

Hospital to Home: Reducing avoidable hospital Emergency Department visits while improving housing stability and health

**Outcome Report
November 2012**

Background

A relatively small group of people use a disproportionate amount of hospital emergency department and inpatient resources. These individuals tend to have numerous, complex needs, including chronic health conditions, mental health issues, and housing instability. This frequent usage results in avoidable health care expenses and ties-up emergency department resources unnecessarily. There is an urgent need to reduce costs and better serve patients by targeting the highest need and highest cost patients with alternative interventions. The Hospital to Home initiative pilots an alternative intervention and has demonstrated promising outcomes that could be replicated in other hospitals and communities.

Overview of Hospital to Home

For this pilot, Regions Hospital identified patients who had used its emergency department five or more times in the previous year and had one or more chronic health conditions (such as congestive heart failure, HIV, or asthma); had serious and persistent mental illness (such as major depression, bipolar disorder, or schizophrenia); and were homeless at the time of referral with a long history of homelessness.

From the patients identified by Regions Hospital, seven individuals consented to enroll in the Hospital to Home pilot between August 2009 and May 2010. Guild Incorporated has been engaging these individuals in a plan to improve their health, stability, and quality of life.

Participants work voluntarily with a person-centered, multi-disciplinary mobile community health services team, which provides individually tailored care, based on participant needs and

preferences. The mobile nature of the community health services team allows services to follow participants, wherever they are, thus keeping participants engaged in their own plan. Serving as the central hub of comprehensive care coordination, the team is accountable to either provide directly, or arrange for and coordinate, all needed services including physical health, behavioral health, housing, social, and employment services. Mobile outreach and engagement strategies build and sustain trusting relationships with participants and remove barriers to success.

Enrolled participants receive these voluntary, community-based services from Guild Incorporated and rental assistance from Hearth Connection as part of an evidence-based model called permanent supportive housing. More information about the model and associated roles can be found in the figure on the next page.

Participants' housing stability and self-reliance are cornerstones of Hospital to Home. Safe, stable housing is a strong determinant of positive physical and mental health outcomes. By securing stable housing, participants will have the ability to develop stability and self-reliance in other facets of their lives as well, including their use of healthcare resources and reduced criminal activity.

Overall, Hospital to Home aims to help participants access consistent preventative medical care, in order to decrease the high-cost medical services used over the long-term. One of the primary goals of Hospital to Home is to decrease the number of participant emergency department visits and inpatient hospital admissions. The initiative seeks to increase participant comfort and relationships with primary care clinics and staff so they will seek medical care from clinics rather than emergency departments. Hospital to Home also helps participants gain more consistent and reliable access to prescription medications. More consistent access to medications and preventative care through primary clinics can then reduce the number of emergency department visits and inpatient hospital admissions.

More information about the initiative can be found in the initial report in this Hospital to Home series, written in June 2011, and in the Outcomes Report published in December 2011.

Hospital to Home model and partners



Overview of evaluation

The purpose of the evaluation is to better understand the characteristics and needs of the individuals served by Hospital to Home, and the initiative's impact on participants, including how participation has affected their healthcare use, housing stability, and self-sufficiency.

This is the third in a series of reports. The first report provides background information about the initiative and the seven participants receiving services. The second report focuses on the outcomes achieved by participants after approximately one year of enrollment, and this third report includes updated outcome information for up to two years after enrollment.

For this report, Wilder Research analyzed existing medical claims data from the Minnesota Department of Human Services, housing and life functioning data from Hearth Connection, and service and participant records from Guild Incorporated. Regions Hospital also provided medical care data to supplement the information received from the Minnesota Department of Human Services. Healthcare use data is only available through October 2011 because medical claims may be processed for up to one year after a service was received and at least nine months must lapse between the service date and the data retrieval date in order to allow adequate time for the delay in claims processing. To increase consistency in the report, all data included in this report are from participant initiative enrollment through October 2011.

A year and a half of outcome data are available for all seven participants post-enrollment and two years of data are available for four participants. One participant who was enrolled for two years as of October 2011 had an eight month gap in Medical Assistance coverage during that time, so medical claims data were only accessible from Regions and Guild records for that participant for that timeframe. The results presented reflect these varying sample-sizes for each time interval.

