Increasing the Representation of Hispanics in the Health Professions

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HISPANICS-LATINOS ARE the nation's second largest and fastest growing minority group. In 1992, an estimated 22 million Hispanics-Latinos lived in the United States (9 percent of the total U.S. population). The Hispanic-Latino population in the United States grew 53 percent between 1980 and 1990—a rate five times greater than that of the total population and eight times faster than the non-Hispanic population (*1*).

Understanding the Problem

Hispanics-Latinos in the United States as a group have not achieved high levels of formal education because of multiple sociocultural barriers. Hispanics-Latinos continue to enter elementary school later, leave school earlier, and receive proportionately fewer high school diplomas and college degrees than do other Americans. Hispanic-Latino educational attainment levels have increased in absolute terms since the 1970s, but the gap between Hispanics-Latinos and non-Hispanics continues to widen as non-Hispanics make bigger gains than Hispanics (*2*). As of 1991, only 51.3 percent of Hispanics-Latinos ages 25 and older had completed 4 years of high school or more, compared with 80.5 percent of non-Hispanics. Analysis by national origin revealed that only 43.6 percent of Mexican Americans ages 25 and older were high school graduates, compared with 58.0 percent of Puerto Ricans, 61.0 percent of Cuban Americans, 60.4 percent of Central and South Americans, and 71.1 percent of other Hispanics (*3*).

The 1991 report on progress toward the National Education Goals for the year 2000 found that between 1975 and 1990, high school completion rates improved 12 percentage points for African American students and 2 percentage points for non-Hispanic white students, but decreased 3 percentage points for Hispanic students (*4*). As of October 1989, 37.7 percent of Hispanics-Latinos ages 18 to 24 were high school dropouts, compared with 16.4 percent of African Americans and 14.1 percent of non-Hispanic whites (*3*).

More than 90 percent of Hispanic-Latino students attend urban schools. Since urban school systems face a limited tax base, crime, drugs, deteriorating infrastructure, and persistent poverty (*2*), Hispanic students are directly affected. Whereas school segregation for African Americans has decreased during the past decade, segregation of Hispanic-Latino students has increased (*5*). Although they value education, half of Hispanic-Latino parents are functionally illiterate, some have limited English proficiency, and many work several jobs or lack child care. These factors all limit their interaction with teachers and school administrators (*2*), and therefore limit their ability to serve as advocates for their children and participate in school activities.

Studies suggest that Hispanics-Latinos often lack positive role models in their communities. Many

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parents, because of their limited formal education, are not informed about the need for formal education for careers in technical and health fields. As a result, teachers and school administrators are often the sole source of information for Hispanic-Latino students regarding the importance of high school and college education as preparation for a career. Unfortunately, fewer than 3 percent of U.S. elementary and secondary school teachers are Hispanic-Latino (*6*). The teacher work force is largely unfamiliar with the socioeconomic, cultural, and educational needs of Hispanic-Latino students.

Seventy-five percent of senior year Hispanic students are enrolled in nonacademic tracks that do not offer the preparation in mathematics and science required for college and subsequent education and training in the health professions (*2*). The high cost of a university education, coupled with the relatively low incomes of many Hispanic-Latino families, means dependence on financial aid or no college. The cost of higher education is a major stumbling block for Hispanic-Latino students. As a result, those who pursue higher education are heavily dependent on Federal financial aid. Regrettably, Hispanic-Latino students are less likely to receive grants and more likely to receive loans resulting in larger than average loan indebtedness upon graduation compared with other groups (*7*).

There has been a proportional decrease in college enrollments. Between 1976 and 1986, the number of Hispanics-Latinos ages 18 to 24 enrolled in college grew by 43 percent, but the total number of Hispanics-Latinos in that age group grew by 63 percent during the same period (*8*). In 1976, 36 percent of Hispanic-Latino high school graduates went to college whereas, in 1986, only 29 percent attended college. Hispanic-Latino college students are much more likely to attend a 2-year institution (55 percent) of Hispanics-Latinos compared with one-third of non-Hispanic whites.

