

Introduction and Overview of entire CPHHD

A. Specific Aims

The overall goal of the UTMB Center for Population Health and Health Disparities is to increase understanding about the causes and causal pathways of health disparities among populations in this country, and to use that understanding to design and conduct community-based participatory research of interventions to reverse health disparities. The Specific Aims of the Center are as follows:

1. Investigate the role of neighborhood characteristics on the health of Mexican-Americans and other Hispanic populations, using available research and administrative data sets merged with Census data.
2. Analyze available data sets to better understand the role of neighborhood on cancer incidence in Mexican-Americans.
3. Conduct population-based interdisciplinary research on the effect of neighborhood and individual characteristics on the impact of environmental hazards on the health of Mexican-Americans.
4. Conduct community-based participatory research to test interventions to reduce cancer risks and improve the health of Mexican-Americans, and use the information obtained in Specific Aims 2 and 3 to expand those interventions.
5. Collaborate with other interdisciplinary programs at UTMB with interests and expertise relevant to population health and health disparities, including the NIEHS Center on Environmental Health and Medicine, the NIA Claude Pepper Older American Independence Center, the NIAID Asthma and Allergic Disease Research Center, and the AHRQ Minority Institutions Health Services Research Infrastructure Program.
6. Through use of the pilot research grants and in collaboration with existing faculty development programs and training grants at UTMB, increase the number of faculty participating in quantitative and qualitative research on the causes of health disparities and in community participatory research of interventions to ameliorate disparities.

Theme of UTMB CPHHD

The overall theme of the UTMB CPHHD is stimulated by our recent findings of the importance of neighborhood on the health of older Mexican-Americans and other Hispanic populations. We have found that overall mortality and the incidence of most major cancers are significantly decreased among Hispanics living in census tracts with high percentages of Hispanics, compared to those living in neighborhoods with low percentages of Hispanics. These findings provide a powerful “experiment in nature” with which to investigate mechanisms operable in the so-called “Hispanic paradox” – the finding that many measures of health of different Hispanic populations in the U.S. are similar to those of non-Hispanic whites even though those Hispanic populations are clearly disadvantaged in terms of income, health insurance, housing, education and other factors that correlate strongly with health.

Thus, the theme of the UTMB CPHHD is to understand the mechanisms responsible for lower cancer incidence, lower prevalence of other diseases, and lower mortality associated with the increasing percent of Hispanics in the neighborhood. An understanding of these mechanisms would have relevance not only for the health of Hispanic populations as they become more dispersed, but also should provide important information relevant to all Americans about social structures and individual behaviors that promote good health.

Background

The term “Hispanic” refers to peoples of Spanish-speaking origin. These populations encompass wide diversity in country of origin, races, migration experience, and socioeconomic status. Hispanics

now represent the largest ethnic minority in the U.S., at 12.5% of the population (Therrien and Ramirez, 2001). Approximately two-thirds of all Hispanics in the U.S. identify themselves as Mexican-Americans, with 14.5% as Central or South American, 9.0% as Puerto Rican, 4.0% as Cuban, and 6.4% as other Hispanic descent. The age distribution of Hispanics is younger than for other ethnicities (Meyer, 2001). With the exception of Cuban-Americans, U.S. Hispanic populations have high rates of poverty, low educational and job classification levels, and low levels of health insurance (Ianotta, in press; DHHS, 2000). For example, in 1997 approximately 37% of Hispanics were uninsured compared to 14% of non-Hispanic whites and 23% of African-Americans (Brown, 2002; Kaiser Foundation, 2000). Similarly, 21.2% of Hispanics live in poverty, compared to 22.1% of African-Americans and 7.5% of non-Hispanic whites (Dalaker, 2001).

