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Public Communications and Its Role in Reducing and Eliminating Health Disparities

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An amazing feature of the waning years of the 20th century and the beginning of the 21st century is the stunning transformation in both the generation and delivery of information of all kinds—a development that few of us have yet come to grips with. Combined with revolutionary developments in the biomedical sciences and telecommunications, plenty of health information and delivery channels now exist. The number of health-related news stories on television and in both the mainstream and ethnic printed news media has been steadily increasing over the last 25 years (Figures G-1 to G-3).¹ The increase is evident in major disease areas such as cardiovascular disease, tobacco/smoking, HIV/AIDS, and

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¹Media attention to leading health issues from 1980 to 2004 was assessed as the number of stories published/broadcast that mentioned four major health topics: cardiovascular disease, tobacco-related cancer, obesity, and HIV/AIDS. The print, television, and online media environment was assessed using LexisNexis, Vanderbilt University's TV News Archive, Ethnic NewsWatch, and Google. The following search terms were entered into each of these databases/archives: *cardiovascular disease* or *heart disease*, *tobacco* or *smoking and cancer*, *obesity*, and *HIV* or *human immunodeficiency virus* or *acquired immune deficiency syndrome*. Using LexisNexis, almost 300 publications under the U.S. News category were searched. Vanderbilt University's TV News Archive was used to search news coverage of the health issues on the four major U.S. national broadcast networks (ABC, CBS, NBC, and CNN). Ethnic NewsWatch provided information on coverage of health issues in almost 300 English- and Spanish-language ethnic newspapers, magazines, and journals. The search terms were also entered into Google to assess the number of Internet web pages that mention the four major health issues.

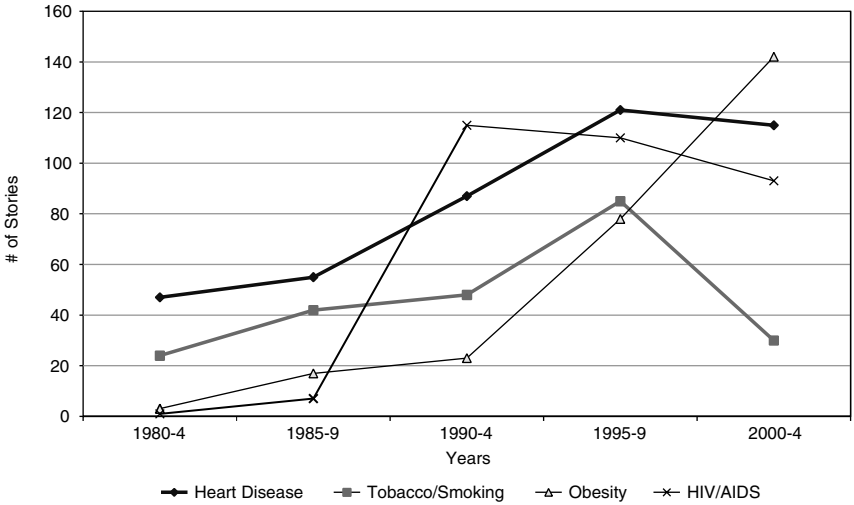


FIGURE G-1 National TV news coverage of leading health issues. SOURCE: See Footnote 1.

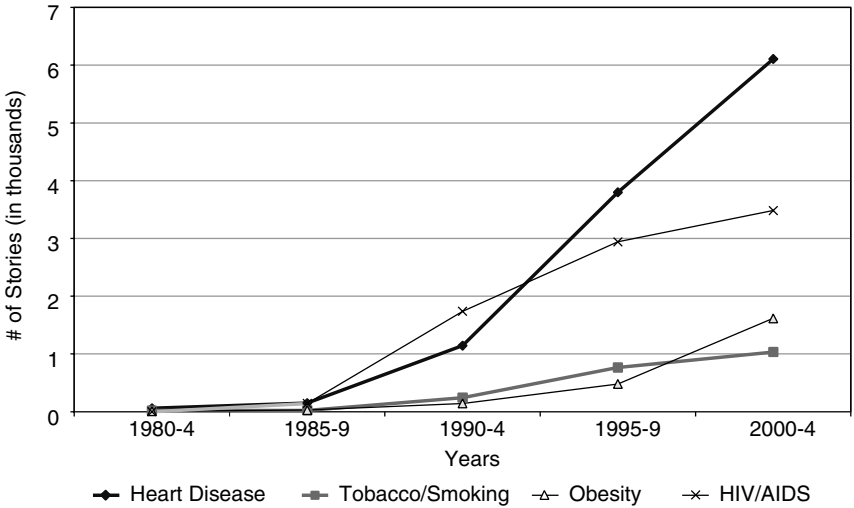


FIGURE G-2 Ethnic print media coverage of leading health issues. SOURCE: See Footnote 1.

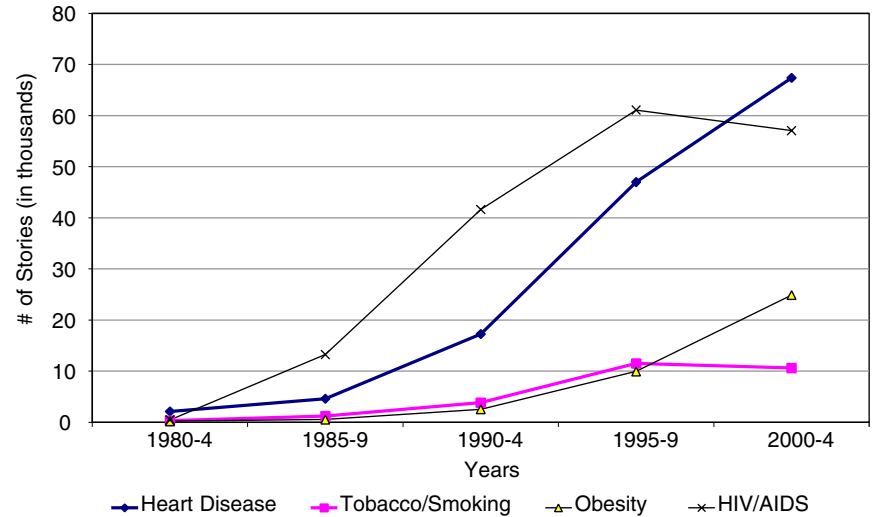


FIGURE G-3 Print news coverage of leading health issues. SOURCE: See Footnote 1.

obesity.² In addition, the number of Internet sites offering health information of varying quality is increasing rapidly. This strong secular trend in the information explosion in health is matched only by the public’s increasing hunger for such information. For example, the proportion of Internet users looking for health information has risen from 55 percent in 2000 to almost 79 percent in 2005 (Pew Internet & American Life Project, 2000, 2005).

This explosion in health information poses two fundamental challenges. One is a need to translate scientific information in a usable format and language that can be understood and used by different audiences through appropriate channels. Such a translation would require attention to the dissemination of evidence-based and timely information to different publics—a role that the National Institutes of Health (NIH) is uniquely qualified for. This challenge is compounded by the large number of channels and actors, which make it difficult to control the interpretation of biomedical information as it cascades through different segments of society.

A second and equally, if not more, important challenge is that we need to ensure that the information is available to all of those who need it, regardless of

²In the absence of a denominator, it is difficult to argue that media attention to health news is increasing in relation to other topics. It is equally conceivable that the increase may also be related to more channels of information. What the numbers do suggest is a change in the information environment where more information on health is available on organized communication channels such as the news media.

their social class, cultural, geographic, and individual backgrounds. This latter need is a particular challenge, given the profound information inequalities that characterize our society. While the number of channels through which information, particularly through subscription telecommunication services, increases, it also comes at a price that requires recurring expenditures and investment to obtain those services.

Such challenges are compounded by the reality of profound disparities in disease burden among different social classes, possibly partly attributed to lack of information. For example, even as the overall burden of cancer is steadily falling, the decline varies for groups of different racial/ethnic and socioeconomic backgrounds (Kawachi and Kroenke, in press; Krieger, 2001; Lynch and Kaplan, 2000). African American males are much more likely to develop any type of cancer than white males. The incidence rate among African American males for developing any type of cancer is 689.2 per 100,000 compared with 556.5 among white males (Ries et al., 2004). A similar trend has been noted among American Indians and Alaskan Natives in which the incidences of leukemia and colorectal, stomach, and pancreatic cancers continue to increase (Paltoo and Chu, 2004). In addition to higher cancer incidences, minorities and lower socioeconomic groups also tend to have high rates of death due to cancer. Incidence rates of developing breast cancer are higher among white women than African American women (141.7 compared with 119.9); however, African Americans are more likely to die from breast cancer (mortality rate of 35.4 compared with 26.4) (Ries et al., 2004). Similarly, African Americans are 2.0 times more likely, Hispanics/Latinos are 1.9 times more likely, and American Indians and Alaska natives are 2.6 times more likely to have type 2 diabetes than whites of similar age (CDC and NCCDPHP, 2000). African American childhood and adolescent obesity rates are more than 2 times higher than all other American racial and ethnic groups combined (Story et al., 1999). Minority and low-income populations have higher rates of death and disability from cardiovascular disease. The rate of death due to cardiovascular disease among African Americans was 321.3 per 100,000, compared with 245.6 among whites (CDC, 2004).

