Improving Transitions of Care for Unhoused Populations: An Evaluation of the Housing Transitions Team

Project Background

Patients experiencing homelessness and housing instability often cycle through the healthcare system without resolution, leading to high hospitalization rates, longer lengths of stay (LOS), and substantial healthcare costs[1]. Coordinating healthcare for patients experiencing housing instability is difficult due to fragmented health systems and patients' psychosocial needs. The Housing Transitions Team (HTT) was established at the University of Colorado Anschutz Medical Campus to minimize the burden of accessing healthcare and shelter for unhoused patients in the Denver Metro Area. HTT aims to reduce overall emergency department (ED) visits, unplanned readmissions, inpatient LOS, and improve housing stability and well-being by connecting patients with medical and social support.

Evaluation

Using data compiled by HTT, electronic health record (EHR) patient data, Colorado Medicaid claims data, project team member interviews, and patient feedback surveys, we conducted a qualitative and quantitative evaluation of the program's impact on patient reach and engagement, health and housing outcomes, and satisfaction with the program.

Program Elements

HTT began in 2021 with a team of three social workers, later expanding in 2022 to include both a project manager and a nurse care manager. HTT receives referrals from social workers in University of Colorado Hospital's ED, inpatient, or outpatient settings. An HTT social worker screens each referral, focusing on a patient's medical history and social needs. Based on this screening, a patient is placed into one of three HTT program tiers. Tier 1 is for patients that are experiencing temporary housing insecurity and have existing social support, meaning they are at lower risk. These patients may get resources from HTT but are reassigned to the referring social worker. Tier 2 is for patients that are experiencing barriers to accessing resources and their current social worker has faced challenges in coordinating with community partners on behalf of the patient. Tier 3 is for patients with high past readmission rates, who have not been able to get their needs met in the community due to significant barriers, and whose discharge plan indicates a likely return to hospital or ED if not working with HTT. Patients tiered into Tiers 2 and 3 are assigned an HTT social worker and have some level of engagement with the team. HTT team members focus on connecting Tier 2 and 3 patients with appropriate medical care, community resources, social support, and potential housing options. Figure 1 shows the workflow from case referral to closure from the program.