Minorities who attend college are also less likely to major in science and mathematics, which are required for further studies that lead to the health professions. Of the 73,000 baccalaureate degrees awarded in engineering, mathematics, and science in 1986, fewer than 7 percent were earned by African Americans and Hispanics-Latinos.

Furthermore, Hispanic-Latino students are much less likely to graduate from college. Hispanic-Latino students account for 5 percent of undergraduate enrollments but for only 3 percent of baccalaureate degrees awarded. Hispanics-Latinos constitute 3 percent of the graduate school enrollment but receive only 2 percent of all masters and PhD degrees awarded (*9*). The majority of young Hispanics-Latinos (60 to 75 percent) do not attend college at all—and fewer than 10 percent of those who do attend graduate.

Reasons to Educate Hispanic Health Professionals

There are at least three reasons why we should strive to educate Hispanic health professionals.

Perhaps the first and most morally imperative but least well accepted reason is to achieve equity in access to higher education. Educational opportunities in the health professions should be equally available to all segments of our population. As has been noted, not all students face the same challenges wth an equal set set of resources in their pre-health professional education, resulting in uneven access to the health professions schools that often require 13 to 16 years of prior educational preparation.

Leaders of schools of the health professions can either idly lament the failures of the high schools and colleges or they can become actively involved in the quest for equal educational opportunity. Unfortunately, some officials of health professions schools still feel that they have established equal access to their educational programs because they have printed policies declaring that students who meet a certain set of "objective" criteria will be considered without regard to sex, race, national origin, or religion.

The second reason to be concerned with educating Hispanic and other minority health professionals is that it is a potentially cost-effective solution to the health needs of the U.S. population. Montoya notes that the government invests approximately $300,000–$400,000 in the medical education of each fully trained physician. As he describes it, essentially the government has a choice of "investing $300,000–$400,000 in the training of a physician who has a high likelihood of practicing in an area where there is already a sufficient number

or even a surplus of health professionals or of investing essentially the same amount of funds to train an underrepresented minority physician who has a very high likelihood of practicing in an underserved area where his/her services are needed" (*10*). It should be remembered, says Montoya, that a major objective of health professions education should be to provide health professionals to areas and populations in greatest need. Studies conducted by the Health Professions Career Opportunity Program in California found that among minority students who were graduated from California dental schools between 1969 and 1975, 85 percent were serving patient loads that were more than 50 percent minority and more than one-third had greater than 90-percent minority patient loads.

In another investigation, 75 percent of Mexican American physicians who were graduated from California medical schools between 1971 and 1977 were practicing directly in or adjacent to designated Critical Health Manpower Shortage Areas (CHMSAs). Montoya further notes that a Federal survey of the career plans of medical students found that less than 10 percent of white non-Hispanic students expressed an interest in pursuing a shortage area practice. In a comparative investigation of the medical practice profiles of minority and majority physicians who were graduated from seven California medical schools in 1974 and 1975, Davidson and Montoya (*11*) found that minority graduates were twice as likely to locate their practices in areas with shortages of health care personnel, a higher proportion were treating Medicaid patients, and they treated three times the number of minority patients compared with nonminority physicians.

Given that Hispanic Americans have the lowest known access to health care in the United States—evidenced by the fact by that almost one in five Mexican Americans older than age 4 has never seen a dentist and fully one-third of the Mexican American population does not see a physician in the course of a year (*12*)—a case could be made that educating Hispanic health professionals could and should be a part of a sound national policy for addressing the inequities in access to health care. In addition, for at least certain health professions, such as medicine, speech pathology, and health education, the education of bilingual Hispanic health professionals could result in more effective treatment outcomes and compliance among linguistic minority Hispanic patients.