Another consideration is the evidence that a majority of health problems are attributable to lifestyles and behaviors that are modifiable given the right opportunity structure, access to health care, and, above all, information (Emmons, 2000). Most major chronic illnesses are preventable through appropriate health strategies such as avoiding or quitting tobacco use, pursuing an active lifestyle, proper diet and nutrition, and timely health screening (IOM, 2002). Communication plays a central role in promoting preventive behaviors and influencing patient-provider interactions (Hornik, 2002; IOM, 2002; Smedley et al., 2003).

What are some of the major challenges to disseminating evidence-based health information to different stakeholders, particularly in bridging health dis-

parities? How is the dissemination constrained by the differential capacity of the community and the American publics to access, interpret, and use the information in their day-to-day health? The focus of this essay is to address these twin challenges of the dissemination of health information and communication inequality through a delineation, clarification, and amplification of their dimensions insofar as they are relevant to reducing and eliminating health disparities. This assessment will be followed by a discussion of how the objectives of NIH's National Center on Minority Health and Health Disparities (NCMHD) could be achieved by a delineation of components of public communication.

THE NCMHD STRATEGIC PLAN: PUBLIC INFORMATION AND OUTREACH OBJECTIVES

NCMHD's Strategic Plan (2002-2006) outlined the following public information and outreach objectives:

1. Provide the latest research-based information to health care providers to enhance the care provided to individuals within populations experiencing health disparities.
2. Facilitate the incorporation of science-based information into the curricula of medical and allied health professions schools and into continuing education activities of health professionals.
3. Maintain ongoing communication linkages and dialogues with minority, ethnic, and other special populations, including the underserved, who experience health disparities.
4. Develop computer databases and Internet resources to disseminate current information about scientific research and discoveries and other activities regarding health disparities.
5. Develop targeted public health education programs focused on particular disease areas in order to reach those individuals within minority, ethnic, and other special populations who experience health disparities within these disease areas.

NCMHD's objectives focus on two broad strategies and groups of audiences to reduce and eliminate health disparities. One strategy is to disseminate information on health to different individuals or groups that face a disproportionate burden of disease with regard to health. Such diffusion of information involves a primarily nonprofessional audience with limited resources, skills, and training. A second broad strategy is to disseminate research-based information to trained professionals in medicine and public health or to organizations and groups that deal primarily with the medically underserved. We will briefly discuss the distinction between the two in the next section, which will then be followed by a more careful delineation.

KNOWLEDGE TRANSFER: RESEARCH DISSEMINATION, DIFFUSION, AND PUBLIC INFORMATION³

The nation's massive investment in the biomedical enterprise over the past few decades has resulted not only in advances in basic sciences, technology, and drug development but also in a fundamental understanding of how lifestyle changes can prevent some diseases and how evidence-based treatment can be effective (Hiatt and Rimer, 1999; IOM, 2002). Yet despite these advances, there are significant gaps in translation of this knowledge from the lab or research setting to clinical and community settings, thus limiting the advantages that might accrue from our investments. What is needed is a deeper understanding of: (a) how communication can accelerate the process of knowledge transfer from research settings to the community—from “bench to the bedside and bench to trench”—a process that demands a careful delineation in audience; (b) the publics involved; (c) communication processes; and (d) channels. Equally critical is a *feedback loop* between the *audience*, the consumers of research-based knowledge, and those who produce that knowledge.

Two related communication strategies are worth considering in accelerating knowledge transfer: public health communication and research dissemination.

Public health communication may be defined as the strategic communication of evidence-based health information on primary and secondary prevention, detection, diagnosis, and treatment to lay or nonprofessional audiences. The public here may include citizen individuals or groups such as community activists, workers unions, and civil and social service organizations. Some have characterized this phenomenon as *research diffusion*, a passive movement of health information through a social system. We will use the term *public health communication*, implying that it includes both purposeful (campaigns) and secular communications.

Research dissemination is an effort to close the gap between discovery and program delivery through the promotion of adoption, reach, and impact of evidence-based interventions across primary prevention to end-of-life care (NIH and NCI, 2005). Dissemination is particularly targeted to health care settings, practitioners, policy makers, and community groups. Although reporters are seldom mentioned, it is also critical to add news media as a group that could serve as a significant mediator in translating evidence-based information to the public.

³I want to thank Dr. Jon Kerner, Deputy Director of Research Dissemination and Diffusion at the National Cancer Institute, for clarification of the terms *diffusion* and *dissemination*. The conceptual distinction between them has been muddy, and these terms have often been used interchangeably. Dr. Kerner and colleagues in his office have been engaged in the conceptual explication of diffusion and dissemination as well in promoting the science of dissemination in cancer control.

Research dissemination stands in sharp contrast to *research diffusion*, which is a passive process that leaves the translation of scientific information to different publics to chance. In this process, scientific information is likely to spread only if the social actors, such as providers or the public health community, happen to come across the research results in a scientific publication or some other forum or if the news media picks up the article from a press release.

According to some scholars, successful dissemination involves a *push-pull process*, thus explicitly suggesting the feedback loop mentioned earlier (Kerner et al., 2005). That is, those pushing the dissemination should help the audience adopt and use the scientific information, but those pushing the information should also be sensitive to the needs and wants of the ultimate end-users of that knowledge.

We will briefly discuss the opportunities and challenges in public health communications and research dissemination and their relevance to health disparities.

PUBLIC COMMUNICATION, OUTREACH, AND COMMUNICATION INEQUALITIES

Functions of Health Communication

Communication in health may serve several functions: informational, instrumental, social control, and communal. The *informational* function is what we commonly describe as learning from media and other channels by acquiring knowledge on issues along a disease continuum, including prevention, detection, diagnoses, treatment, and end-of-life issues. Medical advice may also fall under this function. Several studies have noted the importance of communication in learning about health from either public health campaigns or incidental learning, and the threat of differential learning across social classes has also been noted (Hornik, 2002; IOM, 2002; Viswanath and Finnegan, 2002). The *instrumental* function is the provision of information that is useful, enabling practical action. It may include calling for a refill of prescriptions, verification of drug regimens on the Internet, clarification of questions with providers, learning of a time and place for preventive screening or vaccination, and skills in following certain health behaviors, among others. Communication performs the vital *social control* function in defining social norms, reinforcing or inducing beliefs, and defining the limits of what is acceptable and unacceptable in health (Tichenor et al., 1980; Viswanath and Demers, 1999). Campaigns to change social norms around binge drinking (Wechsler et al., 2003) or tobacco use (Gilpin et al., 2003) are, in essence, serving the social control function. The *communal function* may include building a sense of community, social connectedness, norms of reciprocity, and access to social capital (Berkman, 1986; Demers, 1996; Friedland and McLeod, 1999; Kawachi, 1999; Kawachi and Berkman, 2000; Kawachi et al., 1999; Putnam, 2000; Stamm, 1985; Viswanath et al., in press). Social and emotional

support during treatment is another example of the communal function of health communication.

Communication, therefore, is central to learning about health, defining the norms of acceptable health behavior, and providing information to make appropriate decisions regarding treatment.

Communication Inequality

Two more principles of communication are worth noting. First, communication is always controlled as it spreads through the system. Second, more germane to the discussion here, communication or, more precisely, information is always unequally distributed. Inequalities in communication offer one potent explanation for inequalities in health. *Communication inequality* is defined as the differences among social groups in their ability to generate, disseminate, and use information at the macro level and to access, process, and act on information at the individual level. Although much of the discussion on communication inequality is focused at the individual level, the macro level of inequality will be briefly addressed in the next section on dissemination, as there has been limited research in that area.

In general, three common indicators of socioeconomic status (SES) often used in the literature are education, income, and, less often, occupation and employment (for a thoughtful discussion on SES and its association with cancer as an example, see Kawachi and Kroenke, *in press*). More recently, a number of scholars have argued for more refined measures of social class at multiple levels including individual, household, neighborhood, regional, and even national levels in addition to commonly used measures of education, income, and occupation. These include indicators such as poverty, material and social deprivation, wealth, and macro determinants of health including poverty and the distribution of income and wealth among others (Krieger et al., 1997; Subramanian et al., 2002).

Often, race and ethnicity are used synonymously with lower SES—a highly questionable premise given the large variation among different ethnic and racial groups as well as within the ethnic groups. The differences are manifest both within and across groups on such dimensions as income, education, occupation, and language. Any temptation to use race and ethnicity as synonymous with SES must therefore be resisted in the interest of more nuanced sensitivity to the differences within and across groups as will be evident from examples discussed in this chapter.

Lastly, the interactive and multiplicative effects of different indicators of SES and the complex pathways through which they are related to health outcomes is yet another subject that is beginning to attract attention (Lahelma et al., 2004).

There are several dimensions to communication inequality: (a) access to and use of information channels and services, (b) attention to and processing of health information, and (c) capacity and ability to act on information provided.

SES, Race, and Ethnicity and Their Relation to Inequalities in Access to and Use of Information

Education is the most common indicator often used as a proxy for social class. Education enables one to cultivate certain tastes and interests for different media content, provides skills in processing information, and offers the ability to apply information for day-to-day use. For example, education may provide the necessary confidence, sense of efficacy, and knowledge in enabling someone to navigate complex health systems. Income provides the tangible resources to access and subscribe to media services. Discretionary income may allow one to invest in recurring expenditures such as cable TV, the Internet, newspapers, and magazines. One may hypothesize that the greater the discretionary income, the greater the opportunity to obtain a variety of information services to improve one's well-being and derive intellectual nourishment and entertainment. Less investigated is the role of occupation and employment, though it is reasonable to speculate on occupation's influence on communication choices. Apart from wages, occupation provides opportunities for social networks, particularly in providing exposure to heterogeneous networks that are helpful in spreading new information. Employment and occupation are likely to be related to the use of, and exposure to, local community media and information channels (Viswanath et al., 1990), which, in turn, are related to knowledge and social capital, the roles of which in health and politics are acknowledged to be critical (Berkman, 1986; Kawachi and Berkman, 2000; Viswanath et al., 2000; Viswanath et al., in press). One may speculate that the effects of income, education, and occupation are not necessarily exclusive but potentially complementary and interactive.