In spite of an SES profile that is close to that of African-Americans, many indicators of health status of Hispanic populations are comparable to or even exceed those for the non-Hispanic white population (Markides & Coreil, 1986; Sorlie, Backlund, Johnson, & Rogot, 1993; Franzini, Ribble, & Keddie, 2001). This has been termed an “epidemiologic paradox” or the “Hispanic paradox” (Markides & Coreil, 1986; Franzini et al., 2001). The limitations of the evidence supporting the Hispanic paradox will be reviewed in more detail in the Background Section of Research Project 1.

Preliminary Data

The impetus for the theme of this Center came from two sets of preliminary findings, which will be briefly described here and in more detail in the Preliminary Data Sections of Projects 1 and 2. We found that neighborhood composition was a major influence on health of Hispanics. These findings were generated by merging census data with two different data sets. The first is the Hispanic Established Populations for Epidemiologic Studies of the Elderly (EPESE) which is a population-based longitudinal study of 3,050 older Mexican-Americans living in the five southwestern states. The second data set is the Surveillance, Epidemiology and End Results (SEER) cancer registry, which is a population-based tumor registry currently covering approximately 14% of the U.S. population.

In both data sets, the prevalence (in EPESE) or incidence (in SEER) of cancers in Hispanics decreased as the percentage of Hispanics composing the census tract increased. For example, in SEER, compared to Hispanics living in census tracts with fewer than 20% Hispanic population, Hispanics living in census tracts with more than 60% Hispanic population had a 29% lower incidence of breast cancer, 25% lower incidence of colorectal cancer, and a 20% lower incidence of prostate cancer. In the Hispanic EPESE there was a more than three-fold difference in prevalence of cancer among the subjects as a function of the percentage of Mexican-Americans in their census tracts. The above analyses controlled for census tract rates of poverty and other socioeconomic characteristics.

There was a similar pattern seen with mortality during seven years of follow-up in the Hispanic EPESE, with Mexican Americans living in neighborhoods with very high percentages of Mexican-Americans experiencing a 36% lower hazard of death than did subjects living in neighborhoods with very low percentages of other Mexican-Americans. Surprisingly, those findings from the Hispanic EPESE were essentially unchanged after controlling for a measure of acculturation (language of interview) and whether the subject was an immigrant or born in the U.S. In other words, homogeneous Hispanic neighborhoods are associated with substantially better health, and this association is not explained by immigrant status or a measure of acculturation. It should also be noted that neighborhood poverty rate correlates with percent Hispanic; so the lower rates of cancer and lower mortality exist in spite of increased neighborhood poverty.

At the same time, homogeneous Hispanic neighborhoods are also associated with some adverse health indicators. For example, SEER data show that Hispanics living in neighborhoods with high percentages of other Hispanics are more likely to be diagnosed with cancer at a non-local stage, and survival after a diagnosis of cancer is poorer.

In summary, we have found relatively strong, significant effects of neighborhood on health in two studies, one among older Mexican-Americans in the Southwest and another among Hispanics covered by the SEER registries. These neighborhood effects provide us with a perspective with which to examine mechanisms responsible for the relative protection that Hispanic populations seem to have from some of the adverse health consequences of low SES.

Components of the CPHHD

Project 1. (PI, Karl Eschbach, Ph.D.) Hispanic Neighborhoods and Cancer Risks and Outcomes. This study flows directly from the preliminary results given above. Several national data sets will be merged with census data to further explore the beneficial and detrimental effects associated with homogeneous Hispanic neighborhoods. Specifically, we will examine how specific health behaviors (such as diet, smoking and exercise) among Hispanics vary by neighborhood characteristics. We will also explore reasons for the decreased survival after a cancer diagnosis associated with homogeneous neighborhoods, exploring variables such as stage at diagnosis and choice of treatment.