A third argument in favor of educating Hispanic health professionals revolves around the national need to produce productive and sustaining members of society. Health care as an industry is projected to experience significant employment growth in the next couple of decades. Those who have historically benefitted from our world-class system of higher education will account for a very small fraction of the growth of our work force. Non-Hispanic white males will account for only 8.5 to 10 percent of the growth in the work force between 1990 and 2000. Minorities and women will account for more than 90 percent of the projected growth in the work force between 1990 and 2000 (*13*).

Unfortunately, the largest increase in the number of those employed or actively looking for work will be made up of Hispanics and others like them who have not been well served by our educational system. If our current educational system remains unchanged, these people with limited income potential will be coming into the marketplace and onto the tax rolls at a time when the need for tax funds and health personnel will be at their greatest—to serve the demands of programs like Medicare and Social Security and an increasingly aging American population. Given that the health care industry will be experiencing rapidly growing needs for skilled, highly educated health professionals and given that Hispanics will constitute an ever increasing component of the work force, it is reasonable and prudent to absorb increasing numbers of Hispanic students into our health professions schools. The potential payoffs include an adequate supply of taxpayers and an adequate supply of gainfully employed and productive citizens among other benefits.

Representation in the Health Professions

Deliberate policy decisions and a concerted national effort to recruit and train minority students in the health professions has resulted in a significant increase in the number of minority health professionals. In 1968, minority students accounted for only 3.6 percent of all U.S. medical students. Three-fourths of these minority students were black students, and three-fourths of these students were enrolled at two predominantly African American medical schools—Meharry Medical College and Howard University College of Medicine (*10*). By the 1988–89 academic year, minority student enrollment in U.S. medical schools had reached 15 percent, with 16.8 percent of the entering class being composed of underrepresented minority students (African Americans, Mexican Americans,

First-year enrollment in schools of allopathic medicine in the United States, by racial-ethnic category for academic years 1968–69 through 1988–89

Academic year	First-year enrollment	First-year Minority enrollment	Racial-ethnic category: Under-represented minorities[1]	Black American	American Indian	Hispanic American[2]	Asian American	Other minorities	White American[3]
	Number of students								
1968–69	9,863	413	292	266	3	23	121	...	9,450
1969–70	10,422	641	501	440	7	54	140	...	9,781
1970–71	11,348	998	808	697	11	100	190	...	10,350
1971–72	12,361	1,279	1,062	881	23	158	217	...	11,082
1972–73	13,570	1,440	1,175	961	33	181	231	34	12,130
1973–74	14,154	1,622	1,292	1,019	44	229	259	71	12,502
1974–75	14,763	1,949	1,473	1,106	71	406	275	91	12,814
1975–76	15,295	1,912	1,391	1,036	60	461	282	73	13,383
1976–77	15,613	2,024	1,400	1,040	43	512	348	81	13,589
1977–78	16,136	2,146	1,458	1,094	51	615	395	...	13,990
1978–79	16,501	2,225	1,443	1,061	47	665	452	...	14,276
1979–80	16,930	2,463	1,545	1,108	63	790	502	...	14,467
1980–81	17,186	2,585	1,548	1,128	67	818	572	...	14,601
1981–82	17,268	2,933	1,671	1,196	70	902	765	...	14,335
1982–83	17,254	3,069	1,626	1,145	62	926	936	...	14,185
1983–84	17,150	3,124	1,658	1,173	75	893	983	...	14,026
1984–85	16,997	3,275	1,672	1,148	77	926	1,124	...	13,722
1985–86	16,929	3,208	1,798	1,030	61	953	1,164	...	13,721
1986–87	16,779	3,703	1,677	1,174	61	954	1,514	...	13,116
1987–88	16,713	4,043	1,996	1,221	68	927	1,827	...	12,511
1988–89	16,868	4,335	1,996	1,210	76	949	2,100	...	12,386
	Percentages								
1968–69	100.0	4.2	3.0	2.7	(4)	0.2	1.2	...	95.8
1969–70	100.0	6.2	4.8	4.2	0.1	0.5	1.3	...	93.8
1970–71	100.0	8.8	7.1	6.1	0.1	0.9	1.7	...	91.2
1971–72	100.0	10.3	8.6	7.1	0.2	1.3	1.8	...	89.7
1972–73	100.0	10.6	8.7	7.1	0.2	1.3	1.7	0.3	89.4
1973–74	100.0	11.5	9.1	7.2	0.3	1.6	1.8	0.5	88.5
1974–75	100.0	13.2	10.0	7.5	0.5	2.7	1.9	0.6	86.8
1975–76	100.0	12.5	9.1	6.8	0.4	3.0	1.8	0.5	87.5
1976–77	100.0	13.0	9.0	6.7	0.3	3.3	2.2	0.5	87.0
1977–78	100.0	13.3	9.0	6.8	0.3	3.8	2.4	...	86.7
1978–79	100.0	13.5	8.7	6.4	0.3	4.0	2.7	...	86.5
1979–80	100.0	14.5	9.1	6.5	0.4	4.7	3.0	...	85.5
1980–81	100.0	15.0	9.0	6.6	0.4	4.8	3.3	...	85.0
1981–82	100.0	17.0	9.7	6.9	0.4	5.2	4.4	...	83.0
1982–83	100.0	17.8	9.4	6.6	0.4	5.4	5.4	...	82.2
1983–84	100.0	18.2	9.7	6.8	0.4	5.2	5.7	...	81.8
1984–85	100.0	19.3	9.8	6.7	0.5	5.4	6.6	...	80.7
1985–86	100.0	18.9	10.6	6.1	0.4	5.6	6.9	...	81.1
1986–87	100.0	22.0	10.0	7.0	0.4	5.7	9.0	...	78.0
1987–88	100.0	24.2	11.9	7.3	0.4	5.5	10.9	...	74.9
1988–89	100.0	25.7	11.8	7.2	0.5	5.6	12.4	...	73.4

