Progress and Promise in Research on Social and Cultural Dimensions of Health:

A Research Agenda

Office of Behavioral and Social Sciences Research

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PROGRESS AND PROMISE IN RESEARCH ON SOCIAL AND CULTURAL DIMENSIONS OF HEALTH: A RESEARCH AGENDA

EXECUTIVE SUMMARY

The social sciences are essential to American society's quest to promote health, prevent disease, and provide quality treatment and services. They provide knowledge about the social, cultural, and economic environments that influence human health and behavior, and the processes through which these environments exert their influence. They address critical issues in the prevention and treatment of disease and poor health, as well as social, economic, and cultural factors in the delivery of health services that have an impact on health outcomes. They are poised to contribute to integrative research that pushes forward our understanding of health and health problems by taking into account the determinants of health at multiple levels of analysis.

This report presents an agenda for National Institutes of Health (NIH) research on the social and cultural dimensions of health. It is based primarily on the recommendations formulated by scientists participating in a June 2000 conference sponsored by the Office of Behavioral and Social Sciences Research (OBSSR), "Towards Higher Levels of Analysis: Progress and Promise in Research on Social and Cultural Dimensions of Health." The report identifies two major sets of goals. The main thrust of the recommendations speaks to the expansion and further development of health-related social sciences research at the NIH. A second, but equally important, goal seeks the integration of social science research into interdisciplinary multi-level studies of health.

Expanding Social Science Research

Significant advances have been made over the past decade in uncovering the biological and genetic basis for specific diseases and conditions. Despite these impressive scientific gains, it is becoming increasingly evident that knowledge about biological and genetic markers is important but limited in predicting who gets sick, who seeks treatment for health problems, and who recovers from illness. Social science contributes to filling these gaps in our understanding of health. An accumulated body of empirical findings has clearly demonstrated that social and cultural factors influence health by affecting such things as exposure and vulnerability to disease, risk-taking behaviors, the effectiveness of health promotion efforts, and access to, availability of, and quality of health care. They play a critical role in shaping individuals' responses to health problems and the impact of poor health on individuals' lives and well-being.

The social sciences are also essential to an understanding of health at the population or group level. An understanding of current and changing population rates of morbidity, survival, mortality, and use of health services requires that we consider the demographic, social, economic, and cultural structure and dynamics of the population.

Social scientists have already made significant strides in shedding light on the basic social and cultural structures and processes that influence health. This tradition of research has a long history, stretching back to the 18th century. In recent decades, rapid advances in social science methodologies have accelerated the development of scientific approaches to the understanding of social and cultural influences on health. The recommendations presented in this report draw on these advances and forecast new scientific opportunities for enhancing the contributions of the social sciences to health research.

Integrating Health Research Across "Levels of Analysis"

The concept of "levels of analysis" has been offered by a variety of scientists to capture the distinct but interdependent levels at which health, and the determinants of health, can be understood. For example, former OBSSR director Norman Anderson (1998) identified five major levels of analysis in health research: social/environmental, behavioral/psychological, organ systems, cellular, and molecular. A variety of conceptual models exist to address the linkages among "levels of analysis," from the macro-societal levels to the biology of a disease, but they have not been uniformly accepted or systematically applied in empirical studies of health.

Parallel with continued development of social science research on health, NIH must also support and encourage the integration of social science with the biological and behavioral sciences in health research. The recently released National Research Council report, *New Horizons in Health: An Integrative Approach* (Singer and Ryff, 2000), provides a challenging agenda for such integrative research. The report's recommendations in areas such as positive health, personal ties, collective properties and healthy communities, the effects of inequality, population perspectives, interventions, and research methodology and infrastructure echo many of the themes of this document. The NRC report differs in that it moves beyond these concepts to integrate questions

BOX 1. SUMMARY RECOMMENDATIONS: FUNDAMENTAL RESEARCH

- **Support research to improve the measurement and clarify the meaning of basic constructs used in sociocultural research on health, including culture, social change, gender, age, socioeconomic status, race, and ethnicity. Study the effects of historical and cultural context on meaning and measurement, and address their implications for monitoring trends in health and health disparities.**
- **Study the characteristics and dynamics of social and cultural systems; examine the processes that shape and change the social, cultural, political, economic, and institutional environments of individuals and groups.**

BOX 2. SUMMARY RECOMMENDATIONS: UNDERSTANDING HEALTH AND ILLNESS

- **Expand research on social and interpersonal factors that influence health, including racism and other forms of discrimination; social interactions and social networks; social integration, social cohesion, and social capital; and religion and spirituality. Study the ways in which these factors intersect, and the cultural, social, and biological mechanisms through which they affect health.**
- **Examine how social contexts such as families, neighborhoods, schools, worksites, and political jurisdictions influence health and elucidate the mechanisms through which these influences operate. Develop innovative strategies for understanding and accounting for the process by which individuals and groups come to organize in networks and other social arrangements, and to occupy particular social contexts.**
- **Study the consequences of health and illness at the family, community, and societal levels. Study the social, cultural, and institutional factors influencing the nature and extent of consequences for individuals.**

of physiological risk, predisease pathways, and the effects of environment on gene expression. These issues are generally beyond the scope of the present document but vital to an integrated multi-level approach to health research.

The future success of studies integrating all levels of analysis, from the molecular to the community or nation, will depend on the continued advancement of social science research and its integration into health studies. Outstanding multi-level research on health will require state-of-the-art social science theories, models, and methodologies, as well as a solid foundation of empirical knowledge about social and cultural processes that are relevant to health.

Recommendations: Building Fundamental Research in the Social Sciences

Advances in social science research on health depend on a foundation of basic theory and knowledge that describes social structures, the dynamics of social and cultural processes, and the ways in which individuals are located in and interact with social structures and cultural phenomena. Several key sociodemographic constructs, including race, ethnicity, gender, age, and socioeconomic status (SES), are widely used in studies of the etiology of health and disease and in research that describes and monitors the distribution of disease across social categories, geographic areas, and time. Conference participants emphasized, however, that the meanings of such constructs depend on their cultural, geographical, and historical context, and their utility in health research depends on their being used in ways that are theoretically and historically grounded. Scientists face a significant challenge in incorporating sociodemographic constructs in their studies in ways that are sensitive to these complex issues.

The concept of culture is another construct that requires careful theoretical grounding in health studies. Most social scientists agree that the concept of culture is complex and implies a dynamic and ever-changing process. Individuals possess multiple cultural "templates" and may draw on them in different ways in different situations. Culture constitutes a powerful explanatory variable, but one that does not correspond very well with ethnic group labels, as is often assumed. Scientists are calling for more systematic thinking and empirical research on these basic social and cultural constructs as they are integrated in health research. **(See Box 1)**

In addition, social scientists are calling for research that moves to "higher levels of analysis" by targeting social and cultural systems as units of analysis. This perspective moves beyond the individual as the focus of health studies to study the structure and dynamics of social, cultural, political, and economic systems in their own right. It requires viewing social and cultural phenomena not merely as qualities attaching to an individual, but as emergent properties of systems that operate at levels above the individual (but in which individuals are embedded and which they influence). It opens the door to truly integrative, multi-level research strategies that consider the pathways to health operating at and between the social, cultural, individual, and biological levels. It also paves the way for research examining health and health services at the group, community, or population level.

Recommendations: Improving Our Understanding of Health and Illness

Social science research on the etiology of health and illness recognizes that health may be affected by a diverse set of mechanisms operating among and within social structures existing at different levels. At the highest levels are structures and processes that involve and affect populations broadly: government, media, economic systems, social stratification, political processes and policy-making, and broadly held cultural values and practices. Some of these processes also operate in communities and neighborhoods; institutions such as schools, churches, and businesses; and social or professional organizations, but at these levels processes contributing to social cohesion, social support, social control, social and cultural conflict, and the development and enforcement of social and cultural norms play a larger role. In families and small groups, interpersonal processes such as conflict and support, socialization, and sharing of resources play a dominant role. The multi-level model is filled out by characteristics of the individual, and of course biological mechanisms creating susceptibility to disease and the onset and course of illness.

A valuable contribution of the social sciences is to explain health and disease not solely as an individual biological problem, but as a social phenomenon associated with social ties and other forms of social influences. Much of the research in this area has focused on the positive facets of social interaction. Social support has been shown to buffer the onset or the course of illness; involvement in religious groups and marriage also appear to benefit health. However, health is also negatively influenced by social interactions that explicitly and implicitly exploit, discriminate against, or unfairly treat groups of people. Further research is needed on these social and interpersonal processes that influence health. (**See Box 2)**

Research also must address how mechanisms that link social and cultural phenomena to health operate within, and emerge from, specific social contexts. Social contexts provide the stage for social and cultural factors to influence health, and the characteristics of social context also directly affect social and cultural processes. Understanding the effects of context in influencing health is important because health interventions of any type must adapt to the context in which they are embedded, and because contexts that create special risks for health may be targeted directly by interventions.

Understanding the consequences of health and illness is also important to the mission of the NIH. Health disparities among groups that vary in socioeconomic status result in part from the reciprocal influence of SES on health and health on SES. The nature of these feedbacks needs to be fully understood if we are to understand the mechanisms underlying health disparities. In addition, the value of investments in improving health can be only partially understood by focusing on health outcomes alone. A growing body of research is addressing the consequences of poor health for economic and social well-being, both at the individual level and the group or population level. This research needs further development and expansion.

Recommendations: Improving Health

The social sciences can make powerful contributions in preventing and treating illnesses by pinpointing the environmental contexts, social relationships, interpersonal processes, and cultural factors that lead people to engage in healthy behaviors, seek health services before disease symptoms worsen, and participate with medical professionals in treating illness. Research to advance the incorporation of social science theory into the provision of prevention, treatment, and service programs will help to produce more robust and realistic interventions. In addition, research on the dissemination and translation of social science research findings is needed to ensure that investments in basic and applied health research have their maximum impact on the nation's health. **(See Box 3)**

Recommendations: Supporting Responsible Science

Advancing social science research on health can be most effectively pursued when accompanied by parallel efforts to support the development of scientific resources and approaches. These include the continued development of research methods, research on ethical issues and best practices in studies with communities and other groups, adopting a global perspective on health, and supporting appropriate training and infrastructure programs. **(See Box 4)**

Several methodological developments over recent decades have created more powerful scientific tools for studying social and cultural influences on health. These include the design of multi-level studies that link individual-level data to information on families, communities, institutions, and social networks; "multi-method" studies that integrate quantitative and qualitative data-collection strategies; development of statistical methods for analyzing multi-level and qualitative data; proliferation of longitudinal research studies and new methods for longitudinal research; and the growing use of experimental designs and "natural experiments." Despite advances in social science research methods, many challenges remain, and research is needed to advance methodological tools in tandem with the development of new theories. As new and more complex research methods in the social sciences evolve, moreover, standard ethical concerns of confidentiality, privacy (non-access), and consent become more complicated. Research is needed to address these concerns and to develop effective

BOX 3. SUMMARY RECOMMENDATIONS: IMPROVING HEALTH

- **Conduct research on social and cultural aspects of treatment, including cultural competence, stigma, provider-patient interaction, the treatment context, and issues related to involuntary treatment.**
- **Expand research on health care services and health care seeking to address social, cultural, economic, and policy factors that influence access to care and the delivery, quality, and accountability of health services. Study the development of new health technologies and their impact on services.**
- **Translate basic social science studies of the etiology of disease into the development and testing of new strategies for prevention, treatment, and service delivery; study the social and cultural factors influencing the dissemination and uptake of health care technologies, messages, and interventions.**
- **Integrate social science theory and approaches into prevention and health promotion research, and promote better understanding of how risk and prevention processes operate within and among various social and cultural contexts.**

BOX 4. SUMMARY RECOMMENDATIONS: SUPPORTING RESPONSIBLE SCIENCE

- **Support the development of state-of-the-art social science methods. Challenges include measurement at the group, network, neighborhood, and community levels; the further development of methods for longitudinal research; multi-level research designs that integrate diverse qualitative and quantitative approaches (e.g., surveys, ethnography, social network studies, clinical studies); experimental designs; and the development of improved methods for data collection and analysis.**
- **Encourage research that examines the social and cultural dimensions of health in a global context, recognizing that this science will be advanced by examining the etiology of health in a broad set of social and cultural settings and that issues involving health and illness transcend national boundaries.**
- **Study and address the ethical issues arising from research that links the individual to higher levels of analysis such as communities, institutions, and identifiable groups, and further develop the science of actively involving communities in health research.**
- **Support the development of training programs to meet the need for social science expertise in health research and the challenges of an interdisciplinary research agenda, with special emphasis on the recruitment of underrepresented minorities into the health-related social sciences. Encourage the development of infrastructure for interdisciplinary programs of research that address the social and cultural dimensions of health.**

BOX 5. SUMMARY RECOMMENDATIONS: INTEGRATING HEALTH SCIENCE

- **Encourage and support the integration of social science research, methods, and theory into interdisciplinary studies of health that consider multiple levels of analysis, from the molecular, cell, or organ-system to the individual and sociocultural levels.**

strategies for working with communities and other social groups.

