

Issue Brief - Race and Ethnicity Matters: Concepts and Challenges of Racial and Ethnic Classifications in Public Health

Alison Stratton, PhD, Ava Nepaul, MA, and Margaret Hynes, PhD, MPH

The Connecticut Health Disparities Project · Connecticut Department of Public Health · Hartford, Connecticut · Fall 2007

Race, Ethnicity and Health Disparities: An Introduction

Extraordinary improvements in the health of all Americans have been made since the early 20th century. However, not everyone benefits equally from these advances in the public's health. Nor is every group equally burdened by the leading causes of death, which in the United States today are no longer infectious diseases, but rather chronic diseases such as heart disease, cancer, stroke, and diabetes.

"Health disparities" – those avoidable differences in health among specific population groups that result from cumulative social disadvantages (Stratton, Hynes, and Nepaul 2007) – exist for many minority populations in the United States. As used here, "minorities" are those populations in a society that are in a position of cultural and political non-dominance and disadvantage. As a result, they may experience reduced healthcare quality and access, and increased rates of disease, disability,

and death compared to the overall U.S. population. For example, U.S. minority populations might include racial and ethnic minorities, limited English proficiency populations, people living in poverty, and homeless persons.

The Connecticut Health Disparities Project at the Department of Public Health (DPH), in conjunction with other agencies and programs, is taking a new look at health dispari-

ties and the collection of "race" and "ethnicity" data. Differential treatment of people based on the ideas of race and ethnicity is a social reality for all Americans (Nepaul, Hynes and Stratton 2007) and has a large impact on Americans' health and general well-being. In order to track the health impact of these ideas of race and ethnicity, health departments at all levels need to collect consistent and comprehensive health information using racial and ethnic classification tools.

However, race and ethnicity data alone are not sufficient to accurately depict health disparities (Nepaul, Hynes and Stratton 2007). In fact, social structural factors (such as poverty, low income environments, socioeconomic status and social supports) are equally if not more important as fundamental causes of health disparities (Link and Phelan 1995).

In this Issue Brief, then, we seek to address these questions: How have people defined and used the concepts of "race," and "ethnicity?" How useful or consistent is our current collection of racial and ethnic data in the effort to reduce and eliminate health disparities? What *other* factors have an impact on people's health? Below we: 1) introduce the history, theoretical foundations, and uses of the ideas of "race" and ethnicity" in public health data collection; 2) discuss why they are difficult, yet necessary, concepts to use in studying health in the United States; and 3) stress the need for inclusion of socioeconomic and other demographic factors in the collection and analysis of health data to more fully illuminate health disparities.

Public Health and the Use of Race and Ethnicity Classifications

In the past, racial and ethnic health disparities have been attributed to biology, as American ideas about human differ-

ences have been encapsulated in terms such as "race" and "ethnicity." These seemingly natural characteristics of populations are actually social constructs derived from 19th century understandings of evolution, slavery, and colonialism that have been used for various research, social, and political ends for well over 100 years. These concepts have been used as "common sense" explanations for inequalities in health, often without the bene-

fit of full or critical definition in research studies (Williams and Collins 1996).

Public health surveillance and monitoring systems use race and ethnicity categories to track inequalities in health and access to health care. However, researchers routinely use race and ethnicity as independent factors associated with health outcomes. Race and ethnicity are thus commonly treated as markers for some unknown and unmeasured biological factors of a given population subgroup, thereby implying that they are immutable characteristics of a population. While we may understand some aspects of health disparities by using race and ethnicity data, these data do not tell the whole story.

The treatment of "race" and "ethnicity" as inherent, biological characteristics of individuals takes attention away from impor-

"The fact that we know what race we belong to tells us more about our society than about our genetic makeup."

(Williams, Lavizzo-Mourey and Warren 1994:27) tant underlying social and economic determinants of health (Williams 1996; Williams, Lavizzo-Mourey and Warren 1994; Gee et al. 2007). Put simply, people who live in clean, safe neighborhoods and those who have higher education attainment levels and higher income tend to have better health outcomes. However, underlying social structural factors (like low-income environments and racial segregation), which can play important roles in health outcomes of racial and ethnic subgroups, are not consistently measured, reported, or discussed in public health research. Social and economic factors have such important effects on health that they should be consistently collected in order to make better sense of what may seem to be solely racial and ethnic health disparities (Kawachi, Daniels and Robinson 2005).

