

Management of High-Need, High-Cost Patients: A “Best Fit” Framework Synthesis, Realist Review, and Systematic Review

Evidence Summary



Main Points

- Data from claims and health records can identify characteristics associated with being high-need, high-cost (HNHC) patients but are limited in selecting specific patients who are most appropriate for care management interventions.
- Much work remains in distinguishing preventable and modifiable high healthcare use from high use more generally.
- Identifying and targeting HNHC patients for interventions to change their healthcare use requires capturing their medical and social complexities. Building and maintaining trusting, caring relationships between HNHC patients and care providers underpins successful patient interventions. Both patients and care providers require support and practical resources to foster an effective relationship.
- We found moderate to low strength of evidence (SOE) that emergency department (ED)–based, primary care–based, and home-based care models are associated with reduced use of healthcare services; low SOE that ED, ambulatory intensive caring unit (aICU), and primary care models are associated with reduced costs; and low SOE that system-level transformation and telephonic/mail models are not associated with use or cost differences.



Background and Purpose

In the United States, payers, health systems, and providers focus on the HNHC patient population because they account for a disproportionately high level of healthcare utilization and cost, even though they constitute a small percentage of the patient population. Payers, particularly Medicare and Medicaid, are moving from fee-for-service payment arrangements to alternative payment models. Financial success of these models can depend, in large part, on their effectiveness in addressing care for HNHC patients.

Poor control of chronic clinical conditions, particularly when coupled with functional limitations, mental health conditions, and social risk factors, can result in potentially



preventable or modifiable overreliance on the ED and hospital. Interventions for HNHC patients aim to improve their quality of care and health outcomes while reducing their healthcare use and cost. The goal of this review is to provide actionable evidence to help identify HNHC patients and determine the causal mechanisms and effectiveness of complex interventions that intend to improve HNHC patient and healthcare system outcomes.



Methods

We used review approaches best suited to assess the evidence for our Key Questions (KQs). To determine how to identify HNHC patients (KQ 1), we used the best-fit framework synthesis approach to consider our findings in relation to a National Academy of Medicine (NAM) taxonomy. To examine the causal mechanisms and contexts of interventions leading to reductions in healthcare use and cost (KQ 2), we used realist review methodology. Finally, to synthesize the evidence of the effectiveness of interventions targeting HNHC patients (KQ 3), we used systematic review methodology. We searched multiple databases and the gray literature using publication dates from January 1, 2000, to March 4, 2021. We included quantitative and qualitative studies of adult HNHC patients (high healthcare use or cost) in the United States. We describe our methods in the full report.



Results

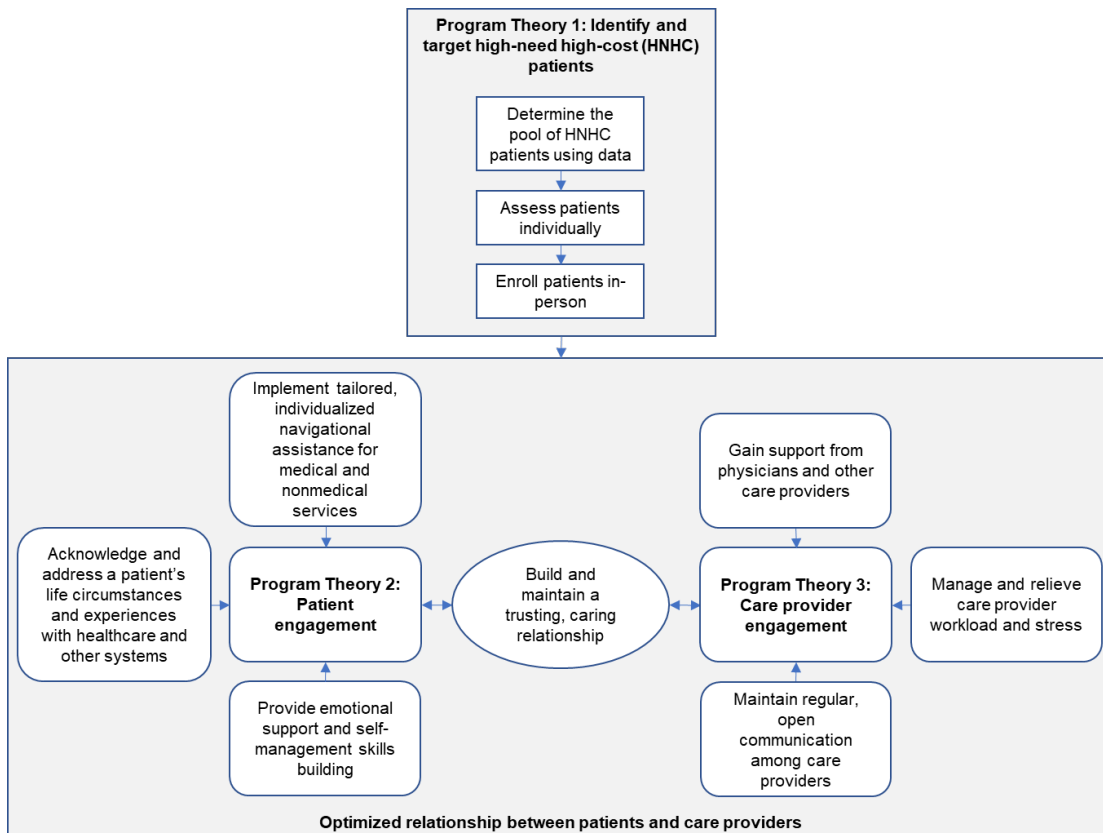
We included 110 studies (117 articles) in our review. KQ 1 includes 60 studies (61 articles). KQ 2 includes 48 studies (51 articles; 14 articles were also evidence for KQ 1 and 27 articles for KQ 3). KQ 3 includes 40 studies (46 articles).