Adopting a global perspective strengthens the power of research on the social and cultural dimensions of health. Studying the etiology of health and illness in diverse cultural and social settings around the globe can sharpen our understanding of the mechanisms through which economic, social, cultural, and even biological conditions affect health. Furthermore, social and cultural research strengthens the effectiveness of international health research by providing the theories and approaches necessary to understand the great variety of cultural, social, economic, and political conditions in which the world's people live.

Training and infrastructure programs also require attention. The directions for research recommended in this report require both continued investment in discipline-based training and training for interdisciplinary work. Solid grounding in the theory and methods of a social science discipline is essential to prepare scientists to address questions about the meaning and measurement of basic social constructs, and the mechanisms through which social, cultural, and economic processes affect human behavior and well-being. On the other hand, research training that is too limited by disciplinary boundaries will impede the ability of social scientists to contribute to research on the social and cultural dimensions of health. Trainees must be given the skills to bridge across disciplines within the social sciences (e.g., anthropology, social psychology, sociology, economics) and among the social, behavioral, and biomedical sciences.

Finally, attention should be given to infrastructure needs in the social sciences. Social scientists depend on data resources (datasets and archival records), computing power and software to conduct analyses, and methodologies for the design, collection, and statistical analysis of research data. Multi-level longitudinal research projects of the kind recommended in this report are extremely expensive to conduct, and sharing of such data among investigators is essential.

Social Science Research at NIH: Looking Ahead

Proactive efforts are needed to foster a multi-disciplinary, multi-level health science. Integration of social science research with the biological and behavioral sciences is an essential component of this task. This will require the leadership of the NIH and the involvement of the diverse community of institutions and scientists who contribute to health research. Although a growing chorus of voices is endorsing this goal, work towards its achievement has barely begun. **(See Box 5)**

The grant programs in many institutes currently support social science research related to health, including studies of basic social constructs and processes, the relationship of social and cultural factors to health and well-being, and the use of social science methods and concepts to improve prevention, treatment, and the delivery of health services. However, more research is needed if we are to fully realize the potential contributions of the social sciences to the nation's health. It will be necessary to strengthen social science training programs, encourage greater attention to health research in these programs, and attract social scientists into health research careers. We will also need to foster communication among scientists who have been too long isolated within disciplinary walls; learn to work together across barriers of language, culture, and scientific prejudice; and put in place institutional structures that will ensure our long-run success. Some models of the successful integration of science "across levels of analysis" already exist, and we can learn from them. The further development of social science research and methods, and the integration of social science into interdisciplinary health research, are both important milestones on the pathway to improving our nation's health.

INTRODUCTION

Any list of the key health challenges facing the National Institutes of Health and, indeed, the nation, reveals a common theme. Consider the following: early detection and effective treatment of cancer, prevention and treatment of mental disorders, stemming the spread of infectious diseases such as AIDS or TB, reducing violence and substance abuse, eliminating health disparities among racial and ethnic populations, and increasing the quality and years of healthy life. Each of these goals reflects in varying measure problems that have roots in human biology, human behavior, and the social, political, economic, and cultural environments people occupy. Each requires the combined expertise and effort of biomedical, behavioral, and social scientists for effective solutions.

Over the past decade biomedical scientists have made significant advances in uncovering the biological and genetic basis for specific diseases and conditions. Behavioral scientists have advanced techniques for modifying individual behaviors that affect the risk of disease, such as smoking, diet, and exercise. Despite impressive scientific gains in these areas, it is increasingly clear that knowledge about biological, genetic, and behavioral factors is important but limited in predicting who gets sick, who seeks treatment for health problems, and who recovers from illness. An exclusive focus on biological factors and individual behaviors obscures the importance of social factors that influence health and health problems.

An accumulated body of empirical findings has clearly demonstrated that social and cultural factors create conditions of life that can protect or damage health. These conditions influence health by affecting such things as exposure and vulnerability to disease, risk-taking behaviors, the effectiveness of health promotion efforts, and access to, availability of, and quality of health care. They play a critical role in shaping individuals' responses to health problems and influence how poor health affects individuals' lives and well-being. The social sciences contribute to the nation's health research agenda by addressing the dynamics of these social and cultural processes and the mechanisms through which they affect health.

A concern for health at the population rather than the individual level underscores the need to take social and cultural processes into account. As Geoffrey Rose (1985) argued in his classic paper, causes of cases are not identical with causes of incidence. That is, an understanding of current and changing population rates of morbidity, survival, mortality, and use of health services requires that we consider the demographic, social, economic, and cultural features of the population. It advocates for the investigation of the social, economic, and cultural systems as well as the individuals who participate in them. These concepts are important whether we study the health of an inner-city population in the United States or the spread of AIDS in sub-Saharan Africa.

As the National Institutes of Health incorporates a population-focused and a more global perspective on health, social science research and collaboration between the biomedical and social sciences will be especially important. Research on social and cultural dimensions of health plays a vital and unique role in international health research. First and foremost, social and cultural research provide the theories and approaches necessary to understand the diversity of cultural, social, economic, and political conditions in which the world's people live. Such conditions have a direct bearing on health, through diet, housing, health practices, access to services, and more. They also define the context within which health interventions must work. To be successful, HIV-prevention, immunization, and sanitation programs, among others, must be tailored to the cultural, social, and economic context in which they will operate. International research on social and cultural aspects of health also offers important insights that can strengthen research on domestic health problems. Studying the etiology of health and illness in diverse cultural and social settings around the globe can sharpen our understanding of the mechanisms through which economic, social, cultural, and even biological conditions affect health. For example, research in developing societies demonstrated that the supposedly "natural" increase of blood pressure with age is in fact "natural" only in stratified, industrial societies (Cooper, et al., 1997).

The social sciences have already made significant strides in shedding light on the basic social and cultural structures and processes that influence health. These contributions have deep roots, from the work of Malthus (1798), who pointed out the links among human fertility, standards of living, and mortality, to that of Caudill (1958), who argued that stress processes should be viewed as involving hierarchical systems from the social and cultural to the biological levels. Building on such early work, rapid advances in social science methodologies over recent decades have accelerated the development of scientific approaches to the understanding of social and cultural influences on health. Probability sampling, the development of computing technology, refinement of standards for ethnographic research, new statistical methods, and the development of research strategies that link measurement of social and cultural processes to individual outcomes: all have played a role in the rapid advancement of social science research.

A "Multi-level" Approach to Understanding and Improving Health

The concept of "levels of analysis" has been offered by a variety of scientists to capture the distinct but interdependent levels at which health, and the determinants of health, can be understood. For example, former OBSSR director Norman Anderson (1998) identifies five major levels of analysis in health research: social/environmental, behavioral/psychological, organ systems, cellular, and molecular. He argues that most research focuses on specific levels and that, "while the disciplines concerned with health research may be separated conceptually, methodologically, and administratively, the processes about which they are concerned are inextricably linked" (p. 564). He offers a framework for understanding the interdependence among levels, and urges multi-level analyses that integrate causal pathways across levels.

A consensus for the need for such integrative multi-level studies is growing rapidly and in different disciplines (e.g., Susser and Susser, 1996; Williams, 1990; Krieger, 1994; McMichael, 1999; House, 1990; Singer and Ryff, 2000). A variety of conceptual models exist to address the linkages among "levels of analysis", from the macro-societal levels to the biology of a disease, but they have not been uniformly accepted or systematically applied in empirical studies of health. McKinlay and Marceau (2000), for example, offer a framework that links social structure or social position (e.g., class, age, gender, race, ethnicity), environmental

FIGURE 1. SELECTED NIH RESEARCH PROJECTS: BASIC SOCIAL CONSTRUCTS/PROCESSES

- **A medical anthropologist conducts research on the roles of social processes and subjective meanings in the course of chronic fatigue syndrome. (NIAID: R29 AI35359).**
- **A sociologist studies the mental health implications of racial discrimination, racial belief systems, and race-related stressors (NIMH: R01 MH57425).**
- **A sociologist studies patterns of social interaction and their implications for the diffusion of attitudes and behaviors related to fertility limitation (NICHD: R01 HD34524).**

FIGURE 2. SELECTED NIH RESEARCH PROCESSES: PREVENTION, TREATMENT, AND HEALTH SERVICES

- **A social epidemiologist tests the efficacy of an intervention designed to improve the functional ability of stroke patients by mobilizing and empowering their social networks (NINDS: R01 NS32324).**
- **Researchers evaluate a community-based health care model for American Indians which incorporates culturally appropriate approaches to non-insulin-dependent diabetes mellitus prevention and control (NINR: R01 NR04722).**
- **A psychologist tests the efficacy of support groups for helping patients with fibromyalgia make more efficient use of health services (NIAMS: R01 AR44020).**
- **A researcher studies the effect of the National Collegiate Athletic Association's 1994 policy prohibiting tobacco use on smokeless tobacco use and cessation among male athletes (NCI: Chakravorty, R01 CA67882).**
- **A political scientist studies the effects of alcohol advertising on underage drinking among Native American and white adolescents (NIAAA: R01 AA12127).**

context or place (e.g., geographic location, housing conditions, access to services), lifestyles (e.g., smoking, physical activity), and physiology (e.g., blood pressure, cholesterol, obesity). Susser and Susser (1998, p. 675-6) suggest a metaphor of "Chinese boxes" to guide a new eco-epidemiology "which treats relationships within and between localized structures that are bounded socially, biologically, or topographically". Such frameworks help to guide the development of multi-level research. They also illustrate how such research can inform public knowledge about health policy, organizational and community level interventions, and primary and secondary intervention.

Social Science Research at NIH

The NIH has responded to advances in the social sciences, and the potential they offer for improving health, by funding research on the economic, social, and cultural dimensions of health. In fact, a search of NIH-funded research reveals that most Institutes have funded research in this area, including some with missions that focus on specific diseases or organ systems. Examples of funded research projects that address the basic social constructs and processes that influence health behaviors and health outcomes are shown in Figure 1[1]. Examples of studies that use social science methods and concepts to improve prevention, treatment, and the delivery of health services are included in Figure 2. Figure 3 provides examples of NIH-supported studies that integrate science at multiple levels of analysis.