While many public health practitioners may agree with a social-contextual approach to studying racial and ethnic health disparities, it has often been expedient to fall back on the habits and research conventions of the biological basis of race and ethnicity in reports and research. Unfortunately, this kind of usage reifies "race" and "ethnicity" concepts as biological realities, whether one believes in them or not (Goodman 2000; Kaplan and Bennett 2003; Williams 1994). This emphasis on race and ethnicity also obscures underlying health disparities that result from differences in social class.

What are "Race" and "Ethnicity," Anyway?

"Race" and "ethnicity" are contested and fluid concepts, ideas that reflect the history between and cultural understandings about different peoples (Lee 1993; American Anthropological Association 1997, 1998; Smedley, Stith and Nelson 2003). The "race" concept has generally focused on classifying people according to perceived differences in appearance (e.g., skin color), and association of those differences with a geographical region. Attempts have been made to connect human genetics with ancestral region and appearance, but firm results have been impossible to produce due to "the difficulty of defining a 'population,' the clinal nature of variation, and heterogeneity across the genome," among other considerations (National Human Genome Research Institute 2005:519).

"Ethnicity" has generally defined the cultural, behavioral, religious, linguistic, and/or geographical commonalities imputed to people belonging to a particular group, as opposed to genetic inheritance. The boundaries of authenticity (that is, who or what "counts" as being a member of an ethnic group) are also very fluid and can depend on social, political and historical situations. In the United States, federal officials have determined that for data collection purposes, there are only two "ethnicities": Hispanic or Latino, and Non-Hispanic or Latino (Office of Management and Budget 1997; U.S. Census Bureau 2000). "Country of origin," "ancestry," "heritage," and "language spoken at home" are some related constructs that public officials use to gather data about population diversity.

"Race" and "ethnicity" are quite often confused with each

other, or seem to be the same thing (American Anthropological Association 1997, 1998). Additionally, many people might say that these concepts appear to be scientifically-based and that they seem to be reflected in everyday life. In fact, they are both historical products of particular American classification systems created to differentiate people based on changing political, economic, and social values of those in power (Lee 1993; American Anthropological Association 1997; Kaplan and Bennett 2003). The truth is that peoples of the world cannot be categorized into four or five genetically distinct groups (e.g., "White," "Black," "Asian"). As genetic and anthropological research has repeatedly shown, there are more genetic differences within racial categories than there are between racial categories, and so these distinctions do not hold up (American Anthropological Association 1998; National Human Genome Research Institute 2005). We are more alike than we are different.

Race and ethnicity are neither scientifically reliable nor valid categories, and assignments to racial or ethnic categories are often based on observer biases, changing situational identities, and historical-political vagaries (Lee 1993; Kaplan and Bennett 2003; Williams 2007). In real life, people do not have only one fixed racial or ethnic identity which remains the same over time and space and that can be accurately measured. A further complication inherent in categorization is that people embrace biracial, multiracial, and multi-ethnic identities, which makes the categories even more difficult to sustain, compare, and enumerate. Current racial and ethnic categories for federal data collection are not sensitive to the complex intra-group heterogeneity that exists in the nation (Kaplan and Bennett 2003; Office of Management and Budget 1997).

Despite such inconsistencies in use and logic, the ideology of race is deeply ingrained in American culture. People acting on these beliefs and practices create a social reality for themselves and others based in part on these perceived racial or ethnic differences between people. This reality includes the structures, beliefs and practices of health care, medicine and economics that contribute to health disparities for minority populations (Williams, Lavizzo-Mourey and Warren 1994).

Underlying Factors of Health Disparities

Individual and population health result from people acting in social, economic, political, and environmental contexts that overlap, interconnect, and shape each other. "Health disparities" can therefore be understood as *evidence* of those structures and practices within medical and health care systems, as well as those experiential, personal and cultural factors present in people's everyday lives. For example, some factors that affect health status and access to health care are: socioeconomic position within society (as measured by wealth, poverty, education, occupation); health behaviors; individual biological susceptibility, early childhood and familial influences; environmental and occupational exposures; and access to power, decision-making and supportive resources (Williams and

Collins 1996; Wilkinson and Marmot 2003). Some factors are more important in certain situations, and become less so in other situations. These factors are present for everyone, but combine in different ways (positively or negatively) when different people interact with the health care system.

