# Population-Based Behavioral Health


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## Introduction

While the origins of epidemiology can be traced to John Snow and the 1854 cholera outbreak in England (Snow, 1855), C-EA Winslow, in 1920, provided one of the initial and most essential definitions of public health in the United States:

> Public health is the science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts… which will ensure to every individual a standard of living adequate for the maintenance of health… to enable every citizen to realize his [and her] birthright of health and longevity. (Winslow, 1920, pp. 6–7)

More than a century later, the Institute of Medicine's (IOM) Committee for the Study of the Future of Public Health published the book *The Future of Public Health*, which assessed public health programs and the coordination of services across US government agencies and within state and local health departments. The Committee defined the *substance* of public health as "organized community efforts aimed at the prevention of disease and promotion of health" (Institute of Medicine, 1988, p. 41). In addition, the Committee described the *mission* of public health as "the fulfillment of society's interest in assuring conditions in which people can be healthy" (Institute of Medicine, 1988, p. 40).

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**Table 1** Ten essential public health services

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| Monitor health status to identify community health problems |
| Diagnose and investigate identified health problems and health hazards in the community |
| Inform, educate, and empower people about health issues |
| Mobilize community partnerships to identify and solve health problems |
| Develop policies and plans that support individual and community health efforts |
| Enforce laws and regulations that protect health and ensure safety |
| Link people to needed personal health services and assure the provision of health care |
| Assure a competent public health and personal health-care workforce |
| Assess effectiveness, accessibility, and quality of personal and population-based health |
| Research for new insights and innovative solutions to health problems |

The three core functions of public health are (1) assessment, (2) policy development, and (3) quality assurance (IOM, 1988), and the ten essential public health services for these core public health functions (Public Health Functions Steering Committee, 1994) are shown in Table 1.

More recently, there are a growing number of major initiatives in public health which are of major importance nationally, including the integration of primary care and public health (Institute of Medicine, 2012b), living well with chronic illness (Institute of Medicine, 2012a), the social determinants of health (Stockman, Hayashi, & Campbell, 2015), women's behavioral health (National Academies of Sciences, Engineering, & Medicine, 2018b), and rural and frontier health (National Academies of Sciences, Engineering, & Medicine, 2018a).

A population-based approach emphasizes health promotion and disease prevention. It also involves formal activities by both the public and private sectors, working together to concentrate on sustaining the health of populations. This public health framework of iterative problem-solving includes a select number of phases, commencing with identification of the problem, assessing risks, and ascertaining protective factors. The next stage includes the development, implementation, and evaluation of interventions. The final phase in this iterative process is monitoring implementation in relation to the impact on policy and cost-effectiveness.

This first chapter highlights the concept of behavioral health within an overall framework of population or public health. It examines the burden of behavioral health problems on individuals, families, friends, and communities and the challenges within existing behavioral health delivery systems. It also emphasizes the importance of re-focusing behavioral health (the study of alcohol, drug abuse, and mental disorders from a population or public health perspective) on systems integration strategies, which incorporate technology, facilitate recovery, and promote prevention.

## Behavioral Health

As we complete two decades of the twenty-first century, behavioral health problems (i.e., behavioral disorders), continue to be significant public health problems. The burden of disease from behavioral disorders is overwhelming and costly. The most recent Global Burden of Disease (GBD) study ranked mental and substance use disorders as the fifth leading cause of disability-adjusted life years (DALYs) and the leading cause of years lived with a disability globally (Whiteford, Ferrari, & Degenhardt, 2016). Mental and substance use disorders globally account for nearly one quarter of all years lived with a disability. In terms of lost economic output, the World Economic Forum estimates the amount to be approximately $16 trillion in US dollars over 20 years or the equivalent of 25% of the 2010 global gross domestic product (Bloom et al., 2011).