While these empirical investigations are noteworthy, more needs to be done to integrate the social sciences, and social science perspectives, in NIH research. In Fiscal Year 2000, NIH awarded approximately $1.85 billion, or about 10% of its total funding, for research and training in the social and behavioral sciences, but only a small fraction of these funds went to social science research. More basic and applied work in the social sciences is needed if we are to fully realize their potential contributions to the nation's health agenda. Moreover, efforts to involve social, behavioral, and biological scientists in collaborative and synergistic investigation of health and health services must be expanded.

Related Federal Initiatives

Several initiatives of the National Institutes of Health and the Department of Health and Human Services (DHHS) highlight the need and opportunity for more fully integrating the social sciences into the nation's health research agenda. The DHHS launched a major initiative to reduce health disparities as part of the President's Initiative on Race. The initiative targets disparities in health among racial and ethnic populations, while recognizing that such disparities are intertwined with other important health disparities related to socioeconomic status, gender, and family status. The NIH developed an overarching strategic plan for research to reduce health disparities, and each Institute and major Office within NIH developed a plan specific to its own mission[2]. Meeting the goals of this initiative will require the involvement of social scientists, both in advancing research on the social, cultural, and economic factors that contribute to health disparities and in collaborating in multi-level studies that integrate social science and biomedical perspectives.

Healthy People 2010 is a second major initiative motivating the need for expanded social science research on health. This initiative identifies health goals for the year 2010 in 28 focus areas covering a broad range of concerns. Healthy People 2010 identifies two overarching goals: increase quality and years of healthy life, and eliminate health disparities. It also targets ten "leading health indicators," including physical activity, obesity, tobacco use, substance abuse, responsible sexual behavior, mental health, injury and violence, environmental quality, immunization, and access to health care. It is notable that almost all of these leading indicators involve or are influenced by behavior that is in turn strongly influenced by the social and cultural environment. Healthy People 2010 also recognizes the critical role of communities in promoting and influencing health and the need for community partnerships in addressing health issues.

Another initiative underway at the Centers for Disease Control and Prevention (CDC), *The Guide to Community Preventive Services*, focuses on health at the community

[1] **For more information on these research projects, readers may consult the CRISP database, which contains abstracts for all NIH-supported research: http://www-commons.cit.nih.gov/crisp/**

[2] **In most cases these plans are accessible through the NIH web page, http://www.nih.gov/**

and population level. This initiative will summarize what is known about the effectiveness of community-based interventions to improve population health, including those that seek to improve health through change in the sociocultural environment (e.g., housing, early childhood development programs). CDC anticipates publishing the Guide in fall 2001.

Several recent reports also touch on issues related to the development of a NIH research agenda on the social and cultural dimensions of health. A report from the National Research Council's Committee on Future Directions for Behavioral and Social Sciences Research at the National Institutes of Health, *New Horizons in Health: An Integrative Approach* (Singer and Ryff, 2000), provides the OBSSR with a research agenda to integrate social science, behavioral, and biomedical research. *Promoting Health: Intervention Strategies from Social and Behavioral Research* (Smedley and Syme, 2000) discusses promising areas of social science and behavioral research that can contribute to the development of effective interventions. *From Neurons to Neighborhoods: The Science of Early Childhood Development* (Shonkoff and Phillips, 2000) proposes a integrated science of human development encompassing the biological, psychological, and social sciences.

The "Levels of Analysis" Conference

To complement these efforts and to directly address the role of the social sciences at NIH, the Office of Behavioral and Social Sciences Research sponsored a conference in June 2000, "Towards Higher Levels of Analysis: Progress and Promise in Research on Social and Cultural Dimensions of Health," to highlight social science contributions to the study of health and explore new directions for research[3]. During the first two days of the conference, thirty-one eminent social scientists gave presentations on a wide range of social structural, cultural, and psychological factors that influence health (see Appendix A). Approximately nine hundred people registered for this portion of the conference. The final day of the conference was devoted to developing recommendations that would advance research on social and cultural aspects of health and eventually contribute to a multi-disciplinary, multi-level approach to the study of health. A group of approximately 60 scholars (Appendix B), including the conference speakers and other prominent social scientists, met in small groups to craft a set of research recommendations that form the body of this report.

Content and Organization of This Report

This report, based primarily on the recommendations formulated by scientists participating in the "Levels of Analysis" conference, presents an agenda for NIH research on the social and cultural dimensions of health. The Planning Committee[4] for the conference also contributed to the report by expanding the recommendations in areas not covered by the conference participants but recognized as important to the overall goals of NIH. An initial draft of this report was submitted for review to members of the planning committee, scholars who participated on the agenda-setting part of the conference, and OBSSR staff. The draft was revised to incorporate appropriate comments made during this review. A final draft was then placed on the Internet for public comment. After a period of 30 days, this report was finalized and published.

This report, like the "Levels of Analysis" conference, focuses primarily on the development of health-related research in the social sciences. This focus reflects the belief that the future success of studies integrating all levels of analysis, from the molecular to the community or nation, will depend on the continued advancement of social science research. Outstanding multi-level research on health will require state-of-the-art social science theories, models, and methodologies, as well as a solid foundation of empirical knowledge about social and cultural processes that are relevant to health. Carrying out the research agenda described in this report will build an improved foundation for research that links disease processes to neighborhood, workplace, and community contexts, and social and economic inequalities to health disparities.

The report is organized in ten major sections. Following the Introduction, seven sections present the recommended research agenda. Section 2 focuses on basic con-

FIGURE 3. SELECTED NIH RESEARCH PROJECTS: INTEGRATING LEVELS OF ANALYSIS

- **A comprehensive study of adolescent health examines the impact of social context measured at the community, school, family, and peer group level on mental health and health risk behaviors (NICHD: P01HD31921).**
- **A study of the social organization of neighborhoods, schools, and families in a Midwestern city examines the social processes contributing to youth violence, the impact of exposure to violence on mental health, and the role of adrenal regulation of stress in mediating consequences of traumatic experiences (NIMH: R01 MH56241).**
- **A study of asthma risk among disadvantaged children in inner-city areas traces pathways through which environmental insults and the socioeconomic context contribute to the onset of asthma through stress-induced changes to immune function (NIEHS: R01 ES10932).**
- **A study links the experience of loss during childhood to biological and psychological predispositions that increase the risk of depression in individuals experiencing marital discord (NIMH: R29 MH54732).**
- **An anthropologist studies the mechanisms through which social support reduces morbidity and mortality from coronary heart disease (NHLBI: R01 HL45663).**

[3] For more information on the conference, see the OBSSR website, http://obssr.od.nih.gov/. Conference proceedings that include the list of speakers, their topics, and abstracts of each presentation can be obtained from NIH (NIH publication # 00-4820, June 2000).

structs and processes that are key elements in research on the social and cultural dimensions of health. Sections 3, 4, and 5 present recommended research on the etiology of health and illness. Section 3 provides an overview of social science research on this topic and general recommendations for research; Section 4 focuses on interpersonal processes; and Section 5 on the social contexts that both provide the setting in which interpersonal processes play out and influence health directly. Section 6 discusses research on the consequences of health and illness for individuals, groups, and societies. Section 7, "Linking Science to Practice", presents recommendations for social and cultural research focused on prevention, treatment, health services, and the translation and dissemination of research findings. Section 8 discusses methodological issues that should be addressed to advance research on the social and cultural dimensions of health. Section 9 discusses recommendations for infrastructure and training to advance social science research on health. The final section, "Moving Toward Higher Levels of Analysis", summarizes conclusions and discusses strategies for both advancing social science research on health and fostering research that integrates multiple levels of analysis, from the biological to the sociocultural.

BASIC CONSTRUCTS, NEW DIRECTIONS

Before focusing on the central theme of the conference, we begin with a description of the means by which social and cultural factors are typically included in studies of health and illness. Epidemiological and health services research commonly uses social position variables such as race, ethnicity, age, gender, and socioeconomic status as markers for life conditions that increase the risk of illness for some people over others. Sociodemographic variables are often invaluable in describing the distribution of diseases across a wide range of social categories and geographic areas and in monitoring trends in health disparities. Despite their widespread use, the use of sociodemographic variables with health data must be interpreted with care because their meanings can depend on their cultural, geographical, and historical context.

For example, race and ethnicity are often used as independent or control variables in multivariate analyses of health. However, in these analyses, researchers often do not specify how they are conceptualizing race and ethnicity. Is race hypothesized to reflect biological differences, differences in lifestyle, the experience of racism, or poverty? Is ethnicity used to signify group membership, self-identification, or a proxy for cultural differences? Accordingly, while researchers may find that race and ethnicity have statistically significant associations with a particular disease, they are unable to articulate reasons why groups differ in morbidity and mortality. These deficiencies severely limit the value of their research for advancing theory, influencing health policy, and developing program interventions.

Similarly, the concept of "culture" is often invoked when ethnic differences are found in a health outcome in multivariate statistical analyses. This assumption is unwarranted because variances explained by ethnic categories may actually be reflecting other factors besides culture (e.g., experiences of racial discrimination or economic deprivation). Moreover, the concept of culture has been used in a wide number of ways by social scientists (Borofsky, 1994) and some operational definitions may be more appropriate for advancing health research than others. For example, Fejos (1959) described culture as "the sum total of socially inherited characteristics of a human group that comprises everything which one generation can tell, convey, or hand down to the next; the nonphysically inherited traits we possess." Hammel (1990) defines culture as "an evaluative conversation constructed by actors out of the raw materials afforded by tradition and ongoing experience." Lopez and Guarnaccia (2000) suggest it is action in the social world that produces culture as much as people's ideas about the world. In their view, the social world interacts on an equal footing with the psychological world in producing human behavior.

Regardless of the specific definition used, most social scientists agree that the concept of culture is complex and implies a dynamic and ever-changing process (Newman-Giger and Davidhizer, 1999). Research over the last decade has revealed that no one possesses a single culture. Cultural phenomena consist of multi-layered meanings that we share variously with other people, having shared equivalent experiences, or having negotiated a common understanding in more direct social interaction. Individuals thus possess multiple cultural "templates" and may draw on them in different ways in different situations. This means that a cultural environment may constitute a powerful explanatory variable, but it may correspond very poorly with ethnic group labels. We need to develop methods that allow us to explicitly identify and measure pertinent aspects of culture (Dressler and Bindon, 2000; Handwerker, 2001).

Participants at the conference urged a deeper understanding of patterns that have emerged from epidemiologic studies about the associations between health and sociodemographic variables, including gender, age, and socioeconomic status. An excellent example is research on social stratification. Social stratification by definition produces inequalities, inequalities that may involve differential access to economic resources, job opportunities, social prestige and influence, and political power. Inequalities unfold over time (e.g., as a result of economic restructuring, changes in public policy) and place (regions and contexts may vary in the degree of inequality among different groups and the forms in which inequality is expressed). We often think of socioeconomic status as a relatively fixed characteristic, yet occupational, social, and income mobility (upward or downward) occur commonly and are influenced both by individual choices and behaviors and by structural opportunities and constraints. An understanding of the effects of an individual's position in the social and economic hierarchy on health should begin with an understanding of the influences that contributed to the individual occupying that position.

Similarly, research on gender differences in health, and in the trajectory of health over the life course, must consider social and cultural as well as biological meanings of sex and age. The term "sex" refers to the biological differentiation of male and female, while "gender" refers to the set of ideas shared by people belonging to a given group or society regarding what it means to be male or female. These include ideas about how men and women look,

think, and behave; expectations and values about how they should look, think, and behave, both separately and together; and conceptions about the place of each sex within the social order. Gendered norms and expectations are social or cultural phenomena, in that they are negotiated and shared among a group of people. Meanings of "age" are also social and cultural phenomena. Societies differ in how much emphasis placed on the passage of time in conceptions of aging, and in the ways in which age is measured. Cultural models of what it means to be young or old, and the behaviors expected of people of varying ages, are also negotiated and shared within social groups.