Many researchers have argued that, when studies take into account socioeconomic factors (e.g., income, education, occupation), many "racial/ethnic disparities" disappear, or become less severe (e.g., Smedley, Stith and Nelson 2003; Krieger et al. 2005). Such researchers have focused on the powerful roles that social structure (e.g., policy, laws, segregation), and interpersonal discrimination (e.g., racism) play in American society. Studies that have focused on national structures of social

(in)equality have shown that "a country's level of egalitarian social and economic policy is linked to the nature of SES [socioeconomic status] differentials in health within that country" (Williams and Collins 1996:33). That is, the more socially and economically egalitarian a society is, the less marked the health disparities are in that country (Williams and Collins 1996). Again, research that focuses solely on racial and eth-

nic labels may ignore or overlook the devastating health effects of social and economic inequalities.

The Changing Role of Public Health: Social Context, Individualism...and Social Context Again

The roots of modern day public health date back to the mid-1800s during the period of widespread industrialization, migration, and colonization. The foci of much research, public attention, and legislation were the social and environmental contexts of human health, including water supply, sewage, sanitation, and housing (Snow 1855; Taylor and Rieger 1984; Engels 1845; Addams 1912). In the early 1900s, public health and medicine embraced the powerful "germ theory of disease," and began to favor biological determinants of health: Finding the offending "bugs" and ways to counteract them would (and did) improve the health of millions (Tesh 1988; Brandt and Gardner 2000). In the second half of the 20th century, the public health focus shifted to individual-level risk factors for disease, and personal behaviors became the sine qua non of a public health approach (U.S. Department of Health and Human Services 1979; Knowles 1997). Such a focus on the individual and his or her right - or even obligation – to change behaviors for his or her own good and the good of society is not a universal value among all societies. It is however, a strongly held American value, echoed in research and policy trends in public health, medicine, economics, and politics.

However, this shift to individual-level risk factors has not been without critics. Sociological and anthropological perspectives

of medicine and illness have critiqued the biological-genetic and behavior-based studies for their seeming removal of individual humans from social and environmental contexts. Social scientists have long called for the return of public health's focus on social conditions as fundamental causes of disease (Link and Phelan 1995; McKinlay [1974] 1997). Recently, perspectives focusing on ecosociality, the political economy of medical systems, and the political ecologies of health and illness (e.g., Kreiger 2001; Farmer 2005; Baer 1996; Baer, Singer and Susser 2003; Mayer 2000), have again attempted to fuse human health outcomes with the surrounding social and environmental contexts.

Additionally, the use of multilevel statistical models in public

"The evidence reviewed indicates that large-

scale societal factors are the primary deter-

minants of health status....Thus, improvement

in the health of vulnerable populations ap-

pears to be contingent on altering the

fundamental macrosocial causes of

inequalities of health."

(Williams and Collins 1996:34-35)

health research has allowed for the measurement of both individual-level and neighborhood-level effects on health outcomes (Diez-Roux 1998; Subramanian 2004; Subramanian et al. 2005). Such innovative methodological approaches, computer modeling, and new perspectives on populations and their social, political and geographical environments lead us toward public health's

roots yet again. Understanding an individual in his or her broader familial, sociopolitical, and environmental contexts will lead to better-designed interventions to address disparities in health status and in healthcare access and quality.

One way to manage these complexities is to ensure that the best possible data on individual and population health are collected together with information on socioeconomic factors and race and ethnicity assignment. Well-targeted interventions and appropriate funding could then be undertaken. What might this entail?

Connecticut is a "wealthy" state. However, this label obscures significant and persistent inequalities in economic and health circumstances among our populations. A more complete picture of health for Connecticut residents would feature the implications of social, economic and political structures and how they affect people and their interactions with medical systems and personnel. Socioeconomic position and other social-structural factors play important roles in health outcomes for *all* residents. One part of one's socioeconomic position is how "race" and/or "ethnicity" are perceived and acted upon in our society. Discrimination based on race or ethnicity has clear effects on a person's health, opportunities, and socioeconomic position in society (e.g., Gee et al. 2007; Williams and Collins 2001).

