Introducing Design Thinking to Enhance Population Health Management

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Population health management—an approach that seeks to improve the health of a population through data analysis, primary care leadership, patient engagement, and community integration—is not a new concept, but one that has attracted renewed interest in the healthcare industry as a way to respond to value-based purchasing and performance measurement by public and private payers.

Healthcare providers have historically been viewed as key influencers of quality and cost, and therefore they have been the target of any number of programs that incentivize them to change their structures, processes, and behaviors. Although markets are proceeding at different speeds, healthcare providers report continued trends toward value-based payment systems that transfer accountability for health and cost outcomes from the payer to the provider.¹ In response, many of them are adopting a population health management strategy to enable them to perform better under these new payment systems. A national survey of healthcare leaders by NUMEROF AND ASSOCIATES indicated that 95% of healthcare leaders view population health as important to improve control of clinical costs, quality, and outcomes, and 74% report that they are building out the required infrastructure.¹

Yet, most payment systems unfolding in the United States do not adequately recognize and address the effects of the social determinants of health on overall healthcare spending.² Nor do they sufficiently acknowledge or embrace the role of

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the individual and the family in the activation of their own health and well-being through empowerment and agency.³⁻⁵ And even if payment systems were to be comprehensive in their approach, healthcare providers have not developed the capabilities required nor do they have a blueprint for managing the health of a population under a value-based payment system.

Many healthcare providers have initiated their population health management journeys by organizing an internal task force and applying an institutional mind-set to this challenge. However, health and well-being is a “wicked problem” whose complexity and interrelatedness of factors makes it difficult to do anything but rely upon one’s own historical perspective, apply linear problem solving, and identify point solutions (i.e., a classic engineering approach).

The concept of “wicked problems” was originally proposed by **Horst Rittel** and **Melvin Webber** in 1973.⁶ They stratified complex problems into two distinct dimensions: (1) tame problems that have a definitive solution arrived at through linear problem-solving; and (2) wicked problems, which cannot necessarily be fixed by a definitive solution but whose negative consequences can be mitigated through a sustainable system approach to problem solving. Sometimes the phenomenon of a family bringing their child with severe asthma to an emergency room frequently and regularly can appear to be a “tame” problem, the origin of which is simply that the family does not understand how to use primary care and emergency services for different purposes. However, outside of the medical situation, the family is actually facing a series of challenges, including asthma environmental triggers in their apartment complex, poor air quality in the community, and an inability to seek care during daytime physician office hours due to work schedules—clearly, a wicked problem not immediately evident on the surface.

Some of the shortcomings that can result from a classic engineering approach applied to population health management can include: (1) “medicalizing” the problem and solution based on our narrow experience and perspective; (2) lack of agreement on the drivers behind the population data analysis because the affected citizens are not included; (3) a rush to judgment, and premature action, in response to organizational pressures for quick wins; and (4) expensive new services and programs that attract modest participation and are solely dependent on the healthcare organization for sustainability.

This is the story about the application of a design strategy process to population health management that led to new insights, interventions, and outcomes. The setting is a pediatric health system in a large and diverse urban community.

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The health system faced a confluence of circumstances that created a burning platform for change.

1. The health system sponsors a community health data-gathering and reporting process that indicated that the overall health and well-being of children in the region was worsening year to year. The delivery of high-quality acute care services by excellent and accessible hospitals was not moving the needle on traditional health, education, safety, and economic security indicators for children.
2. Despite increasing its primary care capacity, the health system continued to experience an increase in underserved patients using its emergency department to maintain their day-to-day health. This resulted in higher medical costs for the community, a burden for children and families who typically had to wait long hours to be served, and increased absenteeism from work and school.
3. The health system's payers were shifting their basis for paying for healthcare. Local Medicaid managed care organizations were looking to transfer financial risk to health systems, and commercial payers were beginning to experiment with accountable care organizations.

► The Challenge and Opportunity

The challenge faced by this healthcare system, as with most other healthcare systems, was how to move successfully from an organization designed to deliver acute care services in a medical setting to one that manages the health of a population in the community.

Recognizing this, health system leaders asked themselves:

How might we move upstream with a different approach that keeps people healthy; improves the environments in which families live, work, play and pray; and enables healthcare providers to effectively respond to value-based payment systems?

Leaders identified several dimensions to be considered.

What process should be used to make transformational change?

Catalyzing health and well-being at an individual, family, and community level would require new thinking and approaches, engaging diverse stakeholders in the community to listen deeply to patients and families. In order to develop solutions that could be adopted and sustained across a community, the challenges to health and well-being for these families would first need to be better understood.

Design thinking, a systematic innovation process that “prioritizes deep empathy for end-user desires, needs and challenges to fully understand a problem in hopes of developing more comprehensive and effective solutions,”⁷ had been used by the health system in some initial work in the community. Could it also be used to enable transformational change on a larger scale?