In this conference, considerable attention was spent on the social constructs of race and ethnicity. This emphasis reflects current attention to health disparities affecting minority populations as well as the radical transformation of the racial and ethnic composition of the United States. By the year 2020, one-third of all adults in the United States will be from racial and ethnic minority groups. This figure will be nearly 50% for children and adolescents. The populations of some cities, such as Los Angeles and Honolulu, are already predominantly comprised of racial and ethnic minorities. The meaning of race and ethnicity within this increasingly diverse society is complex and evolves over time. The U.S. Office of Management and Budget recognized this evolving complexity in 1997 when it established new standards for measuring race and ethnicity, instituting changes that have important implications for public health research and monitoring (Krieger, 2000; Sondik, et al., 2000).

The conceptualization of race and ethnicity has been debated by scientists over recent decades. In the past, many scientists viewed race as primarily a biological construct, rooted in genetic differences. However, most scientists now recognize that there is greater physical variation within conventional racial groupings than between them, and that social and cultural factors play a predominant role in defining race in our society (American Anthropological Association, 1998; Cooper, 1984). Results from the Human Genome Project find that human populations are 99.9 percent alike in their genetic makeup. The ways in which people view themselves and others in terms of race and ethnicity are strongly influenced by the social settings they occupy and shared ideas about what it means to be, for example, black, Hispanic, or Asian. Intermarriage among racial and ethnic populations and immigration of diverse groups to the United States has further complicated the meaning of these constructs. Scientists face a significant challenge in incorporating concepts and measures of race and ethnicity in their studies in ways that are sensitive to these complex issues. To some extent, the ideas presented in this report on race and ethnicity overlap with recent NIH discussions about health disparities. One major difference between these ideas and the health disparities initiatives is a call for more investment in basic social science research on race and ethnicity.

In addition to calling for more systematic thinking and empirical research on these basic social constructs, social scientists are also calling for research that moves to "higher levels of analysis" by targeting social and cultural systems as units of analysis. This perspective moves beyond the individual as the focus of health research to study the structure and dynamics of social, cultural, political, and economic systems in their own right. It requires viewing social and cultural phenomena not merely as qualities attaching to an individual, but as emergent properties of systems that operate at levels above the individual (but in which individuals are embedded and which they influence). It opens the door to truly integrative, multi-level research strategies that consider the pathways to health operating at and among the social, cultural, individual, and biological levels. It also paves the way for research examining health at the group, community, or population level. This first set of recommendations targets research needed to improve the conceptualization and operationalization of basic constructs and social or cultural processes that are central to future research on pressing health issues. Later sections address the need for research on the pathways that link these constructs and processes to health.

RECOMMENDED RESEARCH

- Identify different conceptualizations and measurements of socioeconomic status (SES) and social class and their importance to health at the individual and higher levels of aggregation.
- Study the relationships between the characteristics and dynamics of institutions and social systems and the production of social, political, and economic inequalities.
- Study multiple dimensions of economic inequality, including absolute and relative poverty, inequalities in distribution of wealth, and their relation to health and health care.
- Study responses of individuals and groups to social, political, and economic inequality that may affect health (e.g., violence, delays in seeking treatment, health-damaging self-medication).
- Expand research on the meaning of gender and how it is influenced by cultural, social, and economic factors, and encourage researchers to incorporate improved concepts of gender into research on health.
- Foster research on age stratification systems, and on social and cultural dimensions of age, as they relate to health research. Examples include cultural models that link certain ages to stereotypes (e.g., teens and risk-taking) and expectations (e.g., dependent elders), and demographic, economic, and political forces that influence the relative power, status, and access to resources among age groups and cohorts.
- Support research on concepts of race and ethnicity and their measurement. Issues include what self-reports of race and ethnicity mean in the context of alternative perspectives: how does one see oneself, how do others define one, and how this may change over time and within or across different social and cultural settings. Research should consider various segments of the U.S. population and identify what criteria people use to classify themselves and others into different racial and ethnic categories.
- Explore how racial and ethnic identification intersect with other characteristics (e.g., social class, urban or rural residence, income, age) in influencing health.
- Clarify the meaning and operationalization of race from the perspectives of different disciplines such as cultural and phys-

ical anthropology, sociology, history, genetics, and biology. Develop effective mechanisms, such as working groups and consensus documents, to facilitate cross-disciplinary exchange; obtain the consultation of affected communities; and inform scientific research, public policy, and the public.

- Support research on the implications of various approaches to conceptualization and measurement of race and ethnicity for health and health research, with particular attention to the measurement standards established by the U.S. Office of Management and Budget in 1997.
- Advance our understanding of the impact of intermarriage, immigration, and other social processes on the changing meaning of race and ethnicity in the United States.
- Foster research to improve the monitoring of inequalities in health and disease among diverse groups, and examine the implications for monitoring of strategies used to measure basic constructs such as age, gender, socioeconomic status, race, and ethnicity.
- Conduct research to improve the conceptualization and operationalization of culture in health research. Identify those definitions and dimensions of cultural phenomena and intracultural and intercultural variation and change that are most useful in understanding health, and identify the mechanisms through which cultural phenomena influence health.
- Explore the relative value and uses of different means to identify, describe, measure, and analyze intracultural and intercultural variation and change.
- Support research on concepts of social and cultural change, their measurement, and the mechanisms through which such change occurs. Explore how change at one level (e.g., individual, social, institutional) in social arrangements or cultural beliefs can influence changes at other levels.
- Study the meaning and relevance to health of basic social and cultural constructs in diverse contexts around the globe.

ETIOLOGY: OVERVIEW

Beyond documenting and monitoring the associations between sociodemographic characteristics and morbidity, mortality, and use of health services, social science research also probes the etiology of disease and health disparities. Social scientists approach questions of etiology in diverse ways. One perspective views group differences in health as a function of interpersonal, psychological, and cultural differences among groups. If these differences are addressed through interventions, then health disparities should significantly decline or disappear. Another perspective suggests that some social categories such as social class, and the social dynamics that produce such stratification, represent fundamental causes of disease. From this perspective, a focus on intervening mechanisms errs on at least two counts. First, such a focus obscures the role that public policy can play in improving health by reducing inequities in society. Second, as Link and Phelan (1998) point out, intervening mechanisms are often temporary and change over time and, more often than not, do not fully explain the strong associations between social structural factors and health.

Both perspectives can be accommodated within a multi-level framework that recognizes a broad set of mechanisms operating among and within social structures existing at different levels. At the highest levels are structures and processes that involve and affect populations broadly: government, media, economic systems, social stratification, and political processes and policy-making, and broadly-held cultural values and practices. Some of these processes also operate in communities and neighborhoods; institutions such as schools, churches, and businesses, and social or professional organizations. However, at these levels, processes contributing to social cohesion, social support, social control, social and cultural conflict, and the development and enforcement of social and cultural norms play a larger role. In families and small groups, interpersonal processes such as conflict and support, socialization, and sharing of resources play a dominant role. The multi-level model is filled out by characteristics of the individual, and of course biological mechanisms creating susceptibility to disease and the onset and course of illness.

The value of this multi-level framework for understanding etiology is in shaping theory and informing research designs that link processes across levels. For example, one might link the effects of policy changes (e.g., changes in welfare laws) to family dynamics (e.g., work and childcare strategies adopted within poor households), to interpersonal stress and health behaviors (e.g., conflict, physical activity), and finally to physiological and immunological mechanisms affecting health.

The research recommendations presented in this section articulate a set of general strategies for research on the role of social and cultural factors in the etiology of health and illness. The section that follows highlights interpersonal, social, and cultural factors that provide promise in explaining morbidity and mortality, such as racism and discrimination, social networks, social capital, spirituality, and stress. The next section focuses on the ways in which various contexts influence health and health disparities.

RECOMMENDED RESEARCH

- Support studies that link levels of analysis, showing the connections between macro-level factors (or policies), social influences and structures, cultural norms, individual practices, and health.
- Conduct research that locates individuals within families, neighborhoods, worksites, political jurisdictions, economic regions, and other social contexts.
- Determine the causal pathways that lead from the sociocultural environment to general vulnerability to disease and disease-specific outcomes, including an understanding of gene-environment interactions and co-morbidity and a plausible pathway through cumulative physiological burden.
- Explore the role of sociocultural processes in the risk of exposure to hazards such as toxic chemicals, physical stresses, violence, and infectious agents. Examples include the role of residential segregation in concentrating poor and minority populations in inner city neighborhoods, processes of social stratification that affect occupational choice, and cultural prac-

tices that affect the characteristics of sexual networks and sexual partnerships.

- Conduct longitudinal studies identifying social, structural, and individual factors affecting the onset and course of disease over the lifespan, including studies that examine the short- and long-term consequences of exposure to such factors, the timing of exposure at critical periods in the life course, and the duration of exposure.
- Identify how health behaviors are influenced by the social and cultural context and the effects of health behaviors on outcomes in different populations.
- Initiate intervention studies that explore the effects of changes in physical and social environments on health, including social capital and cultural norms and beliefs.
- Advance knowledge about social, cultural, and biological factors in the etiology of health and disease by conducting comparative research in diverse populations around the globe.

ETIOLOGY: INTERPERSONAL AND SOCIAL INFLUENCES

A valuable contribution of the social sciences is to explain health and disease not solely as an individual biological problem, but also as a social phenomenon associated with social ties and other forms of social influences. Key concepts in this research include social networks, or patterns of relations joining individuals or groups; social support, which refers to the emotionally or instrumentally sustaining qualities of social relationships (House, Landis, and Umberson, 1988); and social integration, or the extent of ties linking an individual to others. Related concepts include social capital, or resources that inhere in the relationships between and among individuals (Coleman, 1988); social cohesion, the extent to which members of a group trust each other and share common values; and social control, the extent to which members of a group enforce common norms.

Much of the research in this area has focused on the positive facets of social interaction. Social support has been shown to buffer the onset or the course of illness; involvement in religious groups and marriage also appears to benefit health (Ellison and Levin, 1998; Ross, Mirowsky, and Goldsteen, 1990). However, health is also negatively influenced by social interactions that explicitly and implicitly exploit, discriminate against, or unfairly treat groups of people. Racism is an example of this type of interaction. These different forms of interpersonal and social relationships are considered and need research in these areas described. We also consider the role of stress in mediating the effects of social processes on health, and the role of social and cultural factors in moderating the effects of stressful experience on health. Finally, we consider the research related to cultural processes that influence our understanding of health (the social construction of health), as well as the response to illness and disability at the individual, family, and community level.

RECOMMENDED RESEARCH

Racism and Other Forms of Discrimination

- Study the effects on health of prejudice and discrimination (with respect to race, ethnic origin, age, gender, sexual preference, or disability). Study the ways in which the experience of racism intersects with socioeconomic position in affecting health and the prevention and treatment of health problems.
- Refine and develop measures of diverse dimensions of racism (e.g., individual, structural, and cultural), in various arenas such as workplace, personal interactions (e.g., client/physician), institutions (e.g., health care settings), and communities (e.g., residential segregation).

Social Interaction and Social Networks

- Study the ways in which individuals and groups organize in networks and other social arrangements, and the implications for health of the characteristics and content of network ties. For example, intimacy may be a necessary characteristic of social ties that improve health by providing emotional support. On the other hand, social cohesion in a neighborhood may be more relevant to ties among parents in a neighborhood who need each other's help to keep their children away from drugs and violence.
- Study the ways in which social networks link individuals to treatment organizations and providers and to other individuals and groups who may influence patterns of health, risk, and illness behaviors.
- Study the differences among networks of more and less advantaged groups (distinguished by race, gender, sexual orientation, and class), the reasons for these differences, and the implications of these differences for health, health care access, and experiences as well as outcomes.
- Specify the causal dynamics of social networks more clearly, using longitudinal designs and strategies to address selection (omitted variable) effects. These studies are particularly challenging because of the methodological difficulties in identifying dynamic changes in networks that are not due to measurement error.
- Examine the relationship between social networks and health in a variety of contexts (e.g., schools, workplaces, the Internet) and organization-level networks linking providers/treatment organizations to one another.

