A Transformed Health System in the 21st Century White Paper

Introduction

The U.S. health system is comprised of the healthcare, public health, and human and social services sectors, as well as other stakeholders with the capacity to protect and improve human health, but the system currently exists as a disparate set of actors pursuing similar goals with little coordination. In the 21st century, the nation's health system should coordinate and integrate its efforts based on a shared recognition of the interplay between the economic, environmental, and social factors that contribute to health, along with individual decisions and clinical care. The health of individuals and communities is determined by a multitude of factors beyond healthcare and, in many cases, beyond the traditional scope of public health activities. Thus, the system must focus on promoting and maintaining health and preventing illness and injury. To do so, it must be able to address the known determinants of health—environmental, social, behavioral, and clinical factors—and expand the system beyond treating sickness that has already developed.

The health of all U.S. residents is fundamental to the nation's continued well-being and prosperity. Health in this country leaves significant room for improvement, with studies finding that overall population health and health outcomes are poorer than those of other developed nations, despite greater per capita spending than almost all other countries.[1] Disparities in health between demographic groups in the United States also remain both significant and persistent.[2]

However, the United States has the potential to become the healthiest nation in a healthier world. Individuals and organizations that provide health-related services must lead the effort to enhance the health and well-being of all U.S. residents. Those directly engaged in maintaining and improving health must engage other entities that also shape the environment and society that contribute to individuals' health, and lead efforts to address determinants of health beyond what medical providers or public health professionals can address alone.

To address these determinants of health, the nation's health system must be comprehensive and capable of improving population health by fostering health promotion and disease prevention at all levels, including individual, family, community, and country. The health system of the 21st century must include clinical and non-clinical partners collaborating and integrating their work to comprehensively address the societal-, community-, and individual-level causes of poor health. Partners integrated into the nation's health system must include human and social services, education, housing, behavioral health, criminal justice, environmental protection, and agricultural systems, as well as those not traditionally associated with health, such as transportation, industry, labor, finance, academia, private enterprises and businesses, faith communities, and energy. It is only through deep, cross-sectoral partnerships that every person in the United States will be served by a robust health system that addresses the root causes of health.

---

[1] Squires D, Anderson C. "U.S. Health Care from a Global Perspective: Spending, Use of Services, Prices, and Health in 13 Countries." Commonwealth Fund, 2015. Available at: http://www.commonwealthfund.org/publications/issue-briefs/2015/oct/us-health-care-from-a-global-perspective. Accessed 4-7-2017.

[2] CDC. "CDC Health Disparities and Inequalities Report – United States, 2013." *MMWR* 2013: 62(Suppl. 3): 1-184. Available at: https://www.cdc.gov/mmwr/pdf/other/su6203.pdf. Accessed on 4-21-2017.

The individuals and organizations that comprise the nation's health system should be leaders in this work because it is one of the largest employers and sectors of the U.S. economy. The health system has also been undergoing a period of rapid change that has broadened perspectives and conversations on what determines health. This shift is critical because much of what determines health happens outside of a clinical setting.

Creating a Transformed Health System that Addresses the Root Causes of Health

A 21st century health system must address the broader determinants of health. To do this, it needs to prioritize prevention and address population-level causes of poor health, including supporting healthy environments and lifestyles and providing public health, preventive, and primary care for every person, including all other necessary services for the disabled and socially and economically disadvantaged. Health services must be financially accessible and available in a timely manner to all who need them and provide the broad range of culturally and linguistically appropriate services (including preventive services) that will improve health and the quality of life of all recipients.

Racial and economic inequality drive many of the current disparities in U.S. health, and they prevent many Americans from leading full, productive lives, with social inequities sometimes beginning even before birth. To create a modern, effective healthcare system, health services should be available to all individuals in the United States, regardless of their ability to pay. However, the health system of the future can be financially sustainable. By shifting our approach to strengthen and incorporate public health, social services, clinical care, and other approaches as part of health interventions, the U.S. health system can improve health, streamline care, and lower costs.

