanat, S. F. (2008). The leaky pipeline: factors associated with early decline in interest in premedical studies among underrepresented minority undergraduate students. *Academic Medicine*, May, 83(5), 503-11.

Chang, M. J., Eagan, M. K., Lin, M. H., & Hurtado, S. (2011). *Journal of Higher Education*, 82(5), 564-96.

Chester, A., & Dooley, E. (2011). West Virginia University's Health Sciences and Technology Academy . *Journal of Higher Education Outreach and Engagement*, 15(3), 87.



Couns, J. G., Mittman, I. S., & Sullivan, L. W. Johns Hopkins University, Center to Reduce Cancer Disparities, Department of Epidemiology, Bloomberg School of Public Health. (Aug. 2011). Forming state collaborations to diversify the nation's health workforce: the experience of the Sullivan alliance to transform the health professions (6). Baltimore: Johns Hopkins University.

Dyrbye, L. N., Thomas, M. R., Eacker, A., & Harper, W. et al. (2007). Race, ethnicity, and medical student well-being in the United States. *Archives of Internal Medicine*, 167(19), 2103-2109.

Forti, E.M., White, A. (2001). A rural service learning model for health administration education, 19(4), 401-416.

Fredrich, M. J. (2009). Program offers disadvantaged teens a gateway to health and science careers. . *Journal of American Medical Association*, 302(9), 933-35.

Barbara Grutter, Petitioner v. Lee Bollinger et al., No. 02 U.S. 241 (2003)

Helm EG, Parker JE, Russel MC. (April 1999) Education and career path of LSU's Summer Science Program students from 1985 to 1997. *Academic Medicine* 74, 336-338.  
Hopwood v. Texas, 78 F.3d 932 5th Cir. (1996)

Jackson, E. W., McGlinn, S., Ramey, M., & Bardo, H. R. (May 2003). Medprep-30 years of making a difference. *Academic Medicine*, 78(5), 448-53.

Jencks, C., & Phillips, M. (1998). *The black white test*. Washington D.C.: Brookings Institution.

Komaromy M, Grumbach K, Drake M, et al. (1996). The role of black and Hispanic physicians in providing health care for underserved populations. *New England Journal of Medicine*. 334:1305-1310.

Lakhan, S. E., & Laird, C. ( May 2009). Addressing the primary care physician shortage in an evolving medical workforce. *Archives of International Medicine*, 5, 2:14.

Little D, Izutsu S, Judd N, and Else I.(April 1999) A medical school-based program to encourage native Hawaiians to choose medical careers. *Academic Medicine*, 74, 339-341.

McKendall, SB. Programmatic Impact: The Health Sciences and Technology Academy response to the educational and health needs of West Virginia. Contributed Paper, NRHA Conference, May 24-26, 2000, New Orleans, LA.

Medprep facts: Follow-up data on medprep students. (n.d.). Retrieved from <http://www.siumed.edu/medprep/studentstats.html>

Merchant, J. L., & Omary, M. B. (January 2010). Underrepresentation of underrepresented minorities in academic medicine: the need to enhance the pipeline and the pipe. *Gastroenterology*, 138(1), 19-26.e3.

Minority Nurse. (2009). Minority nurse. Retrieved from <http://www.minoritynurse.com/minority-nursing-statistics>

President's New Freedom Commission on Mental Health, Final Report. April 29, 2003. This site has been archived by the University of North Texas Libraries. Retrieved from <http://govinfo.library.unt.edu/mentalhealthcommission/index.html>

Ngo-Metzger, MD, MPH, N., Legedza, ScD, A. T. R., & Phillips, MD, R. S. ( February 2004). Asian Americans' reports of their health care experiences. *Journal of General Internal Medicine* , 19(2), 111-119.

Office of Health and Human Service. (2009). Minority nurse: Nursing statistics. Retrieved from <http://www.minoritynurse.com/minority-nursing-statistics>

Parker, T. (2011, October 27). USDA Economic Research Service. Retrieved from <http://www.ers.usda.gov/statefacts/us.htm>

Pew Health Professions Commission. Recreating Health Professional Practice for a New Century (Executive Summary of Full Report). Retrieved from [http://futurehealth.ucsf.edu/Content/29/1998-12\\_Recreating\\_Health\\_Professional\\_Practice\\_for\\_a\\_New\\_Century\\_The\\_Fourth\\_Report\\_of\\_the\\_Pew\\_Health\\_Professions\\_Commission.pdf](http://futurehealth.ucsf.edu/Content/29/1998-12_Recreating_Health_Professional_Practice_for_a_New_Century_The_Fourth_Report_of_the_Pew_Health_Professions_Commission.pdf)

Simpson, C., & McDonald, F. (November 2011). Anybody is better than nobody?' ethical questions around recruiting and/or retaining health professionals in rural areas. *Rural and Remote Health*, 11(1867), Retrieved from <http://www.rrh.org.au/articles/subviewnthamer.asp?ArticleID=1867>

Smedley B, Stith A, Nelson A, eds (2003) *Unequal Treatment: Confronting racial and ethnic disparities in healthcare*. Washington, DC: National Academies Press.