Social Integration and Social Cohesion

- Study the social, cultural, and economic factors (e.g., norms influencing social interaction, social organization of schools and institutions, neighborhood poverty, and segregation) that influence the social integration of individuals and the social cohesion of groups.
- Study the diverse mechanisms through which social integration and social cohesion affect the health of individuals and contribute to health disparities.
- Advance methodological work on the measurement of social integration and social cohesion.

Social Capital

- Continue to advance the development of theory about the nature of social capital and its impact on health, attending to the inter-

section of social capital with concepts such as social networks and social support and identifying the critical aspects of social capital that play a role in mediating and promoting health.

- Advance methodological work on the measurement of social capital.

Religion and Spirituality

- Advance research on the conceptualization and measurement of religiosity (i.e., adherence to the beliefs and practices of religious institutions) and spirituality (i.e., beliefs and practices relating to personal conceptions of the sacred, and the relationship to higher powers), identifying those elements that play a critical role in influencing health.
- Study the social and institutional factors contributing to the influence (positive or negative) of religious participation on health, attending to bias resulting from selection effects (e.g., healthier people attend services) and intervening mechanisms (e.g., social support, social networks).

Stress

- Examine the effects of stress on multiple health outcomes to assess the specificity of different stressors on different outcomes.
- Identify the stressors that have the most impact on health for different age groups, genders, SES groups, and racial and minority groups.
- Expand the scope of investigations of stress and health to include the study of adversities in childhood and adolescence, traumatic experiences, chronic stressors, stressful events, acculturation stress, discrimination, and ambient stress, and how these various dimensions are interrelated.
- Identify patterns of stress proliferation and stress amplification that are particularly damaging to health.
- Develop an understanding of the ways in which stressful experience is exacerbated or moderated by social, cultural, community, and neighborhood contexts.
- Study the mechanisms through which stress mediates the influence of social, economic, and cultural factors on health.

Cultural Influences

- Study cultural belief systems about the body; illness and health; and the etiology, course, and management of anticipated outcomes of disease in culturally diverse communities.
- Examine cultural differences within and among racial and ethnic groups in the definition of life chances, life goals, values, and preferences, and how variation in achieving culturally defined goals is associated with disease risk.
- Study the ways in which individuals draw on cultural models relating to health and illness to guide decision-making and behaviors that influence health outcomes.
- Study the development, diffusion, and alteration of beliefs, norms, values, and practices affecting health, including those involving health-promoting and health-risking behaviors, and responses to illness such as care-seeking, treatment, and self-care.
- Study cultural processes influencing health at the individual, family, community, and institutional levels.
- Study the dissemination and impact of information and communication about health risk or new health technologies to achieve a better understanding of how information is transmitted, how individuals and communities receive that information, and the ways in which individuals and communities act on that information.

ETIOLOGY: SOCIAL CONTEXTS

Mechanisms that link social and cultural phenomena to health operate within specific social contexts: for example, social interaction takes place within schools, neighborhoods, and on the Internet; conflict may occur in families and neighborhoods; racism is expressed in workplaces and communities. Social contexts provide the stage for social and cultural influences on health and their characteristics also directly affect social and cultural processes. Parenting practices differ in single-parent families, stepfamilies, and intact biological families (Harris and Ryan, 2000). Poor, racially segregated neighborhoods are less able to resist encroachment by health-damaging activities (e.g., waste dumps), and less able to attract health-promoting resources (grocery stores, health services, parks) (Massey and Denton, 1993). Many rural communities are impoverished and lack adequate access to health services. At higher levels, social and economic policies affect the operation of institutions, the incentives and disincentives for a broad range of behaviors, and the shared norms and values. Understanding the effects of context in influencing health is important because health interventions of any type must adapt to the context in which they are embedded, and because contexts may be targeted directly by strategies to improve health.

In order to understand the ways in which health is linked to the neighborhoods and communities where people live, the schools they attend, or the workplaces they serve, it is essential also to understand how people are "selected" into contexts, that is, how they come to occupy specific contexts. Where individuals live is not always a matter of choice, as reflected in homeless and refugee populations and those who are unable to leave high-risk neighborhoods because of lack of resources, lack of affordable housing, and discrimination in housing markets. Similarly, school and workplace contexts are to a variable degree a matter of choice. Understanding the factors affecting an individual's choices to live and work in particular contexts, including the effects of social, economic, and cultural forces, is one of the key methodological challenges facing research on the effects of context on health.

RECOMMENDED RESEARCH

- Develop improved strategies for studying the individual and social processes that select people into specific contexts and for accounting for these processes in research on the effects of context on health. Potential strategies include research designs that directly measure and control for selection processes, statistical controls for unobserved differences among those occupying different contexts, and experimental designs.

Families and Households

- Conduct research on the role played by families and households in mediating or moderating sociocultural influences on health, including the effects of family characteristics and dynamics on health (e.g., income and resource sharing, provision of social and emotional support, socialization of children, violence and conflict, mutual influence, enactment of valued roles, facilitating care-seeking and treatment, caretaking).
- Study family processes, identifying those that have positive effects on children's health and produce behavior patterns that bode well for future health.
- Study the power dynamics between persons who live together and the health effects of power differentials. How does culture (e.g., ideas about gender) versus economic dependence (e.g., relative earnings) affect the relative power of family members?
- Study conflict and abusive relationships (parent/child; domestic violence; treatment of elderly) within families and their effect on health and health care.
- Study the social networks of family members and the implications of overlapping vs. distinct networks on social support and health; study the implications of family social and kin networks for social capital and health.
- Study the factors that determine the extent and nature of emotional support provided by and obtained from family or household members and how this affects health.
- Study the impact on health of the nature and content of relationships between adults and their parents or other adult kin, including transfers of economic resources, instrumental help, and emotional support in one or both directions.
- Study the effects of family structure and household composition on health outcomes for adults and children and the causal mechanisms responsible for these effects.
- Examine the ways in which larger economic and public policy parameters affect family practices and resources that bear upon health.
- Study health-related issues as they apply to all types of families, including singles, cohabiting couples, gay and lesbian families, single parent families, and stepfamilies.

Institutions

- Study the role that religious institutions play in influencing health through the development and reinforcement of social norms, mechanisms of social control, and the structuring of opportunities for social interaction.
- Study the ways in which workplaces and employers influence health. Examples include contributing to or impeding reduction of occupational hazards to health, work tasks (e.g., speed, repetition, work shifts), health insurance coverage and benefits (including in retirement and to domestic partners), human resource programs (e.g., health promotion programs, child care), and policies (e.g., flextime, family/medical leave). How do the characteristics of workplaces and employers affect these health-related practices, and what effect do they have on the health of employees and their families?
- Study the effect of transformations in economic structure (size of firms, contingent employment relations) on workplace characteristics and practices that affect health.
- Study the ways in which the activities of for-profit and not-for-profit organizations either promote or undermine health in the general population. Examples involving for-profit enterprises include promotion of tobacco products, marketing of new drugs, attention to product safety, and bank lending policies; examples involving nonprofit organizations include advocating for or against health-related policy, and providing food and shelter to the needy. Study the cultural, economic, political, and structural factors that influence the positive or negative impact of such activities on health.
- Study the effects of school characteristics, including size, policies, diversity of student body, and other factors, on students' attachment to school and school success and the relation of these outcomes to health and health-related behaviors.
- Study those aspects of schools that may have direct implications for student health, including health curricula, sources of illness, injury, or toxic exposure; and exposure to physical, sexual, or verbal violence, racism, or sexism.

Health Care Delivery Systems

- Examine how the organization of care (managed care versus fee-for-service) differentially affects various social groups, such as older and younger Americans, those fluent in English and those most comfortable using other languages. Can managed care be appropriately tailored to the needs and circumstances of low-income and/or ethnic populations?
- Study differences in access to quality medical care between urban and rural residents, across racial/ethnic groups, and by income/wealth.
- Study the practices and policies of health care institutions, such as hospitals, and their impact on health.

Neighborhoods and Communities

- Improve the conceptualization of neighborhood and community in health research, attending to the diverse ways in which these units influence health. Study the implications for health of factors such as the presence or absence of physical/environmental hazards, access to health care, availability of nutritious food supplies and other material resources, income inequalities, social hazards such as violence, and social supports.
- Study differences across neighborhoods and communities in the accessibility of (and travel time to) health care facilities, and the effects of such differences for health. Are these effects particularly strong for groups such as the elderly or those lacking private transportation?
- Study the social characteristics of neighborhoods and communities that help to protect health (e.g., involvement of adults in civic organizations, intergenerational ties, social control, social cohesion). Through what mechanisms do these effects operate?

Geographic Mobility and Environmental Justice

- Study the ways in which social, cultural, and economic factors

influence health by affecting where people live, the ability to move to a healthier environment, and the ability to eliminate health hazards or promote positive health conditions in local communities.

- Study the effects on health of residential segregation by race, ethnicity, income, or other dimensions.
- Study the processes and mechanisms that explain why immigrants to the United States have better health than native-born residents of the same ethnic background, and why this health advantage erodes over time and in subsequent generations. Consider selection effects (e.g., healthier people migrate), cultural continuity and change (e.g., in beliefs and practices relating to health), and protective factors (e.g., social networks and social capital) that may operate in the social contexts of immigrants' lives.

The State, Policy, and Government

- Study the effects of health policies on diverse populations, such as those defined by immigration status, gender, race/ethnicity, sexual orientation, or age. Examples of health policies include Medicaid and Medicare, disability policies, and publicly funded health services.
- Determine the pathways by which social policies (such as gun control, urban renewal, and welfare reform) affect the health of diverse populations. For example, welfare reform may affect health through changes in economic activity, family structure and processes, and directly influence access to health care.
- Assess the effects of health and social policies on racial, ethnic, and migrant disparities in health, and the pathways through which these effects operate.
- Examine the pathways and mechanisms through which state and market policies combine to produce, reinforce, or reduce social, economic, and political inequalities and their health consequences.
- Study the pathways through which the structure and function of the legal system and legal change affect population health and health care, for example, through producing or reducing inequalities or by providing protection against health risk (e.g., enforcing product safety). Relevant aspects of the legal system include laws, regulations, court decisions, treaties, conventions, and the criminal justice system.

Media

- Study the impact of public health messages on health, and the elements of context that influence the health impact of messages (e.g., media policies that prevent contraceptive advertising, availability of media channels to promote public health messages).
- Study media portrayals of health-related norms, values, beliefs, and behaviors and the impact of such portrayals on health risk and protective behaviors in children and adults. Study the impact of advertising on health and health-related behaviors and choices.
- Study the influence of the Internet on access to health information, products, and services, and the ways in which social, economic, and cultural factors moderate the impact of the Internet on health.

CONSEQUENCES OF ILLNESS

A foundation of empirical research is emerging that addresses the consequences of poor health for economic well-being at the individual, family, and population levels. This body of research demonstrates that the connections among health, nutrition, functional capacity, and productivity or output are complex, difficult to disentangle, and possibly dependent on the organization of productive activities, coping strategies adopted to respond to poor health, and the availability of insurance mechanisms (Over, et al., 1992). For example, the experience of illness or death can trigger significant changes for families (Over, et al., 1992). Households may need to borrow or draw on savings and investments to pay for medical expenses and maintain consumption. Household members may need to increase their commitment to both home production and market work to care for an ill family member and compensate for his/her lost productivity. Thus, resources and energy devoted to health-promoting activities (e.g., breastfeeding, exercise, hygienic practices) may be reduced. The coping mechanisms adopted by families and societies to address illness and poor health are themselves costly, and their consequences for well-being are poorly understood.