Globally, mental and substance use disorders are the leading cause of disability in children and adolescents. Although approximately 50% of all mental disorders develop by the age of 14, many individuals go untreated until adulthood (World Health Organization, 2014a). In terms of DALYs, these disorders ranked as the sixth leading cause of DALYs (5.7%, 55.5 million children), equivalent to 25% of all disabilities in children worldwide (Erskine et al., 2015).

### *The United States*

Among comparable countries, the United States not only has the highest rate of death from mental and substance use disorders, but these disorders are the leading cause of disease burden for females and the third leading cause of disease burden for males (Murray et al., 2013).

Approximately one in five Americans (43 million) has a behavioral disorder during any given year, with anxiety disorders (e.g., phobias, panic disorder, and post-traumatic stress disorder) found to be the most prevalent behavioral disorders in adults. Of these 43 million, approximately ten million American adults (1 in 25) experience serious functional impairment due to mental or substance use disorders. These disorders are the single largest source of DALYs in the United States, representing nearly 14% of disability from all causes (Murray et al., 2013). These disabilities affect physical, social, and behavioral functioning across the lifespan.

Approximately one in five children and adolescents (ages 9–17) in the United States has a diagnosable behavioral disorder during any given year, with approximately 11% of children experiencing significant functional impairment and 5% of children experiencing extreme functional impairment (Adelman & Taylor, 2010). In

addition, at any one time, between 10 and 15% of children and adolescents have symptoms of depression. In 2015, a significant increase in the national annual prevalence of major depressive episodes among adolescents aged 12–17 (8.2% in 2011 to 12.5% in 2015) was reported (SAMHSA, 2017). Substance use also increased. An estimated 2.2 million (8.8%) of adolescents (12–17) use illicit drugs and 5.8% of adolescents (an estimated 1.4 million adolescents) engaged in binge alcohol use (SAMHSA, 2017).

## *Financing of Care*

Behavioral health care in America have evolved into a complicated array of uncoordinated and fragmented services, programs, and delivery systems, often creating significant problems in accessing needed services. The considerable gap between epidemiologic estimates of behavioral disorders and the actual number of individuals receiving care over the course of a lifetime strongly suggests many Americans have attempted to cope with their behavioral health problems without seeking treatment. They do not seek help, do not enter formal behavioral health-care delivery systems, or receive assistance through other health and/or social service systems, including (primary) health care, welfare, correctional, pastoral counseling, or long-term care delivery systems.

In addition, the historical reliance on the public sector for long-term care and on the private sector for acute care has contributed to the limited overall continuity of care for behavioral health services. While state and federal governments historically funded public behavioral health care, the financing systems for these services have increasingly been mixed, involving a multitude of public and private payers and providers of behavioral health care.

Globally, the direct and indirect economic costs of mental disorders are estimated at approximately $2.5 trillion in the United States (Trautmann, Rehm, & Wittchen, 2016). The indirect costs, estimated at $1.7 trillion in the United States, are more than double the direct costs ($0.8 trillion in the United States). This finding is in direct contrast to the costs of care for other physical diseases, such as cardiovascular diseases and cancer (Trautmann et al., 2016). In 2013, the United States spent $201 billion on individuals with behavioral disorders in the general population, individuals who were institutionalized, and active-duty military populations (Roehrig, 2016). In 2014, spending totaled $220 billion. Of this amount, mental health spending amounted to $186 billion (85% of overall spending), and substance use disorders spending amounted to $34 billion (15% of overall spending) (SAMHSA, 2016). See chapter “Financing of Behavioral Health Services: Insurance, Managed Care, and Reimbursement” in this volume for a more detailed discussion on insurance, financing, and managed behavioral health care in the United States.

## *Burden of Behavioral Disorders*

In addition to the definition, substance, mission, and functions of public health in the preceding discussion, public health may also be viewed within the larger context of health. The World Health Organization not only defines health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity"; it also affirms that "enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition" (World Health Organization, 2006, p. 11). Thus, behavioral health may be conceptualized as an integral part of the overall health of individuals and populations, though different cultures and ethnicities vary in their definitions of what constitutes behavioral health.