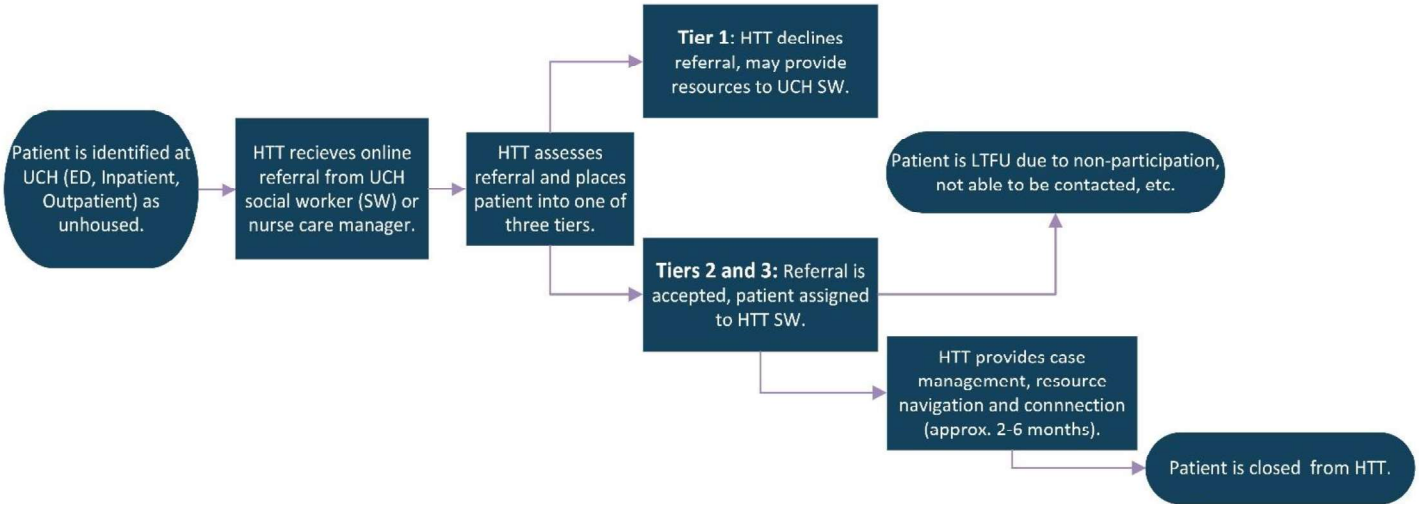


Figure 1: *HTT Workflow*

[1] Rollings, K. A., Kunnath, N., Ryus, C. R., Janke, A. T., & Ibrahim, A. M. (2022). Association of coded housing instability and hospitalization in the US. *JAMA Network Open*, *5*(11), e2241951-e2241951.

QUANTITATIVE ANALYSIS

Methods Overview

The quantitative analysis characterizes the patient characteristics and referral history for patients referred to HTT between October 1, 2021, and June 30, 2023. For patients with multiple referrals, only their first referral and episode of care with HTT was used in the evaluation. To understand the impact of the program, healthcare utilization, as indicated by state claims data for Medicaid patients, was analyzed six months before and following HTT referral. This included Medicaid patient visits (inpatient, ED, outpatient, behavioral health), total cost of care (inpatient, ED, outpatient), and inpatient LOS. Patients were compared across two groups: Tier 1 (resources only) versus Tiers 2 & 3 (HTT engagement).

Results

Over this 20-month evaluation period, 456 patients were referred to HTT. One hundred fifty-nine of those patients (35%) were placed into Tier 1. The remaining 297 (65%) patients were placed in Tiers 2 and 3. Tiers 2 and 3 included a higher percentage of patients that were seeking housing with a partner, had greater medical complexity, had legally complex histories, and/or in need of long-term care than Tier 1.

Table 1: Patient Characteristics, Referral Sources, and Case Considerations for Referrals to HTT

	Tier 1 N = 159		Tiers 2 & 3 N = 297		Overall N = 456	
Standard Demographics						
Medicaid coverage	133	(83.6%)	252	(84.8%)	385	(84.4%)
Caucasian	87	(54.7%)	152	(51.2%)	239	(52.4%)
Hispanic ethnicity	16	(10.1%)	37	(12.5%)	53	(11.6%)
Primary language is English	147	(92.5%)	262	(88.2%)	409	(89.7%)
Age (years), mean (StDev)	48.7	(13.2)	51.2	(13.0)	50.3	(13.1)
Referral Source						
Emergency department	6	(3.8%)	9	(3.0%)	15	(3.3%)
Inpatient	91	(57.2%)	212	(71.4%)	303	(66.4%)
Outpatient	62	(39.0%)	76	(25.6%)	138	(30.3%)
Special Housing or Case Considerations						
Looking for housing with partner	8	(5.0%)	22	(7.4%)	30	(6.6%)
Looking for housing with family	10	(6.3%)	9	(3.0%)	19	(4.2%)
Patient has legally complex history	1	(0.6%)	11	(3.7%)	12	(2.6%)
Patient needing long term care	3	(1.9%)	12	(4.0%)	15	(3.3%)
Patient is medically complex	3	(1.9%)	16	(5.4%)	19	(4.2%)
Patient is an undocumented immigrant	1	(0.6%)	3	(1.0%)	4	(0.9%)
Patient was re-referred to HTT after first referral	11	(6.9%)	20	(6.7%)	31	(6.8%)

Note: StDev = standard deviation; Medically complex includes cognitive or mobility limitations, severe behavioral health concerns, or a history of high ED/hospital utilization; Legally complex includes previous or current warrant for arrest, incarceration, legal history limits housing options; Long term care includes assisted living facilities and nursing homes.

At the time of evaluation, all Tier 1 referrals and most (98%) Tier 2 and 3 referrals were marked as closed (HTT services had been provided or an attempt had been made to provide services). The most common closure reasons were "provided resources" or "patient declined" indicating that most (72%) referred patients in the evaluation period didn't receive intensive HTT social work support. Eighty (18%) patients found permanent housing through HTT or other resources.