Understanding the consequences of health and illness is important to the mission of the NIH for several reasons. First, health disparities among groups varying in socioeconomic status result in part from the reciprocal influence of SES on health and health on SES. The nature of these feedbacks needs to be fully understood if we are to understand the mechanisms underlying health disparities. Second, the value of investment in improving health can be only partially understood by focusing on health outcomes alone. Improvements in quality of life resulting from social, economic, and cultural change at both the individual and societal level are an important part of the picture. Conversely, understanding the full impact of poor health or poor health care on individuals and groups requires a broader conceptualization of health outcomes.

RECOMMENDED RESEARCH

- Study the effects of inadequate care, including substandard care, cessation of care, nontreatment, interrupted and discontinuous care, on individuals and groups. Give special attention to the effect of inadequate care on demoralization not only for the patient but also for providers, families, and organizations. Consider the roles of individual choice, policy, and programs in producing these effects.
- Encourage research on self-care as a response to illness and in the management of health conditions, considering the influence of social, cultural, and economic factors on the adoption and consequences of this strategy.
- Study stigma across conditions, care settings, outcomes and groups. How is stigma produced in society or by care systems? What illnesses are stigmatized, why are they stigmatized, and by whom are they stigmatized? What are the implications of stigma

for access to care and treatment? How does stigma affect outcomes across health conditions?

- Study the effects of illness and disability across the entire lifespan, considering effects on individuals and the multiple contexts in which the individual is embedded, including work, family, neighborhood, and institutions such as schools, churches, and businesses.
- Study the consequences of death and dying for the health and well-being of the deceased's relatives and friends.
- Study the coping strategies people use to adapt to illness and disability; the influence of social, cultural, and economic factors on these strategies; and the impact of these strategies on health and well-being at the individual, family, and community level.
- Shift attention from discrete diseases or disease episodes to concurrent and multiple illnesses and disabilities in studying the consequences of health and illness.
- Provide systematic attention to the interaction between physical conditions (e.g., disease, disability) and mental health.

LINKING SCIENCE TO PRACTICE

The social sciences can make powerful contributions in preventing and treating illness by pinpointing the environmental contexts, social relationships, interpersonal processes, and cultural factors that lead people to engage in healthy behaviors, seek health services before disease symptoms worsen, and participate with medical professionals in treating illness. Clinical interventions that prove efficacious in controlled experimental settings often fail to work in natural settings. One of the reasons for this discrepancy is that carefully controlled laboratory experiments ignore the social and cultural factors that shape individual behavior. Incorporating social science research and theory into the provision of prevention, treatment, and service programs will likely result in more robust and realistic interventions.

RECOMMENDED RESEARCH

Prevention

- Support theory development and conceptual work in the field of prevention. Examples of needed research include clarifying the concepts of risk and protection and their meanings within distinct populations, defining the distinctions between health promotion and disease prevention, and promoting generalizability of theoretical frameworks.
- Support research that draws on the theories and methods of social network analysis to design, implement, and evaluate effective interventions.
- Support research efforts to understand how risk and prevention processes operate within and between naturally occurring settings, e.g., families, schools, workplaces, and support groups. Study the natural processes of diffusion of attitudes, beliefs, and behaviors affecting risk or protection.
- Study the social, cultural, economic, political, and ecological factors that influence the maintenance of health and health-promoting practices.

Treatment and Management of Disease

- Study the mechanisms of treatment relationships and how they impact health outcomes. Examples of relevant mechanisms include cultural competence, ethnic matching of provider and patient, and patient–provider interaction.
- Conduct research on cultural competence at multiple levels, including health systems, agencies, and providers, with an emphasis on primary care and mental health settings. Research is needed to define what constitutes culturally competent care, to develop and test different models (best practices) of culturally competent care, and to test models in randomized controlled trials.
- Conduct research on issues related to involuntary treatment. Examples include the impact of forced treatment of infectious disease, mental illness, or substance abuse; role of jails, prisons, and nursing homes as care settings; linking benefits to participation in treatment; privacy and consent in testing and treatment; protection of vulnerable populations; ethnic disparities in forced treatment; and pathways to involuntary treatment.
- Support research that addresses social, cultural, economic, political, and ecological factors that influence or interact with the management of chronic health problems such as diabetes, HIV, and lupus.
- Support research that explores the interface between traditional/alternative and allopathic/Western medicine and health maintenance practices and identifies the circumstances under which either or both function more effectively.
- Study how characteristics of the health care setting (e.g., private vs. publicly funded, sectarian vs. nonsectarian) influence care and treatment.

Services

- Conduct research on the development, dissemination, and accessibility of new therapies, technologies, and services, such as retrovirals and anti-psychotics. How do social and cultural factors affect these processes and what impact do they have on services and treatment?
- Study social, cultural, economic, and policy mechanisms that influence equitable access to health care. Examples include changes in health program policies that limit access to treatment for particular groups or conditions; stigma and racism; distributive mechanisms; and interventions to address discriminatory practices and improve equity in health care access. Consider multiple dimensions of access, including level of availability of services, physical and administrative accessibility of services, and service utilization, maintenance, and utility.
- Expand research on health care seeking to better include underserved and at-risk populations. This should include research on structural barriers.

Translation and Dissemination

- Expand research that translates basic social science research findings on the etiology of disease into the development and testing of new strategies for prevention, treatment, and service delivery, addressing in such research the relevance of social

context and racial, ethnic, cultural, and socioeconomic diversity to the development and adoption of novel strategies.

- Study the processes through which social and behavioral interventions are diffused into general practice. What accounts for success or failure (i.e., adoption vs. nonadoption)? How does this differ from the diffusion of biomedical treatments and interventions?
- Conduct systematic research on methods to improve the dissemination of tested and effective preventive interventions, treatment models, and service delivery strategies. This research requires adequate designs to allow rigorous comparisons of the effects of alternative methods of dissemination.
- Address the gap in our knowledge about how health information and health communications are understood and implemented at diverse levels of social organization. Issues include stigmatization, labeling (including individuals and communities "at risk"), multiple effects of being identified as at risk, and hypervigilence in response to messages about health risks.

METHODOLOGY

The study of social and cultural dimensions of health requires a broad set of tools. Scientists must measure the characteristics and behaviors of individuals, groups, institutions, and communities, as well as the ways in which these entities interact and influence each other. Models must be developed that integrate factors operating at the social and cultural levels with those operating at the psychological and biological levels. Success will ultimately depend on both the further development of research methods in the social sciences and the development of sound, interdisciplinary approaches linking biomedical and social scientists. This section focuses primarily on the former task, reflecting the emphasis of the "Levels of Analysis" conference. As NIH advances its initiative on health disparities, it will be critical to address the latter task as well, drawing on expertise from all areas of the health sciences.

Many of the tools used by social scientists have been alluded to in previous sections of this report. Among the qualitative and quantitative methods most frequently used in observational research are surveys, focus groups, and in-depth interviews; other data collection methods include content analysis, analysis of administrative records, and neighborhood observation. Most social science research is observational, and therefore limited in its ability to directly test causal hypotheses. However, experimental methods are increasingly being employed to test hypotheses about social and cultural processes, for example, in intervention research and in social experiments (e.g. the "Moving to Opportunity" study, Katz, Kling, and Liebman, 1999).

Until recently, the majority of research in the social sciences focused primarily on individual-level data. However, several methodological developments over recent decades have created more powerful scientific tools for studying social and cultural influences. One has been the design of multi-level studies that link individual-level data to information on families, communities, institutions, and social networks. Many of the newer multi-level studies are also "multi-method" studies. These studies integrate quantitative and qualitative data-collection strategies or link survey and administrative data in an effort to improve measurement validity while retaining the capacity for statistical inference. A second advance has been the development of statistical methods for analyzing multi-level and qualitative data. Third, the proliferation of longitudinal research studies and new methods for longitudinal research have enabled scientists to study individual, social, and cultural processes that unfold over the course of a lifetime and often over generations.

The development of new and more complex research methods in the social sciences, combined with dramatic advances in computing power, complicates standard ethical concerns of confidentiality, privacy (nonaccess), and consent. Higher levels of analysis imply analysis of data at the group, institution, or community level, raising the prospects of consent at these levels and how such consent might be obtained. Sensitivity exists not only at the individual level but also for the groups and institutions with which individuals affiliate. To what extent do individual human subjects' protections extend to recognizable social groups and how can such risks and benefits be evaluated? How can sensitive data be presented geographically without harm to groups and communities? How can scientists balance the duty to provide information to studied populations with the risks of breach of individual privacy? New federal regulations that provide access to some research data under the Freedom of Information Act give urgency to the task of addressing these issues.

Despite advances in social science research methods, many challenges remain, and many more will emerge as new theories, questions, and methodologies evolve. The recommendations below call for methodological research on measurement, research design, data collection methods, and analytical methods. The recommendations also consider the special challenges of integrating methods, addressing ethical issues, and effectively promoting interdisciplinary approaches to research.

RECOMMENDED RESEARCH

Measurement

- Develop and refine standardized measures that could be employed broadly and in research that monitors trends in health and health disparities. Examples of domains for improved measurement development at the individual level include disability, mental health, functioning, racism, SES, spirituality, and aggregate risk measures.
- Identify and address the scientific issues in cross-population use of standard measures. This can be complex for even "easy"measures: for example, in the measurement of education as years of schooling, a "year" of school varies by area and school system, and also in quality.
- Support research that explores the dynamic interplay between locally valid concepts and standardized measures in order to determine and minimize potential sources of bias in research results.
- Develop measures of attributes and processes at the group, neighborhood, and community level. Examples include social capital, social networks, neighborhood stability and cohesion,

and other aspects of social context as well as aggregate-level counterparts to individual measures.

- Identify and address scientific issues associated with measurement at multiple levels of aggregation (e.g., equivalency of concepts across and within levels). Consider the use of simulation approaches for higher-level application of individual-level measures.
- Study the methodological issues of measuring individuals' membership in groups, neighborhoods, and communities.

Research Designs

- Expand longitudinal studies focused at the individual level to include multi-level measurement and analysis. Refine methods to assess and link contextual and individual information over time, and to handle attrition.
- Support mixed methods designs that promote the collection and triangulation of qualitative, quantified qualitative, and quantitative data to provide selective in-depth explanatory and broad based hypothesis testing in local, cross-national, and cross-country designs.
- Enhance designs for studying processes that unfold across the life course. These include biological, developmental, and social processes that link events or characteristics at one point in the life course with outcomes at later stages. Examples include the impact of exposure to health shocks in utero or early investments in children on health outcomes in later life.
- In longitudinal studies, address the challenge of balancing continuity of measurement with the need for measurement tools that are responsive to current scientific concerns.
- Use record linkage strategies to integrate measures of social context, individual experience, and health outcomes (e.g., neighborhood crime rates, individual earnings history, medical records) into studies, providing strong protections for the privacy of research subjects.
- Encourage designs that incorporate the measurement of social networks and their relation to health.
- Encourage experimental designs investigating causal links that are keyed to intervention strategies, especially those links that operate at levels of analysis beyond the individual. Take advantage of "natural experiments" to study the processes by which context influences health and behavior.
- Consider qualitative and interpretative issues in the design of research, including ethical perspectives on informant burden and the impact of design features on quality and completeness of interview data.

