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UNITED STATES NUCLEAR REGULATORY COMMISSION

SEE *Nuclear Regulatory Commission*.

UNITED STATES OFFICE OF TECHNOLOGY ASSESSMENT

SEE *Technology Assessment Institutions, United States*.

UNITED STATES PUBLIC HEALTH SERVICE

The United States Public Health Service (USPHS) coordinates the country's biomedical research, disease surveillance, and public health initiatives. The USPHS also administers a commissioned corps of over 6,500 health professionals that "protect, promote, and advance the health and safety" of the nation.

USPHS HISTORY

The USPHS traces its origins to 1798, when US President John Adams signed into law measures to provide health benefits for sick and disabled seamen (Mullan 1989). Over the course of the twentieth century, the Public Health Service Act of 1944 and a series of administrative reorganizations resulted in the current USPHS structure and portfolio of programs (Lee et al. 2002). The USPHS includes the following agencies:

- Agency for Healthcare Research and Quality (AHRQ)
- Agency for Toxic Substances and Disease Registry (ATSDR)
- Centers for Disease Control and Prevention (CDC)
- Food and Drug Administration (FDA)
- Health Resources and Services Administration (HRSA)
- Indian Health Service (IHS)
- National Institutes of Health (NIH)
- Substance Abuse and Mental Health Services Administration (SAMHSA).

US AND INTERNATIONAL PUBLIC HEALTH GOVERNANCE FOUNDATIONS

The US Constitution does not explicitly address a right to health care or public health services. Instead, federal statutes authorize the health-related activities of government agencies, and federal funds support public health initiatives or allocate resources to state and local governments. State governments primarily derive their public health authority from the police powers that enable states to act in the interest of public safety, health, and welfare. Examples include the immunization of children, laws that restrict smoking in public, or quarantines that halt the spread of infectious disease.

Internationally, the Constitution of the World Health Organization (WHO) first recognized the notion of a universal right to health in 1946. Subsequent human rights accords, including the Universal Declaration of Human Rights, the European Social Charter, the African Charter on Human and Peoples' Rights, and the American Declaration of the Rights and Duties of Man, reaffirmed this recognition. In some countries, public health is a constitutional right. For example, provisions in the constitutions of Mexico and Panama hold the government responsible for health protection, and the Chilean constitution explicitly enshrines a right to health, even differentiating between individual guarantees and public health.

IMPACT OF THE INTERNET AND SOCIAL MEDIA

In the twenty-first century, the Internet and electronic communications have begun to challenge prevailing public health governance schemes by facilitating instantaneous access to health information through public websites. Increasingly, the public goes online to research health questions, whether about food safety, medical intervention, lifestyle risks, or environmental concerns. This phenomenon brings potential benefits and concerns.

Data from the first Health Information National Trends Survey revealed that of the 63 percent of the US population that at the time had access to the Internet, 63.7 percent used the Internet to research health issues for themselves or others during the previous twelve months (Hesse et al. 2005). With trust at a premium, health websites such as WebMD and Everyday Health seek to provide the public with timely, credible information, tools for managing health issues, and support in the form of online communities and reference materials. Likewise, health service providers disseminate information online about health conditions and treatment options.

Despite the growing number of health-related websites, physicians remained the most trusted source of information among 62.4 percent of the participants in the aforementioned survey (Hesse et al. 2005). Interestingly, 48.6 percent of those surveyed reported seeking health information online first, whereas only 10.9 percent visited their physician first (Hesse et al. 2005). These data represent a marked shift in the way patients seek health information.

While consumers praise the convenience and anonymity of researching health issues online as an alternative to consulting a doctor, health information posted on websites remains largely unregulated and varies in quality. To help address these concerns, websites maintained by government agencies, such as Healthfinder.gov (managed by the Department of Health and Human Services) and MedlinePlus (maintained by the NIH), offer reliable health links and resources from hundreds of government and nonprofit organizations.

Social media sites provide another means for communicating health information online. From 2005 to 2009 public participation in social networking sites such as Facebook, Twitter, and YouTube quadrupled, especially among people under age thirty (Chou et al. 2009).