Persistence of Racial and Ethnic Health Disparities

The following infant mortality data show that stark health dis-

parities persist. Infant mortality (IMR), or the number of deaths of infants less than one year old, per 1000 live births, is a barometer of a nation's commitment to care for its most vulnerable members. Between 1989-1991 and 2001-2003, infant mortality rates in the U.S. decreased from 9.0 to 6.9 (National Center for Health Statistics 2006). In Connecticut, the 2004 IMR was 5.6. While lower than the national rate, the overall Connecticut IMR masks inequalities in infant mortality between various "racial" and "ethnic" groups. The 2004 Connecticut IMR for persons reported as White was 4.6 per 1000 births, but for those reported as Black or African American, the rate was 13.4 per 1000 births – almost three times the rate for "White" respondents (Connecticut Department of Public Health 2007).

Overall, people assigned to the Black or African American racial category consistently suffer worse health outcomes than people assigned to other racial or ethnic categories. In Connecticut, Blacks or African Americans have significantly higher age-adjusted death rates compared with White residents for each of their six leading causes of death – heart disease, cancer, unintentional injuries, stroke, HIV/AIDS, and diabetes. Death rates from heart disease and cancer are 20% higher, unintentional injuries are 40% higher, stroke are 30% higher, HIV/AIDS are almost 16 times higher, and diabetes are almost 3 times higher among Black or African American residents compared with White Connecticut residents (Hynes, Amadeo and Mueller 2005).

Persistent and marked disparities within population groups are masked by the use of broad race and ethnicity labels. For example, Hispanics or Latinos are the fastest growing population in the nation, and in absolute numbers comprise the largest ethnic group in Connecticut. Connecticut's Asian population has grown 80.5% between 1990 and 2000 (Connecticut Department of Public Health 2005). "Hispanics or Latinos" may include Central and South American indigenous peoples, recent Ecuadorian immigrants, or several generations of Puerto Rican Americans. "Asians" may include long-term residents whose ancestors came from China or Japan, recent refugees from Southeast Asia, and newcomers from various regions in India. In addition, subpopulations such as Brazilians, Cape Verdeans, Hmong, and Haitians do not easily fit into current racial/ethnic categories because of their particular regional and colonial histories. Each of these subpopulations can experience different concerns regarding health outcomes and health care access and quality.

Another problem leading to health disparities is the misclassification of patients into incorrect racial or ethnic categories. This commonly occurs with American Indian and Alaska Native individuals (Bertolli et al. 2007), so health issues and population numbers for these populations may be widely misunderstood. But even after adjustment for these variations in population count, some of the most striking and persistent health disparities occur within this group. Nationally, for example, people classified as American Indians and Alaska Na-

tives suffer extraordinarily high rates of some diseases compared to the overall U.S. population: tuberculosis (600% higher), alcoholism (510% higher), motor vehicle crashes (229% higher), diabetes (189% higher), and unintentional injuries (152% higher) (Indian Health Service 2006).

Our national and state populations are becoming increasingly racially, ethnically and socioeconomically diverse. The number of people who claim multiple racial and ethnic identities is increasing, which requires that health workers and researchers incorporate this into interventions, research design, and health care. The way that health care workers and researchers handle this diversity has, and will continue to have, an impact on populations.

The persistence of health inequalities, despite national improvements and specially targeted interventions, must concern people involved with public health. Explanations based on "race" or "ethnicity" as putative biological factors have not been sufficient to explain disparities in health. Research promoting socially contextualized and culturally observant models are urgently needed to help explain how health disparities come to be, why and how they have persisted, and how they can be reduced or eliminated.

Why Continue to Collect Race and Ethnicity Data?

Given the current and future demographic trends and the persistence of health disparities among state populations, Connecticut's health care providers, researchers, advocates and policy-makers must rethink health and related services in terms of *all* state residents. So although there are some theoretical, methodological and practical challenges inherent in collecting race and ethnicity data, public health agencies must continue to do so, and to enhance their capabilities. People's lived realities include ill health that may result from the ideas and practices related to race and ethnicity classification.

