

# A Historical Overview of Health Disparities and the Potential of E-Health Solutions

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## INTERNATIONAL ORIGINS

Over the past decade, a rapidly expanding body of scientific evidence has been put forth documenting differences in health status among U.S. racial and ethnic groups. Evidence has also mounted suggesting that these differences may be related to both medical and nonmedical determinants. Internationally, however, neither the evidence nor the realization of a link between nonmedical sociobehavioral factors and health outcomes is new. The earliest reported observation of a hypothesized association between socioenvironmental risk factors and health outcomes occurred in Italy over three centuries ago when Bernardino Ramazzini detailed an unusually high frequency of breast cancer in Catholic nuns (Wilson, Jones, Coussens, & Hanna, 2002). Not long thereafter, in 1775, British surgeon Sir Percival Pott reported a cluster of scrotal cancer cases among British chimney sweeps (Wilson et al., 2002).

By the mid-19th century, large-scale epidemiologic evidence began to corroborate these early observations. In 1840, Edwin Chadwick, British civil servant and statistician, demonstrated mortality differentials between the social classes living in Liverpool, England. Chadwick asserted that these differences were likely due to poverty and lifestyle factors common to the poorer working classes (Macintyre, 1997). German physician Rudolph Virchow went a step further when, in 1849, he asserted that because diseases of the populace are traceable to defects in society, the focus of medicine should shift from changing the individual to that of changing the society (Amick, Levine, Tarlov, & Walsh, 1995). Finally, in France, French physician Louis Villerme recommended improving school and working conditions as social interventions that would reduce class differences in mortality (Amick et al., 1995). Thus, in Europe, by the beginning of the 20th century, the existence of class variations in morbidity and mortality were clearly evident in the scientific literature (Macintyre, 1997).

Throughout the 20th century, the study of social class differences in health status continued across Europe, especially in Britain where epidemiologists began using decennial census data to evaluate national mortality trends. The insights gained from these analyses enabled them to construct an occupational social class grading system that correlated inversely with infant mortality. It also was the basis of the claim made by the Registrar General of Britain that at least 40% of British infant mortality was entirely preventable if the social conditions of poor infants could be elevated to that of upper-class infants (Macintyre, 1997).

Two British researchers, Titmuss and Logan, evaluated regional class-based mortality trends and documented that the disparity in infant mortality rates between upper- and lower-class infants continued to increase from 1910 to 1950 (Macintyre, 1997). This data, along with the Depression and World War II, encouraged the British government in 1942 to respond by instituting the welfare state and promoting several policy initiatives designed to address the “five giants of Want, Disease, Ignorance, Squalor and Idleness” (Acheson, 1998; Macintyre, 1997). Despite this government investment, however, problems attributable to social inequalities and inadequate access to health care persisted. In fact, by the mid-1970s, some 30 years later, the evidence seemed to indicate that the problems were still increasing and that the health of British citizens was slipping behind that of other industrialized nations (Acheson, 1998). Thus, in 1977, the British government formed the Research Working Group on Inequalities in Health and selected Sir Douglas Black as its chair. The committee’s report, issued three years later in 1980, became known as the Black Report, and it represents the first attempt by a national government to systematically study, understand, and explain health inequalities (Acheson, 1998). In summary, the health improvement recommendations of the report emphasized the need to improve the physical and social environments in which the poor and lower classes lived (Acheson, 1998).

## DOMESTIC RECOGNITION

Across the Atlantic in the United States, scientific evidence from several lines of inquiry examining outcomes and patterns of health care delivered to defined populations began to converge and suggest the importance of the socioenvironment in determining health outcomes. Researchers using small area analysis and geographic information systems analytic techniques demonstrated that a significant amount of nonrandom practice variability existed between clinical practices in different geographic locales, despite treating clinically similar patients (Barnes, O'Brien, Comstock, D'Arpa, & Donahue, 1985; McPherson, Wennberg, Hovind & Clifford, 1982). As public awareness grew, the U.S. government became involved. In 1984, the U.S. Department of Health and Human Services released a report on the health of the nation, titled *Health, United States, 1983* (NCHS, 1983). The report documented that while the overall health of the nation showed significant progress, major disparities existed in "the burden of death and illness experienced by blacks and other minority Americans as compared with the nation's population as a whole" (NCHS, 1983).

In response to the disparities identified in the report, the secretary of the Department of Health and Human Services established a task force on black and minority health—the first time that the U.S. government formed a group of experts to conduct a comprehensive study of minority health problems. In 1985, release of the "Report of the Secretary's Task Force on Black and Minority Health" significantly raised awareness of the disparate health of the country's minority groups compared to the white majority population (Mayberry, Mili, & Ofili, 2000).

Large epidemiologic studies like the Harvard Medical Practice Study emerged, documenting that a significant portion of practice variability could be classified as substandard care and that there was a correlation between substandard care and health care centers treating substantial numbers of poor and minority patients (Brennan, Leape, Laird, Localio & Hiatt, 1990; Brennan et al., 1991; Leape et al., 1991).

The emerging problems of differential outcomes and health status were not limited, however, to minorities and the poor. The Whitehall studies of a large cohort of British civil servants had convincingly demonstrated that a social class-based health gradient existed even among the well educated and employed (Marmot, Rose,

Shipley & Hamilton, 1978). Additionally, it became increasingly recognized that certain community and societal level factors, including stress (Marmot, 1986; Sapolsky & Mott, 1987), early life experiences (Tager, Weiss, Munoz, Rosner, & Speizer, 1983), social capital (Coleman, 1988), and income inequality (Wilkinson, 1992a, 1992b) seemed to exert significant effects on health and disease outcomes independent of personal behavior (Amick et al., 1995; Brennan et al., 1990; Wilkinson, 1996). Soon, major philanthropic and advocacy organizations, including the Commonwealth Fund, the Kaiser Family Commission, the Kellogg Foundation, the Robert Wood Johnson Foundation, and the California Endowment began major initiatives designed to address issues related to disparities and health care quality (Compendium of Cultural Competence Initiatives in Healthcare, 2003a).

By the late 1990s, the scientific evidence seemed to indicate that issues of disparity, practice variation, substandard care, and socioenvironmental determinants of health may all be related to the quality of health care experienced by patients. Fiscella, Franks, Gold, and Clancy (2000) published a paper titled "Inequality in Quality," in which they called attention to issues of health care quality and health care disparities as related issues of health care organizational capacity. They further contended that national efforts to eliminate racial and ethnic disparities in health care and national health care quality improvement initiatives represented two inseparable components of providing high-quality health care for all citizens (Fiscella et al., 2000).

## SYNTHESIZING THE SCIENTIFIC EVIDENCE ON HEALTH DISPARITIES

As the domestic evidence for population differences continued to accumulate, definitions of disparities were nonstandardized and racial categorizations became increasingly criticized as being imprecise and biologically meaningless (Anderson & Nickerson, 2005; Smedley & Smedley, 2005). While multiple definitions are still in current use, disparities are generally held to be population differences (Wilson et al., 2002) in environmental exposures (Macintyre, 1997) health care access, utilization, or quality, (Amick et al., 1995) health status (Acheson, 1998), or health outcomes (Carter-Pokras, & Baquet, 2002). As alluded to previously, within the U.S. health care system, these differences

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