Differences in access to communication services may include such dimensions as the ease of availability of information, the use of different media channels, and the affordability in subscription to communications services among different SES groups. The data from National Cancer Institute's (NCI's) Health Information National Trends Survey (HINTS) tellingly demonstrate differential access and exposure to information services among different social groups.⁴ Income, education, and employment are positively associated with subscription to cable or satellite TV and the Internet—services that allow for access to diverse information sources (Table G-1). Similarly, income and education are associated with daily readership of newspapers (Figures G-4 and G-5). Television is one medium where the association with income and education is negative or non-existent (data not shown).

Although different patterns of media use among different racial/ethnic groups do not necessarily indicate inequality, they deserve consideration. For example, African Americans spend more time with television but less with newspapers

⁴HINTS is a national survey of cancer communication behaviors of American adults conducted by the National Cancer Institute. The first survey was fielded in 2002/2003 through a random-digit-dialing sample of almost 6,400 adults with oversampling of African Americans and Hispanics.

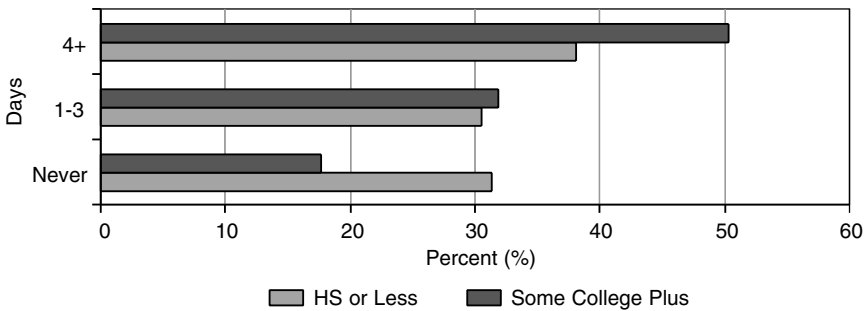
(Figure G-6). They also have lower access to the Internet and cable and satellite TV (Table G-1).

In addition, almost 18 percent of the U.S. population that is 5 years or older speaks a language other than English at home. The proportion of non-English speakers varies from state to state, from roughly 3 percent in West Virginia to

TABLE G-1 Access to Information Services Among Different Socioeconomic Status and Racial/Ethnic Groups

	Percent Reporting Access to:	
	Cable/Satellite TV %	Internet %
Education (n = 6,149)		
High school or less	77.17	38.17
Some college plus	83.25	80.64
Income (n = 6,149)		
< \$24,999	70.91	35.52
\$25,000–\$49,999	79.20	62.69
\$50,000+	89.53	87.64
Employment status (n = 6,131)		
Employed	82.03	73.52
Not employed	78.70	47.36
Race (n = 5,372)		
White	82.56	66.02
African American	77.30	55.81
Ethnicity (n = 5,666)		
Non-Hispanic	81.72	66.42
Hispanic	77.08	44.94

NOTE: For all ethnicity assessments, multiracial persons were excluded from the analysis.



NOTE: HS, high school.

FIGURE G-4 Days read newspaper in last week, by education. SOURCE: See Footnote 4.

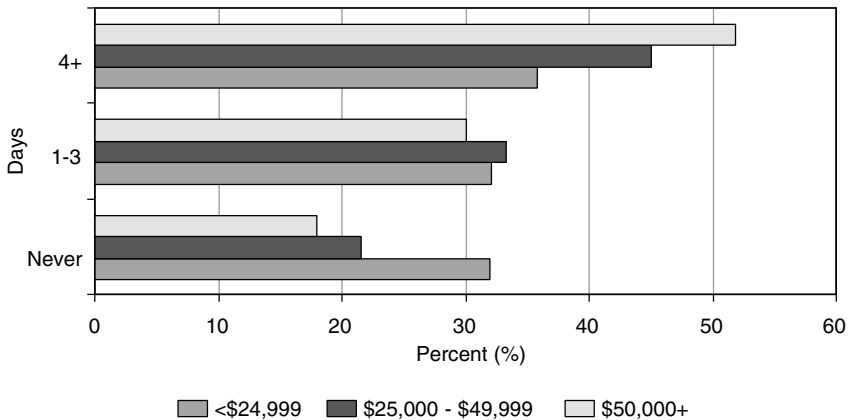


FIGURE G-5 Days read newspaper in last week, by income. SOURCE: See Footnote 4.

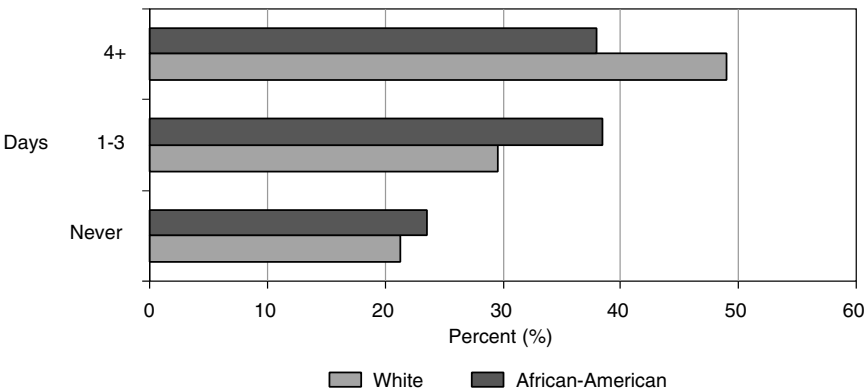


FIGURE G-6 Days read newspaper in last week, by race. SOURCE: See Footnote 4.

almost 40 percent in California. In fact, roughly 20–33 percent of the population 5 years or older in California, Florida, Arizona, Hawaii, Nevada, New Jersey, New York, and Texas speak a language other than English. Their exposure, use, and access to English-language mass media are likely limited and perhaps non-existent. Media access, in the case of non-English-speaking minority groups, must take into account ethnic media that are widely prevalent both in print and online versions (Viswanath and Lee, in press).

Despite such long-standing evidence in inequalities in access at the individual level, some have suggested that these differences will disappear, due to

technological advances (Compaine, 1986). This is a reasonable speculation, given the saturation-level diffusion of such technologies as electricity and the telephone and the widening use of cell phones. This proposition of eventual equalization and the amelioration of the invidious effects of inequality, however, is questionable for two reasons.

First, it may be argued that as information technologies grow cheaper, access becomes a less important issue. The communication environment, however, is dynamic, with constant improvements in the technology and services being offered. With improvement comes greater demand for more high-end equipment (e.g., high-speed computers or high-definition television). For example, the creation of web-sites with sophisticated multimedia software places a greater demand to upgrade equipment periodically, which places a disproportionate burden on lower-SES groups. Moreover, unlike the investment in equipment that is a one-time expenditure, subscription to information services demands recurring investment. The question is whether the recurring monthly fee will rise or fall over time, thereby improving or deterring access. In essence, forces outside their control—such as the telecommunication industry, corporate consumers, and national communication policies—shape the communication choices of individuals and families.

Second, it may also be argued that people make conscious choices as to how they allocate money to different communication services, including entertainment, telephones, and the Internet. Yet, communication is a social function. One's tastes, interests, and needs are shaped and influenced by an individual's immediate orbit, including social networks, significant peers, class interests, group norms, and perceptions about leadership roles. Moreover, choices are made within certain constraints of availability, the degree of discretion, and calculations about relative costs. For example, spending on cable TV is relatively cheap, compared with admission prices to so-called high-culture events such as the theater or the opera. That is, choices in both subscriptions to media services and exposure to content are still influenced by SES and social networks.

SES, Race, and Ethnicity and Their Relation to Inequalities in Attention to and Processing of Health Information

To a large extent, SES influences attention to health information and one's ability to process that information. For example, there are differences in the degree of attention people pay to health—or any content, for that matter—among different groups, with education and income positively influencing media attention (Figures G-7 and G-8). At the same time, different racial and ethnic groups report a similar amount of attention to health information in different media. (We do not have an idea of how those groups with limited proficiency in English pay attention to health content, either in English or ethnic media.) This suggests a strong interest in health information among all racial and ethnic groups despite their differential access.

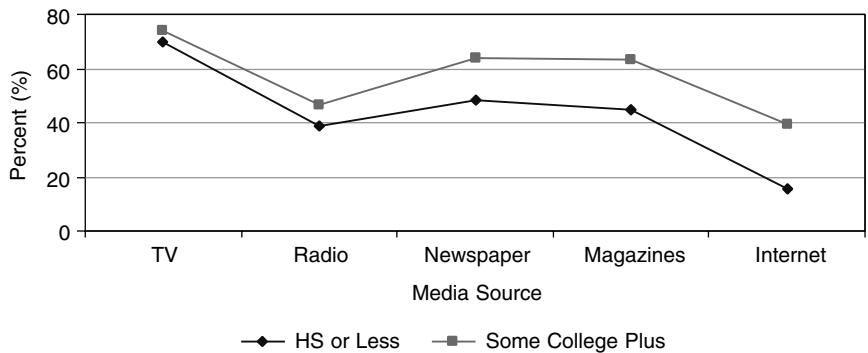


FIGURE G-7 Percent paying “a lot/some” attention to health information on various media, by education. SOURCE: See Footnote 4.
NOTE: HS, high school.

