

MINNESOTA CENTER FOR EXCELLENCE IN HEALTH STATISTICS

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Overview

The overall purpose of this new Center is to establish a long-term partnership between the University of Minnesota and the Minnesota Department of Health in developing more advanced statistical methodologies which can be practically applied to high priority public health areas such as tobacco use and racial disparities in health. The opportunity for faculty from various departments in the School of Public Health to pursue new analytic methods, working closely with staff and policy-makers in the Department of Health, promises to lead to the improved application of statistical methods in addressing pressing public health issues. This partnership will also enable the capacity of the Minnesota Department of Health to be strengthened.

The Center is focusing its initial efforts on the application of advanced statistical methodologies in the areas of prevention and cessation of tobacco use and reducing health disparities by race/ethnicity. Minnesota is one of the states that has a court settlement with the tobacco industry, which includes significant opportunities and requirements to improve the assessment and evaluation of tobacco use in the state. Improving the collection and analysis of key tobacco indicators will require more sophisticated statistical methods than those traditionally employed. Similarly, Minnesota has some of the greatest disparities in white to non-white health indicators of any state in the nation (for example, in infant mortality and teenage pregnancy). The analysis of data on major health indicators by race and ethnicity will require that more sophisticated methods be used to assure valid comparisons and clarify the critical public health issues that need to be addressed to reduce those disparities.

The four initial research projects of the Center are:

1. Reducing Measurement Error in Survey Research (Dr. Todd Rockwood, Health Services Research and Policy, lead investigator), to include a conceptual and operational assessment of survey instruments commonly used to access public health issues in the State of Minnesota and an evaluation of potential sources of measurement error in existing surveys and how to deal with them;

2. Analyzing Latent Variables with Misaligned Georeferences (Dr. Melanie Wall, Biostatistics, lead investigator), to include combining two cutting edge statistical methodologies (misaligned georeferences and spatial factor analysis) for the modeling and prediction of

georeferenced and spatial factor analysis) for the modeling and prediction of georeferenced health-related data;

3. The Effects of Socioeconomic Status on All Cause Mortality Among African American, Hispanic, American Indian, and White Adults (Dr. Rhonda Jones-Webb, epidemiology, lead investigator), to include assessing the construct validity of three measures of socioeconomic status among adult African Americans, Hispanics, American Indian, and white Minnesotans ages 45-64; examining rates of all cause mortality by race/ethnicity and socioeconomic status; determining whether socioeconomic variables mediate or moderate the effects of race/ethnicity on all cause mortality; and examining how individual education, occupation, and neighborhood poverty variables interact with and explain racial/ethnic differences in all cause mortality;

4. Risk Markers for Racial Differences in Adolescent Pregnancy and Child-Bearing (Dr. Wendy Hellerstedt, epidemiology, lead investigator), to include identifying the magnitude of unreliability in racial classification on Minnesota's birth and death records; identifying the correlates of unreliability of racial classification on those records; developing a segregation index using census data based on 8-9 urban areas in the Twin Cities; developing a measure of income incongruity using census data based on 8-9 urban areas in the Twin Cities; developing a measure of income incongruity using census data; examining the relationship of individual-based and aggregate-level measures on pregnancy outcomes; and examining racial differences in causes of death for women of reproductive age (15-44).

Progress to Date

The start-up of the Center was delayed somewhat due to the need to secure legislative approval for the funding and to negotiate a grant agreement between the Minnesota Department of Health (the Center's grantee) and the University of Minnesota (the subgrantee). This type of arrangement, which involves three separate divisions in the School of Public Health, the University's Sponsored Projects Administration, and several divisions in the Department of Health, a separate state agency, had not been attempted before, and new procedures had to be set up. However, the working relationships that have now been established should bode well for future joint efforts between the University and the state.

A joint meeting of the University investigators

and research staff of the Center for Health Statistics has been held to familiarize the Health Department staff with the specific research projects of the new Center and the University staff with the databases maintained by the Health Department that they will be using in their projects. These include vital records, a recent Youth Tobacco Survey, BRFSS data, data from a CDC-funded Health Assessment Initiative grant, county health profiles, and linkages to other databases in the state such as the Minnesota Student Survey, Adult Household Survey, Medicaid, HMO data, and the new Census data. Contact people and procedures for accessing these data sets were also discussed.

Staff for the Center have now been hired. An Advisory Board is being formed, with emphasis on linkages to key policy-makers and other researchers in the two focus areas of tobacco use and racial disparities. Plans are also being formulated related to the Center's role in training and dissemination. Some avenues, such as placement of graduate students in the School of Public Health in Center projects, are already established. Others, especially those focused on recruitment and training of minority public health professionals, are still being developed. Linkages with related efforts, including a new Public Health Fellowship project involving several Twin Cities public health departments, the University of Minnesota, and the Minnesota Department of Health, to recruit and prepare members from communities of color for public health careers, are being developed. The addition of Minority Health Dissertation funds to the Centers will also be helpful in pursuing this goal. A joint meeting of all of the CDC-funded Centers for Excellence in June at the University of Maryland led to a number of plans to facilitate collaboration among the Centers and to share the methods being developed with other states and the academic community.

Future Plans/Challenges

The co-investigators from the University of Minnesota School of Public Health were chosen to assure an interdisciplinary approach from the fields of biostatistics, epidemiology, and health services research. These faculty members have skills and research experience in specific areas such as survey design, geographic information analysis, vital statistics data analysis, and socio-demographic analysis that can provide technical expertise for the issues of tobacco use and race/ethnic disparities.

While each of the co-investigators will pursue a specific area of focused research, there will be coordination to assure that the projects are relevant to the overall surveillance responsibilities and the specific data sets maintained by the Minnesota Department of Health. Each of the focus areas of the co-investigators will be

supportive of the overall themes of tobacco cessation/prevention and disparities by race/ethnicity. However, there is the additional intent that the focus areas advance statistical methodology and be broadly applicable across the spectrum of public health issues.

A high priority will be placed on the technical rigor of the statistical methodology to assure the validity and integrity of the specific projects. There is also strong interest in how the methodologies will be practically applied by public health practitioners in assessing priority public health problems. The combination of interests, skills, and experience among the team of faculty at the University of Minnesota School of Public Health and the staff in the Center for Health Statistics at the Minnesota Department of Health should ensure the appropriate balance of methodological rigor and practical application. The Center team represents a multi-disciplinary group of academic researchers and public health leaders, all of whom have collaborated in various projects in the past to assess community-level health needs and who have experience using Minnesota's vital records and census data.

The leadership at the University of Minnesota and the Minnesota Department of Health are committed to building a structure for future collaborative research so that new assessment and evaluation methodologies are useful for public health practitioners and can be used for policy development and prioritization. A priority of the Minnesota Center for Excellence in Health Statistics will be to evaluate how such joint research initiatives should be structured so that future research is even more effective. Another priority will be to develop mechanisms to recruit and train public health workers, especially from minority groups, to work in this type of collaborative environment, and to share the results of the Center's work with others.