[1] Includes black Americans, American Indians, Mexican Americans, and mainland Puerto Ricans.

[2] Beginning in 1977-78, the general "other" category was dropped and a Hispanic classification was added, which is defined to include any person of Spanish culture or origin, regardless of race.

[3] Category includes all foreign students, and race not specified.

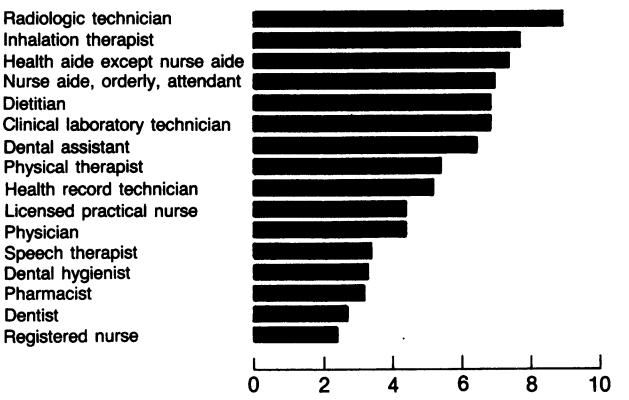
[4] Less than 0.05 percent.

SOURCES: Association of American Medical Colleges, Division of Educational Measurement and Research; American Medical Association. Annual Report on Medical Education in the United States, 1985-86, and JAMA 260: 1069, Aug. 26, 1988, and prior issues.

American Indians, and Puerto Ricans, see table).

A catalyst for the increase in minority enrollments was the Health Resources and Services Administration's Health Career Opportunity Program, which provided funding to U.S. medical schools to develop minority student recruitment and retention programs. However, similar support to schools of allied health, dentistry, nursing, and other health professions was more modest and provided much later. This lack of support has resulted in lagging minority enrollment at these institutions. The need for increased enrollment is evident from the small proportions of selected health professionals who were Hispanics, as shown in the figure. In 1991, only 4.4 percent of physicians, 2.4 percent of registered nurses, 2.7 percent of dentists, and 3.2 percent of pharmacists were Hispanics.