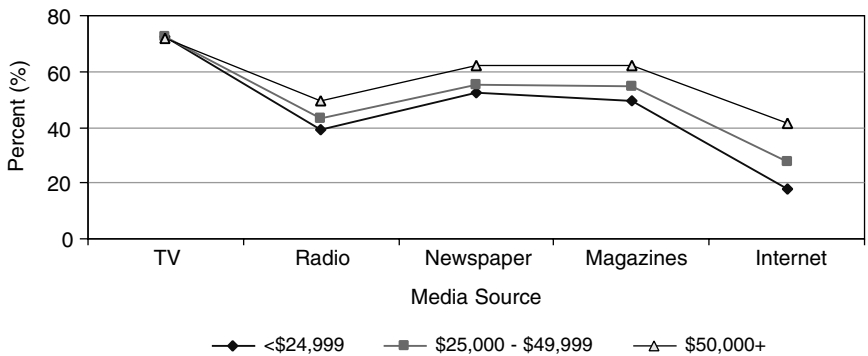


FIGURE G-8 Percent paying “a lot/some” attention to health information on various media, by income. SOURCE: See Footnote 4.

SES, Race, and Ethnicity and Their Relation to Inequalities in the Comprehension of and Action on Health Information

A significant dimension of health inequality is the ability of the individual or the capacity of a community group to process and act on health information.

At the individual level, the sheer complexity of the subject matter of health poses a significant challenge to those trying to learn, understand, and act on information. For example, information on prevention for different chronic diseases may overlap, such as tobacco use or cessation for cardiovascular disease or cancer, but information may differ in recommendations for consumption of different foods and nutrients. Recommendations for fighting infectious disease are different from rec-

ommendations for cardiovascular disease or cancer. In fact, cancer comprises many diseases with different causes, and prevention and treatment recommendations vary by the type of cancer. Diagnosis and treatment stages become even more complicated. The recommendations for diagnoses and treatment are disease- and stage-specific. For example, recommendations for breast cancer screening may vary, depending on age and family history. They are different from recommendations for cardiovascular disease, such as blood pressure and cholesterol screening. The navigation of the health system and the organization of medical care place an unfair burden on low-SES groups. Such issues as language, culture, and social status may interfere with having a more positive experience with the system (Cooper and Roter, 2003). Issues in treatment require adherence to complex drug regimens and compliance with recommendations. Lastly, the recommendations and instructions are dynamic and change over time depending on one's age and life course.

Acting on obtained health information is subject to opportunity structure, particularly the built environment. For example, it is difficult to act on prevention information on obesity, when one does not have decent grocery stores in the neighborhood, an availability of fruits and vegetables at reasonable prices, and safe neighborhoods to engage in physical activity. Lack of this insurance may deter people from acting on screening recommendations. Any effort to bridge this inequality requires efforts to offer information on possible resources that allow people to act.

There are differences in what people learn from the mass media and differences in the advantages that accrue from public health communication campaigns. The success and failure of campaigns has been of considerable interest to scholars and practitioners, given the mixed record of major public health education efforts over the past several decades (Hornik, 2002; Snyder and Hamilton, 2002). Yet, one type of failure (or unintended effect) is often observed: absent some conditions, the information flow on a given topic in a community is likely to lead to differential learning among members of different SES groups, thereby widening the existing knowledge gaps instead of bridging them, ultimately perpetuating inequalities in information (Tichenor et al., 1980; Viswanath and Finnegan, 1996). The HINTS study, cited above, illustrates the argument about learning from the general information environment about cancer risk factors. Members of higher-SES groups often know more than those from lower-SES groups, even on such widely publicized risk factors such as smoking and its link to cancer (Figures G-9 and G-10).

Conditions that may deter information gaps include inducing or increasing relevance for that information, extensive coverage in mass media, wide diffusion of information leading to saturation on that topic (e.g., the Columbia disaster or SARS crisis), the controversial nature of the topic (e.g., anthrax or bioterrorism), extensive social ties, participation and involvement in community groups, and use of appropriate information channels, among others (Gaziano, 1983; Viswanath and Finnegan, 1996; Viswanath et al., 2000).

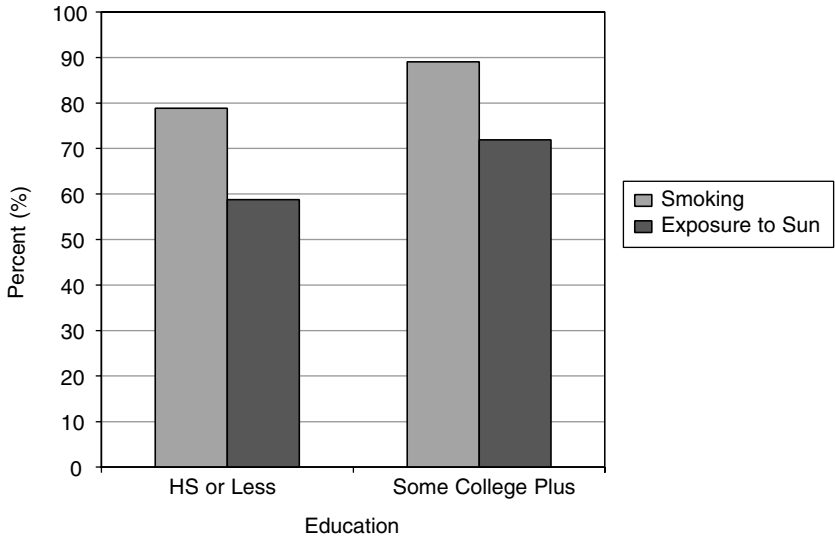


FIGURE G-9 Percent saying risk of cancer increases by “a lot/some” with exposure, by education. SOURCE: See Footnote 4.
NOTE: HS, high school.

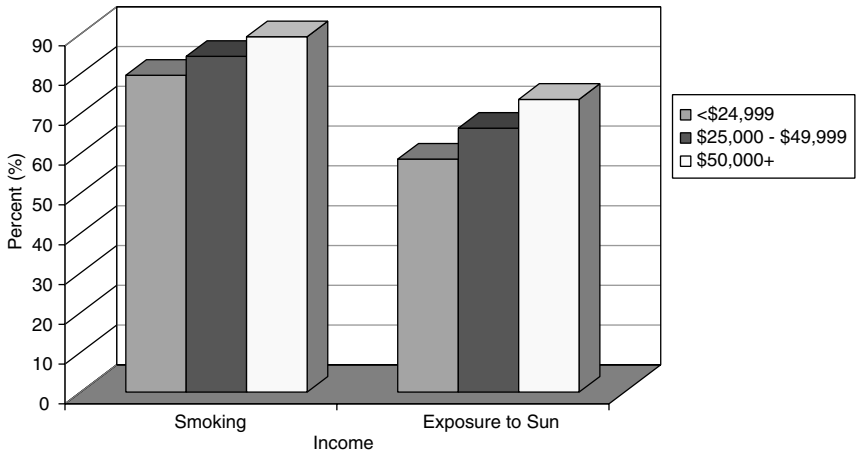


FIGURE G-10 Percent saying that their chances of cancer increase by “a lot/some” with exposure, by income. SOURCE: See Footnote 4.

On the other hand, carefully designed public health communication campaigns have successfully reduced smoking among adults and teens, increased seat belt use, reduced Sudden Infant Death Syndrome, and increased mammogram use (Hornik, 2002; Rimer, 1997).

Yet another type of knowledge gap may also deter mobilization for social action. There is a lack of awareness among both providers and patients on the existence of disparities or the extent to which disparities pose a significant problem in health care. Moreover, these perceptions vary by the racial/ethnic background of the citizens and providers (Henry J. Kaiser Family Foundation, 1999, 2002).

In short, learning from and acting on health communications is a complex, challenging process. It is little wonder that students of public health and medicine are now discussing how to improve *health literacy*, the capacity of people to obtain health information and make informed decisions about their health (Nielsen-Bolhman et al., 2004). Much discussion on health literacy is based on its potential; more systematic and empirical evidence of its effectiveness still remains to be found. In addition, the fact that almost 48 million Americans older than 5 years speak a language other than English at home may warrant a closer look at not only health literacy, but also the importance of providing services and information in different languages.

In summary, the recent developments in (a) information delivery services, (b) the generation of information as a result of biomedical research, and (c) the interest in health information among different publics offer tremendous potential in changing public health through the provision of information, thereby contributing to a reduction if not elimination of health disparities. Yet, in line with existing disparities in health, inequalities in communication can act as significant deterrents to bridging disparities, unless concerted efforts are made to reduce them. In the so-called information age, a fair and equitable distribution of relevant information may be considered a critical need.