To improve Americans' health and address health inequities, the health system must actively address a broad set of factors that help determine the health of individuals and populations, including economic, environmental, social, behavioral, and medical causes.[3] Currently, the health system focuses mainly on providing healthcare: more than 90 percent of U.S. national health expenditures in 2014 went to personal healthcare consumption and health insurance.[4] This means that our current system focuses more on treating diseases and addressing symptoms than on what causes illnesses, despite data showing that public health prevention efforts and coordination among social services can have a greater impact on health outcomes, potentially at lower cost.[5]

Environmental Factors of Health
Environmental and societal factors act upon an individual's health directly, unmediated by their decisions. The environment is a key determinant in human health, with environmental hazards and exposures directly affecting and complicating many chronic diseases, such as heart disease, asthma, and cancer. Air pollution,

[3] Association of State and Territorial Health Officials. "Advance Health Equity and Optimal Health for All." 2016. Available at: http://www.astho.org/Health-Equity/2016-Challenge/. Accessed on 5-10-2017.

[4] CDC. "Health, United States, 2015: With Special Feature on Racial and Ethnic Health Disparities." Table 93, Gross domestic product, national health expenditures, per capita amounts, percent distribution, and average annual percent change: United States, selected years 1960–2014. Available at: https://www.cdc.gov/nchs/data/hus/hus15.pdf#093. Accessed on 4-7-2017.

[5] Bradley EH, Canavan M, Rogan E, *et al.* "Variation In Health Outcomes: The Role Of Spending On Social Services, Public Health, And Health Care, 2000–09." *Health Affairs.* May 2016, 35, no. 5: 760-768. Available at: http://content.healthaffairs.org/content/35/5/760.abstract. Accessed on 4-10-2017.

lead-based house paint, and asbestos are just a few examples of well-known and well-studied environmental factors that can threaten health. Tobacco exposure, especially exposure to secondhand smoke, is one of the most significant and preventable environmental detriments to health. Crucially, these environmental factors do not affect all groups equally. Inequalities in the safety of living conditions, poverty, and disparities in behaviors such as smoking all create less healthy environments for members of minority groups in the United States.[6]

There are many environmental threats about which little is known. For example, thousands of chemicals are used in products with which U.S. residents interact regularly, yet only a small number receive human health evaluations.[7] Without this kind of knowledge, it is difficult to protect people's health, avert preventable and costly disease and disability, and create health-promoting environments in homes, workplaces, schools, neighborhoods, and communities.

Human-environment interactions are also complex to manage. Environmental issues are often under multiple agencies' or organizations' jurisdictions. For example, environmental agencies may be responsible for air and water quality, but natural resource agencies may be responsible for energy creation. Clinical and public health stakeholders should work with these and other entities to integrate an awareness of environmental policies' health impacts into program planning and implementation.

Social Factors of Health

Social factors of health have a large impact on individuals' and populations' well-being, but like environmental factors, do not affect all groups equally. Social factors are the conditions in which people are born, age, work, and live, constructing our daily lives. Social factors affect health via individuals' decisions, limiting their options and sometimes making healthy choices less feasible or desirable. For example, a neighborhood or area with limited access to safe recreational spaces will lead to a sizeable number of individuals being less willing and able to engage in physical activity.

Racial biases are among the most persistent and pernicious social drivers of health. Historical and ongoing biases, namely racism, have created significant health inequities between racial and ethnic groups in the United States. Social factors that have resulted in poorer health for minority racial groups, especially African Americans, Native Americans, and Hispanic populations, include limited access to healthy living spaces and environments, high-quality education, healthcare, and other social institutions and services.[8] The disparities in health status and outcomes between races can be traced to how we have built our society, as opposed to any intrinsic differences between races or ethnicities.[9]

---

[6] Gee, G. and Payne-Sturges, D., "Environmental Health Disparities: A Framework Integrating Psychosocial and Environmental Concepts," *Environmental Health Perspectives,* Dec 2004, 112, no. 17: 1645-1653. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1253653/. Accessed 7/7/2017.