We at the state level must use the available tools (i.e., race and ethnicity categories) set by the U.S. Office of Management and Budget (OMB) and other federal agencies so that we collect consistent and accurate data about the health of all Connecticut residents. Such surveillance also assists in implementation of the Surgeon General's goal to eliminate health disparities by 2010, compliance with Title VI of The Civil Rights Act of 1964, and justification of funding for health programming (Office of Management and Budget 1997; U.S. Department of Health and Human Services 2000). Alan Goodman explains another very important reason to continue to collect race and ethnicity data:

Until there are no racial distinctions in aspects of life such as access to employment and health care, a society that purports to be just, such as our own, needs to track racial differences and the political-economic consequences of a racial system (2000:1701).

In 2004, the federally-sponsored National Research Council (NRC) Workshop on Improving Racial and Ethnic Data on Health stressed several crucial reasons for continuing to collect race and ethnicity data. The NRC Workshop (2004:6-12) noted that such data:

- Help illuminate the historical contexts of health disparities and their impact on current populations (e.g., discrimination, slavery, immigration laws, etc.);
- Help measure and address health status and health care disparities between and among various population groups in society, and help us evaluate the health status of the overall population and population subgroups;
- Identify groups that are statistically more likely to experience different health outcomes, and how socioeconomic position can affect health for racial and ethnic groups;
- Help health care providers, community workers, and policy-makers to implement improvements, to focus specific initiatives for specific groups, and to evaluate the progress of programs; and
- Stimulate consumer knowledge and the "health literacy" of all populations.

Health workers must respond to the increasing diversity of Connecticut's population. Currently, DPH partners in and supports the investment in interpreter and translator services, the provision of culturally sensitive and appropriate health care, and the recruiting and hiring of people from minority populations to become medical providers. The Connecticut Health Disparities Project at DPH has recently undertaken an inventory of DPH databases to determine agency needs in the area of sociodemographic data collection and made several recommendations based on this inventory (Nepaul, Hynes and Stratton 2007). Two recommendations are the consistent, agencywide use of racial and ethnic classifications that meet or exceed the OMB 1997 federal standards (OMB 1997), and the collection of other demographic data such as socioeconomic position indicators, primary language, and geographic location markers, which help to contextualize race and ethnicity information (Nepaul, Hynes and Stratton 2007). Additionally, the Connecticut Health Disparities Project has partnered with the University of Connecticut's Department of Geography to increase DPH's capacity for geocoding residential address information and reporting on area differences in health outcomes.

In their report "Eliminating Health Disparities: Strengthening Data on Race, Ethnicity, and Primary Language," the National Committee on Vital Health Statistics noted that "[b]etter data will move the U.S. closer to recognizing, monitoring, and eliminating health disparities, thereby ensuring quality health care and improved health status for all Americans" (2005:4). The inclusion of socioeconomic factors in data collection, along with consistent collection of the recommended OMB racial and ethnic categories, will go a long way to further understanding health disparities in our populations (Kawachi, Daniels and Robinson 2005). An expanded view of health practices and policies will call for a critical review of what the

concepts of "race" and "ethnicity" mean – and have meant – to people, how these concepts have been used, and how we can transcend them.

References

Addams, J. 1912. Twenty Years at Hull House with Autobiographical Notes. New York: The MacMillan Company. Electronic Document. http://digital.library.upenn.edu/women/addams/hullhouse/hullhouse. html. Accessed July 27, 2007.

American Anthropological Association. 1997. American Anthropological Association Response to OMB Directive 15: Race and Ethnic Standards for Federal Statistics and Administrative Reporting. Electronic document. http://www.aaanet.org/gvt/ombdraft.htm. Accessed April 17, 2007.

American Anthropological Association. 1998. *American Anthropological Association Statement on "Race"*. Electronic document. http://www.aaanet.org/stmts/racepp.htm. Accessed April 17, 2007.

Baer, H.A. 1996. "Toward a Political Ecology of Health in Medical Anthropology." *Medical Anthropology Quarterly* 10(4): 451-454.

Baer, H., M. Singer, and I. Susser. 2003. *Medical Anthropology and the World System: A Critical Perspective*, 2nd ed. Westport, CT: Bergin and Garvey.

Bertolli, J, L. M. Lee, P.S. Sullivan, and the AI/AN Race/Ethnicity Data Validation Workgroup. 2007. Racial Misidentification of America Indians/ Alaska Natives in the HIV/AIDS Reporting Systems of Five States and One Urban Health Jurisdiction, U.S., 1984-2002. *Public Health Reports* 122:382-382.