RESEARCH DISSEMINATION AND HEALTH DISPARITIES: OPPORTUNITIES AND CHALLENGES⁵

The objectives of NCMHD's Strategic Plan (2002–2006) include: providing research-based information to health care providers; influencing the curricula of medical schools, allied health professionals, and continuing medical education; and maintaining a dialogue with community groups that serve medically underserved populations. In addition, although the target audience is not clear, one objective explicitly identifies the establishment of an informatics infrastructure to disseminate scientific information regarding health disparities. Such an infra-

⁵A part of the discussion in this section draws from the author's testimony to the President's Cancer Panel (Viswanath, 2004).

structure is more likely to be used by trained, professional public health stakeholders than ordinary citizens.

NIH is uniquely qualified to disseminate research-based information to health professionals and community stakeholders involved in public health. The richness of NIH's research portfolio and the proximity of NIH to the work of its grantees may, in theory, allow for a more efficient dissemination of evidence-based information than may be possible by other groups, agencies, and professional journals.

NCMHD's objectives for research dissemination raise several questions. What are the barriers in disseminating evidence-based information on health disparities to different stakeholders? What kind of infrastructure exists to facilitate knowledge dissemination to groups working with medically underserved groups? How can there be more coordination and collaboration among both federal and nonfederal partners on public outreach and communications to reduce, if not eliminate, health disparities? This section will attempt to address some of these questions.

Health Disparities and Research Dissemination: Some Issues for Consideration

It was recently commented that findings from clinical research take as long as 17 years before they find their way into practice (Balas et al., 2000; Isaacson, 2004). There is no reason to suspect that dissemination of information on prevention should be any faster, though news media routinely cover major developments published in medical journals. There are many reasons why translation of evidence-based information to the clinic, as well as to the community, is slow or even absent:

- The academic setting and reward system encourage publications in peer-reviewed journals, and few incentives, if any, encourage work on dissemination (Jacobson et al., 2004). Health care systems are unlikely to adopt innovations unless there are incentives in place that will support dissemination, as it will incur costs in production, personnel, and technical support. Individual scholars need incentives to promote dissemination as well as study dissemination. The entire incentive structure around the adoption of evidenced-based information in practice must be closely examined.
- By nature, most academic research is abstract and not in a format immediately usable by practitioners. NCMHD's goal of developing appropriate informatics systems might take into account how research from their grantees can be translated into formats that can be used by practitioners, decision makers, and policy makers (Donatiello et al., 2004). The importance of knowledge brokers who can move in both knowledge-generating (research) and practice (community) settings has often been cited as useful in a speedier dissemination of labora-

tory research into practice, as is evident in the case of AIDS treatment in sub-Saharan Africa (Philpott et al., 2002). There are models that could serve as sound exemplars of knowledge transfer, such as the NCI's Cancer Control Planet. For the last 4 years, NCI's Division of Cancer Control and Population Sciences has attempted to build coalitions with federal agencies, such as the Centers for Disease Control and Prevention (CDC), the Agency for Healthcare Research and Quality (AHRQ), and other organizations, such as the American Cancer Society (ACS), in promoting evidence-based dissemination and the use of successful behavioral interventions. The culmination of those efforts is Cancer PLANET (Plan, Link, Act Network with Evidence-based Tools). The idea behind Cancer PLANET is to promote evidence-based cancer control efforts on the part of community groups. Cancer PLANET is a website that (a) provides information on behavioral interventions in cancer control, (b) rates different behavioral interventions in cancer on their effectiveness, and (c) provides links to grantees who developed those interventions. By linking community groups that plan on doing interventions with their target community and the people who developed the successful interventions, Cancer PLANET obviates the need for the "reinvention of the wheel" and makes the process more efficient. The success of Cancer PLANET over the long term may provide a good model for other institutes and disease realms.

- It is still the case that institutions take the "if you build it, they will come" approach to knowledge transfer. Within academic medical centers and federal and state agencies, research dissemination often is an afterthought—and not a very systematic one at that. For example, as was observed in another context, it is a matter of some irony that considerable time, money, and intellectual capital is exerted in ensuring rigor in day-to-day health research, but somehow the same intensity is lacking when translating that research into the community (Viswanath, 2004). What are the ideal systems and processes to ensure speedy translation of rapid medical advances to the bedside and the community? What roles do different organizations, federal and state agencies, scientific associations, and commercial and civil sectors play in the speedy delivery of services? More important, how do we ensure that the benefits of translation accrue equally to all groups that need the most appropriate and up-to-date treatments? Addressing these questions requires partnerships between researchers, academic medical centers, and federal funding agencies.

- The science of dissemination in general, and our knowledge about dissemination to reduce health disparities in particular, is still underdeveloped (Kerner et al., 2005). At the federal level, agencies such as NIH can contribute to the science of dissemination by working with NIH study sections to be sensitive to the challenges of studying dissemination. The challenges include review criteria that value innovativeness, the risk-averse nature of the reviewers, and discomfort with research designs that are not conventional randomized controlled trials, among others (Glasgow et al., 2004; Kerner et al., 2005). NCMHD could

play a crucial role in promoting more systematic inquiries into studying research dissemination to professionals dealing with health disparities.

- Systems and people vary in their capacity to learn and use information related to both well-established and emerging innovations. These communication inequalities at the system level are one of the least investigated areas in public health communication research. We have not yet successfully designed systems and processes to cater to the so-called hard-to-reach groups. Some have advocated and argued for a push-pull approach in accelerating knowledge transfer (Kerner, 2004). On the push side, we need information on the existing capacity among academic medical centers to disseminate appropriate information to the clinicians, community groups, and the people. Some questions to ask on the push side include: (a) What kind of organizational structure, personnel, processes, and policies currently exist within the academic medical centers to pursue dissemination? (b) What is the extent of resources that are committed to research dissemination and diffusion? (c) What are the skills of the people involved in promoting research translation? and (d) What are the optimal organizational structures and processes that can accelerate knowledge transfer under different conditions for different groups? The pull side is a major challenge in translation. There is a differential capacity among different community and social groups and publics in accessing, processing, and using health-related information. Such differential capacity coincides rather inconveniently with profound inequities in disease prevalence, treatment, and mortality along racial, ethnic, and social class lines. We know little about the kind of community groups and networks that could be helpful in accelerating knowledge transfer. For example, several community groups engage in health promotion programs on a voluntary basis. The health promotion efforts may or may not be evidence-based, and often the groups reinvent the wheel by creating programs from scratch. NCI's Cancer PLANET is precisely aimed at such groups so that they have access to programs that have been found to be effective. At the same time, several groups in the community may conceivably lack the resources to use Cancer PLANET and other such resources, as they survive on volunteer time and efforts. We need more information on how academic medical centers, in collaboration with other groups, can enhance community capacity to use existing resources such as Cancer PLANET. Here is one place where academic medical centers can build linkages with community groups and networks by offering information, training, and modest resources.

- Moreover, what kind of systems and services are available to different ethnic groups and non-English speakers? The cultural and ethnic fabric of the nation is changing rapidly, with increasing migration into the United States from other countries. About 11.5 percent of the population is foreign-born, and almost half these individuals are from Latin America. About 47 million people in the United States speak a language other than English. Any effort to promote dis-

semination and adoption of evidence-based practice cannot ignore the needs of different ethnic and linguistic groups.

- The organization of the health care systems that tend to the medically underserved also remains to be explored. What are the training and resources needs of such organizations? What constraints do the practitioners working in these organizations face in adopting the latest innovations (and how can we build this into intervention development)? How do they keep up with the latest advances in biomedical science, and how do they translate it to treat population groups suffering from a disproportionate disease burden?

- Currently, the state of the science allows us to identify interventions that are effective in reaching groups that bear the brunt of the most preventable diseases. The translation of the interventions to more real-world settings, however, faces at least two challenges: scalability and sustainability. Interventions and trials work well in controlled settings, given the careful oversight, nurturing, and funding provided by the scientists and the funding agencies. A successful transfer of knowledge requires that we understand how real-world conditions influence the integration of new treatments and technologies from the lab to the clinic and the field. The uncertainty resulting from new variables and the larger scale can dilute the effectiveness and adoption of innovation unless scalability is taken into account. Similarly, how do we ensure successful ownership and incorporation of clinical innovations and preventive practices from the research centers by practitioners and groups in the community? Successful integration demands resources that either exist somewhere or need to be raised. Unless we take the issues of sustainability more seriously, we will be stuck in the vicious cycle of bench-to-peer-review-journals and back to the bench. If so, whatever information reaches the bedside and the community is more due to adventitious circumstances than to deliberate efforts.

- The institutional and social context in adopting evidence-based information for prevention and treatment must be closely examined to ensure successful adoption. Some suggest that health disparities could be reduced by promoting environmental change (systems as opposed to the individual) and building community capacity at the local level (Lavis et al., 2003). Although it is correct that building community capacity to adopt evidence-based information is critical, it is also worth noting that the focus in examining the adoption of innovations should not be exclusive to either the system or the individual, but at the intersection of individual and the system. Patients, for example, draw support from their providers, family and friends, and mass media. In addition, they are also likely to be members of social groups, community networks, and faith-based and secular organizations. Similarly, clinicians are influenced by their organizational structures, incentive and payment systems, and the legal and regulatory environment. Understanding these diverse sources of influence on individual behaviors and practices—whether a clinician or a community group or an individual—is critical in enabling knowledge transfer.