## *Complexity of Systems*

State mental hospitals historically were the primary location for providing care for people with serious behavioral health problems throughout the United States. With the introduction of deinstitutionalization and community mental health centers in America, these hospitals were downsized in terms of population and often eventually closed. Largely independent from public health systems, publicly funded behavioral health systems then developed into a variety of specialty (sector) services within a number of different organizational settings. Concerned about the continued fragmentation and lack of integration between public health and behavioral health services, the IOM Committee recommended the integration of health and behavioral health services, with a primary focus on disease prevention and health promotion (Institute of Medicine, 1988).

The de facto behavioral health systems in the United States are comprised of numerous behavioral health-care service components as well as social welfare, justice, and educational systems across both public and private sector services. Each sector exists in individual silos. Each has its own agencies, management, funding streams, and services. These sectors provide acute and long-term services across a variety of settings, including home-based, community-based, and institutionally based. In addition, care is provided across the specialty behavioral health sector, the general medical/primary care sector, and the voluntary care sector.

Influences on how this care is provided, accessed, organized, delivered, and financed come from professional licensing and accreditation organizations, managed care organizations, insurance companies, advocacy and regulatory agencies, and health-care policymaking groups (see chapter "Financing of Behavioral Health Services: Insurance, Managed Care, and Reimbursement" in this volume for a detailed discussion of insurance and financing of behavioral health services). In addition, other systems that provide behavioral health services may not have identi-

fication of behavioral disorders as a primary mission and fail to link patients with behavioral disorders to appropriate venues for care.

The provision of mental health and substance abuse services in both jails and prison serves as an example. The provision, utilization, and costs of these services are not uniformly accepted across the United States. Continuum of care post parole, probation, or reentry into the community is a common problem, as in a more community-based orientation to treatment and supportive services (see chapter "Behavioral Health and the Juvenile Justice System" in this volume for a more detailed discussion of mental health treatment in juvenile justice settings).

State and federal legislation, which influence the delivery of services, are often in conflict with each other. Legislative proviso language, regulatory and administrative requirements, and financial appropriation language also affect the eventual delivery of services, especially to vulnerable and underserved populations. Other factors that influence delivery of care include new practice models, such as integrated health and behavioral health services, as well as increasingly hybridized public and private sector provider networks. However, the continuing challenge for behavioral health is how to provide the best possible treatment, despite distinct service sectors, to improve the quality of life and long-term outcomes for persons with mental and substance use disorders.

## System Transformation

Of the five goals of the President's New Freedom Commission on Mental Health (2003) to fundamentally transform the delivery of behavioral health services, technology remains as one of today's main priorities.

Technology is a critical factor in the delivery of care. Not only does it advance research in the development of evidence-based practices; it also is an effective e-channel in the diffusion, early adoption, and effective implementation of efficacious and effective practices. With a focus on improving service delivery and utilization, the ultimate goal of technology, from a public behavioral health perspective, is on disease prevention and health promotion. Technology also plays a significant role in workforce development, as the integration of electronic health records now include specific best practices and data for behavioral health treatment and practice. It also develops and expands the behavioral health knowledge base, providing longitudinal and comparative data to address disparities, trauma, acute care, and long-term consequences of medications (see chapter "Pharmacy Services in Behavioral Health" in this volume for more on pharmacology). Clearly, integrated information technology (e.g., electronic health records) and communication infrastructure (e.g., telehealth systems) are well worth the investment to improve the delivery of care across underserved and vulnerable populations.

In March of 2019, in what seems very hard to fathom, the Internet turned 30 years old. Since its inception, traditional communications media has transformed into remarkable technologic initiatives and amazing available hardware and software.

The emergence of simple machine transmission protocol, voice over Internet Protocol (VoIP), and Internet Protocol television (IPTV) have radically changed how we communicate, with streaming media, podcasting, and real-time webcams. Social media changes almost daily, with new mobile applications and platforms. The availability of platforms has also resulted in many organizations, no matter how large or small, having as well as using social media accounts to get their message out to the public.