Brandt, A.M. and M. Gardner. 2000. Antagonism and Accommodation: Interpreting the Relationship between Public Health and Medicine in the United States During the 20th Century. *American Journal of Public Health* 90(5):707-715.

Connecticut Department of Public Health. 2005. *Health Disparities in Connecticut: Current Surveillance Data*. Hartford, CT: Connecticut Department of Public Health.

Connecticut Department of Public Health. 2007. *Health Information Systems and Reporting Section: Unpublished Infant Mortality Data 1981-2004*. Hartford, CT: Connecticut Department of Public Health.

Diez-Roux, A. 1998. Brining Context back into Epidemiology: Variables and Fallacies in Multilevel Analysis. *American Journal of Public Health* 889(2):216-222.

Engels, F. 1845. *The Condition of the Working Class in England*. Electronic document. http://www.marxists.org/archive/marx/works/1845/condition-working-class/. Accessed July 27, 2007.

Farmer, P. 2005. Pathologies of Power. Berkeley, CA: University of California Press.

Gee, G.C., M.S. Spencer, J. Chen, and D. Takeuchi. 2007. A Nation-wide Study of Discrimination and Chronic Health Conditions Among Asian Americans. *American Journal of Public Health* 97(7):1275-1282.

Goodman, A.H. 2000. Why genes don't count (for racial differences in health). *American Journal of Public Health* 90(11):1699-1702

Hynes, M., F. Amadeo, and L. Mueller. 2005. *Connecticut Resident Mortality Summary Tables by Gender, Race, & Hispanic Ethnicity,* 1999-2001. Hartford, CT: CT Department of Public Health.

Indian Health Service. 2006. Facts on Indian Health Disparities. Electronic Document. http://info.ihs.gov/Files/DisparitiesFacts-Jan2006.pdf. Accessed June 1, 2007.

Kaplan, J. B. and T. Bennett. 2003. Use of Race and Ethnicity in Biomedical Publication. *Journal of the American Medical Association* 289(20):2709-2716.

Kawachi, I., N. Daniels, and D.E. Robinson. 2005. Health Disparities by Race and Class: Why Both Matter. *Health Affairs* 24(2):343-352.

Knowles, J. [1977] 1997. Individual Responsibility and Health. In *The Sociology of Health and Illness: Critical Perspectives*, 5th ed., edited by Peter Conrad, pp. 379-392. New York: St. Martin's Press. Originally published in *Daedalus* 106 (1) (winter 1977).

Kreiger, N. 2001. The Ostrich, the Albatross, and Public Health: An Ecosocial Perspective — Or Why an Explicit Focus on Health Consequences of Discrimination and Deprivation is Vital for Good Science and Public Health Practice. *Public Health Reports* 116:419-423.

Krieger, N., J.T. Chen, P. D. Waterman, D. H. Rehkopf, and S.V. Subramanian. 2005. Painting a Truer Picture of US Socioeconomic and Racial/Ethnic Health Inequalities: The Public Health Disparities Geocoding Project. *American Journal of Public Health* 95(2):312-323

Lee, S. 1993. Racial Classifications in the US Census: 1890-1990. *Ethnic and Racial Studies* 16(1):75-94.

Link, B. and J. Phelan 1995. Social Conditions as Fundamental Causes of Disease. *Journal of Health and Social Behavior* (extra issue): 80-94.

Mayer J. 2000. "Geography, ecology and emerging infectious diseases." *Social Science & Medicine* 50: 937-952.

McKinlay, J.B. [1974] 1997. A Case for Refocussing Upstream: The Political Economy of Illness. In *The Sociology of Health and Illness: Critical Perspectives*, 5th ed., edited by Peter Conrad, pp. 519-533. New York: St. Martin's Press. Originally published in Applying Behavioral Science to Cardiovascular Risk. American Heart Association (1974)

National Center for Health Statistics. 2006. *Health, United States* 2006: With Chartbook on Trends in the Health of Americans. Hyatts-ville, MD: US. Government Printing Office.

National Committee on Vital and Health Statistics Subcommittee on Populations. 2005. *Eliminating Health Disparities: Strengthening Data on Race, Ethnicity, and Primary Language*. Washington, DC: Department of Health and Human Services.