- The adoption of evidence-based information by groups and practitioners representing underserved groups faces the additional challenge of mistrust due to previous experiences, a lack of awareness about medical innovations such as clinical trials, and a disconnection with the established medical system. It is unlikely to change unless there is more sustained interaction between those promoting evidence-based information and the consumers that use the information—an interaction that may repair trust and confidence. NCMHD should actively engage existing community groups, organizations, and social movements to accelerate the transfer of research knowledge. One effective way is to build relationships with community groups, including voluntary associations, civic organizations, faith-based organizations, and community practices, among others (Farquhar et al., 2005). Outreach efforts could be made by careful needs assessment and active programs to satisfy those needs. Sustained efforts could potentially be fruitful over the long term and may also result in reaching groups that are traditionally difficult to reach.

A PLANNING MATRIX TO ADVANCE PUBLIC COMMUNICATION AND OUTREACH

Public communication to a general audience or research dissemination to health professionals, community groups, or policy and decision makers can be effective, if preceded by systematic and strategic planning, careful execution, and rigorous evaluation. The elements of such strategic communications are outlined in Table G-2, a planning matrix that could guide outreach efforts. The matrix is not meant to replace a plethora of other such matrices/frameworks that are routinely offered in literatures in social marketing and communication campaigns. A good discussion about campaigns can be found in such works as the Institute of Medicine's *Speaking of Health* (IOM, 2002). The matrix to be discussed here is only meant to be a practical, heuristic tool that could be used once the marketing research has been done and a decision has been made on the product, service, or information to be disseminated. We will next discuss each element of the matrix briefly.

Sponsors

In theory, NIH, or one of its Institutes and Centers (ICs), is the primary sponsor for the public information or outreach effort on health disparities. Other agencies of the U.S. Department of Health and Human Services, such as AHRQ, CDC, and the Centers for Medicare and Medicaid Services (CMS), are also likely to play an active and lead role in outreach to diverse audiences on different health subjects. Several federal agencies have overlapping roles in health promotion and sometimes partner with each other. Such a partnership is strongly encouraged, so that each agency can bring its unique strengths and expertise to the table. The strength of the

TABLE G-2 A Suggested Matrix for Campaign Planning, Using Cervical Cancer Screening as an Exemplar

Primary Sponsor	Audiences	Message	Partners	Strategy	Tactics	Channels	Impact Sought	Time Line	Tracking / Evaluation
NIH Institutes and Centers	Health care providers	Promote screening for cervical cancer	Local chapter of the American Cancer Society	Target providers of the usual source of care	Training of local providers	Targeted mailings and news-letters	Change in clinical practice	16 months	Adoption of screening
	Primary care providers				Frequent contacts with members of local professional associations	Meetings with local professional associations			Track screening rates
	Clinics					One-on-one meetings			

NIH's ICs is their proximity to the scientific expertise of its grantees. This closeness enables NIH to tap into the most up-to-date science on health disparities and translate the science for the consumption of different stakeholders to bridge those disparities.

The NIH's ICs may want to capitalize on existing investments in infrastructure, such as research networks and patient advocacy groups. For example, NCI's Special Populations Networks are funded to provide cancer education, research, and training to underserved communities and groups. Lessons learned from such experiences could come in handy to develop and study outreach programs to eliminate health disparities.

The Audience

Any information outreach must start with a close identification, definition, and characterization of the target audience, and the same principle applies to the information outreach objectives of NCMHD. Some questions to guide the selection and profiling of the audience include:

- What is the degree of understanding about the needs of the audience and the extent to which the product being disseminated meets those needs?
- How well is the audience profiled or characterized? and
- What kind of advanced information through formative research informs audience selection and characterization?

It is important that the product or information selected for outreach meets the needs of the audience and addresses a particular problem or threat that they face. For example, it could be a recommendation to the general public to increase one's physical activity or improve one's diet. For physicians, it could be a recommendation on treatment, such as when an intervention is warranted to reduce cholesterol. It could be a consensus statement on screening guidelines, to address uncertainty or lack of consensus. In all cases, information outreach efforts are assumed to follow formative research that, in addition to messages and channels, identifies and profiles the audience.

Audiences for NCMHD's efforts could include: racial and ethnic minorities; medically underserved groups; people who bear the disproportionate burden of morbidity and mortality for a certain disease; or providers, such as practitioners, decision makers and policy makers, businesses managers, and community leaders whose clients include citizens experiencing health disparities (Lavis et al., 2003).

Audience characterization is also commonly termed *audience segmentation*, an effort to define groups that share certain characteristics. A number of variables are used to segment the audience:

- Demographics such as age, gender, race/ethnicity, and SES (Albrecht and Bryant, 1996);
- Psychographics such as personal values, lifestyles, preferences, orientations, and religiosity (Albrecht and Bryant, 1996; Slater and Flora, 1991);
- Beliefs such as a sense of perceived risk (Lemon et al., 2003; Snyder and Rouse, 1992; Trenkner et al., 1990) or religiosity (Parrott et al., 2004);
- Personality traits such as innovativeness (Rogers, 1995) or sensation seeking (Stephenson et al., 2003);
- Health behaviors and health status (Boslaugh et al., 2004; Williams and Flora, 1995);
- Product use or consumption, for example, the number of drinks consumed or contraceptive usage (El-Zanaty, 1994; Lintonen and Konu, 2004); and
- A combination of all or some of the above factors.

A number of statistical techniques such as factor analyses (Trenkner et al., 1990), cluster analysis (Slater and Flora, 1991), automatic interaction detection and logistic regression (Albrecht and Bryant, 1996), classification and regression tree analysis (Lemon et al., 2003), and signal detection analysis (Williams and Flora, 1995), among others, are used to group the audience.

The idea behind segmentation is that homogeneity within segments will allow campaign sponsors to design messages that are compatible with the cultural, structural, and attitudinal status of the segments, thereby enhancing the probability of campaign success. Segmentation is also useful in channel selection, and, in fact, many commercial providers of audience measurement and market research services offer information on different audience segments that a given channel could potentially reach.

Despite the apparently successful track record of segmentation strategies, certain caveats are warranted and worthy of future investigations:

- The segmentation philosophy sometimes makes the naïve assumption that segments are mutually exclusive. Second, it sometimes also takes a static view of membership in the segments as if people do not change. Both are questionable and empirically untenable. People often enjoy a web of affiliations by often simultaneously belonging to several groups and playing multiple roles. They concomitantly draw from and contribute to the collective experiences of those groups and affiliations. Their views, status, values, and preferences may change with changes in either group norms or group affiliations.
- Another pitfall in this assumption of homogeneity could be when one variable may or may not be appropriate for segmentation. It is now widely agreed, for example, that Hispanics are extremely heterogeneous in SES and political and cultural beliefs, despite their common language. In fact, one recent analysis showed that Spanish-speaking Hispanics are considerably different from English-

speaking Hispanics in their SES, media use, and media credibility (Clayman et al., 2004).

- Lastly, segmentation strategies are based on the premise that individuals can change given the appropriate messages through appropriate channels when sometimes the systems and the social context in which health behaviors occur may warrant more attention.

The Message

The first assumption here is that the sponsors have already made a decision about what product, service, or idea should be disseminated. The message specifically refers to what is being disseminated and how it is being disseminated. A product or a service could be a set of treatment recommendations on hypertension in a minority group or vaccination against influenza in the elderly. It could be a synthesis of knowledge about a treatment of a particular disease or disorder, or it could be a national campaign to reach minorities on AIDS education.

The challenge is: How should an agency go about deciding what areas, topics, diseases, or products are likely to be subjects of outreach? A set of criteria may be developed to decide on the (a) target audience, (b) documented level of disparities that trigger action, and (c) selection of the subject or product for outreach (e.g., evidence review, knowledge synthesis, or information campaign) that reduces if not eliminates disparities.

If a product or service is a broad public information campaign—say, a campaign on obesity that is aimed at African Americans who suffer disproportionately from its consequences—there is first a need to understand the behavioral and environmental determinants that may reduce the barriers to physical activity. Both individual-level and structural-level factors are likely to mediate the effect of public communication efforts on different groups of people. Within communication science, a body of work on *message theories* and their impact on public health has begun to emerge to better inform the work of public health practitioners.

The assumption behind message-effects theories is that certain features of messages—their format, structure, and construction—interact with individual attributes of the audience, thus influencing information processing and leading to changes in audience knowledge, attitudes, and behaviors. Several types of message formats have been studied: fear appeals, sensation seeking, narratives, exemplars, and framing, among others.

Theories of *fear appeals* posit that audiences, when exposed to information, make a calculated appraisal of the threat of the topic or the issue to the self; evaluate the efficacy of the recommended action, if it is accompanied with action; and may react accordingly (Witte and Allen, 2000). *Sensation seeking* is a personality type where the individual seeks adventure and novelty to reduce boredom (Donohew et al., 2002). Sensation seekers are likely to seek out intense

experiences or stimulations and often are spontaneous in their actions while ignoring the consequences. Several studies have found an association between sensation seeking and risky behaviors, such as drug and alcohol use, sex with multiple partners, and even unprotected sex. Health campaigns have successfully used messages with high-sensation value to change attitudes and behaviors about illicit drug use and risky sex among teenagers (Donohew et al., 2002).

One of the more intriguing message effects is *exemplification*. Exemplification is the extent to which selected events or cases in a news story are illustrated as representative of a general class of events typifying those events (Zillmann, 2002). The contention of proponents of this message effect is that recipients of campaign messages often ignore quantitative information, such as the risk of contracting an infection or sexually transmitted disease from unsafe sex, for example, but will be more attentive to exemplars that discuss the very same issue. Exemplars are successful when they are concrete, vivid, simple, consequential, and emotional.

