How innovation and design thinking can improve care

Empathy and collaboration create opportunities to help vulnerable populations.

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**Despite national efforts** to reduce healthcare disparities, medically complex and socially at-risk patients continue to experience relatively poor outcomes during and after hospitalization, including frequent readmissions and preventable emergency department (ED) visits. (See *Who’s socially at risk?*) Many organizations have developed programs (such as comprehensive wraparound services, community health workers, or chronic disease case managers) to address these needs, but results have been mixed. Design thinking—a problem-solving tool that emphasizes empathy with end-users, interdisciplinary collaboration, and rapid-cycle solution testing—can be used by nurses and other healthcare providers to help socially at risk patients.

Design thinking, also known as “human-centered design” or “user-centered design,” is driven by the needs of the targeted population. Traditionally, it’s been used in engineering and business as a framework for developing services and products, but healthcare systems have adopted it to tackle the growing complexities caused by social, financial, and political pressures.

In this article, we describe how we used design thinking as a framework to develop the THRIVE clinical pathway to improve care transitions for hospitalized patients who are socially at risk.

**Our experience with design thinking**

Our use of design thinking began in January 2018 when we formed an academic–clinical partnership between the University of Pennsylvania School of Nursing and Penn Presbyterian Medical Center in Philadelphia. Our team is led by a nurse researcher and includes physicians, social workers, clinical nurses, community health workers, and home care professionals. Our project received quality improvement internal review board approval from the University of Pennsylvania.

We used the design thinking Double Diamond model as the framework for developing our new clinical pathway. The model uses four phases with corresponding divergent (discover and define) and convergent thinking (develop and deliver). (See *The Double Diamond model.*)

**Phase 1: Discover**

Because our healthcare system cares for a diverse urban patient population, we needed to begin by understanding the healthcare challenges socially at-risk patients face when they return home after hospitalization. We also needed to evaluate the resources currently in place within the hospital to prepare patients for the transition home.

In this first phase, we immersed ourselves in the healthcare system and the community. Over 6 weeks, we conducted over 80 hours of clinical interviews, 30 inpatient and outpatient observations, and 44 stakeholder informal interviews and observations that covered eight units in the hospital.

We learned about the challenges (including low health literacy, underprepared caregivers, limited transportation, and a lack of primary care providers) patients face after discharge that prevent optimal recovery. For example, during a meeting with a patient in his home, we learned that he had a follow-up appointment scheduled, but it would take up to 90 minutes one way to get there and required several forms of public transportation. This patient’s functional status alone was a barrier; he appeared too weak to walk to the corner store, much less undertake a 3-hour round-trip trek. We also found that many patients live in unstable housing conditions, with variable family support and few material re-
sources. Leaving the confines of the hospital and entering the homes of recently discharged patients allowed us to clearly visualize the barriers to optimal recovery.

In the hospital setting, we found considerable variation in how socially at-risk patients were managed across units. Communication between inpatient and outpatient care providers was limited, and providers reported little time to form strong relationships with patients because of the complex nature of their medical care and competing demands.

During this phase, we were particularly interested in the perceptions of frontline care providers. In six focus groups with hospital nurses, we learned that they had no difficulty identifying patients who are socially at risk. However, they addressed these concerns inconsistently, citing time constraints and high workloads as the primary barriers.

Phase 2: Define
Next, the team sought to determine which specific problems caused the most difficulty with recovery after discharge and warranted the most attention. This phase required the team to define the problem from the point of view of our diverse stakeholders, ranging from patients to caregivers in the community and hospital setting. To accomplish this, we took part in several group activities, including mapping the patient journey from admission to discharge and identifying “extreme users,” such as those with multiple hospitalizations over a short period. We also used the electronic health record (EHR) to examine the characteristics of patients who experienced adverse events, such as 30-day readmissions. We found that patients insured by Medicaid who had multiple medical conditions and high social needs (for example, those who lived in a high-poverty zip code) had increased rates of readmissions.

Phase 3: Develop
During this phase, the team brainstormed potential solutions for developing a process to meet the needs of the targeted population. Leveraging our findings from the contextual inquiry, nurse focus groups, and EHR data, we agreed on inclusion criteria (individuals insured by Medicaid [proxy for low income] and with more than two chronic medical conditions) for clinical pathway participation and discussed several strategies to improve care. The value of the brainstorming sessions can’t be overstated. All ideas, creativity, and out-of-the-box thinking were encouraged.

Phase 4: Deliver
During the deliver phase we began rapid-cycle testing THRIVE, the proposed clinical systems innovation. The team settled on the name THRIVE because of our shared commitment that all patients should experience optimal recovery after discharge despite their social circumstances. THRIVE begins by enrolling eligible hospitalized patients who are identified through an EHR review by nurse case managers. Once identified, participants are enrolled and receive enhanced discharge support, including a home care referral and postdischarge supervision by a discharging physician until the patient sees their primary care provider.

The clinical pathway was tested in multiple rapid-cycles, divided into 2 weeks of implementation separated by 2 weeks of iterations. These blocks of testing were repeated, and in
some cases the team returned to an earlier phase of the design thinking process to further refine the intervention until a final solution was formed.

Early success and lessons learned
Since its inception, the THRIVE clinical pathway has enrolled 264 patients and involved over 50 hospital and community-based healthcare providers. Participating patients have experienced reduced readmissions and ED visits and increased primary care and specialty care follow-up.

One challenge we’ve faced is the variability of referral patterns. In the first 18 months, 209 patients were enrolled, averaging 12 patients per month. This enrollment was well below our pre-implementation estimate of 50 patients per month. To address these concerns, our team automated the referral process between the hospital and home care services to optimize patient identification and facilitate referrals. In the past 6 months, with the introduction of automation, the average referrals have increased to over 29 patients per month.

We also learned the importance of getting buy-in from healthcare system leadership and administration. Involving leadership from conception to implementation helped us develop measures of success that are important to patients and the healthcare system.

Design thinking and nurses
Design thinking allowed us to create a platform to positively influence the health of socially-at-risk patients. Our team is interdisciplinary, but it prominently features nurses in leadership and care delivery roles. With their training and expertise in critical thinking and clinical judgement, nurses are natural problem solvers. Integrating frontline care providers, who have intimate knowledge of provider workflow and patient needs, allowed us to immediately course correct when needed. Innovation and design thinking support nurses who want to address problems they face at the bedside by using creative, patient-centered approaches.

References

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