National Human Genome Research Institute: Race, Ethnicity and Genetics Working Group. 2005. The Use of Racial, Ethnic and Ancestral Categories in Human Genetics Research. *American Journal of*

Human Genetics 77:519-532.

National Research Council. 2004. *Improving Racial and Ethnic Data on Health: Report of a Workshop.* Daniel Melnick and Edward Perrin, eds. Panel on DHHS Collection of Race and Ethnicity Data. Committee on National Statistics, Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.

Nepaul, A., M. Hynes, and A. Stratton. 2007. *The Collection of Race, Ethnicity, and Other Sociodemographic Data in Connecticut Department of Public Health Databases*. Hartford, CT: Connecticut Department of Public Health.

Office of Management and Budget. 1997. Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity. *Federal Register*, 62(210):58781-58790, October 30, 1997.

Smedley, B.D., A.Y. Stith, and A.R. Nelson, eds. 2003. *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*. Washington, D.C.: National Academies Press.

Snow, J. 1855. *On the Mode of Communication of Cholera*, 2nd ed. London: Churchill. Electronic document. http://www.ph.ucla.edu/EPI/snow/snowbook.html. Accessed July 27, 2007.

Stratton, A., M. Hynes and A. Nepaul. 2007. *Issue Brief: Defining Health Disparities*. Hartford, CT: Connecticut Department of Public Health.

Subramanian, S.V. 2004. Multilevel Methods, Theory, and Analysis. *In Encyclopedia of Health & Behavior. Vol. 2.*, edited by Norman B. Anderson, pp. 602-609. Thousand Oaks, CA: Sage Publications.

Subramanian, S.V., J.T. Chen, D.H. Rehkopf, P.D. Waterman, and N. Krieger. 2005. Racial Disparities in Context: A Multilevel Analysis of Neighborhood Variations in poverty and Excess Mortality Among Black Populations in Massachusetts. *American Journal of Public Health* 95(2):260-265.

Taylor, R. and Rieger, A. 1984. Rudolph Virchow on the Typhus Epidemic in Upper Silesia: An Introduction and Translation. *Sociology of Health and Illness* 6(2): 201-217.

Tesh, S.N.. 1988. *Hidden Arguments: Political Ideology and Disease Prevention Policy*. New Brunswick, NJ: Rutgers University Press.

U.S. Census Bureau. 2000. Overview of Race and Hispanic Origin, Census 2000 Brief. Electronic Document. http://www.census.gov/prod/2001pubs/cenbr01-1.pdf. Accessed February 22, 2007.

U.S. Department of Health and Human Services. 1979. *Healthy People*. Washington, DC: U.S. Government Printing Office. DHEW (PHS) Publication No. 79-55071 July 1979.

U.S. Department of Health and Human Services. 2000. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office, November 2000.

Wilkinson, R. and M. Marmot, eds. 2003. *Social Determinants of Health: The Solid Facts*, 2nd ed. Denmark: World Health Organization.

Williams, D.R. 1994. The Concept of Race in Health Services Research: 1966 to 1990. *Health Services Research* 29(3):262-274.

Williams, D.R. 1996. Race/Ethnicity and Socioeconomic Status: Measurement and Methodological issues. *International Journal of Health Services* 26(3):483-505.

Williams, D.R., R. Lavizzo-Mourey and R.C. Warren. 1994. The Concept of Race and Health Status in America. *Public Health Reports* 109 (1):26-41.

Williams, D.R. and C. Collins. 1996. U.S. Socioeconomic and Racial Differences in Health: Patterns and Explanations. In *Perspectives in Medical Sociology*, 2nd Ed. Phil Brown, ed. Prospect Heights, IL: Waveland Press, Inc.

Williams, D.R. and C. Collins. 2001. Racial Residential Segregation: A Fundamental Cause of Racial Disparities in Health. *Public Health Reports* 116:404-416.

Williams, P. J. 2007. Colorstruck. The Nation. April 23, 2007. p. 9.



410 Capitol Avenue Hartford, CT 06134 (860) 509-7658 http://www.ct.gov/dph

J. Robert Galvin, MD, MPH, MBA Commissioner

Keeping Connecticut Healthy

The Connecticut Health Disparities Project is generously supported by a grant from the Connecticut Health Foundation.