Evidence shows that people learn about health—or any knowledge topic, for that matter—through purposeful campaigns and through incidental exposure to media messages, such as when watching a sitcom on a television. This ability of stories to engender deeper involvement and learning has been used to study the message effects of *narratives*. Narrative messages are stories with persuasive health content (Slater, 2002). Narratives work through positive or negative reinforcement of behaviors through modeling (Bandura, 2002). The positive effects of narratives have been touted with examples from teaching health and social issues in Latin America and Africa (Rogers, 1995). On the negative side, some have argued that exposure to televised violence can have negative effects of aggressive behavior among children and distorted worldviews among adults (Gerbner et al., 2002). Intuitively, it should make sense that stories are powerful and have both positive and negative effects. The empirical evidence on narratives so far has been less than rigorously gathered and requires more study.

Framing is yet another message effect that has been studied and has two meanings, based on its intellectual origins. Drawing from the psychology of communication, framing refers to the construction of messages that highlights either the benefit in performing a health behavior (gain-framed) or the costs of not performing a behavior (loss-framed) (Salovey et al., 2002). It has been argued that loss-framed messages are more persuasive when the audience member is facing uncertainty or risk such as infection, and gain-framed messages are more persuasive when outcomes are certain, such as treatment. Yet another meaning of framing draws from the sociology of communication and is defined as a “central organizing principle that holds together a diverse array of symbols and idea elements,” thus giving a coherent structure to one’s worldviews (Gamson, 2001). For example, the recent debate over mammography was framed in the news media as either leading to false positives, thereby resulting in unnecessary treatment and distress, or as a prevention tool that has saved lives through early

detection. Studies have shown that such debates in the media have differential effects on the audience, depending on their SES.

This brief overview of message effects offers some interesting possibilities in reaching different target audiences in bridging disparities. Much of the work on message effects has been done at the individual level by taking into account the audience's individual psychological characteristics. Yet, an alternative structural view suggests that audiences attend and react to mediated content based on their structural location in the environment and the social roles they play (McLeod et al., 1991; Viswanath and Demers, 1999). Structural determinants such as social class, occupational structure, race and ethnicity, and gender mediate the impact of messages through such factors as collective experiences, group membership, access, preferences, appeals, attention, and processing and capacity to act on the information. We have, however, little scientific knowledge of how such structural determinants interact with personality variables to mediate different message effects. Even less is known about how these determinants are mediated in different racial and ethnic groups. Lastly, more work is needed on the influence of message effects on health among groups suffering with differential disease burdens.

Partners

The reach and effectiveness of NCMHD's public communication is likely to be enhanced by identifying and then working with partners who can supplement and complement its strengths. Such partnerships will obviate duplication among different governmental and nongovernmental organizations, facilitate coordination, and rationalize outreach expenditures. Depending on the nature of the outreach, one can imagine a variety of partners working with NCMHD.

For example, campaigns to reduce HIV among African Americans could be done through federal partners such as the National Institute of Allergy and Infectious Diseases, CDC, and state health departments. A number of community groups that work with minority audiences and that are sensitive to the culture of the minority community may lend credibility to the program.

In fact, several such examples in public communication exist. The National Youth Anti-Drug Campaign is primarily based on mass media but also uses a variety of partners including "civic, community, educational, faith-based, government, nonprofit, public health, workplace and other youth-serving organizations and coalitions" (Office of National Drug Control Policy, 2005).

The dissemination of evidence-based medicine and guidelines can be promoted through AHRQ's Evidence-based Practice Centers (EPC) Program. EPCs have been designed to perform systematic reviews of scientific literature on clinical, behavioral, organizational, and financing issues related to treatment and then produce reports.

Other nonfederal partners may include such organizations as the ACS and

the American Heart Association. Professional organizations such as the National Medical Association could serve the twin purposes of providing forums for disseminating evidence-based medicine and also bringing the necessary credibility to the campaigns within the target audience community.

NIH and various ICs are funding several networks that already have an infrastructure to educate and conduct research. For example, NCI's Special Population Networks are funded to conduct cancer education, research, and training among minority and low-SES citizens. Such networks could be good vehicles to translate knowledge speedily.

In summary, a partnership approach could go a long way in stretching the limited budget for outreach, bringing credibility to the programs, and broadening reach.

Strategy and Tactics

A strategy may structure the actions one might take to achieve broad communication goals. A tactic is the specification of execution of the strategy—that is, an operationalization of it. It lays out the specific actions the sponsor might take to achieve the campaign or outreach goal. For example, to draw from Table G-2, the goal of promoting the most current understanding of cervical cancer screening guidelines may involve the strategy to target health care providers that provide the usual source of care for the medically underserved. It could involve such tactics as training, providing continuing medical education credits, and following up with frequent meetings.

A national campaign to promote physical activity among Hispanic audiences may involve a broader strategy of reaching Hispanic children and specific tactics of promoting organized community physical activity programs. Although the distinction between strategy and tactics often seems academic, the exercise of identification and delineation will help clarify this distinction.

Channels

Channels are the means through which health information is disseminated to target audiences, which may include citizens, providers, or community leaders. Optimal channel selection is a critical and essential factor in the dissemination of health information to different publics, as it will make the difference between reaching the right target audience and missing them completely. Channel selection is done by careful formative research, either through custom research done by individual sponsors or by subscription to commercial providers of information such as Nielsen Media Research.

There are a variety of channels, including interpersonal, organizational, and mass media channels. Campaign sponsors may use one channel at a time or multiple channels that complement one another. Using a variety of channels that

complement and supplement each other is usually more effective (Hornik, 2002; IOM, 2002). For example, the National Youth Anti-Drug Media Campaign is an integrated social marketing effort that uses advertising, mass media, and the Internet with outreach efforts to different partners, including Hollywood and racial ethnic organizations.

The decision to select one or more channels depends on factors such as reach, control over the message, intensity, and costs. Mass media can provide a wide reach with a lower cost per person, but it is also difficult to exert control over how the message is disseminated and to collect immediate feedback from the audience. On the other hand, one might be able to exert greater control over the message and obtain immediate feedback when using interpersonal or organizational channels, but these offer limited reach and may be more expensive. Given the complexity and intractability of the problem of health disparities, it is desirable to use both mass media as well as interpersonal and organizational channels.

Channel selection is based on the principle that the information provided through those channels draws distinct groups of people who are interested in that information and who share some common characteristics. Often, the audience characteristics that are considered in channel selection include:

- *Demographics* such as age, gender, income, and residence. For example, local newspapers are optimal for reaching a variety of people and are usually consumed by adults who enjoy strong social ties to the local media (Viswanath et al., 1990). Magazines and radio provide ideal vehicles for careful segmentation given the specialized content they offer. There are varieties of magazines that cater to different age and gender groups.

- *Race or ethnicity*, while often included in demographics, are unique factors given the nature of the media that reaches different racial and ethnic groups and the heterogeneity among different racial and ethnic groups. American society is becoming increasingly diverse with more than 32.5 million Americans identifying themselves as foreign-born. Hispanics constitute about 13 percent of the population and African Americans another 13 percent. Asian Americans account for about 4 percent of the U.S. population. The U.S. Census Bureau projects that between 2000 and 2050, the U.S. population will likely increase from the current 282 million to roughly 419 million when almost 1 out of 2 Americans is likely to be non-White. That is, factors that usually drive the establishment and maintenance of ethnic media, such as audience size, general consumption expenditures, and SES, are already in place. In fact, there is already a tremendous diversity in American mass media catering to different ethnic and racial groups: African and African American, Arab, Chinese, Filipino, Hispanic, Asian Indian, Japanese, Korean, and Vietnamese, among many others. These media play a variety of roles such as community boosters, transmitting culture, assimilation into the mainstream of American culture, and

watching out for the community (Viswanath and Lee, in press). The ethnic media offers an ideal and optimal set of vehicles in addition to the mainstream channels in providing health information to audiences of diverse racial and ethnic backgrounds. Yet, we know little about how widely these vehicles are being used to provide health information and how successful those efforts have been—both areas worthy of future investigation.

- *Lifestyle and orientation* refer to factors that go beyond demographics to interests and orientations. These may include media catering to audiences with subject interests including travel, news, recreation, sports, sexuality, health, movies, and shopping, among many others.

In contrast to reaching general audiences, research dissemination to provider organizations may be done through professional and civic organizations such as medical societies, nursing organizations, and national civic organizations. These organizations are optimal vehicles for the release of state-of-the-art information on prevention, screening, diagnoses, and treatment through their professional meetings, newsletters, and workshops. Some professional organizations are fruitful avenues for national research dissemination, including the Association of American Indian Physicians, the National Medical Association (African Americans), the National Hispanic Medical Association, the Association of Black Cardiologists, the Association of Physicians of Indian Origin, the National Association of Hispanic Nurses, the National Black Nurses Association, and the National Council of La Raza Institute for Hispanic Health, among many others.

A significant challenge is reaching nonprofessional audiences and community groups; this warrants creativity in the form of using existing structures or in funding the creation of new ones. For example, cancer education, training, and research could be conducted through NCI's Community Networks to Reduce Cancer Health Disparities through Education, Research and Training Program. EXCEED (Excellence Centers to Eliminate Ethnic/Racial Disparities), funded by AHRQ, has centers that focus on health communication in medical settings. NIH's Hispanic Communications Initiative includes an aim to address communication strategies with Hispanic/Latino community-based organizations. National nongovernmental organizations and their local chapters, including the ACS, the American Lung Association, the AHA, the National Association for the Advancement of Colored People, and the National Council of La Raza, are some potential avenues in reaching hardly reached groups.