Media advocacy plays a significant role in setting public agenda and influencing the direction of public opinion on health, behavioral health, and social issues. Agenda setting may (1) establish the importance of a topic for the public and/or (2) address what the public should think about a topic. Media stories often are coded and identified with an episodic or a thematic frame. Episodic frames focus on discrete events, people, and places; however, they often provide the least amount of statistical or contextual information, which would better inform the public. Thematic frames focus on contextualizing the issue within a broader framework. These frames work much better from an informational and sense-making perspective, especially when looking at rapid dissemination and discussion of research results.

Respondents to a survey by the National Collaborating Centre for Determinants of Health reported that social media played an important role in public health (Ndumbe-Eyoh & Mazzucco, 2016). Respondents used social media to report and address health inequities, discuss effective strategies to improve services delivery, and participate in policy analysis and advocacy (Ndumbe-Eyoh & Mazzucco, 2016). While organizational and government websites are more often seen as a primary and authoritative source of information, social media is increasingly seen as a close second.

A systematic review on the use of social media in public health and health promotion had mixed reviews on the effectiveness of social media to improve health outcomes or increase health equity. Welch et al. (2016) found that some social media interventions may be effective for selected at-risk populations (age, socioeconomic status, ethnicities, and place of residence). However, the lack of consistency in the design and implementation of social media interventions, in some cases, resulted in no change or worsened outcomes in study participants. In addition, privacy, confidentiality, and appropriateness of "fit" of intervention with populations were identified as significant challenges (Welch et al., 2016).

## Social Determinants of Health, Sustainable Development Goals, and Healthy People

Since 2003, research continues to show how a small number of health risks account for the majority of the morbidity and mortality associated with disease, disability, and death. Although the top ten global health risks, which account for more than one third of all deaths, continue to change, the top ten health risks still account for the majority of deaths. The literature also suggests risk factors potentially can be reversed and that addressing these risk factors could also reduce societal inequities.

The Grand Challenges in the Global Mental Health Initiative identified mental, neurological, and substance use (MNS) disorders as being within its scope (i.e., depression, anxiety disorders, schizophrenia, bipolar disorders, alcohol and drug use disorders, mental disorders of childhood, migraines, dementias, and epilepsy) (Collins et al., 2011). In addition, the Grand Challenges in the Global Mental Health Initiative defined "global" to include cross-national influences on mental health, such as climate change or macroeconomic policies. Its goals are to (1) identify root causes, risk, and protective factors; (2) advance prevention and implementation of early interventions; (3) improve treatments and expand access to care; (4) raise awareness of the global burden; (5) build human resource capacity; and (6) transform health systems and policy responses. Each of its goals listed the top challenges for its area and provided a list of possible research questions (Collins et al., 2011).

## *Social Determinants of Health*

Predating the Grand Challenges in the Global Mental Health Initiative, however, was the social determinants of health framework. Published in 1998 by the World Health Organization (WHO), as a response to the Health for All (HFA) policy on Europe, WHO focused on the effects on population health caused by the following areas: social and economic status, stress, early life, social exclusion, work, unemployment, social support, addiction, food, and transport (Wilkinson & Marmot, 1998). Tying together environmental, socioeconomic, political, cultural, and infrastructure influences on health was a continued global health emphasis through the decades, with successive reports building an evidence-based practice, determining how to evaluate progress, and creating a global consensus (De Castro Freire, Manoncourt, & Mukhopadhyay, 2009; Kelly et al., 2007; Ollila, 2011; World Health Assembly, 2009, 2011; World Health Organization, 2014b, 2016).

## *Sustainable Development Goals*

The Millennium Development Goals (MDG), adopted by the United Nations General Assembly and WHO, had 8 goals with 21 targets, with a series of measurable health indicators and economic indicators for each target (United Nations General Assembly, 2000). The MDG resulted in numerous global and regional reports on existing infrastructures, policies, and population needs (Beattie, Brown, & Cass, 2015; Stuckler, Basu, & McKee, 2010; Thomsen et al., 2013; World Health Organization, 2010).

