

VIEWPOINT

VITAL DIRECTIONS FROM THE NATIONAL ACADEMY OF MEDICINE

Systems Strategies for Health Throughout the Life Course

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Editorial pages 1679
and 1682

Based on measures of cost, quality, efficiency, and equity, the US health system is substantially underperforming—a failure unlikely to respond to incremental modifications in the prevailing system. Rather, the improvements required demand a transformative re-orientation and restructuring, moving beyond the focus on reactive, isolated, and episodic medical care events to an integrated system capable of delivering better health for all. Such systems-focused strategies will be essential in designing and integrating individual and population health goals, treatment- and prevention-oriented interventions, data and learning systems, and payment and governance.

At approximately \$3 trillion, 2015 US health expenditures account for nearly 18% of the US economy, a level that is highest in the world and about 50% more than the next highest spending country. Yet the US health system ranks only 37th in performance among 191 nations.¹ More telling is that the United States has the poorest health of the rich nations, a distinction marked by failing health grades that begin in childhood. Although the United States continues to lead the world in producing important health research and technologic advancement, the nation is unable to turn those advances into health gains measured in better population health.

Health Profiles Across the Life Course

Why is the United States performing so poorly relative to both potential and size of the investment? The answer lies in the fissure between the current reality and understanding that multiple factors interact to determine health status and the long-standing allocation of attention and resources to the acute, the short-term, and the limited treatment of illnesses and injuries that present for care. The persistent and increasing gap between current scientific understanding about the determinants of health and the ability to move beyond fragmented and episodic patterns of care is reinforced by outdated concepts of disease causation and measurement systems that often continue to count what was once thought to be important and easy to measure, but in fact offers scant prospects for health gains.

Although death is the most definitive and tragic reflection of health status, in 2016, it is far too limiting as a measure of the health of a population. For example, in 2013, due to substantial advances in preventing injuries and treating infectious diseases, there were fewer than 15 000 total deaths among the nearly 75 million children younger than 15 years in the United States; on average, mortality rates for children decreased by roughly half between 1980 and 2011. Yet nearly 25 million children were overweight or obese, more than 30 million lived in low-income families, 5 million lived in a household af-

fectured by violence, and more than 1 million experienced child abuse and neglect.² In 2015, about 1.1 million people younger than 75 years died, but the numbers of people who have diabetes, depression, and alcohol abuse amount to 18, 11, and 15 times that number, respectively.

Factors Across Systems and Across Time

Health is the product of the interplay of factors in 5 domains that shape how health develops across the life course: biological predispositions, social circumstances, physical environments, behavioral patterns, and access to needed health care. Health is determined by experiences and exposures layered onto the biological matrices that individuals inherit. Beginning at conception, the content, character, permeability, and resilience of each person's health profiles is shaped over time by interacting experiences. Each individual, in essence, is a complex system in constant and dynamic interface with others that affect fates in manners great and small. The process is not linear, but one in which similar experiences may exert variable influences at different points. The revolution in life course health science clearly indicates that early exposures to adversity and other risks have a significant and often compounding influence on lifelong health. It is increasingly recognized that many adults with a major health need begin as children with troubled lives, living in risk-prone families, and in adverse social environments.

Constraints on perceptions and perspectives are clearly apparent. Most health improvement efforts—disease and injury prevention, treatment, and rehabilitation—begin at a single encounter, but often also end there. Common clinical encounters—such as immunizing a child, counseling a depressed patient, scheduling for chemotherapy—represent the dedicated work of a skilled health professional usually delivered with a focused sense of purpose in anticipation of the best result.

Yet the reasons health care is needed and the potential for sustaining optimal health depend on myriad factors beyond a single interface—factors that include the interrelationship of behaviors, environments, socioeconomic status, ethnic and gender biases and prejudices, and other factors that can course throughout communities. Because health problems and their solutions require care that spans well beyond a single point in time and place, improving health trajectories will also require a more integrated perspective and systems-oriented approach.

Systems Strategies and Transformative Prospects

A systems-oriented perspective helps physicians and patients see and engage the whole picture, recognizing that multiple interacting factors influence health, that these

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factors vary across domains and time, and that health care efforts that are essentially singular, isolated, and reactive have inherently limited chances of addressing root causes and therefore of achieving success. Fundamentally integrative systems approaches seek to improve success in both prevention and treatment by strategically identifying and engaging the various social, environmental, behavioral, and health care factors shaping health outcomes for individuals and populations.