Smith F. 2011. Doctoral Thesis "Unpublished Manuscript". University of Phoenix Huntington WV, 2011.

Spencer, K. Rural Assistance Center. (2011). Rural health disparities frequently asked questions. Retrieved from website: <http://www.raconline.org/topics/disparities/faq.php>

Sullivan, L (September 2004). Commission on Diversity in the Health Care Workforce. Missing persons: Minorities in the health professions. Duke University Medical School.

Thomson W.A., & Denk J.P. (April 1999) Promoting diversity in the medical school pipeline: a national overview. *Academic Medicine* 74, 312-314.

Truman, B. I., Smith, C. K., Roy, K., Chen, Z., Zhu, J., Gotway Crawford, C., & Zaza, S. U.S. Dept. of Health and Human Services, Center for Disease Prevention and Control. (January 2011). Morbidity and mortality weekly: cdc health disparities and inequalities report (Supplement/Vol. 60). Retrieved from U.S. Department of Health and Human Services website: <http://www.cdc.gov/mmwr/pdf/other/su6001.pdf>

United Negro college fund fiscal year 2010 legislative briefing materials. (2009, June 01). Retrieved from <http://www.uncf.org/advocacy/documents/FY/Comprehensive.Background.Briefing.Materials.pdf>

University of Virginia School of Medicine's Summer Medical & Dental Program: major accomplishments. (2011, November 09). Retrieved from <http://www.medicine.virginia.edu/education/medical-students/office-of-diversity/smdep/major-accomplishments>

U. S. Department of Agriculture. (2004). Retrieved from Rural Development Research Report Retrieved from: <http://www.ers.usda.gov/publications/rdr100/rdr100.pdf>

U.S. Department of Agriculture, Economic Research Service. (2007). Rural population and migration: Trend 6—challenges from an aging population. Retrieved from: <http://www.ers.usda.gov/Briefing/Population/Challenges.htm>

U.S. Department of Health and Human Services, Agency for Health Research and Quality. (2010) National healthcare disparities report, chapter 8 health system infrastructure. Retrieved from website: <http://www.ahrq.gov/qual/nhdr10/Chap8.htm>

U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. (2011) The National Survey of Children's Health 2007. Rockville, Maryland: U.S. Department of Health and Human Services.. Retrieved from website: <http://mchb.hrsa.gov/nsch/07rural/introduction.html>


U.S. Department of Labor, Bureau of Labor. (2010). Household data annual averages. Retrieved from website: <http://www.bls.gov/cps/cpsaat11.pdf>

Vilarejo, M., & Barlow, A. E. L. (2007). Evolution and evaluation of a biology enrichment program for minorities. *Journal of Minorities and Women in science and engineering*, 13, 119-43.

Vilarejo, M., Barlow, A. E. L., Kosan, D., Veazy, B. D., & Sweeney, J. K. (2008). Encouraging minority undergraduates to choose science careers: Career paths survey results. *CBE Life Sciences Education*, 7(4), 394-409.

Wade, M. E., Brokaw, J. J., Zollinger, T. W., Wilson, J. S., Springer, J. R., Deal, D. W., White, G. W., & Barclay, J. C. (2007). Influence of hometown on family physicians. *Family Medicine*, Apr 39(4), 248-54.

Wakefield, M. (November 2, 2004). IOM Report: Quality Through Collaboration; ORHP Technical Assistance Meeting of Rural Health Research Centers; Center for Rural Health.



Ware, B., & Spencer, K. Rural Assistance Center. (2011). Rural health disparities. Retrieved from website: <http://www.raonline.org/topics/disparities/>

Williams MT. (April 1999) Pre-matriculation program at the University of South Florida College of Medicine. *Academic Medicine* 74:397-399.

Winkleby, M. A. (2007). The Stanford medical youth science program: 18 years of a biomedical program for low-income high school students. *Academic Medicine*, Feb.82(2), 139-45.

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