Table 2: Reasons for Case Closure

	Tier 1 N = 159		Tiers 2 & 3 N = 292		Overall N = 451	
Closed Reason						
Resource Only	100	(62.9%)	64	(21.9%)	164	(36.4%)
Patient Declined	38	(23.9%)	121	(41.4%)	159	(35.3%)
Permanent Housing	17	(10.7%)	63	(21.6%)	80	(17.7%)
Transitional Housing	1	(0.6%)	26	(8.9%)	27	(6.0%)
Institution	0	(0.0%)	14	(4.8%)	14	(3.1%)
Unable to Connect	1	(0.6%)	3	(1.0%)	4	(0.9%)
Deceased	2	(1.3%)	1	(0.3%)	3	(0.7%)

Note: Institution includes inpatient psychiatric and long-term acute care hospitals

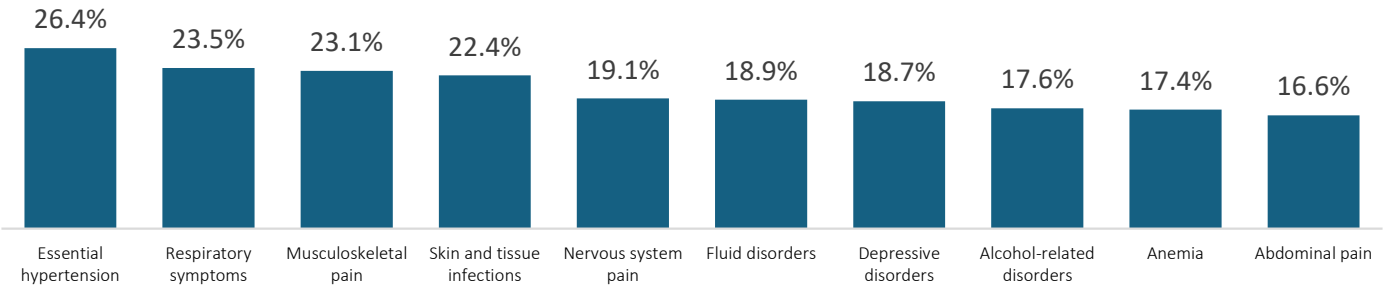
Of the 80 patients that found permanent housing when closed from HTT, 47 (59%) found that housing with HTT's assistance. These patients were most often housed using a voucher and it took an average of 5-6 months for housing to be found.

Table 3: Housing Information

	Housed with HTT Support N = 47
Housing Type	
Housing Choice Voucher or Emergency Housing Voucher	24 (51.1%)
Other	13 (27.7%)
Long Term Care	7 (14.9%)
Housing and Urban Development Apartment or Voucher	3 (6.4%)
Days to Housing	
Mean (StDev)	173 (143)

Note: StDev = standard deviation; Other includes Colorado Coalition of the Homeless, statewide supportive housing, market, affordable housing, sober living, supportive housing, family/friends

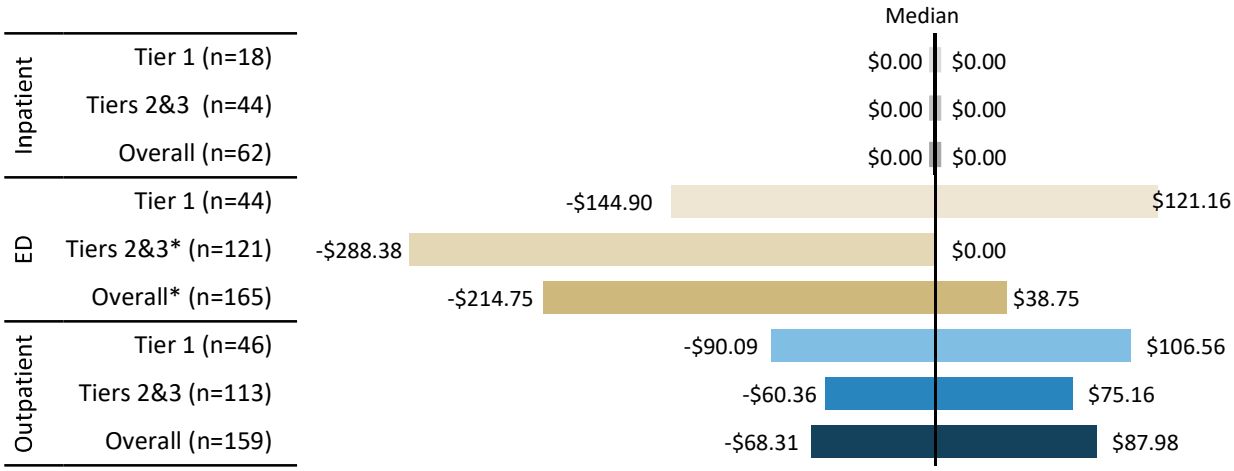
We assessed EHR diagnostic codes (ICD-10CM) 30-days prior to and 30-days following a patient's referral to HTT and grouped the codes using clinical classification software refined (CCSR) categories. Figure 2 shows the 10 most common medical issues (based on CCSR category) patients faced during their HTT service period.