Hispanics as a percentage of all employed civilians, selected health professions, 1991



Summary of Recommendations and Strategies

Numerous agencies, organizations, educators, researchers, and advocates have offered recommendations for improving the representation of Hispanics in the health professions and the sciences. These recommendations and strategies to accomplish them have been summarized and grouped into seven categories.

Improve and coordinate collection of data on the health professions. Accurate data on current and future personnel needs in the health professions are needed to address the health of the rapidly growing populations of Hispanics-Latinos. Many governmental agencies and organizations are involved in the collection, maintenance, and analysis of data on students and practitioners in the health professions. These bodies should identify uniform minimum requirements for data collection and use common methodologies and definitions, including ethnic and national origin identifiers.

Implementing strategies. A single national repository of data on the health professions should be identified, and a single agency should be responsible for conducting analyses, for reporting to the public and private bodies on the state of training and the composition of the health professions work force, and for making data available to users. Its responsibilities would include data on future need for Hispanic-Latino health professionals relevant to Hispanic-Latino populations.

The Public Health Service could commission a task force to design uniform minimum requirements for data. This task force would include representatives from the major health professionals' organizations, the schools of health professions, and the Federal and State agencies as well as those who are empowered to implement changes. All health professions should be represented, and the membership should be ethnically and racially diverse.

The Public Health Service could designate a national comprehensive repository and clearinghouse that will identify Hispanic-Latino health professionals who may serve on local, State, and Federal health related committees and panels.

The Department of Health and Human Services could institute a tracking system to evaluate the success of programs that target Hispanics-Latinos and other minority students for entry into the health professions. Although this longitudinal study would be labor intensive, such a mechanism is necessary to evaluate the effectiveness and efficiency of various measures.

Improve Federal, State, and community initiatives. Augment Health Career Opportunity Programs (HCOP), Minority Biomedical Research Support Programs, Minority Access to Research Careers Programs, Minority High School Student Research Apprentice Programs, the National Health Service Corps, the Area Health Education Centers, the Health Education and Training Centers, and other Department of Health and Human Services educational initiatives that can target recruitment and retention of Hispanics-Latinos. When possible, these activities should be performed in collaboration with the U.S. Department of Education, other Federal

or State agencies, schools of health professions, and community-based organizations. The additional Federal funds could be used by colleges and universities to offset any budget limitations which may preclude their having adequate staff for minority recruitment and retention efforts.

Reauthorize the Minority Health Improvement Act, which has permitted the establishment of Hispanic Centers of Excellence. In fiscal year 1991, the seven new Hispanic Centers of Excellence were collectively awarded $1.4 million; the five Native American Centers of Excellence were awarded $965,986. These are relatively small awards compared with the $11.5 million awarded to the four existing historically black colleges and universities.

Implementing strategies. A Hispanic-Latino coalition, perhaps emerging from the Surgeon General's National Hispanic-Latino Health Initiative, can coordinate the lobbying of congressional delegates to support and augment the funding of the Federal programs listed previously. The coalition can also hold discussions with leaders of the appropriate national health professionals' associations regarding the implementation of these programs. Regional and State subgroups of the Hispanic-Latino coalition can promote the effective implementation of Federal and regional or State HCOP-like programs through interaction with the regional and State organizations of schools of the health professions. The subgroups could monitor the activities or special offerings that the schools have proposed to assist in the retention and satisfactory academic progression of Hispanic-Latino and other minority students.

The National Hispanic-Latino Health Initiative Coalition could lobby congressional legislators to increase funding for the Hispanic Centers of Excellence to attain their goals. The coalition should ensure that monies are distributed more equitably in accordance with the Disadvantaged Minority Health Improvement Act of 1990. In addition, the language of the legislation for the Centers of Excellence should be modified to broaden the eligibility for additional health disciplines such as nursing, allied health, and public health. Currently, the legislated appropriations target only medical, dental, and pharmacy schools.

