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Health Disparities, Communication Inequalities, and e-Health: A Commentary

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Advances in communication and computer technologies have revolutionized the way health information is gathered, disseminated, and used by healthcare providers, patients, citizens, and mass media, leading to the emergence of a new field and new language captured in the term “e-health.” As exciting as these technologic changes are, they have led to sometimes overly optimistic prognostications about what e-health can do to improve the health of patients and the public and the quality of care available from providers. While conceding the significant advantages bestowed by the technologic developments and their adoption into the healthcare system, we contend that without careful and systematic research and policy, e-health may work primarily to the advantage of individuals and communities with greater resources and healthcare systems that serve them. This could have the effect of deepening disparities in health status between population subgroups.

There are some significant challenges that must be addressed by the research community to assure that advances in e-health will help eliminate, not exacerbate, health disparities. These include identifying and clearly articulating specific disparity issues that affect different domains of e-health, enhancing survey sampling and measurement in e-health research to better understand and address disparities, and critically examining e-health and communication-related policies that may affect health disparities.

DISPARITY ISSUES ACROSS E-HEALTH DOMAINS

For some e-health researchers, the focus is on hardware such as the Internet and telecommunication technologies. For others, the focus is on software and content such as online support groups and provision of information on defined health topics. Addressing health disparities presents important, but different challenges and key research questions for each group.

If the focus is on hardware and using e-health as a means of information delivery and exchange among people and systems, then we must examine its reach and access to different social groups. For example, there is now extensive documentation that there are *communication inequalities* where technologies such as the Internet are used by those who have higher incomes and education, younger and the employed even though the differences are narrowing in certain pockets (Viswanath, 2006). Groups with limited access to computer technology are largely the

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same as those suffering the greatest health disparities and traditionally underserved by the healthcare system (Eng et al, 1998).

Similarly, not all health systems have equal capacity to invest in installing new technologies to assist them in their operations. For example, some healthcare organizations may not have the financial and/or human capital to implement and maintain complex technologic systems. A continuing question for scholars is the extent to which these differences in access to and use of technologies by people and health systems will narrow over time. It is also unknown whether making the required investment in these technologies will compel people and health systems to shift resources from other more exigent needs. Finally, given that e-health technologies require recurring expenditures, can access, deployment and use be sustained over the long-term? If not, what are the effects of these disruptions on people's experiences with e-health technologies and their health?

Even if access to e-health hardware was universal, the usability and content of its programs and services can pose barriers to some user groups. For example, few websites are designed to facilitate easy navigation, and most are designed for those with far above 8th grade reading level, the average reading level of US adults (Berland, et al., 2001). In addition, cultural differences in how people attend to, process and use information are not always taken into account, even though it is known that culture is an important variable in health communications (Kreuter & McClure, 2004).

METHODOLOGIC CHALLENGES

New communication technologies can offer significant advantages in data collection. Internet, for example, is now being widely used to conduct surveys. Online surveys allow for considerable flexibility in data collection, can obtain large samples quickly and make it relatively simple to conduct experiments using different stimuli. Use of Internet as a survey tool and the challenges associated with it has been extensively discussed elsewhere in this issue. The challenges are particularly critical for health disparities research. As Couper (2000) and others observed, while most attention has been focused on sampling errors associated with survey research, others sources of error are also equally important. From the perspective of disparities research, it is important to investigate how each of the sources of error associated with survey research -- coverage and sampling, non-response and measurement -- influences the health outcomes of interest.

For example, given well-documented differences among population sub-groups in access to and use of Internet, how do we address both coverage and sampling errors? Is it possible that reliance on online surveys could systematically bias against the poor and the underserved who are much less likely to be on the Net? Second, are the motivations and capacity to respond to surveys equally distributed across population sub-groups or are they likely to work to the disadvantage of certain groups. Third, are measures employed in surveys over the Internet valid and reliable for vulnerable populations that may be novice users of computers and the Internet?

While the influence of the social and physical environment on individuals' health and behavior is widely recognized and increasingly understood due to focused research in this area, effects of the *information environment* have received much less attention in scientific inquiry. It is likely true that most people get most of their health information not from planned programs or interventions, but rather from the secular environment. A full understanding of what, how often, and how much health information one encounters must include not only information available in social interactions and physical living space, but also cyberspace. Lack of online access obviously limits one's information environment. But access alone, if not accompanied by services, programs and resources designed to reach and appeal to diverse populations, may not expand one's information environment by much. Developing sound metrics for health

information exposure from online and other sources that go beyond theoretical access to include actual attention and appeal will help us understand how the true reach of online programs may vary by population sub-groups.

From a system perspective, one of the major advantages of e-health is the ability to marry electronic medical records (EMR) with provision of health information and facilitating patient-provider communication. Data gathered through careful combing of EMR may provide information on patient-provider communications, patient compliance and adherence to drug regimens, patient use of health services, and organizational environment of the health system. However, if the capacity to deploy EMR systems varies among resource-rich and poor health systems, is it likely to result in incomplete information on the underserved and eventually work to their disadvantage?

POLICY CONSIDERATIONS IN E-HEALTH AND HEALTH DISPARITIES

Compared to individual level behavioral interventions, policy and system level interventions often have a greater impact on population health. In health disparities research, structural adjustments are often necessary to remove systems barriers that impede or constrain health promoting behaviors among socioeconomically disadvantaged populations. Research examining e-health related policies as they affect health disparities is sorely needed. We must understand the extent to which current communication policies and health policies perpetuate the gulf between the haves and have-nots. For example, part of the digital divide could be explained by the relative lack of investment by the poor and the underserved in broadband services. Though prices are falling, the places where they fall depend in large part on where there is competition among different Internet Service Providers (ISPs). If there is no competition, there is no incentive for ISPs to drop the prices thus limiting affordable broadband access to those who live in areas where demand for these services is already high. Is it likely that the current telecommunication policies could leave rural areas, inner-city neighborhoods and the poor behind leading to an exacerbation of “digital divisions” (Pew Internet, 2005)?

There is also an urgent need to work closely with healthcare systems – especially those that serve disadvantaged populations – to build a strong evidence base for health information services that would be valued and used by providers and for which insurers would reimburse. Without this translation of science into healthcare policies and programs that would benefit all within a system, e-health is likely to follow the pattern of other health industry products and services that seek out and serve only those individuals and families with means to pay.

CONCLUSION

Our argument is not that e-health is undesirable but rather that a systematic and focused approach to research and application of findings in policy and practice is needed to assure that exciting and promising developments in e-health benefit all members of society. We are at the cusp of a new era in communication and health where conventional assumptions are being upended by fast changing technologies. We believe that thoughtful and responsible “e-health” research can contribute to eliminating health disparities and go a long way towards fulfilling the promise that the new communication technologies hold.

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