In recent years, the feasibility of targeted systems strategies has improved. Insights about the determinants of health and their controllability through collective action that moves upstream, science and technology advances that enhance the self-care of individuals and improve population-focused interventions, brain science and other insights into the time-sensitive complexity of childhood development, and new financial realities that necessitate transformation in the nature of health financing all are among the several forces that both enable and compel systems approaches to multiple influences on health that interact and shift over time.

A central strategic implication of adopting more systems-focused strategies is the need to enlist the collaboration and coordination of multiple stakeholders, often spanning far beyond patients, families, personal health care practitioners and organizations, and payers. This comprises those individuals and organizations that shape policies and influence the context and pathways of care, including education and information sources; social services providers, employers, health product manufacturers, manufacturers of personal digital devices, economic resources, public health and safety organizations, measurement and quality assurance organizations, media and communication agents, justice assurance organizations, and stewards of community commons.

Summary Recommendations for Vital Directions

The Vital Directions Initiative is aimed at identifying a range of systems innovation and improvement opportunities in service of optimizing population health over the life course. To achieve these goals, the systems must prioritize achieving alignment of health care payments with system performance in improving health; standardizing core metrics that reliably assess system performance; creating a universally available and interoperable digital health platform; and fostering a culture and practice of continuous health improvement.

- **Shift health care payments to financing that rewards system-wide health improvement.** Currently, the health care system pays for treatment of illness, not for promoting and maintaining health. The focus of payments on individual services yields a fragmentation of incentives down to a focus on the smallest possible unit rather than the overall performance of the system for an individual or a

population. By assuming financial responsibility for specific populations, health care organizations have a vested interest in better linking to the community, including local health and social service departments, schools, senior centers, and faith-based institutions; and supporting and rewarding health improvement at the population level, in addition to providing the best care for individuals.

- **Initiate multilevel standardized measurement of system performance on core health indices.** If a restructured payment system is aimed at a substantially improved focus on results—on the performance of the system in producing better health in the near and the long term—then assessment models must be similarly designed to assess system-level performance. Across clinical care, thousands of individual measures are collected to measure results on hundreds of clinical conditions, and without harmonization the opportunities for reliable cross-institutional or system-wide lessons are highly limited. The Institute of Medicine's recent report, *Vital Signs*, recommended a core set of 15 core and composite measures to assess and track national, state, community, and institutional performance in improving health care and health prospects for individuals and populations.³
 - **Speed development of a universally accessible and interoperable digital health platform.** The most basic characteristic of a productively functioning system is the timeliness and reliability of information flow among the elements of the system. Current barriers are formidable to achieving such seamless communication, but they are not technically prohibitive. Agreeing to standards for interoperability, assuring their system-wide application, working out use and privacy protocols, ensuring interface and personal access capacities for individuals, and embedding analytic tools will put in place the potential to establish and grow a continuously learning and improving health system.
 - **Foster awareness and action on a community culture of continuous health improvement.** Ultimately, transformative changes in health and health care require transformative leadership and action at the community level. Using provisions of the community benefit requirements in the tax code that compel the many non-profit health care organizations to assess and work toward meeting community needs, tools are available for community leaders to mobilize support and move toward a transformative community health culture, such as that sought in the Culture of Health initiative of the Robert Wood Johnson Foundation.
- With the tools available and the prospect of reinforcing leadership, technical assistance, and policy initiative from the national, state, and private sectors, the possibility should be at hand for better health prospects at the start of life, throughout its course, and at its conclusion.

ARTICLE INFORMATION

Published Online: September 26, 2016.
doi:10.1001/jama.2016.14896

Conflict of Interest Disclosures: All authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest and none were reported.

Funding/Support: The National Academy of Medicine's Vital Directions initiative is sponsored by the California Health Care Foundation, The John A. Hartford Foundation, the Robert Wood Johnson Foundation, and the National Academy of Medicine's Harvey V. Fineberg Impact Fund.

Disclaimer: This Viewpoint on systems strategies for health provides a summary of a discussion paper developed as part of the National Academy of Medicine's initiative on Vital Directions for Health & Health Care (<http://nam.edu/vitaldirections>). Discussion papers presented in this initiative reflect the views of leading authorities on the important issues engaged, and do not represent formal consensus positions of the National Academy of Medicine or the organizations of the participating authors.

Additional Contributions: Coauthors of the NAM discussion paper were Don Berwick (Institute for Healthcare Improvement); Tom Daschle (Daschle Group); Harvey Fineberg (Gordon and Betty Moore Foundation); Bill Frist (Vanderbilt University); Atul

Gawande (Brigham and Women's Hospital); and Risa Lavizzo-Mourey (Robert Wood Johnson Foundation). Elizabeth Finkelman, MPP (National Academy of Medicine), served as the initiative director.

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