The National Hispanic-Latino Health Initiative Coalition must formally discuss student and postgraduate admissions policies with health professions' organizations and their counterpart accrediting or licensing organizations. Admissions committees who select Hispanic-Latino and other minority students need to be oriented about the following considerations: the sociocultural and demographic characteristics of the student pool; the balance between academic credentials (grade point average, entrance examinations, extracurricular activities) and personal attributes; and societal needs for physicians and other health professionals who can address the health concerns of underserved populations, rural communities, and remote areas.

The National Hispanic-Latino Health Initiative Coalition should promote efforts to include Latino-Hispanic cultural competency in the curriculums of health professions education and in training sessions.

Enhance financial support programs for Hispanic-Latino students pursuing health professions and science education. Increase scholarship and loan repayment programs targeted to Hispanic-Latino students most effectively by increasing low interest loans. Loans available to medical and other students in the health professions—such as those available through the HEAL Program—may carry high interest rates and short time frames for the initiation of repayment schedules. Financial stresses have a greater adverse effect on Hispanics-Latinos and other minority medical students because their families and other financial backers have disproportionately low incomes.

Increase efforts to develop Hispanic-Latino preprofessional faculty. Increase the numbers of Hispanic-Latino elementary, secondary, and postsecondary teachers and faculty. Increase the numbers of Hispanic-Latino science and mathematics teachers at all levels.

Implementing strategies. The U.S. Department of Health and Human Services must interact with the U.S. Department of Education, and counterpart health and educational organizations at the State level must cooperate in efforts to improve the numbers of Hispanic-Latino faculty—and in particular, science and math teachers at all levels.

Increase efforts to advance Hispanic-Latino health professionals. In our view, the hiring and employment of Hispanics-Latinos by the Department of Health and Human Services should be reviewed. A comprehensive Public Health Service plan to develop, prepare, and promote qualified Hispanics-Latinos at all levels of the Department's organizational infrastructure—including policy and management positions—could then be implemented.

Agency heads must be held accountable for the implementation of these activities, and periodic public reporting on the status of hires instituted. Because of the important program and allocation decisions being reached by the Department, prompt efforts to rectify the underrepresentation of Hispanics-Latinos in the Department of Health and Human Services are required.

The hiring and employment of Hispanic-Latino faculty by schools of health professions must be reviewed to address deficiencies in hiring and promotion. These faculties control the admissions process, the promotion of students, the selection of residents, and outreach to the community—efforts that are essential to improving both representation of Hispanics-Latinos in the health professions and the health of Hispanic-Latino populations.

Increase the representation of Hispanic-Latino health professionals on local, State, and Federal advisory committees, study (grant) review groups, ad hoc task forces, and other decision making committees and panels.

Increase funding for Department of Health and Human Services programs that help develop Hispanic-Latino health professionals, including funding for scholarships to support Hispanic-Latino trainees who can subsequently compete adequately for these positions.

Examine the impact of licensure and certification requirements. Evaluate the effect of the U.S. Medical Licensing Examination, which is now the single method for licensure of physicians in the United States. Because this examination is the only mechanism for licensure, it is important that Hispanic-Latino medical students are well prepared academically to pass it.

Evaluate State and national licensure and testing requirements for mechanisms and training programs that could increase the number of Hispanic-Latino (U.S.- and foreign-trained) physicians, dentists, nurses, and other health professionals.

Monitor the number of Hispanic-Latino foreign-trained health professionals who will retire and not be replaced (because the number of foreign medical graduates is decreasing).

Assess the number of Hispanic-Latino foreign-trained health professionals who live in the United States but are not practicing their professions because they lack a U.S. license.

Implementing strategies. The National Hispanic-Latino Health Initiative Coalition must keep abreast of the pass rate for Hispanic-Latino medical students and foreign-trained medical graduates taking the U.S. Medical Licensing Examination. If the rate is low, intervention programs and special training must be developed immediately to teach test skills and cooperative learning methods.