Project 2. (PI, Malcolm Cutchin, Ph.D.) Environmental Risk, Coping, and Mexican American Health. This study will assess how neighborhood and individual characteristics influence the impact on health of Mexican-Americans living near a petrochemical complex. The rationale for this study is as follows. It is likely that the poor health outcomes of disadvantaged populations stem in part from the chronic stresses resulting from poverty, discrimination and other adverse factors associated with low SES or minority status. Little is known about neighborhood or individual factors that modulate the response to those chronic stressors. We will study a low income Mexican-American population living next to a major petrochemical complex to address those issues. This model will allow us to examine differences in intensity of external stressors (i.e., distance from the petrochemical complex) as well as differences in neighborhood and individual characteristics, on physiologic markers for stress and on health outcomes.

Project 3. (PI, Billy Philips, Ph.D.) Community-based participatory research project. This project will build on the community-based research of UTMB CPHHD investigators in modifying health behaviors in the Piney Woods area of East Texas, which worked with a mostly rural, mostly African-American population. We will modify the approach for a Mexican-American population. The planning process will be informed by our preliminary data and from early results from Projects 1 and 2, and will be conducted in concert with our community-advisory committee and other community representatives.

Core A: Administrative Core. (PI, James S. Goodwin, M.D.) This core will provide overall direction and administrative support and coordination of all components.

Core B: Survey, Data Management and Statistical Analysis Core. (PI, Daniel Freeman, Ph.D.) This core will conduct the surveys required in Projects 2 and 3 and in the seed grants. It will also assist investigators of the three projects and the pilot projects in data analyses.

Setting and Facilities.

The University of Texas Medical Branch, founded in 1891, is the oldest medical school in Texas. UTMB is a major health care provider for individuals from disadvantaged backgrounds. In 1998, 36,661 patients were hospitalized at UTMB; of these, 48% were African American or Hispanic. The School of Medicine has also played a major role since early in this century in training Hispanic and African American physicians. By 1978, more than half of all Hispanic physicians in the United States were graduates of UTMB. The percentage minority enrollment for the 2000 Fall Semester by academic unit was: School of Allied Health Sciences 35%; School of Nursing 30%; School of Medicine 51%; and Graduate School of Biomedical Sciences 19%. According to the Association of American Medical Colleges (AAMC), the University of Texas Medical Branch School of Medicine ranks 4th among all public and private schools in the United States in percent of underrepresented minority graduates and 1st in percentage of Hispanics (Institutional Profile System (IPS) database AAMC at: <http://www.aamc.org/>). This high percentage of under-represented minorities has been maintained in spite of the Hopwood Decision by the 5th U.S. Circuit Court that prevents the use of race as an isolated variable in admission decisions.

Current UTMB programs relevant to population health and health disparities include the following (a more complete listing of these programs and an expanded description is included in the Resources section of the Administrative Core):

- a. UTMB Health of the Public Initiative. This was a project funded by a consortium of The PEW Charitable Trust, Hartford Foundation and Robert Wood Johnson Foundation to promote concepts of population health in academic health centers. It supported a population-based study of the health and health care needs of Mexican-Americans, African-Americans and non-Hispanic white Americans aged 75 and older in Galveston County. The information gained in that survey was then used in the second year medical curriculum to introduce medical students to the concept of population health.
- b. Hispanic EPESE – described above and in Project 1.
- c. UTMB Hispanic Center for Excellence, one of eight federally funded centers in the U.S., promotes the recruitment, training and retention of Hispanic students and faculty in the School of Medicine.
- d. Training and faculty development focused on research in health disparities; e.g., the AHRQ Minority Research Infrastructure Support Program “Health Services Research in Underserved Populations” (Jean Freeman, PI) which supports faculty development, and the “Health of Older Minorities” Training Grant (J.S. Goodwin, PI) which supports pre- and post-doctoral training in determinants of minority health.

Addressing the issue of health disparities among populations is a major priority of UTMB. The proposed UTMB CPHHD will serve as a focus for all research into the causes of health disparities and interventions to reduce them. We have attached letters of support from our President, John Stobo, M.D., and from the four Deans, emphasizing how such a center will promote the Core Values of the institution.