[7] EPA. "Toxicity Forecaster." Available at: https://www.epa.gov/sites/production/files/2016-12/documents/tox_cast_fact_sheet_dec2016.pdf. Accessed on 4-18-2017.

[8] W.K. Kellogg Foundation. "'The Business Case for Racial Equity' Quantifies the Cost of Racism in the U.S." Oct. 24, 2013. Available at: https://www.wkkf.org/news-and-media/article/2013/10/the-business-case-for-racial-equity-quantifies-the-cost-of-racism-in-the-us. Accessed on 5-4-2017.

[9] Kawachi, I., Daniels, N., and Robinson, D., "Health Disparities by Race and Class: Why Both Matter." *Health Affairs* March 2005, 24 no. 2: 343-352. Available at: http://content.healthaffairs.org/content/24/2/343.full. Accessed 7/7/2017.

Because these social factors are the result of the society and living conditions that we have created, they all are changeable through concerted effort. By recognizing and addressing the determinants of health that arise from social structures, conditions, and interactions, the health system can prevent disease, improve productivity, and lower healthcare costs. An integrated approach must expand its understanding of what determines health, and integrate health in all policies and programs with interventions that combine public health, healthcare, social services, and other public and private partners.

Behavioral Factors of Health
Behavioral and mental health are core components of overall health. Addressing behavioral health issues is critical to allowing individuals to lead healthy, productive lives, including through early and frequent screenings and interventions that identify and prevent the further development of behavioral health conditions. The health system must also recognize the impact of adverse childhood experiences on behavioral health and the linkages between behavioral health conditions and physical health, as well as the detrimental consequences of racism, poverty, and other social ills present in the country today and historically.[10] To fully address behavioral health needs, the health system must establish parity of coverage for treatment and intervention with physical health and incorporate substance use treatment as an accepted component of overall healthcare and prevention.

Furthermore, health behaviors are another facet of both mental and physical health that a transformed health system must address. Influenced by social factors and the environment, individuals make choices that affect their health every day. The health system of the 21st century must recognize that much of what we do on a daily basis shapes our overall health, not just what occurs in the clinical setting. Interventions in a transformed health system should work to change social contexts to make healthy decisions easier and the "default" for individuals. Intervention should also educate individuals about healthy choices and encourage them on a population level. For example, education activities about healthy eating and nutrition and how people can incorporate physical activity into their daily routines have the potential to help spur healthier behaviors. The health system should also focus on injury prevention, such as seatbelt use and helmet use when riding bicycles or motorcycles, to reduce avoidable treatment and poor health outcomes.

Clinical Factors of Health
Expanding access to high-quality medical care that focuses on patient needs in the context of their living conditions is crucial to preventing illness and ensuring that illnesses are treated promptly and appropriately. In particular, primary care can link individuals with appropriate treatments in a cost-effective manner and act as a hub for community-wide care coordination efforts and expanded non-clinical partnerships. Primary care should serve as a gateway to preventive services and appropriate management of chronic conditions. Therefore, a transformed health system should focus on primary care and increase its capacity nationwide, while also ensuring that primary care providers have the necessary tools to coordinate care effectively with a wide range of partners. In the clinical setting, health services should adopt team-based models of care that are patient-centered and incorporate both professional and lay health workforce components. Adequate, affordable health insurance coverage is also necessary to ensure access to comprehensive and quality healthcare services, including primary care.

---

[10] World Health Organization, "Risks to Mental Health: An Overview of Vulnerabilities and Risk Factors," August 27, 2012. Available at: http://www.who.int/mental_health/mhgap/risks_to_mental_health_EN_27_08_12.pdf. Accessed on 7/7/2017.

