



Supporting Patients with Complex Medical and Social Needs During Transitions in Care

Develops a health information exchange to support coordination across healthcare and social service sectors for patients with complex needs to improve care continuity during care transitions.

Study Overview

Problem: Due to the increased care needs and associated time and cost required to care for them, patients with multiple complex clinical, behavioral, functional, and social needs are known as high-need/high-cost (HNHC) patients.¹ Caring for HNHC patients during a transition out of an inpatient setting and into a primary care setting requires coordination across healthcare and social service sectors to prevent hospital readmissions.

Main Objective: To develop systems to support HNHC patients during care transitions, improve care continuity, and reduce reliance on low-value care through care management and coordination across healthcare and social service providers.

Approach: This project builds on previous work to further develop a health information exchange (HIE) to facilitate care coordination for HNHC patients during care transitions. To do this, the research team first developed an algorithm to identify which patients need cross-sector care management and then segmented them into subsets with similar care coordination needs.

The research team then designed the HIE to create an enhanced transitional care alert when identified HNHC patients are discharged from inpatient settings, including information pulled from the patients' electronic medical records and archived in the HIE. The enhanced transitional care alerts are reviewed by a professional care manager and then sent via an automated process to clinicians and social service providers. Professionals from social and behavioral health services collaborate as equal partners with medical clinicians in the management and support of HNHC patients during and following care transitions. The project measures care coordination processes and outcomes, patient and provider experiences, and utilization.

Results: The team developed a clinical algorithm to accurately identify HNHC patients based on patients' medical complexity and level of social need using expert clinical consensus, nursing expertise, and clinical practice guidelines.² In addition to identifying which patients are HNHC, the algorithm uses transparent metrics to classify patients into cohorts that can be used by nurses to prioritize needed interventions to support patients.

The team used supervised machine learning and tree-based predictive modeling to examine low-value utilization among a sub-group of patients with heart failure. Low-value utilization is common among people managing both complex medical conditions and social risk and includes irregular outpatient visits and frequent hospitalizations or emergency room visits. The team found that the area deprivation index was a key variable for predicting low-value utilization, adding a broader representation of patients based on the neighborhood in which they live.³



PI Name: Sharon Hewner, PhD, RN, FAAN

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A thematic analysis of 27 qualitative interviews demonstrated interconnected dimensions of treatment burden for patients, including complex coordination of services, self-monitoring, obtaining supplies and medications, and communicating health issues to clinicians and social service providers.⁴ Patient capacity to manage treatment burden was affected by their trauma, medical mistrust, health literacy, and social support.⁴ The team concluded that these findings indicate the need for more formal mechanisms to support collaboration across healthcare sectors and to actively involve patients in their care.

Future publications with additional findings will be posted [here](#).

Primary Care Relevance

Improving care coordination for HNHC patients during transitions between inpatient care to a primary care setting has the potential to improve patient outcomes and reduce healthcare costs.

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 2. Sullivan SS, Ledwin KM, Hewner S. A clinical classification framework for identifying persons with high social and medical needs: the COMPLEXedex-SDH. *Nurs Outlook*. 2023 Sep-Oct;71(5):102044. doi: 10.1016/j.outlook.2023.102044. Epub 2023 Sep 18. PMID: 37729813; PMCID: PMC10842584.
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 4. Bowen E, Anderson A, Capiozella N, Hewner S. (2025). Managing health without stable housing: dimensions of treatment burden and patient capacity for people with chronic health conditions experiencing homelessness. *Qualitative Health Research*, In Press.