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The Leading Edge

Quality improvement in population health systems

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ABSTRACT

Quality improvement methods have achieved large sustainable changes in health care quality and health outcomes. Transforming health care into a population health system requires methods for innovation and improvement that can work across professions and sectors. It may be possible to replicate improvement successes in healthcare settings within and across the broader systems of social, educational, and other human services that influence health outcomes in communities. Improvement methods could translate the rhetoric of collaboration, integration and alignment into practice across the fragmented health and human service sectors in the U.S.

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1. Introduction

Batalden and Davidoff (2007) defined quality improvement as “the combined and unceasing efforts of everyone—healthcare professionals, patients and their families, researchers, payers, planners and educators—to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development (learning)”¹. Improvement methods have contributed to large and sustainable progress in healthcare processes and outcomes, producing new knowledge in care for specific health conditions as well large-scale spread of care practices known to be effective, including in patient safety to reduce medical errors.^{2–4}

The Institute of Medicine (IOM) has called on leaders to foster learning healthcare systems for discovery and improvement in care.⁵ As the U.S. healthcare system considers how to improve the health of populations through the Institute for Healthcare Improvement (IHI) Triple Aim⁶ and other initiatives, it may be not only possible but necessary to replicate improvement successes in healthcare settings within and across the broader systems of social, educational, and other human services that influence health outcomes. Transforming health care into a population health-producing system will require methods for innovation and improvement that can work across professions and sectors.

The premise of this paper is that improvement methods are powerful, yet underutilized for changing the larger systems that

influence many health outcomes. Likely reasons include (1) a lack of appreciation of the multiple systems outside of healthcare that influence population health outcomes, (2) fragmentation of those multiple health and human service systems, especially in the U.S.; and (3) lack of a tradition of using improvement methods for innovation and change in human service sectors outside of healthcare. Improvement methods offer tools for translating the rhetoric of collaboration, integration and alignment into practice. We believe there is great value in adopting an explicit approach to applying improvement methods to all of the parts of the system that need to change to move outcomes. We describe how the application of improvement methods could support a learning system across the multiple sectors that influence population health outcomes. We provide examples of this approach applied to address health concerns where a large proportion of influence is outside of the medical sector. We conclude with strategies for increasing capacity in and use of improvement in cross-sector population health initiatives.

2. The need for improvement in a population health system

The U.S. healthcare system is ill-equipped to respond to the rapidly emerging knowledge about the biological and environmental factors that influence health behaviors and health outcomes because the prevailing paradigm of service delivery has not kept pace with the science of what shapes health and well-being. Separation of mental, physical, oral and other aspects of health into different systems, as well as the separation of healthcare from other human services, is not compatible with the direction of healthcare⁷ and is at odds with comprehensive “place-based”

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initiatives serving specific populations and population-scale strategies and initiatives, e.g., Robert Wood Johnson Foundation's Culture of Health initiative. For example, in child health, U.S. has siloed sectors of medicine, education, social services, mental health, and other age-specific services such as child protection, with each focused on a single domain of human functioning or well-being (physical health, behavior, cognition), and employing a distinct set of programs and professional disciplines (doctors, therapists, educators). The County Rankings Model shows that medical care is a relatively small part of the influence on major population health behaviors and outcomes.⁸ Transforming from the current to the envisioned system will require effective ways of driving change that involve many independent sectors, organizations and professions.

The Institute of Medicine (IOM) *Best Care at Lower Cost: The Path to Continuously Learning Health Care in America* (2012) stated: "A learning healthcare system is designed to generate and apply the best evidence for the collaborative healthcare choices of each patient and provider; to drive the process of discovery as a natural outgrowth of patient care; and to ensure innovation, quality, safety, and value in health care."⁵ Realizing this vision for health outcomes in which healthcare is only one part requires appreciation and involvement of the sectors that influence the outcome. Multiple authors^{9,10} have described the need for collaboration across a system. Improvement methods can be used to operationalize these approaches, using design ideas, authentic collaboration, data, and testing for continuous learning.