KQ 1: Criteria that can be used to identify or predict HNHC patients. Consistent with the NAM taxonomy, we found that chronic conditions, whether measured individually or through an algorithm, rating scale, or counts, were associated with being an HNHC patient, as were behavioral health risk factors, including depression and substance use disorder, and social risk factors, including homelessness and poverty. We also identified prior high use and race as consistent predictors of being an HNHC patient. Few studies sought to differentiate high use of care that is potentially preventable from all high use.

KQ 2: Contexts, mechanisms, and outcomes of interventions that reduce preventable or modifiable healthcare use among HNHC patients. We developed three realist program theories. Figure A presents a framework showing their relationship. Program Theory 1 explains that the pathway for identifying HNHC patients for inclusion in interventions requires capturing a combination of their prior use of and experience accessing healthcare services, chronic disease(s), nonmedical barriers to care, clinician judgment, and willingness to participate. Program Theory 2 explains that once HNHC patients are enrolled, engaging them in interventions requires building a trusting relationship between the patient and care providers. Tailored, individualized assistance for medical and nonmedical needs, emotional support, and self-management education empower patients to participate in their own care. Program Theory 3 explains that care

provider engagement is facilitated by targeted outreach, adequate staffing support with shared values, and regular and open communication.

Figure A. Framework of optimizing interventions for HNHC patients



KQ 3: Effectiveness and harms of interventions for HNHC patients in reducing potentially preventable or modifiable healthcare use and costs and improving health outcomes. All but one study compared interventions with usual care. We categorized the evidence based on the primary setting of the intervention (system level, telephonic/mail, community, ED, aICU, primary care, and home based). Findings were limited.

In relation to changes in utilization, ED-based models resulted in a reduction in all-cause ED visits (moderate SOE), while telephonic/mail models achieved no difference in all-cause ED visits (low SOE) or ambulatory care sensitive condition ED visits (low SOE). ED- and primary care-based models resulted in a reduction in all-cause inpatient admissions (low SOE), while telephonic/mail models resulted in no difference (low SOE). Home-based care models resulted in lower ambulatory care sensitive condition inpatient admissions (low SOE). Primary care visits increased among ED model participants, a favorable outcome because it supports the goal of shifting care from the ED to a more appropriate source of care (low SOE).

In relation to total costs, aICU and primary care-based models were associated with reductions (both low SOE), while system-level transformation models and telephone/mail models resulted in no difference (low SOE). ED models were also associated with lower ED costs (low SOE) but no change in inpatient costs (low SOE).

Telephonic/mail models, home-based care models, and community-based models found no difference in mortality (low SOE for all 3 models).

Studies identified virtually no harms and reported few health and patient-reported outcomes and no social risk outcomes. The evidence was insufficient to draw conclusions for these outcomes.



Limitations

Each of the three methodological approaches brings unique strengths and weaknesses to our findings. A constraint to identifying patient characteristics associated with being HNHC is a limited methodology for distinguishing high use that is modifiable. As a result, the effect of patient and health system factors were generally evaluated only in relation to all high use. For the realist review, our analysis depended primarily on the studies included in the systematic review. Many of these studies contained minimal information about the implementation of the interventions at the clinic level, limiting our ability to more fully construct our program theories. For the systematic review, while effectiveness studies reported changes in cost and use, we found virtually no patient-reported or process outcomes, further limiting our ability to understand why some interventions were successful while others were less so.



Implications and Conclusions

A central dilemma facing interventions intended to reduce the healthcare use and cost of HNHC patients is how to reliably identify the patient population and to do so before a future period of preventable or modifiable high use. Using patient characteristics available in electronic patient data is a first step, but identification of good candidates for HNHC patient interventions is improved through individualized participant selection. Similarly, interventions themselves need to be individualized to address the complex needs of HNHC patients. Although we found some evidence of overall intervention effectiveness in relation to use and cost, the studies identified in this review provide little information for determining why individual programs work, for whom, within different contexts.

Full Report

Berkman ND, Chang E, Seibert J, Ali R, Porterfield D, Jiang L, Wines R, Rains C, Viswanathan M. Management of High-Need, High-Cost Patients: A “Best Fit” Framework Synthesis, Realist Review, and Systematic Review. Comparative Effectiveness Review No. 246. (Prepared by the RTI International–University of North Carolina at Chapel Hill Evidence-based Practice Center under Contract No. 290-2015-00011-I.) AHRQ Publication No. 21(22)-EHC028. Rockville, MD: Agency for Healthcare Research and Quality; October 2021.
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