Putting Learning into Practice to Innovate and Improve Patient Services: A Case Study of Seattle's Children's Hospital

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Seattle Children's Hospital provides compassionate care to more than 300,000 families across Washington, Alaska, Montana and Idaho – the largest region of any children's hospital in the country. Consistently ranked as one of the highest quality children's hospitals in the country, Seattle Children's is committed to helping each child live the healthiest and most fulfilling life possible. A major piece of living their mission is working with community partners and hospital staff to ensure that resources and programs address the social, emotional, cultural, and environmental factors that support health and wellness.

Over the past several years, Seattle Children's has been working to establish and develop its strategy to address the social factors that impact the health of children and families. To the leadership and staff at Seattle Children's, it's important that social health programs and approaches are effective and can be scaled across the organization and across the wide geographic region served, so that as many families as possible can benefit.

The health system embraces a culture that supports experimentation and failing fast – the concept of testing out new processes or activities on a small scale and adjusting or stopping the activity if it doesn't yield the intended results. This had led to a learning lab approach across three interventions, where program teams are each experimenting and conducting research in their own areas, but openly sharing the results and learning to support overall progress and identify where to invest additional resources.

Three Social Health Interventions

Seattle Children's has been pursuing three distinct but aligned strategies to identify and address the social health of patients & families and to better understand the impact of these interventions on health outcomes and costs.

	Location	Intervention	Measures	Impacts to Date
Food Security	8 clinics from primary and specialty care including Hemodialysis, Peritoneal Dialysis, Cystic Fibrosis, Insulin Resistance, Immunology, Hypertension, Bone Marrow Transplant Transition Clinic, and Well-Child Visits	Clinical staff talk with families who screen positive for food insecurity and offer resources both in the community and onsite at the hospital's food pantry, and through a Produce Prescription Program available to primary care patients	% of patients who screen positive documented in electronic health record # of families using resources Patient-reported quality of life Changes in health status (diagnosis dependent) Number of hospital encounters in the emergency department, intensive care unit, and acute care	Correlation between improved social health (food security status) and improved health (reduced infections and reduced hospital days), resulting in cost savings for the system Correlation between lower quality of life scores and food insecurity
Reducing Readmission Risk	Hospital Inpatient settings	RN Case Managers screen hospitalized patients for readmission risks upon admission. The risk assessment includes disease specific factors and a range of social needs such as housing instability, low health literacy, and lack of health insurance, among others Patients are assigned a low-, medium-, or high-risk score. A high score generates a consult to Social Work All families receive a follow-up call from a nurse 24 hours post-discharge. Effective interventions for low- and medium-risk patients are being tested	7- and 14-day readmission rates % of patients screened for social needs through risk assessment % of patients reached for post-discharge call % of patients escalating concerns Average time to answer escalation concerns Outcomes of patients with escalated concerns	Demonstrated correlation between readmission rate and risk level (low, medium, high) 77% of patients reached via post-discharge call 11% of patients escalating concerns 3 hours to answer escalation concerns For patients with escalated concerns: 73 prevented emergency department visits 133 prevented medication errors 99 missed clinic appointments 135 prevented episodes of non-compliance to treatment plans
Medicaid Resources	Inpatient medical and cancer units, plus outpatient clinic referrals	Student volunteers screen patients who are enrolled in Medicaid for unmet social needs, and connect families to community resources including Medicaid food benefit, housing, free cell phones and low-cost utilities	# of families screened # of applications for resources % of families connected with resources Family feedback on their experience with the screening and resource intervention	Roughly 65-70% of all families screened are connected to resources Opportunity to educate future providers about social health factors and build the soft skills desired by healthcare workers. The number of student volunteers will double this year

Social Health Integration Relies on a Stable Data Infrastructure & Workforce

For many healthcare delivery organizations, obtaining funding for social health interventions – whether from grants, donors, or operational dollars – is contingent on continued demonstration of health outcomes tied to medical and social health integration.

However, the ability to demonstrate outcomes hinges on having a solid infrastructure for collecting data, and the stability of the workforce. It can be challenging to stretch limited initial funds to run the program while developing data infrastructure and a sustainable staffing model. For example, many social needs interventions depending exclusively or primarily on volunteers while programs are being developed and tested.

Seattle Children's is not immune to these challenges, but their program leaders have taken an intentional approach to ensure the delivery of high-quality services while also capturing the information needed to secure future funding. Seattle Children's has also been successful in fundraising for various research projects to help bridge the gap and improve collaboration between the research and clinical departments.