Despite the opportunities and the availability of organizations, researchers lack a systematic body of evidence on the appropriate dissemination vehicles for groups suffering from a disproportionate burden of disease and ill health. We have little idea of the effectiveness, receptivity, resources, barriers, and capacity of these community groups to carry out dissemination and the conditions under

which they could be effective. NCMHD may do well to promote research in this important area.

IMPACT SOUGHT AND TIMETABLE

This element is included to compel clarity in specifying communication goals. NCMHD's broad objectives are fine, such as incorporation of science-based information into the curricula of medical and other professions schools or maintenance of communication and dialogue with minority, ethnic, and other special populations. The development of programs and measurement of their success in achieving those objectives, however, requires greater specificity and operationalization.

For example, one specific goal under the objective of incorporation of science-based information into the medical curriculum could be the treatment guidelines for diabetes among African Americans. Yet another example is incorporating cultural competence into medical school curricula. The objective of maintaining a dialogue with ethnic groups also requires greater specificity to assess the impact. One possible goal could be a periodic survey of specific groups to do needs assessment surveys to understand the barriers in obtaining access to, and the use of, health information.

Such specificity will help to clarify exactly what objectives are being pursued and will aid in developing appropriate products, target audiences, and message strategies. It will also help to identify the necessary incentives that will facilitate the adoption of the innovation.

Specification of a timeline will provide an idea of requirements in staffing, resources, and budget. A timeline will minimize the danger of setting unrealistic goals, a common feature of public health education. Moreover, specifying the timeline for translation could narrow the long period between research discovery and delivery.

TRACKING AND EVALUATION

It is essential that there be mechanisms in place to track the success of the outreach programs and products. Tracking and evaluation offers several advantages:

- Mid-course correction of current outreach efforts,
- Lessons learned for future outreach efforts, and
- The refinement and redefinition of current outreach objectives and the development of new goals.

It is important that the evaluation distinguish between hard and soft outcomes. Soft measures include, for example, how many brochures have been

distributed to provider groups on treatment. Another soft measure is how many linkages have been created with community organizations. The soft outcomes are intermediate process measures, outcomes of process evaluation that could be helpful in serving as markers of outreach efforts. Yet more important is the development of hard measures that actually assess change in the provider practice or health behaviors as a result of the outreach efforts. This will also provide the necessary feedback loop discussed earlier so that NIH can ascertain and incorporate the needs of different publics into programming.

SOME RECOMMENDATIONS TO HELP NCMHD ACHIEVE ITS OUTREACH OBJECTIVES

The current NCMHD objectives for public information and outreach appropriately identify challenges in identifying target audiences that may help in bridging the deep chasm between research discovery and delivery, when it comes to health disparities. As NCMHD refines its strategic plan in subsequent years, some additional considerations will be necessary for success.

Surveillance System for Public Communications

There is currently no comprehensive system in place for communication and outreach surveillance that will help NCMHD systematically assess the needs of academic, professional, and community groups working with the underserved groups and use that information in program planning. Similarly, we know little about the information needs, media use, and information-seeking patterns of citizens suffering from disproportionate disease burdens. It is unclear what systems are in place to do such surveillance and how they are being fed back in program planning.

There is a need for more information that addresses the following questions:

- What is the priority assigned in studying health disparities in the medical and allied health school curricula?
- What barriers exist to integrating health disparities issues within the health professions schools?

Some questions pertaining to providers working with underserved groups include:

- What are the sources of information on health disparities among providers? Where do they go to seek information on health disparities in general? What can be done to increase awareness among providers that disparities exist? For example, a recent article in the journal *Circulation* showed that only 34 percent of the cardiolo-

gists surveyed agreed that there are disparities in health care in the U.S. system, and 5 percent felt that these might exist in their practices (Lurie et al., 2005).

- To what extent do the NIH ICs serve as guidance for providing the latest scientific information related to health disparities?
- What are the barriers faced by the providers working with underserved groups in adopting the latest evidence-based information in their day-to-day practice? What incentive structures will encourage them to incorporate innovations in their practice?
- What are the organizational factors—structures, culture, and hierarchies—that deter providers from using the most up-to-date information to treat patients?

On community groups and citizens, some questions that a surveillance program may address include the following:

- The Internet has the potential to provide detailed medical information tailored to the specific needs of different groups in formats that they can use. Yet, how helpful are the NIH IC websites in communicating with groups that are suffering from disparities in health information, access to health care, and use? To what extent does the digital divide between social classes discussed earlier deter the use of the Internet-based health information? Is it only likely to exacerbate the disparities?
- How can NCMHD assist target audience groups with the incorporation of the latest evidence-based information into their practice and day-to-day health behaviors?
- How can investment in Internet-based resources be designed to yield a maximum dividend in reducing and eliminating disparities given the challenges of digital divide or communication inequality discussed earlier?

These are only some examples of questions that are worth exploring in future research on dissemination, and they have strong implications for practice. It is strongly recommended that NCMHD develop a surveillance system that will track the health information needs, sources, and information-seeking patterns of different audience subgroups, as well address the needs of providers and institutions working with medically underserved groups. The NCI's HINTS study could serve as one model in developing a surveillance system on information needs of health disparities groups.

Developing the Science of Communication and Dissemination

Currently, a number of NIH ICs are supporting research on public health communication and provider-patient communication and developing an infrastructure to promote dissemination. It is unclear what proportion of the ICs'

budget is set aside for doing research on studying public communication. There is a significant gap in our understanding of public information when it comes to minority and low-SES audiences, as well as the appropriate models of dissemination to transfer the latest medical knowledge to academia and providers dealing with health disparities groups. In short, there is a need to develop and accelerate work on the science of health communication and research dissemination, with a particular focus on minorities and low-SES groups.

A strong program of research on communication and dissemination could address the following issues:

- How does inequality in communication contribute to and exacerbate existing health disparities?
- How do daily hassles of racism, discrimination, and poverty affect information seeking and processing?
- What are the intervention and policy options that could bridge information inequities to reduce and eliminate health disparities?
- What is the capacity of community groups in accessing and using evidence-based information to communicate with their membership?
- What are the barriers faced by health care providers in obtaining and using the latest scientific information on health disparities?
- How can medical establishments be prepared for translating knowledge and accelerating information dissemination to groups and providers working on health disparities?
- What are the training needs of providers to improve communication with patients facing a disproportionate disease burden?
- How can NCMHD develop the training of future scientists who can contribute to the study of public communication to bridge health disparities?

These questions are only suggestive and are not meant to be exhaustive. They do give an idea of the need for a more evidence-based and scientific approach to public information outreach on health disparities.

SOME CONCLUDING REMARKS

With the development of a strategic plan, NCMHD made a sound start by clearly identifying the objectives for research, research infrastructure, and public information and community outreach. The objectives for public information and community outreach suggest two broad strategies to reduce health disparities: (a) ensuring the dissemination of health information to individuals and community groups that are suffering from health disparities and (b) disseminating research-based information to trained medical and public health professionals working with groups that are traditionally underserved to ensure access as well as quality health care.

This essay provided some broad outlines that can enable NCMHD to achieve its objectives by taking the following steps:

- Continue to refine and operationalize the objectives by the greater specification of intended outcomes and the development of specific measures.
- Be aware of, and sensitive to, the issue of *communication inequities* in developing any programs of public information and outreach.
- Develop strategic research dissemination plans that address professional groups that work with groups suffering from an unfair disease burden.
- Systematize outreach efforts by clearly identifying sponsors, audiences, messages, partners, channels, and tracking systems. Such systematic efforts can draw from communication science using the suggested planning matrix.
- Work deliberately and proactively in developing programs and initiatives that contribute to the development of science of communication and research dissemination with a particular focus on health disparities.
- Develop a surveillance system for public health communication with a focus on groups that suffer from health disparities. Currently, little information is available on the information needs of the underserved, and what is available is in disparate locations in the federal government or in the private sector. A well-developed system can track health information needs, media use, seeking behaviors, and knowledge of low-SES and minority groups and can contribute to both the science of surveillance as well as program planning.
- To be successful, NCMHD should set aside a budget for both doing and studying public information efforts.
- NCMHD can play a lead role in coordinating the disparate communication and outreach efforts by various NIH ICs in their attempts to reduce and eliminate health disparities. Relevant expertise and resources often reside within the ICs, but NCMHD's coordination may bring synergy to individual IC efforts. Equally desirable is a partnership with other federal agencies, such as CDC, CMS, the Health Resources Services Administration, and AHRQ, among others, and nonfederal and private-sector partners.

The unprecedented advances in engineering and biomedical sciences offer a tremendous opportunity to prevent and treat diseases that have long plagued humans. These advances, coupled with the communications revolution in telecommunications and informatics, offer the potential to intervene along the different stages of the disease control continuum—from prevention to survivorship and end of life—thereby reducing mortality and morbidity due to disease. Yet the persistent inequities in health and the corresponding inequality in communications among different social groups could disrupt the revolution, resulting in the rich getting richer and the poor poorer, in terms of health and information. A national action plan involving careful, systematic, scientific, strategic, and deliberate efforts to address the twin disparities in communication and health could potentially help to fulfill the promise of the revolution to all instead of a few.

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