A shift in focus from sick care to health and well-being

The traditional healthcare system creates value by treating people with acute or chronic illnesses, and it organizes its clinical capabilities accordingly. To meet the expressed needs of families' well-being, however, we needed a mechanism to support families' desires to make their lives better and to activate their responsibility in doing so. We hypothesized that improved family well-being would lead to a more sustainable business model, as families would increasingly take control of their own health and reduce their use of discretionary higher-cost services for day-to-day health.

Lack of engagement by children and families in directing their own health and well-being

Parents of children hospitalized or in need of specialty care are highly dependent on the medical care system for expertise in treating their children. In a population health framework, however, activation of personal responsibility by the individual and family is paramount; children and families need to be the "experts" in their own lives.

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Community integration

While pediatric healthcare institutions tend to enjoy significant community support, there is often a lack of connectivity to and partnerships with social service agencies that provide services to their patients and families. Inviting these organizations to the table as peers to engage in joint problem solving is often new and unfamiliar.

Fragmentation

Existing healthcare systems in the metropolitan and regional area were fragmented in terms of their ability to work together, share data electronically, and tackle the issues facing children. The same was the case for the social services agencies. Aligning goals, strategies, and outreach efforts would be critically important to the success of any initiative.

Addressing social determinants of health

The healthcare system and its employees were acutely aware of the nonmedical needs of their patient population. They developed substantial referral options for addressing housing, transportation, and the like. However, these lists were typically not curated or particularly easy for families to use.

Curiosity and inquiry

Learning to listen without judgment and keeping an open mind to solutions required new learning. Adopting new methodologies associated with design thinking was significantly different from previously employed methods to obtain patient and family feedback.

► Employing New Approaches

Early on, the healthcare system made the pivotal decision to reach out to uncommon partners in the community with whom to collaborate—city government, social service agencies, competing health systems, school systems, faith-based institutions, and, most importantly, children and families themselves. It formally established the HEALTH AND WELLNESS ALLIANCE FOR CHILDREN (the ALLIANCE), a multi-sector coalition, comprised of more than 90 organizations serving children, and provided the administrative backbone support for its activities.

The ALLIANCE adopted Collective Impact as a platform to create a common agenda and aligned action and common metrics among the disparate community organizations serving children and families. The ALLIANCE collectively provided the systems leadership backdrop described by **Senge, Hamilton, and Kania**: the ability to see the larger system, fostering generative conversations, and shifting the collective focus to co-creating the future.⁸

Second, the healthcare system enlisted an external organization, the BUSINESS INNOVATION FACTORY (BIF), to provide a deep understanding of the children and families served through a multiphase design thinking approach. Such an approach begins by engaging children and families directly to enable leaders to listen deeply, shift their lens, explore problems from different angles, and even co-design solutions with their customers.

The new perspectives were gathered in two distinct ways. First, healthcare system leaders spent time in the emergency department, gathering insights by observing and talking with patients arriving there for non-emergent issues. Second, BIF used human-centered research and a combination of techniques to understand how families thought about their health, healthcare resources, and the “jobs” they were trying to get done to improve their lives.

This work resulted in insights into the ways the families themselves defined well-being:

The ongoing development of children’s physical, mental, spiritual, emotional, and social functioning through nurturing in the context of familial and other influences. It is characterized by an individual and family position of strength through self-esteem, a sense of agency, resourcefulness, comprehension and hope.

This definition translated into the “jobs to be done” by the families:

- Self-awareness: I want to see my potential reflected back to me.
- Supporting relationships: I want to belong and contribute to a community that reflects my values and beliefs.
- Personal power: I want opportunities for responsibility, reciprocated trust, and interdependency.
- Connected knowledge: I want to spark my curiosity to explore, translate, make meaning, and choose wisely.
- Resourcefulness: I want to increase my ability to understand, see, and secure the resources I need.

In design studios with families, community agencies, and healthcare staff, a series of “How might we...?” questions were applied to the “jobs to be done” and posed to the cross-functional groups to identify opportunities—or opportunity spaces.

Working with the opportunity spaces, the team set out to design, prototype, and test an operating model capable of delivering on a value proposition that put well-being at its core. The design consisted of determining a minimum viable business model and identified potential revenue streams and key cost drivers.

Families indicated they needed assistance in developing goals, milestones, and roadmaps to improve their own well-being. Services such as personal coaching, goal-setting, system navigation, motivational interviewing, building life-skills, and integrating information would be delivered through an operating system connecting all the medical and community service providers. The team conducted participatory design studios with families and stakeholders to refine the ideal customer experience, create a visual map, and dynamically present the experience for feedback.

As described by **Durovich** and **Roberts** in *Population Health Management*, “pivoting from a healthcare delivery organization to an organization that manages population health requires capabilities that the organization usually does not currently have.”⁹ Therefore, the team borrowed, retrained, and reengineered capabilities to work in the new delivery model. It used the abundance of resources available in the local community, largely known because of the work of the ALLIANCE, to augment the capabilities of the healthcare system.