Their approach is to start small and keep the scope very limited and focused while establishing a foundation, conduct rapid experimentation and improvement cycles, and only scale up or expand if processes and systems are stabilized. Specific steps and tactics used to develop and spread their food security program are described below:

1 **Understand Prevalence of Need & Potential Impact on Population Health**

During a two-week pilot in 2016 to understand prevalence of food insecurity within its own community, Seattle Children's learned that 34% of families in one nephrology clinic were food insecure. This study highlighted how food insecurity is likely under-recognized and under-addressed, and that children with chronic medical conditions like kidney disease, may be at higher risk for food insecurity due to high medical expenditures and the need for restricted diets. Thus, screening for food insecurity has added importance and relevance to chronic disease management.

2 **Understand the Patient/Family Perspective**

As part of the 2016 pilot, two methods of screening were tested with patients: a paper screener and in-person screening using the two-question Hunger Vital Sign™, a validated screening tool. Seattle Children's found minimal difference in screening preference among the families served. The pilot manager also conducted phone interviews (for both positive and negative screens) to understand families' experience with screening and their perception of whether & how providers could integrate food security into healthcare. Almost all families (92%) were receptive to in-clinic screening for food insecurity. All families with food insecurity desired support with accessing resources to address their barriers, and many indicated that this was the first time they had been asked about their food security status. Common barriers experienced by families included ineligibility for benefits, challenges identifying community resources, and the resources available were not specific for their special nutritional needs. These results bolstered the case for Seattle Children's to screen more families in additional settings, and to support more families with accessing food resources. There was also a push to expand evaluation efforts to explore the impact of food insecurity on clinical outcomes.

3 **Use Feedback to Inform Scope That Will Drive Outcomes**

Seattle Children's initially limited the focus to food insecurity for several reasons including prevalence of need, value to families, availability of resources, existence of community partnerships, and to support demonstrating the ability to integrate and value of integrating social health into care delivery. While families indicated that housing was the most critical need they experienced, access to food was ranked second. In the surrounding community, food resources were more readily available (compared to limited resources such as affordable housing), making it more realistic for the hospital to address the need. The hospital could also leverage established community partnerships to address food insecurity. Finally, guided by the principle of "starting small," the team chose a narrower focus (versus initially considering how to measure health outcomes and screen for multiple social needs) given the need to demonstrate outcomes relatively quickly.

4 Start Building the Business Case Early by Establishing the Link between Unmet Needs and Health

In 2018, Seattle Children's performed a 6-month retrospective cohort study of pediatric patients with end-stage kidney disease (ESKD) undergoing chronic peritoneal dialysis or hemodialysis at the hospital. These patients were screened for food insecurity, and the study sought to understand the impact of food insecurity on healthcare utilization and health-related quality of life (HRQoL). The study found that children with food insecurity were significantly more likely to have an unplanned hospitalization or intensive care unit admission and had significantly more infections than those with food security. Both child-reported and parent-proxied HRQoL scores were significantly lower among children in food insecure households than those in food secure households. The findings of this study not only supported the implementation of routine assessment of food insecurity in all children with ESKD, but also indicated the possibility of improving outcomes for these children. Seattle Children's, like many health systems, is increasing its participation in alternative payment models. These results indicated a potential business justification for continuing and expanding this intervention to reduce avoidable utilization of high-cost services and improve health outcomes.

5 Determine Appropriate Measures and Data Infrastructure

Each clinic identified health outcomes unique to their patient populations. Determining key outcomes was challenging, depending on how often patients visited for ongoing treatment, and how easy or hard it was to isolate the impact of a constellation of variables on a patient's health. Data tracked among the dialysis population receiving the intervention included: number of infections; number of hospital encounters in the emergency department, intensive care unit, and acute care. For patients with cystic fibrosis, changes in their height and weight were also tracked. Seattle Children's hypothesized that addressing food insecurity would result in improvement across these metrics among the patients who received the intervention.

Understanding the outcome of the resource intervention is critical to correlate food security and health outcomes for a defined population. Seattle Children's is in the process of developing an automated dashboard to replicate the time-intensive, manual data collection they conducted for the first phase of the pilot.

To support making the business case to stakeholders for sustaining and spreading the social health intervention, Seattle Children's program team works closely with its finance team to translate the impact of social services on healthcare utilization and costs. Changes in healthcare utilization can be translated into cost savings. For example, if a patient spends fewer days in the Intensive Care Unit or acute care unit, or experiences fewer blood-stream infections, the hospital can calculate the dollar figure for each of these encounters. This, combined with the data from the retrospective study correlating food insecurity with healthcare utilization and quality of life, helps make a strong case to leadership to continue and expand these services.