Patient population: no animal work will be initially funded by the UTMB CPHHD, though such work may be funded by pilot project grants in future years. Project 1 employs existing data. We will conduct a population-based study of 1,200 Mexican-Americans aged 25 and older residing in Texas City to address the goals of Projects 2. Project 3 will involve community-based samples of adults living in several rural counties of Texas, and, in years 3, 4, and 5, focus on Mexican-American adults.

CPHHD Organization and Administration

The Executive Committee of the Center will comprise the Director, Co-director, Core directors, Program directors, the head of the NIEHS Center, and the Chair of the Committee on Health Disparities Research. The Director will report to the Dean of the School of Medicine.

Dr. Goodwin, PI, is a physician originally trained in immunology. Early in his career he conducted several studies on the interaction of stress, social support, and health indicators such as immune function (Goodwin, Bromberg, Stazzac, Kaszubowski, Messner, & Neal, 1981; Thomas, Goodwin, & Goodwin, 1985; Willis, Thomas, Garry, & Goodwin, 1987; Willis, Lynn, Garry, Wayne, Thomas, & Goodwin, 1997; Wayne, Rhyne, Garry, & Goodwin, 1990). In 1980, he initiated a longitudinal study of nutrition and immune function in older New Mexicans (The Aging Process Study) that has resulted in over 100 publications on normal aging. In the mid 1980's he was among the first to use large databases such as SEER and Medicare to examine cancer care in the community (e.g., Goodwin, Samet, & Key, 1986; Samet, Key, Hunt, & Goodwin, 1986; Goodwin, Hunt, Key, & Samet, 1987; Mann, Samet, Key, Goodwin, & Goodwin, 1988; Nattinger, Gottlieb, Veum, Yahnke, & Goodwin, 1992; Nattinger, Hoffman, Gottlieb, Shapira, & Goodwin, 1996; Nattinger, Hoffman, Howell, & Goodwin, 1998). Since moving to Galveston he has studied the health of older Mexican-Americans, particularly functional status (articles included in biosketch). Throughout his career he has had an interest in the investigation of health disparities (e.g., Samet, Key, Hunt, & Goodwin, 1987; Goodwin, Hunt, Key, & Samet, 1988; Goodwin, 1990; Goodwin & Black, 1999; Sial, Malone, Freeman, Battiola, Nachedsky, & Goodwin, 1994; Satish, Markides, Zhang, & Goodwin, 1997). He is currently PI of the UTMB Claude Pepper Older Americans Independence Center and the Sealy Center on Aging. His 200 publications in peer-reviewed journals have been cited more than 6,000 times.

Dr. Markides is a medical sociologist who has been conducting research on the health of Mexican Americans since 1976. His research has been funded continuously by NIH since 1980. In the 1970's and 1980's he conducted two community studies of Mexican-Americans in San Antonio, a longitudinal study of older people and The Three Generations Study of Mexican-Americans. In 1986 he coined the term "epidemiologic paradox" to refer to the relatively favorable mortality rates and other health indicators of Mexican-Americans despite their relatively poor socioeconomic status. The term, more recently referred to as the "Hispanic Paradox", has been applied to other Hispanic populations and is a leading theme in the field of Hispanic health. Dr. Markides is the Principal Investigator of the Hispanic EPESE, referred to above. To date, the Hispanic EPESE has produced over 65 publications on the health of older Mexican-Americans in the Southwest. Dr. Markides is the author or co-author of approximately 200 publications, including eight books, most of which deal with the Mexican-American population, especially the elderly. The Institute for Scientific Information (ISI) has recently selected Dr. Markides to be listed among the most cited social scientists in the world. He is also the founding and current editor of the Journal of Aging and Health.

Drs. Goodwin and Markides will lead a team of accomplished interdisciplinary investigators. Interdisciplinary collaboration will be encouraged through the structuring of regular CPHHD conferences and through the continued efforts of the Executive Committee and the Committee on Health Disparities Research.

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