Data Collection Methods

- Develop innovative designs and methods for monitoring health and health disparities.
- Support research on sampling strategies, including those used in qualitative studies. Further develop methods that link population-based samples with clinic-based or other self-identified study populations. Study the issues involved in comparing data based on different sampling strategies and levels of analysis.
- Conduct research on the relative value and uses of different sampling designs and sample sizes for producing valid and reliable findings bearing on intracultural and intercultural variation and change.
- Continue research on the impact of new technologies for data collection, including computer-assisted interviewing, use of audio components, and Web-based data collection. Study the impact on validity of self-reports, data accuracy and completeness, and participant comfort.
- Support research on other data collection strategies, including matching interviewer and subject characteristics; effects of interview mode; methods to enhance privacy and improve response validity; informed consent procedures; and quality control procedures.

Approaches to Analysis

- Support the continued development of statistical procedures for estimating multi-level models. Develop methods that appropriately handle response bias errors and other types of errors in multi-level analyses.
- Support the development of statistical methods that facilitate the analysis and interpretation of group data. Develop methods to facilitate analysis of within-group variation as well as between-group comparisons.
- Support the continued development of statistical methods and analysis strategies that address threats to causal inference such as unobserved heterogeneity.
- Support the continued development of new software and conceptual mechanisms for triangulating qualitative and quantitative data to enhance interpretation of research results.

Integrating Methods

- Encourage research designs that more explicitly integrate scientific approaches, both vertically (across different levels of analysis) and horizontally (across social science disciplines).
- Integrate the perspectives of the social and behavioral sciences into basic and applied health research by developing multidisciplinary teams with expertise dictated by the nature of the problem being studied.
- Pursue the creative integration of qualitative and quantitative methods. Encourage designs that combine quantitative and qualitative methods in interactive and iterative ways. Develop improved sampling methods for qualitative studies (e.g., selecting ethnographic subjects by using purposive, chain, or snowball sampling); techniques for deriving population estimates based on qualitative data; and methods of systematizing analysis of qualitative data to improve integration with quantitative data analysis. Encourage the use of qualitative research methods to inform the development of quantitative measures.

Ethical Issues

- Address the ethical issues arising from research that links the individual to higher levels of analysis, for example, the impact of research on groups and communities and the application of informed consent and protection of human subjects to groups

and communities.

- Support research to address threats to confidentiality of data collected in multi-level studies by advancing statistical methods for masking or altering individual data and studying how such procedures impinge on the ability to conduct valid analyses.

Managing the Scientific Process

- Encourage the development of academic-community partnerships and community-based participatory action research. Support research to improve methods and concepts relevant to such research, for example, research on the forms and functions of community advisory boards for academic-community partnerships.
- Encourage team building to cover all scientific areas pertinent to a proposed study.
- Facilitate cross-disciplinary communication that promotes the education of scientists within and across fields on methods for social, cultural, and multi-level research.
- Promote initiatives that reach across federal agencies, and between federal agencies and private foundations.
- Promote the sharing and archiving of social science data related to health, to allow use of data for cost-efficient secondary analyses that test new hypotheses and/or adopt new analytic strategies.

INFRASTRUCTURE AND TRAINING

Advancing research on social and cultural dimensions of health will necessarily depend on training scientists to conduct this work and assuring the availability of resources to support research. The directions for research recommended in this report require both continued investment in basic disciplines and interdisciplinary research. Critical gaps must be addressed, most notably the small number of minority social scientists. Attention must also be given to training and infrastructure needs that transcend national boundaries in order to keep pace with global health concerns and scientific opportunities.

Solid grounding in the theory and methods of a social science discipline is essential to prepare scientists to address questions about the meaning and measurement of basic social constructs, and the mechanisms through which social, cultural, and economic processes affect human behavior and well-being. The recent National Research Council report, *Addressing the Nation's Changing Needs for Biomedical and Behavioral Scientists*, concluded that sufficient numbers of behavioral and social scientists were being trained to meet the nation's needs. However, as many in the behavioral and social science community have pointed out, the report did not address the extent to which such scientists were engaged in health research. It may be necessary to adopt several strategies at once: strengthening social science training programs, encouraging greater attention to health research in such programs, and attracting social scientists into health research careers.

At the same time, research training that is too limited by disciplinary boundaries will impede the ability of social scientists to contribute to health research. Trainees must be given the skills to bridge across disciplines within the social sciences (e.g., anthropology, social psychology, sociology, economics) and across the social, behavioral, and biomedical sciences. Several recent reports from the National Academy of Sciences and the Institute of Medicine (IOM) have addressed training in the behavioral and social sciences (National Research Council, 2000; Pellmar and Eisenberg, 2000; Singer and Ryff, 2000). All have concluded that an urgent need exists for training programs that prepare investigators for directing and participating in interdisciplinary work. Two models exist for this type of training program: those that train scientists in two or more basic disciplines, and those that provide scientists who are grounded in one discipline training that enables them to work collaboratively with scientists from other disciplines. The first is more costly than the second, but both should be effective.

A recent IOM report catalogued the numerous obstacles to interdisciplinary research and training, including attitudinal and communication barriers, the structures and promotion policies of academic institutions, and barriers inherent in funding organizations and peer review (Pellmar and Eisenberg, 2000). These obstacles must be overcome in order to develop strong social science programs that instill the culture and skills required to sustain a challenging interdisciplinary research agenda.

Infrastructure needs in the social sciences differ from those in the biomedical sciences. Instead of laboratories and microscopes, social scientists depend on data resources (data sets and archival records), computing power and software to conduct analyses, and methodologies for the design, collection, and statistical analysis of research data. Since multi-level longitudinal research projects of the kind recommended in this report are extremely expensive to conduct, sharing of such data among investigators and institutions is essential for the full potential of such projects to be realized. Such sharing requires further investments in data archives, methods to ensure that confidentiality of data is not compromised, and support for user services, especially for investigators at universities without large research centers.

RECOMMENDATIONS

- Encourage the development of training programs that provide a strong foundation in the theory and methods of a social science discipline and the skills needed to function in an interdisciplinary research setting.
- Encourage cross-training in basic social science disciplines and other health-related sciences.
- Encourage the development of interdisciplinary training programs at the predoctoral and postdoctoral levels.
- Promote the use of underutilized mechanisms (e.g., individual fellowships, career development awards) for disciplinary and interdisciplinary training in the social sciences.
- Accelerate training of underrepresented minorities in the health-related social sciences.
- Encourage the development of infrastructure programs that support interdisciplinary research on the social and cultural dimensions of health.
- Support training and research infrastructure programs that facilitate the development of global capabilities for research

that integrates the social and cultural dimensions of health.

MOVING TOWARD HIGHER LEVELS OF ANALYSIS

The social sciences are critical to American society's quest to promote health, prevent disease, and provide quality treatment. They provide knowledge about the social, cultural, and economic environments that influence human health and behavior, and the processes through which these environments exert their influence. They address critical issues in the prevention and treatment of disease and poor health, as well as social, economic, and cultural factors in the delivery of health services that have an impact on health outcomes. They are poised to contribute to integrative research that pushes forward our understanding of health and health problems by taking into account the determinants of health at multiple levels of analysis.

The June 2000 "Higher Levels of Analysis" conference highlighted the contributions of social sciences research to the NIH mission of understanding and improving health. This report captures the recommendations of conference participants on developing a research agenda to strengthen and promote the contributions of the social sciences. It identifies a large number of specific research questions that are ripe for exploration and development — questions that call for expanded investment in the social sciences in five categories of scientific activity: fundamental research, understanding health and illness, improving health, supporting responsible science, and integrating health science. The recommendations below summarize the specific recommendations detailed in the earlier sections of the report.

Fundamental Research

1. Support research to improve the measurement and clarify the meaning of basic constructs used in sociocultural research on health, including culture, social change, gender, age, socioeconomic status, race, and ethnicity. Study the effects of historical and cultural context on meaning and measurement, and address their implications for monitoring trends in health and health disparities.
2. Study the characteristics and dynamics of social and cultural systems; examine the processes that shape and change the social, cultural, political, economic, and institutional environments of individuals and groups.

Understanding Health and Illness

3. Expand research on social and interpersonal factors that influence health, including racism and other forms of discrimination; social interactions and social networks; social integration, social cohesion, and social capital; and religion and spirituality. Study the ways in which these factors intersect, and the cultural, social, and biological mechanisms through which they affect health.
4. Examine how social contexts such as families, neighborhoods, schools, worksites, and political jurisdictions influence health and elucidate the mechanisms through which these influences operate. Develop innovative strategies for understanding and accounting for the process by which individuals and groups come to organize in networks and other social arrangements and to occupy particular social contexts.
5. Study the consequences of health and illness at the family, community, and societal levels. Study the social, cultural, and institutional factors influencing the nature and extent of consequences for individuals.

Improving Health

6. Conduct research on social and cultural aspects of treatment, including cultural competence, stigma, provider–patient interaction, the treatment context, and issues related to involuntary treatment.
7. Expand research on health care services and health care seeking to address social, cultural, economic, and policy factors that influence access to care and the delivery, quality, and accountability of health services. Study the development of new health technologies and their impact on services.
8. Translate basic social science studies of the etiology of disease into the development and testing of new strategies for prevention, treatment, and service delivery; study the social and cultural factors influencing the dissemination and uptake of health care technologies, messages, and interventions.
9. Integrate social science theory and approaches into prevention and health promotion research, and promote better understanding of how risk and prevention processes operate within and among various social and cultural contexts.

Supporting Responsible Science

10. Support the development of state-of-the-art social science methods. Challenges include measurement at the group, network, neighborhood, and community levels; further development of methods for longitudinal research; multi-level research designs that integrate diverse qualitative and quantitative approaches (e.g., surveys, ethnography, social network studies, clinical studies); experimental designs; and the development of improved methods for data collection and analysis.
11. Study and address the ethical issues arising from research that links the individual to higher levels of analysis such as communities, institutions, and identifiable groups, and further develop the science of actively involving communities in health research.
12. Encourage research that examines the social and cultural dimensions of health in a global context, recognizing that this science will be advanced by examining the etiology of health in a broad set of social and cultural settings and that issues involving health and illness transcend national boundaries.
13. Support the development of training programs to meet the need for social science expertise in health research and the challenges of an interdisciplinary research agenda, with special emphasis on the recruitment of underrepresented minorities into the health-related social sciences. Encourage the development of infrastructure for interdisciplinary programs of research that address the social and cultural dimensions of health.

Integrating Health Science

14. Encourage and support the integration of social science methods and theory into interdisciplinary studies of health that consider multiple levels of analysis, from the molecular, cell, or organ-system to the individual and sociocultural levels.

Parallel with continued development of social science research on health, NIH must also support and encourage the integration of social science with the biological and behavioral sciences in health research. The recently released National Research Council report, *New Horizons in Health: An Integrative Approach* (Singer and Ryff, 2000), provides a challenging agenda for such integrative research. The report's recommendations in areas such as positive health, personal ties, collective properties and healthy communities, effects of inequality, population perspectives, interventions, and research methodology and infrastructure echo many of the themes of this report. The NRC report also integrates questions of physiological risk, predisease pathways, and the effects of environment on gene expression, issues that are generally beyond the scope of the present report but vital to an integrated multi-level approach to health research.

Achieving the goal of an integrated health science will require the leadership of the NIH and the involvement of the diverse community of institutions and scientists who contribute to health research. Although a growing chorus of voices is endorsing this goal, work towards its achievement has barely begun. We need to foster communication among scientists who have been too long isolated within disciplinary walls; learn to work together across barriers of language, culture, and scientific prejudice; and put in place institutional and training structures that will ensure long-term success. Some models of the successful integration of science "across levels of analysis" already exist, and we can learn much from them. The further development of social science research and methods, and the integration of social science into interdisciplinary health research, are both important milestones on the pathway to improving the nation's health.