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The healthcare system developed a braided financing plan. This included its own Medicaid health maintenance organization, which could invest a portion of premium revenues to contract and pay social service agencies formally to address the social determinants of health as identified in each family's health and well-being plan. Other sources included philanthropy, investments, national foundations, and the Delivery System Reform Incentive Payment program via the state's Section 1115 Medicaid waiver.

The prototype was developed as a series of evening sessions that took a group of 15 families on a journey of self-reflection and personal growth. Families worked over a 12-week period, both singly and in groups, with access to subject matter experts on a series of topics of mutual interest. They also reflected routinely with a dedicated personal navigator who helped them articulate and prioritize their goals and match them with customized resources.

The prototype was conducted in independent space in the community that was accessible to participant families. Removing interactions from the hospital itself, and clinical staff, created a less hierarchical interaction for families.

The team designed a set of metrics based on the Kirkpatrick model¹⁰ to assess the performance of the prototype:

1. Does the prototype provide a good experience for participants?
2. Does the prototype improve participants' confidence and sense of agency, prompting them to act in service of their own well-being?
3. Did participants' behaviors change, and did they take new steps in service of their well-being?
4. Did participants' well-being improve, as measured through the Family Well-Being (FWB) Quotient?*

► Results

1. The prototype was a desirable user experience, evidenced by a 90% retention rate throughout. Components that families said made it a valuable experience included: (1) a supportive environment, (2) access to a personal navigator, (3) the process of setting goals, and (4) access to resources.
2. Families overcame obstacles and made changes in their lives by applying the skills they learned. While social determinants negatively impacted 78% of families, 100% of families made progress on their goals. Individual actions taken included exercising, taking classes, applying to

*The Family Well-Being Quotient is a rubric and algorithm for assessing and quantifying family well-being that had been developed in previous work with families. Dimensions measured by the Quotient included resourcefulness, connected knowledge, supporting relationships, optimizing body and mind, personal power, self-awareness, and readiness to change.

college, enrolling in Medicaid, making home improvements, getting childcare, and obtaining baby supplies. *The completion of actions seemingly unrelated to health often created the conditions and confidence for individuals to tackle previously unaddressed health issues.*

3. Through experiential learning and by using the skills they developed through the new model, the confidence and abilities of families increased. Families attended eight out of nine sessions on average and reported the following key areas of learning and behavior change: setting SMART goals; a positive shift in confidence, mind-set, and motivation; increased job skills; weight loss; increased access to medical services; and increased family communication.
4. Family well-being increased, as measured by the FWB Quotient. Overall individual well-being increased by 2.7%, and overall family well-being increased by 8.8%.

The healthcare system is implementing many aspects of the prototype in its new Medicaid health plan, which is serving disabled children through a contract with the state's health and human services enterprise.

► Discussion

The new model (Figure 1) integrates health insurance, medical care, and community agencies around the family to address both medical and nonmedical determinants of health and leverages the personal power that families possess but that formal systems routinely overlook. Additionally, all health and well-being interventions include the entire family and utilize trusted agents in the community, such as teachers, faith leaders, and promotoras/community health workers. The challenge of population health innovation in incumbent organizations rests squarely on shifting the frame of reference, learning experientially, and, most of all, engaging customers in the co-creation, co-development, and experimental phases of the delivery process.

Previous efforts by the ALLIANCE contributed synergistically to the development of the new model by building trust across organizations and among families and the organizations serving them. The ALLIANCE's facilitation of community organizations around childhood asthma had resulted in a reduction of 49% in the number of emergency department visits for children with asthma over four years.¹¹ These emergency department visits were considered a leading indicator for families feeling in more control of their children's asthma and using fewer discretionary, high-cost services as a result. Even with these results, further research is needed to assess whether addressing well-being and the social determinants of health makes a measurable difference in healthcare utilization and cost for an individual and a population over time.

Figure 1. An operating model for population health. Source: An Exploration of a Family-Centered Business Model.⁴

Adapted from "An Integrated Framework for the Prevention and Treatment of Obesity and Its Related Chronic Disease" by Dietz, Witt, et al., Health Affairs, 34, no. 9, (2015): 1456-1463

Our key learnings from this work are noted below:

1. Employing a design thinking mind-set and methods is critical to engaging families and community stakeholders, understanding the true needs of all stakeholders, supporting shared leadership, and leveraging the abundance of resources already existing in the community.
2. The most critical success factor is changing one's lens and shifting one's center of gravity from organization-centric to customer-centric. This transformation requires opening one's mind, heart, and will in order to listen to customers deeply—and without judgment. The work of **Otto Scharmer** is particularly helpful in grounding leaders and staff in this shift.¹²
3. Building trusted relationships in the local ecosystem across multiple sectors is an important precursor activity. This includes identifying stakeholders and resources, understanding relationships across sectors and organizations, and understanding their value propositions and their relationships to the targeted population.
4. Innovation requires formal collaboration and shared leadership with uncommon partners, both internally and externally, to generate new ideas and resources, to design and co-create new solutions, and to sustain implementation in the long term.

► Author Disclosure Statement

No competing financial interests exist for any of the authors.

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