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The coalition, along with national medical associations, must develop innovative measures to allow qualified graduates of foreign medical schools to help meet the need for physicians in areas that are short of health professionals, pending their passing of the licensing examination. For example, before obtaining licensure, the foreign medical graduate could establish a contract with a Federal or State agency, or with the community itself, to deliver medical services (under preceptor supervision) with provisional licensure status. A minimum examination score (below the passing level) could be required for the receipt of a provisional license.

Improve coordination among the Federal and national, State, and community-based health related organizations. Increase interactions among Federal and State health agencies; between relevant Federal and State educational organizations or agencies; and among funding organizations, health professionals' organizations, academic health centers, and community-based organizations to improve Hispanic-Latino representation in the health professions.

Implementing strategies. Interdepartmental task forces need to include officials empowered to deal with specific items. For example, officials from the Department of Health and Human Services and the Department of Education with responsibility for educational policy, in consultation with Hispanic-Latino educators, could coordinate efforts to ensure a unified approach to enhance Hispanic-Latino education. The National Hispanic Health Initiative Coalition could request and coordinate these efforts.

Federal or State health agencies, national health professionals' organizations and corresponding accrediting bodies, academic health centers, and community-based organizations could interact to expand outreach clinical training of Hispanic and other students of the health professions. The National Hispanic Health Initiative Coalition could assist and coordinate these efforts.

The creation of State offices of minority health could help develop and coordinate local and State efforts with Federal and national efforts as well as with the National Hispanic Health Initiative Coalition.

References

1. Bureau of the Census: Race and Hispanic origin, 1990. Census Profile Number 2. Washington, DC, June 1991.
2. State of Hispanic America 1991: an overview. National Council of La Raza, Washington, DC, 1992.
3. Bureau of the Census: The Hispanic population in the United States: March 1991. Current Population Reports. Series PO-20, No. 455. U.S. Government Printing Office, Washington, DC, 1991.
4. National Education Goals Panel: The national education goals report: 1991. Building a nation of learners. Washington, DC, 1991.
5. Orfield, G., and Monfort, F.: Racial change and desegregation in large school districts: trends through the 1986-87 school year. National School Board Association, Council of Urban Boards of Education, and the National School Desegregation Project of the University of Chicago, July 1988.
6. Planchon, P.: Highlights of minority data from the schools and staffing survey, 1987-88., U.S. Department of Education, Office of Educational Research and Improvement, National Center for Education Statistics. Presented at the American Education Research Association annual meeting, Apr. 19, 1990, Boston, MA.
7. De La Rosa, D., and Maw, C.: Hispanic education: a statistical portrait 1990. National Council of La Raza, Washington, DC, 1990.
8. Bureau of the Census: School enrollment—social and economic characteristics of students; October 1989. Current Population Reports. Series P-20, No. 452. U.S. Government Printing Office, Washington, DC, 1991.
9. Quality Education for Minorities Project: Education that works: an action plan for the education of minorities. Massachusetts Institute of Technology, Cambridge, MA, 1990.
10. Montoya, R.: Minority health professions development: a most cost-effective use of health science education funds — update. Health Pathways (newsletter of the Health Professions Career Opportunity Program, Office of Statewide Health Planning and Development, Sacramento, CA) 6: 1-2, January 1983.
11. Davidson, R. C., and Montoya, R.: The distribution of services to the underserved: a comparison of minority and majority medical graduates in California. West J Med 146: 114—117, January 1987.
12. Treviño, F. M., and Moss, A. J.: Health indicators for Hispanic, black and white Americans. Vital Health Stat [10] No. 148, National Center for Health Statistics, Hyattsville, MD, 1984.
13. Marshall, R.: Education, productivity, and the nation's future. *In* Health policy and the Hispanic, A. Furino, editor. Westview Press, Boulder, CO, 1992, pp. 48-54.