The IHI Triple Aim lays out a rationale for a systems approach for better outcomes with greater experience and value at less cost. Accountable care organizations will be able to establish shared care processes and measures across different disciplines through contractual relationships. While this is one version of a population system, there are other health outcomes and problems that involve additional independent sectors such as education, social services and early intervention. Population health approaches initiated in the health care sector will need to include other sectors as if they were part of the same health-producing system. For example, family social conditions are known to be key influences on health (consider the examples of infant mortality or cardiovascular disease) but are not always part of the systemic response. Improving healthcare is unlikely to result in improvement at a broader population level without applying it across all of the key sectors whose services influence the outcome.

How is improving a population system different than improving health care? One way is the scope of the change. People will only perceive that they are receiving person-centered, integrated care if they experience this from all of the services in addition to medical care that are ostensibly working for them, together as a system. When providers from multiple sectors are working within a system and not on self-contained programs, they will often need to test ideas together rather than in isolation. Both parties to a client linkage process need to participate in the testing and ultimate implementation. There is a need for learning within and across many different organizations and sectors. While there are promising examples of health care partnering with other sectors, such as the Healthy Homes initiative and others to improve housing and reduce the impact of chronic conditions,^{11,12} emerging initiatives such as IHI SCALE¹³ are involving many more partners and broader outcomes.

3. Key components of a learning population system

Deming described improvement as an organized, intentional change process with elements of appreciating all parts of the system, learning from variation, using measurement and iterative testing to build knowledge, and attending to psychology of change.¹⁴

3.1. Measures

Diverse sectors, providers and community members are more likely to align their efforts if they identify and adopt outcomes that can be achieved only by working together. Establish a shared measurable aim is a critical step. A family of measures reflecting progress at all levels makes it possible for all participants to see the full system even as they contribute to change within their specific sphere of influence. Measurement for a population-focused system would include health outcomes, population health behaviors, social conditions that influence health, care processes, reach to the population, and the quality and intensity of change efforts.¹⁵ Taken together, these measures show if the system is learning how to improve, if it is reaching all of the people within the boundaries of the system, and if conditions that shape health as well as actual health and well-being are improving. Process measures reflect the actions of people in sectors including but not limited to healthcare.

3.2. Drivers/change concepts

Diverse organizations need to work from a shared theory about what actions will produce desired outcomes. Introducing change concepts for care that apply across all service sectors could achieve goals for a local population that any one sector could not accomplish alone. Change concepts help participants keep the intended design features for the envisioned system in mind, while specific change ideas give direction for how that feature can work in practice.¹⁶ Examples include person-centered care, timely and seamless linkage, integrating health and social care planning, and care pathways for problems such as depression or social isolation that involve multiple sectors. Each sector, discipline and professional can customize the change concepts to their specific contexts and workflow.

3.3. Appreciation of a system and of variation

It is essential yet challenging to define boundaries of the system that influences population outcomes such as child development or even asthma because there are multiple social, environmental and medical determinants. Deming's definition of interdependent components that work together to achieve a shared aim¹⁴ offers a practical way of identifying the constellation of organizations that contribute to a specific population outcome. A challenge for a population-focused system is that isolated/independent changes of sectors, programs, units or providers will not optimize an overall system. Appreciation of the full system can help sectors avoid redundant processes and workarounds that have marginal impact and actually add costs to a system. An example is identifying people who need services from another sector, without simultaneously testing and developing response and capacity of the receiving sector to meet increased demand. A coordinated improvement process must occur within and across parts of the system. A population focus also makes it possible to identify and attend to variation within the system so that interventions and changes can be tested and subsequently scaled up across multiple contexts. Sustainable population-level improvement will not have a one-size-fits all approach across all contexts in the system.¹⁷

3.4. Human element of change

The process of change is inherently a human process. Creating the social conditions for testing, sharing, learning and spread means bridging culture and language within and across the multiple sectors that influence the outcome of interest. It also means transcending skepticism or distrust that has resulted from past siloed, inefficient processes. Improvement shines a light on factors that may facilitate or hinder intrinsic motivation for change and

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