REFERENCES

American Anthropological Association. American Anthropological Association Statement on "Race." Via website http://www.ameranthassn.org/racepp.htm, July 28, 1998

Anderson, NB. (1998). Levels of analysis in health science: A framework for integrating soc iobehavioral and biomedical research. *Annals New York Academy of Sciences* 840: 563-576.

Borofsky, Robert. (1994). Assessing the field, pp. 468-491 in *Assessing Cultural Anthropology.* Robert Borofsky, Ed. New York: McGraw-Hill.

Caudill, William. (1958). *Effects of Social and Cultural Systems in Reactions to Stress.* Pamphlet 14, Social Science Research Council. New York: Social Science Research Council.

Coleman J. (1988). Social capital in the creation of human capital. *American Journal of Sociology* 94: S94-S120.

Cooper, R. (1984). A Note on the Biologic Concept of Race and Its Application in Epidemiologic Health Research. *American Heart Journal* 108:715-723.

Cooper, R. et al. (1997). The prevalence of hypertension in seven populations of West African origin. *American Journal of Public Health* 87(2): 160-168.

Dressler WW, Bindon JR. (2000) The health consequences of cultural consonance: cultural dimensions of lifestyle, social support, and arterial blood pressure in an African American community. *American Anthropologist* 102:244-260.

Ellison CG and Levin JS. (1998). The religion-health connection: Evidence, theory, and future directions. *Health Education and Behavior* 25:700-720.

Fejos, P. (1959). Man, Magic, and Medicine. In *Medicine and Anthropology*, edited by L. Goldston. New York: International University Press.

Hammel, E. A. (1990). "A Theory of Culture for Demography." *Population and Development Review* 16(3): 455-486.

Handwerker WP. (2001). *Quick Ethnography: Methods for Understanding Cultural Diversity in the 21st Century*. Walnut Creek, CA: AltaMira.

Harris, K. M. and S. Ryan. (2000). "Family Processes, Neighborhood Context, and Adolescent Risk Behaviors." Presented at the Annual Meeting of the American Sociological Association, Washington, D.C., August.

House, JS. (1990). "Social Structure and Personality". In M. Rosenberg and R. Turner (eds.), *Social Psychology: Sociological Perspectives*. New Brunswick, NJ:Transaction.

House, JS, Landis KR, Umberson D. (1988). Social relationships and health. *Science* 241/4865:540-545.

Katz L, Kling J, Liebman J. (1999). Moving to opportunity in Boston: Early impacts of a housing mobility program. Paper presented at the conference "Neighborhood Effects on Low Income Families," Joint Center for Poverty Research, Northwestern University/University of Chicago, Chicago IL, September.

Krieger N. (1994). Epidemiology and the web of causation: Has anyone seen the spider? *Social Science and Medicine* 39: 887-903.

Krieger N. (2000). Counting accountably: public health implications of new approaches to classifying race/ethnicity in the United States 2000 census-US and global perspectives. *Am J Public Health* 90:1687-9.

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

Lopez, S. R. and Guarnaccia, P.J. (2000). "Cultural Psychopathology: Uncovering the Social World of Mental Illness." *Annual Review of Psychology* 51: 571-598.

Malthus, TR. (1798). *An Essay on the Principle of Population, as it Affects the Future Improvement of Society*. London: J. Johnson.

Massey, D. and Denton, N. (1993). *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.

McKinlay, J.B., & Marceau, L.D. (2000). "To Boldly Go..." *American Journal of Public Health* 90:25-31.

McMichael AJ. (1999). Prisoners of the proximate: loosening the constraints on epidemiology in an age of change. *Am J Epidemiol* 149:887-97.

National Research Council. (2000). *Addressing the Nation's Changing Needs for Biomedical and Behavioral Scientists*. Washington, D.C.: National Research Council.

Newman-Giger, J. & Davidhizer, R. (1999). *Transcultural Nursing: Assessment and Intervention*. St. Louis, MO: Mosby

Over, M., Ellis R. P.,. Huber, J. H and Solon, O. (1992). "The Consequences of Adult Ill-Health." In Feachem, R.G.A., T. Kjellstrom, C. L. Murray, M. Over, and M. A. Phillips (eds.) *The Health of Adults in the Developing World*. New York: Oxford University Press.

Pellmar, TC, Eisenberg L. (eds). (2000). *Bridging Disciplines in the Brain, Behavioral, and Clinical Sciences*. Washington, DC: National Academy Press.

Rose G. (1985). Sick individuals and sick populations. *Int J Epidemiol* 14:32-38.

Ross, CE, Mirowsky J, and Goldsteen K. (1990). The impact of the family on health: Decade in review. *J. Marriage and the Family* 52: 1059-78.

Shonkoff JP and Phillips DA (eds). (2000). *From Neurons to Neighborhoods: The Science of Early Childhood Development*. National Research Council and National Institute of Medicine. Washington, DC: National Academy Press.

Singer B and Ryff C (eds). (2000). *New Horizons in Health: An Integrative Approach*. Washington DC: National Academy Press.

Smedley BD and Syme SL. (2000). *Promoting Health: Intervention Strategies from Social and Behavioral Research*. Institute of Medicine.

Sondik EJ, Lucas JW, Madans JH, Smith SS. (2000). Race/ethnicity and the 2000 census: implications for public health. *Am J Public Health* 90:1709-13.

Susser M, Susser E. (1996). Choosing a future for epidemiology: II. from black boxes to Chinese boxes and eco-epidemiology. *Am J Public Health* 86:674-7.

Williams, D. (1990). "Socioeconomic Differentials in Health: A Review and Redirection." *Social Psychology Quarterly* 53:81-99.

Appendix A
Agenda

Toward Higher Levels of Analysis: Progress and Promise in Research on Social and Cultural Dimensions of Health

June 27-28, 2000
Natcher Conference Center
Bethesda, Maryland

TUESDAY, JUNE 27, 2000

8:00 a.m. Welcome
Co-chairs: ***Christine Bachrach, Ph.D.***
David Takeuchi, Ph.D.

Introductory Remarks
Ruth Kirschstein, M.D.

8:30 a.m. Setting the Stage
Moderator: ***Paula Skedsvold, Ph.D.***

Toward Higher Levels of Analysis: Why NIH has Needs and Wants What Social Science to Offer
Norman B. Anderson, Ph.D.

Understanding the Social Context: The Promise and the Challenges
David R. Williams, Ph.D.

9:30 a.m. Panel 1:Basic Research on Sociocultural Constructs
Moderator: ***Mary Margaret Overbey, Ph.D.***

Categories of Race and Ethnicity: Social Science and Federal Policy
Robert A. Hahn, Ph.D., M.P.H.

To What Race Do You Belong? Are You Sure?
Janis F. Hutchinson, Ph.D., M.P.H.

SES and Health: Theory, Measurement, and Mechanisms
Ichiro Kawachi ,M.D., Ph.D.

Gender and Health
Paula England, Ph.D.

10:45 a.m. Break

11:00 a.m. Panel 2: Sociocultural Processes and Health
Moderator:
Suzanne Heurtin-Roberts, Ph.D., M.S.W.

Culture Theory and Health Processes
W. Penn Handwerker, Ph.D.

Institutional and Structural Contexts of Youth at Risk
John Hagan, Ph.D.

Families, Social Capital and Health
Gary Sandefur, Ph.D.

Social Integration, Social Networks and Health
Lisa F. Berkman, Ph.D.

12:15 p.m. Lunch (on own)

1:30 p.m. Panel 3: Etiology I — Interpersonal Processes
Moderator: ***Moira O'Brien, M. Phil.***

Marital Networks, Social Support, and Mental Health: Cultural and Institutional Considerations
Nan Lin, Ph.D.

Religion, Spirituality, and Health: What We Know, What We Need To Know
Linda K. George, Ph.D.

Culture, Individual Behavior and Blood Pressure
William W. Dressler, Ph.D.

Racial and Ethnic Differences in Infant Mortality: A Sociocultural Analysis
Sherman A. James, Ph.D.

2:45 p.m. Break

3:00 p.m. Panel 4: Etiology II -Neighborhood and Community Processes
Moderator: ***Deirdre Lawrence, Ph.D., M.P.H.***

Root Shock: The Consequences of African-American Dispossession
Mindy Thompson Fullilove, M.D.

Neighborhood Social Processes and Health-Related Behaviors
Robert Sampson, Ph.D.

Neighborhood Context, Child Maltreatment, and Child Well-Being: Ethnography and a Multi-Method Approach
Jill E. Korbin, Ph.D.

Ethnography, Geographic Information Analysis, Navigating Space, Place, and "Health Events"
Linda Burton, Ph.D.

4:15 p.m. Key Themes/Gaps and Open Microphone
Virginia Cain, Ph.D.
David Takeuchi, Ph.D.

5:15 p.m. Adjourn

WEDNESDAY, JUNE 28, 2000

8:30 a.m. Welcome Back
Christine Bachrach, Ph.D.
David Takeuchi, Ph.D.

8:45 a.m. Panel 5: Sociocultural Processes in Prevention
Moderator: Felice Levine, Ph.D.

Learning from Risk: Lessons for HIV Prevention in the Sociocultural Construction of Risk Behavior Among Drug Users
Merrill Singer, Ph.D.

Social Development and Violence: Prediction, Prevention and Future Directions
J. David Hawkins, Ph.D.

Developing Healthy Body Images Among Adolescent Girls
Mimi Nichter, Ph.D.

9:45 a.m. Panel 6: Sociocultural Processes in Treatment
Moderator: ***Emeline Otey, Ph.D.***

Operationalizing the Cultural Dimension in Diagnosis
Spero M. Manson, Ph.D.

The Provision of Effective Mental Health Treatment by Service Providers
Stanley Sue, Ph.D.

Sociocultural Aspects of Psychotherapy: Disseminating Effective Care
Jeanne Miranda, Ph.D.

10:45 a.m. Break

11:00 a.m. Panel 7: Health Services and Service Seeking
Moderator: ***Janice Phillips, Ph.D., R.N.***

Impact of Social and Economic Factors on the Use of Health Services
Arleen A. Leibowitz, Ph.D.

Social Networks as Mechanisms of the Influence of SES in Health Care Use and Effectiveness
Bernice A. Pescosolido, Ph.D.

Latino Health and Health Services Utilization
Lawrence A. Palinkas, Ph.D.

Mental Health Need in Risk Adjustment: A Tool To Increase Latinos Access in Managed Care?
Margarita Alegria, Ph.D.

12:15 p.m. Lunch (on own)

1:30 p.m. Panel 8: Global Perspectives
Moderator: ***Sabra Woolley, Ph.D.***

Health and Economic Development in Developing Countries
Anne R. Pebley, Ph.D.

Sociocultural Factors Influencing Tobacco Use, Nicotine Dependency and Smoking Cessation: How Global and North American Studies Can Inform Each Other
Mark Nichter, Ph.D., M.P.H.

Culture Change and Health
William A. Vega, Ph.D.

National and International Dimensions of Racism and Health
James S. Jackson, Ph.D.

2:45 p.m. Break

3:00 p.m. Panel 9: Health Justice and Ethics
Moderator: ***Judith Auerbach, Ph.D.***

Conceptualizing Empirical Research in Bioethics
Barbara A. Koenig, Ph.D.

Biosocial Complexity and the Study of Infectious Disease: The Example of HIV
Paul Farmer, M.D., Ph.D.

3:45 p.m. Key Themes/Gaps and Open Microphone
David Takeuchi, Ph.D.
David Williams, Ph.D.

4:45 p.m. Closing Comments
Christine Bachrach, Ph.D.

5:00 p.m. Adjourn

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