Continuous quality improvement and innovative approaches to care coordination and quality assurance should also be major facets of health services in the 21st century, including the movement toward electronic health records. Shifting toward value-based purchasing of health services, including alternative payment models and other moves away from a fee-for-service system of compensation, will continue to be critical to creating high-quality, accessible, affordable, cost-effective care structures.

How to Achieve a Transformed Health System

The United States must establish the maintenance of good health, specifically through disease prevention, as the priority, rather than responding to acute and chronic illness. To accomplish this goal, our health system must focus its efforts on populations and communities. The steps outlined below lay out ways in which the current health system can evolve into one that addresses the root causes of poor health, which is created primarily at a community level.

To begin, the health system needs to integrate with public health structures and organizations. Policymakers must make ongoing commitments to invest in health promotion and protection as the basis of health system transformation. This includes supporting public health's capability to accomplish its mission with flexible, sustainable financial resources. A transformed health system also needs to have an adequate number, mix of general, specialty, and subspecialty providers, diversity, and distribution of public health and healthcare workers to reflect the unique needs of diverse communities, as well as sustainable and flexible financing.

The health system must also support a national commitment to health equity. One way to accomplish this goal would be to establish "health in all policies with health equity as the goal," which would entail evaluating and addressing the health impact of policies across all governmental and private agencies and sectors of the economy. A transformed health system should also develop policies that promote health and well-being in the built environment, including childcare centers, schools, workplaces, communities, and homes.

The health system of the 21st century must specifically acknowledge racial inequities and historical trauma in health and work to address them. This will require community- and population-level interventions to address the root social causes of health problems that disproportionately affect racial and ethnic groups. For example, a transformed health system should not only treat individuals with asthma clinically, but also recognize the disease's racial impacts and work to eliminate causal factors and manage asthma triggers in minority communities. Community-clinical linkages help ensure that people who have chronic diseases or at high risk of developing them have access to community resources and support to prevent, delay, or manage chronic conditions.[11] For example, a clinic might partner with its local public health agency to develop a referral system for screening hypertensive patients, or a clinic might partner with its local YMCA to offer discounted memberships for hypertensive patients. Similarly, the state health department might work with its Medicaid agency or private payers to create a payment structure for supporting community health workers or similar community-based healthcare professionals who connect patients with healthcare and community resources.

---

[11] CDC. "Chronic Disease Prevention and Health Promotion Domains." 2012. Available at: http://www.cdc.gov/chronicdisease/about/foa/docs/Four-Domains-Nov2012.pdf. Accessed on 4-21-2017.

A modernized health system would also improve environmental health risks. Strategic partnerships between environmental public health agencies and healthcare providers can provide better insight into stressors that affect health. For example, integrating environmental data, such as drinking water contaminant testing results, with electronic health records can lead to a better understanding of a patient's symptoms and specific conditions.[12] Additionally, private manufacturers of consumer products can work with public health agencies to ensure their products are made with safe chemicals. The U.S. Environmental Protection Agency's Safer Choice program shows how private industry can work with public health officials to create safer consumer products.[13] A transformed health system must also address occupational health risks and maintain a strong connection between environmental health stakeholders to enable reporting and epidemiological surveillance and investigation.

A 21st century health system needs to encourage collaboration among medical care providers, public health entities and infrastructure, and traditional and nontraditional partners in the public and private sectors with patients as the focus, shifting the setting for health services and interventions into communities and patients' everyday lives. To create a comprehensive approach to wellness, the health system must connect individuals and healthcare providers with community resources that link health maintenance with disease prevention, treatment, and management. Interconnected data and information systems are critical to such an effective, integrated health system because of the efficiencies they promote. The health system of the 21st century support the two-way exchange of public health and clinical data and educate the public about the use, value, and purpose of personal and family health records.

A transformed health system must recognize the importance of appropriate screening and prevention for children, as well as ensuring their full, healthy development. This should include social and educational growth, behavioral health, and proper physical growth and nutrition. The health system must prioritize healthy pregnancies and address preterm birth, and work to ensure healthy early brain development.