6 Maintain Strong Interdisciplinary Engagement

Each pilot program at Seattle Children's has an executive sponsor and clinical advisors. Clinicians identify which clinical outcomes may be linked to the intervention and commit a portion of their time to tracking and analyzing health outcomes with the support of data analysts and clinical research assistants. The executive sponsor ensures that pilot programs follow all regulatory and compliance mandates, and that they align with organizational mission, vision, values, and strategy. Executives help translate program outcomes into financial impact for the health system. Maintaining this type of engagement with clear roles and responsibilities helps to ensure that the work continues to move forward and is oriented around the outcomes that matter to stakeholders.

Seattle Children's team is also careful to not over-standardize the intervention. When integrating social health into care delivery at new sites, the team supports the clinical site to adopt the processes that have been shown to work but also allows for modifications based on unique clinic environments. For example, clinics can choose outcomes to track that are relevant to the populations they serve, but use the same validated screener, documentation processes, and provide the same level of navigation support to community resources.

Going Beyond the Data – When the "Right Thing to Do" Becomes Imperative

While quantitative outcomes on health and health care utilization are compelling, they are not always achievable for a variety of reasons. Program leaders at Seattle Children's stress the need to include patient centered outcomes and qualitative data to make a comprehensive case to leadership. For example, in the Reducing Readmissions Risk intervention, implementing a follow-up phone call post-discharge within 24 hours of patients leaving the hospital has not impacted readmission rates. However, families have reported that they found value in these calls. Staff at Seattle Children's are currently digging deeper into what negative outcomes they believe were prevented by these calls, such as extra visits to the emergency department or reductions in medication errors. They are using a modified version of Boston Children's Hospital's Care Coordination Measurement Tool to inform how they identify and track what outcomes were prevented by specific social health and care coordination activities. This work will also inform the development of interventions for patients who screen positive for unmet social needs but are considered low- or medium-risk.

Frontline staff play a major role in highlighting the anecdotal changes in families, such as children being more engaged in schoolwork or preventing/avoiding homelessness. These outcomes can make a compelling argument for continuing the work, but they are also difficult to translate into a quantitative business case. When there are many different and concurrent initiatives and priorities, it can be challenging to choose where to invest resources. Program leaders hold the tension between two, concurrent values:

Equity – which inspires the team's vision statement that "No Seattle Children's patient, family, or staff member will be hungry due to food insecurity" and motivates the team to promote transparency around social health resources and equitable access to resources as soon as possible.

Innovation – which influences the team to start small, to scope experiments to a manageable size, and to expand and iterate only when processes are stable and sustainable. Collaborating and sharing learning across social health interventions can help accelerate understanding of what approaches are most effective in addressing social needs to improve overall health.

> "If you are still doing this work and your readmission rates don't go down, does that mean that you aren't successful?"
>
> — Dr. Jeff Foti, Seattle Children's

Community Collaborations Can Expand a Program's Reach

The health system believes that establishing and growing partnerships with community-based organizations can expand the reach of their social health strategy to serve more families and the ability to collect evidence on the interventions' impacts. However, how to build mutually beneficial partnerships and how far the hospital should reach into the community are major questions whose answers are still unfolding.

Seattle Children's has collaborated with WithinReach to support patients and families with connections to food resources. WithinReach has a deep knowledge of the local resources available and how to access them – something that Seattle Children's did not have at scale. Seattle Children's and WithinReach are continuing to find ways to partner on building rapport and trust with families, so that families from Seattle Children's see WithinReach as a trusted partner in their care.

Next Steps

Determining an overall social health strategy is a challenge for many large health systems. Over the next five to ten years, Seattle Children's wants to achieve stronger integration of their social health efforts, including and beyond food security, into primary and subspecialty care, to demonstrate the value of addressing social health for both patients and the health system. This means determining who really owns this work, understanding which processes are effective, which resources are needed, and how and when to partner with community organizations to address resource gaps. Seattle Children's has started small, which allows them to be nimble and change rapidly. Each team is building its data infrastructure, relevant to the health outcomes of particular patient populations, and learning and sharing with each other about key success drivers. Continuing to be intentional about their work and clear about the value they hope to achieve for their stakeholders – notably the families they serve – will help them achieve integration.

ABOUT HEALTH LEADS

Health Leads is a national non-profit organization working toward a vision of health, well-being and dignity for every person in every community. For over two decades, we've worked closely with hospitals and clinics to connect people to essentials like food, housing and transportation alongside medical care.

Today, we're partnering with local organizations and communities to address systemic causes of inequity and disease — removing the barriers that keep people from identifying, accessing and choosing the resources everyone needs to be healthy.

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