Note: This figure excludes four CCSR codes that were in the top ten but were vague in their descriptor - Abnormal findings without diagnosis; Other specified status; Other general signs and symptoms; Personal/family history of disease. Many patients had more than one diagnosis in the 60-day period. Categories are not mutually exclusive.

Figure 2. *Top 10 CCSR categories for referred HTT patients*

There were no significant changes seen for inpatient, outpatient, or behavioral health visits or inpatient LOS. However, there was a statistically significant change in ED visits for those in Tiers 2 & 3 (median = 0, IQ1, IQ3 = [-2.3, 0]), and for HTT patients overall (median = 0, IQ1, IQ3 = [-2.0, 0]). Additionally, there was a statistically significant change in ED spending for those in Tiers 2 & 3 and for HTT patients overall, indicating modest cost savings in Medicaid ED spending following patient engagement with HTT (Figure 3).



Note: *p<0.05 on Wilcoxon signed rank test; All measures had a median of $0.00 as notated by the vertical line; Behavioral health spend data not available; Most patients did not have an inpatient visit pre or post HTT referral.

Figure 3. *Interquartile range (IQ1-IQ3) of change in spending for Medicaid patients after engaging with HTT*

Medicine

University of Colorado Anschutz Medical Campus

QUALITATIVE FEEDBACK FROM HOUSING TRANSITIONS TEAM MEMBERS

Interviews were conducted with eight HTT team members and support staff from UCH, including two social workers, a nurse care manager, a care coordinator, two social work supervisors, one project manager, and one faculty sponsor. Responses were thematically analyzed into two domains: successes and challenges.

Project Successes

HTT members felt the program provided a much needed "bridge" from discharge to community that allows patients to be set up for greater success. One team member shared that by connecting with HTT, a patient has more opportunity to get connected to the right services, including community resources, healthcare, and social support. By building partnerships in the community and within the healthcare system, HTT has created a repository of resources and tools that patients can utilize including a clothing bank, a medical supply closet, respite beds, and a relationship with Denver Housing Authority that has allowed for them to be able to provide housing vouchers to some patients. This allows for HTT to provide better continuity and transitions to care for their patients and get their patients connected to a safe environment.

"I think that [HTT] gives the unhoused population a chance. It is a chance that they weren't going to have before this team existed."

Another highlight of the program that team members shared was the personalized nature and dedication that they were able to provide patients through their case management. Unhoused patients frequently have preconceived notions of housing and medical resources and by building trust and rapport with their patients, HTT team members felt they have been able to reduce that stigma, become advocates for their patients, and help make their patients feel more comfortable in receiving services. Team members also felt that they have been able to, especially with the new addition of a nurse care manager, improve healthcare engagement, increase preventative care, and reduce hospital visits.

Project Challenges

Team members identified barriers and had suggestions for improvements. Communication difficulties were the top concern shared by team members since patients without a phone are not able to access HTT's services. Patients in this population frequently find themselves without a phone due to phones being lost, stolen, or service being disconnected, so HTT often cannot reach their patients. To help combat this challenge, HTT would like to supply phones to patients once they are discharged so that there is a reliable way to communicate with them.

HTT team members also found it difficult to serve patients while navigating the limited housing resources in the community. There are too many patients in the Denver Metro Area experiencing housing insecurity and there are not enough respite beds, shelters that can accommodate complex needs, non-hospital-based nursing care, or housing vouchers to give to patients. Even when a housing voucher is received, more funding for application fees, deposits, and furniture is needed. HTT needs complimentary state/county agency partnership and support to overcome these gaps.