Recognition of these new modalities to seek health information has led the public health community, including the WHO and the CDC, to adopt Internet technologies for the purpose of disseminating health-related information. For example, during the 2009 influenza A (H1N1) pandemic, the WHO and the

CDC had more than 11,700 and 420,000 Twitter followers, respectively (McNab 2009).

Social influence biases are also present in online health communications (Reddi 2013). Erroneous health information propagated by social media can endanger patient safety (Reddi 2013). A 2013 study by Marcel Salathé and colleagues examining the 2009 H1N1 pandemic found that tweets that had a negative sentiment about influenza vaccination were more likely to be retweeted than tweets supporting vaccination. That same study revealed that positive tweets promoting vaccine use increased the likelihood of negative tweets against vaccine use. Public health officials and governments may have to consider limiting the spread of negative messages rather than just promoting positive messages (Reddi 2013).

Research on the relationship between social media and health promotion has revealed benefits and risks, which are summarized in Table 1.

CONCLUSIONS

The dissemination of health information over the Internet and via social media has enormous potential to transform health care. Online technologies empower patients to increase their knowledge about diseases and can promote patient advocacy. Nevertheless, the trustworthiness of online health information remains a critical concern because of inadequate regulation. The current environment provides the USPHS with an opportunity to play a central,

Table 1: Benefits and Risks of Health Promotion by the Internet and Social Networking

Benefits

1. Public health initiatives can instantly and directly communicate health-related information via the Internet and social media.
2. Internet-based social networks can connect individuals with similar diseases to form support networks and groups.
3. Dissemination of health information is more democratic and patient controlled, enabling users to exchange health-related information that is more "patient/consumer-centered."
4. Public health promotion by Internet and social networking has the potential to reach younger individuals regardless of demographics.

Risks

1. Wide dissemination of noncredible and erroneous health information.
2. Inequitable access to health information, depending on ability to access the Internet, among marginalized populations.
3. Public health promotion by the Internet and social networking may have limited ability to reach older individuals.

SOURCE: Chou, Wen-ying S. et al. 2009. "Social Media Use in the United States: Implications for Health Communication." *Journal of Medical Internet Research* 11 (4): e48.

pivotal role in evaluating the quality of health information accessed by the public online.

SEE ALSO *Bioethics: Overview; Food and Drug Agencies; Food Science and Technology; Health and Disease; Healthcare Ethics; United States National Institutes of Health; World Health Organization.*

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URBANIZATION

Urbanization is a historical phenomenon closely linked to changes in technology and, to some extent, science. Urbanization also influences and is influenced by ethical ideals. Both technology and science develop with more intensity in cities, in part promoted by urban models of human behavior, which in turn may be reinforced by notions of technological instrumentalism and scientific objectivity.

URBANIZATION, ANCIENT AND MODERN

The term *urbanization* refers to the increasing concentration of people in cities. The first cities appeared after the development of plant cultivation and animal domestication as formerly nomadic tribes settled in fertile river valleys and became increasingly dependent on agriculture. The ancient cities of Mesopotamia were established between about 4000 and 3000 BCE. The cities of ancient Egypt appeared around 3300 BCE and were closely linked to the increasing power of the pharaohs, who were both secular and spiritual leaders who could use their power to create new cities. By about 2500 BCE, urban societies had developed in other parts of the world, such as the Indus River Valley in India and Pakistan and the Yellow River Valley of China. Subsequent urban developments of a classical form occurred in Athens, Rome, and other parts of the eastern Mediterranean. Despite urbanization in these ancient forms, most people continued to live outside cities.

The modern city is linked closely to the development of industrialization, especially in Europe and North America. Before the Industrial Revolution, cities were primarily centers for trade, political power, and religious authority. The rise of the machine in the late 1700s in both Europe and North America led to new city forms characterized by larger numbers of people living in areas with greater population density. As machines were developed and manufacturing increased, people began to migrate to cities from rural areas as laborers and consumers.

Technological change is not exclusive to the post-Industrial Revolution era. What distinguished that historical period was the unprecedented rapid increase in the number, kind, and effects of technological innovation and associated increases in urbanization. About 3 percent of the world population lived in urban areas in 1800, a number that rose to 13 percent in 1900 and 50 percent in 2010.

THE MODERN CITY

The rise of the modern city had significant economic, social, and cultural impacts. Urbanization changed many of the traditional institutions, values, and human experiences