In addition to providing critical prevention for children, the health system must create population-wide immunity against vaccine-preventable diseases by covering all costs for immunizations recommended by the Advisory Committee on Immunization Practices. Payment should not be a barrier to immunization. In addition to removing payment as a barrier to immunization, a transformed health system should strengthen the infrastructure necessary to deliver vaccines, develop and maintain stockpiles of vaccine, and support the research and development of new vaccines. The health system of the 21st century must also actively promote vaccines and make them easily available whenever possible. A transformed health system would also allow for the full implementation of immunization information systems to provide robust data on immunization coverage rates across the population.

In addition to a robust immunization program and emergency planning, the health system of the 21st century must have the capacity to prepare for and respond to public health emergencies. Public health relies upon partners in the healthcare, pre-hospital, laboratory, emergency management, homeland security healthcare system, and other public agency disciplines to respond to a variety of health threats. In

---

[12] Association of State and Territorial Health Officials. "Electronic Health Records: A Source for Environmental Public Health Surveillance." 2015. Available at: http://www.astho.org/Environmental-Health/Source-for-Electronic-Health-Surveillance. Accessed on 4-21-2017.

[13] EPA. "Learn about the Safer Choice Label." Available at: https://www.epa.gov/saferchoice/learn-about-safer-choice-label. Accessed on 4-21-2017.

the future, the health system should further integrate and strengthen these partnerships through joint planning and training to ensure that the nation can mount a robust response to any threat to the public's health.

A coordinated system of health services, incorporating not only healthcare but other services as well, is at the core of a transformed health system. To create this structure, the health system must establish medical homes and link individuals with the appropriate level of care coordination and management, especially to manage chronic diseases and address risk factors in a culturally and linguistically appropriate manner. A transformed health system must offer coordinated behavioral and mental health services at parity with physical health, without access barriers. In addition, the health system must have the capacity to offer early screening and address risk factors for behavioral health conditions. Substance use disorder treatment must be included in the behavioral health services of a transformed health system, and substance use needs must be met in coordination with other mental and physical health needs.

The financing system of the transformed health system of the 21st century must support and incentivize the services necessary to address the broader determinants of health and ensure their sustainable delivery. Evidence-based interventions that reduce environmental factors that degrade health, encourage healthy behaviors, and make high-quality care universally accessible have greater potential to improve population health than a greater volume of healthcare services, so an effective health system must move away from incentivizing the latter and move toward promoting prevention. Health financing in the future should reward and incentivize healthy behaviors. Alternative payment models and value-based purchasing systems that reward service providers for positive health outcomes form a key support for the transformed health system. Many such models already exist, such as accountable care organizations. Given the momentum now behind payers' shift away from the fee-for-service model, many innovative models are still under development or have yet to be created. Regardless, health financing systems should recognize the monetary and social returns of upfront investments in prevention and the broad cross-section of players and providers involved in novel interventions to address the root causes of poor health. Upfront investments and shared savings must be distributed fairly and appropriately across the new integrated health system to create sustainability for public health, social services, and other elements of the 21st century health system.

Conclusion

The United States is already taking steps toward the transformed health system of the 21st century. Initiatives to establish medical homes, reward care coordination and quality, and integrate healthcare providers and payers with population health solutions, such as smoking cessation and chronic disease management, are excellent starting points for a health system that addresses all causes of health using comprehensive approaches. Existing shifts toward value- and outcomes-driven purchasing in healthcare should be broadened to provide investment and ongoing support for social and public health solutions to support their work and partnerships with healthcare providers, including through shared savings and other incentive mechanisms. Innovative partnerships will be one of the core features of a transformed health system. The ways in which we pay for healthcare must be transformed to support these partnerships as an integral part of delivery system reforms, and not left as an afterthought. If the nation adopts a health system that works to solve the causes of poor health in our daily lives and communities, the focus will shift from treating symptoms and ailments to maintaining continued good health, with lower costs for all.