Many team members shared they felt that services within healthcare were largely siloed and there could be better bridges in getting more vulnerable patients like families, pregnant individuals, and those with medically complex needs the resources they need. Team members also felt that more education around HTT was needed for providers to understand the services and capacity of the team, as well as the trauma and issues their patients face.

"To be able to sit down and get to know someone…it can be really meaningful. [With my current workload] I'm limited in my ability to provide that [kind of care]."

The limited bandwidth of HTT and the emotional toll of this job was also cited as a barrier and a growth area. Many team members shared that they hope to see increased capacity in this area to be able to provide the best care for the number of patients they have on their caseloads. HTT has established a successful model, one that could be replicated by other community providers and agencies. More community partners assisting with the management of this population will be key to increasing capacity and overall impact.

FEEDBACK FROM PATIENT SURVEYS

Patient Response Rate

Between July and August of 2023, 58 (closed from the program; Tiers 2 or 3) HTT patients were contacted to participate in a survey focused on trust in the healthcare system and to provide feedback about the HTT program. Eleven patients completed the survey (response rate 19%).

Survey Limitations

Survey criteria limited outreach to only those who had been recently closed from HTT. Feedback from cases further back in HTT's project history was not gathered. In the future, gathering this information at the time of closure may improve both response rates and breadth of feedback. The eleven responses shared below are likely not representative of all experiences of everyone that engaged with HTT during the evaluation period.

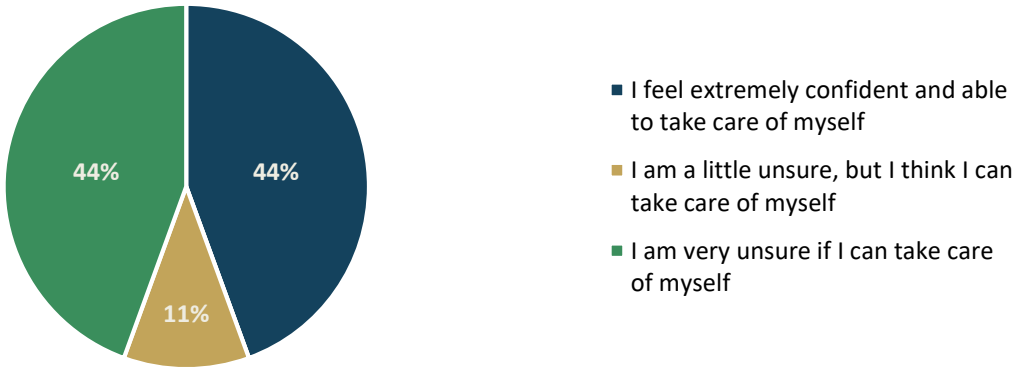
Patient Reported Feelings of Trust and Satisfaction

Healthcare System

When asked *How difficult is it to get your medical needs met?* respondents were divided in their responses, with half indicating that it was not difficult and the other half indicating it was difficult. Similarly, respondents were divided in their responses for the question *How confident are you that you have what you need to make progress with your health goals?*. Half indicated they were confident, and the other half indicated they were not confident.

Housing Transitions Team

Patients were asked questions to gauge their satisfaction with HTT. These questions were specific to involvement with care plan, empathy, happiness with team, and confidence with self-care. 70% of respondents shared that they felt included in some or most of the decisions in their care plan. 75% reported they felt the staff was at least somewhat empathetic to their needs. 38% reported that they were extremely happy with the program whereas 51% reported that they were somewhat or extremely unhappy with the program. 44% felt extremely confident in being able to take care of themselves while 44% felt very unsure if they could take care of themselves (Figure 4).



Note: Respondents did not choose "I feel somewhat confident about being able to take care of myself"; option excluded from visual.

Figure 4. *Respondents' perspectives on the level of self-care they feel confident about now after being helped by the team*

Patient Reported Challenges and Recommendations for Improvement

Respondents were prompted to share challenges and suggestions for the team. With these prompts, many of the 11 respondents shared they did not get their needs met while working with the program. Some reported feeling discriminated against or lied to about what the program offered, including one person feeling misled about the housing options available to them. For recommendations for improvement, patients mainly asked for further assistance with receiving housing and medical support, including application fee help, acquiring housing, oxygen supplies, and a specialty referral to a podiatrist. Three respondents reported that they wished the team would have been more honest or fair.