Fifteen years later, the United Nations General Assembly (2015) adopted its 2030 Development Agenda entitled "Transforming Our World: The 2030 Agenda for Sustainable Development." The Sustainable Development Goals (SDG) encompass 17 global goals, with 169 targets, which address social and economic development issues including poverty, hunger, health, education, global warming, gender equality, water, sanitation, energy, urbanization, environment, and social justice (Sustainable Development Solutions Network, 2015; World Health Organization, 2017). One major difference between the MDG and the SDG is their approaches. The MDG identified an individual goal and focused on addressing its effects, while the SDG emphasizes the interrelatedness of each of its goals to the other and attempts to deal with the causes of the problem.

The United States incorporated the WHO's definition of health in its *Healthy People* initiatives, which address national 10-year plans with identified objectives and indicators for improving the health of Americans. *Healthy People* addresses four main areas, (1) general health status, (2) health-related quality of life and well-being, (3) the social determinants of health, and (4) health disparities, with a focus on both individual-level and population-level determinants of health and interventions. Much like the SDG, *Healthy People* examines the relationship between health status and biology, individual behavior, health services, social factors, and policies (Secretary's Advisory Committee on National Health Promotion and Disease Prevention Objectives for 2030, 2018).

## *Healthy People*

*Healthy People*'s *2020* national objectives firmly embed behavioral health practice and practitioners into its national goals. Within the topic "Mental Health and Mental Disorders," the primary objectives are mental health status improvement and treatment expansion. However, across other topics, such as "Disability and Health," "Substance Abuse," "Educational and Community-Based Programs," and "Social Determinants of Health" (to name just a few), components of behavioral health are also found.

For *Healthy People 2030*, the Secretary's Advisory Committee (2018) set as one of its priorities the inclusion of the social determinants of health (SDH) as a crosscutting theme, maintaining the SDH as a separate topic area and applying SDH as a selection criteria for topic objectives. In addition, the focus is (1) reducing deaths, (2) reducing morbidity, (3) reducing disability, (4) reducing health disparity while increasing health equity, and (5) increasing well-being. Objectives cover three types: (1) core, (2) developmental, and (3) research.

Finally, each objective is viewed vis-à-vis its public health burden, the magnitude of the health disparity, the degree to which health equity would be achieved if the target were met, the degree to whether the objective is a sentinel or bellwether indicator, and, finally, the actionability of the objective.

## Implications for Behavioral Health

A population approach to behavioral health focuses on health promotion and disease prevention to improve the health and mental health of populations. *Foundations Behavioral Health* uses a public health framework to examine behavioral health services and delivery issues in the United States as well as from a global perspective. The six chapters in the first section of the volume address an overview of basic issues in behavioral health services. The second section of the volume presents chapters examining the development of effective behavioral health services in specific at-risk populations. Finally, the last five chapters in the third section of this volume present critical issues in the delivery of behavioral health services.

There are significant consequences for failing to treat behavioral disorders, from a developmental or lifespan perspective, affecting children as they age into adolescence, adulthood, and old age. The societal effects are devastating, in terms of years of life lived with a disability, increased morbidity and mortality, and the burden of disease on individuals, families, and communities.

Nevertheless, a public health perspective allows one to examine and address the continued fragmentation and gaps in the care for children, adults, and the elderly; recovery issues surrounding unemployment, stigma, and disability for people with serious behavioral disorders; and the lack of a national priority for behavioral health and suicide prevention.

National initiatives, such as the President's New Freedom Commission (2003) and the Obama Administration's focus on reducing stigma, access to care, and the real possibility of recovery, show a paradigm shift from a "wicked problem," i.e., challenging and complex issues (Rittel & Martin, 1973), to an inclusive, community-centered approach.

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