Important participant update

Although the current report focuses on data through October 2011 for the reasons cited above, it is important to note that since that time three participants have died. Two participants passed away due to the chronic health conditions that made them initially eligible for the initiative, one in December 2011 and one in January 2012. The third participant died in September 2012 and the cause of death has not been released. Because these participants were all alive at the October 2011 cut-off for the data, they are included in the current report. However, their passing serves as a reminder that the individuals enrolled in Hospital to Home have complex, chronic health conditions. While the initiative aims to assist individuals in accessing the appropriate care at the appropriate place and time, no effort could eliminate the healthcare needs for these participants.

Participant service use

As of October 2011, the seven participants in the Hospital to Home initiative have been enrolled for between 17 and 26 months (median of 23 months, average of 22 months). The level of participation among those enrolled in the initiative varies greatly. Participants received an average of between three and 33 contacts per month (median of 4 contacts per month). These contacts lasted from one minute to over six hours, with an average length of one hour (median of 45 minutes).

The two most frequent types of services received by participants were intensive case management and medical nursing contacts, which when combined accounted for over 80 percent of contacts and over 680 total hours of service. Intensive case management includes conducting a variety of assessments, developing a care plan based on needs identified and participant preferences, assisting the participant to obtain services, and monitoring the delivery of such services. Additionally, participants receive direct assistance in finding, securing, and keeping housing. Medical nursing contacts relate primarily to management of health conditions, assistance with medications, and referrals to and on-going coordination with primary care providers.

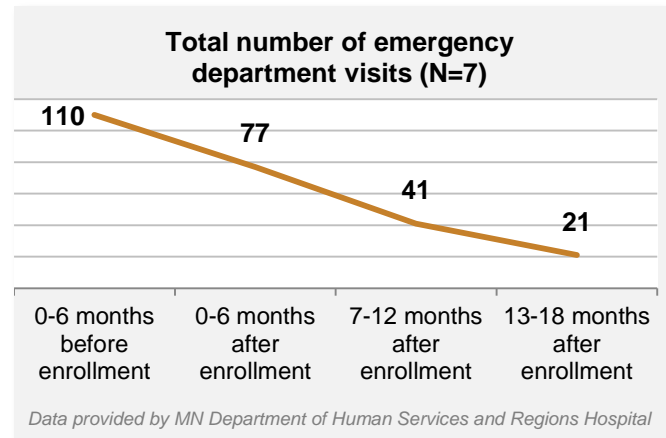
In addition to providing services directly to participants, staff also spent approximately 130 hours working on behalf of participants, including: negotiating with third parties, such as landlords or employers; trying to connect with participants for case management; and receiving case management supervision.

Participant outcomes: Changes in healthcare use

Emergency department use has consistently decreased after enrollment.

- **The total number of emergency department visits by all participants decreased** from 110 visits in the six months prior to enrollment to 77 visits six months after enrollment. The steady decrease continued to 41 and 21 visits, respectively, in six month intervals thereafter.

The median number of visits per participant decreased over time as well, ranging from 18 visits prior to enrollment to 12 visits in the six months after enrollment, 4 visits six to twelve months after enrollment, and 2 visits twelve to eighteen months after enrollment.

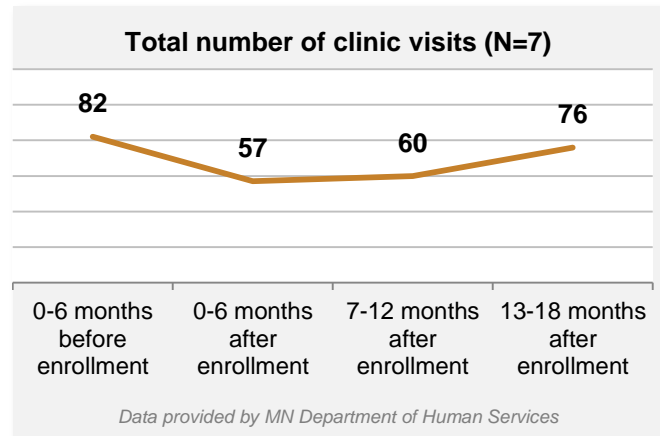


- **All seven participants decreased their use of emergency departments after enrolling in Hospital to Home.** The decrease ranged from four fewer visits to 28 fewer visits per person between the six months before enrollment and the most recent six month period for which data are available (median of 15 fewer visits; average of 12 fewer visits).
- The names of emergency department locations were available for most emergency department visits. Based on available records, **the number of locations visited by all participants for emergency department care decreased** from eight different locations in the six months before enrollment to between two and five locations during six-month intervals after enrollment.

After enrolling in the Hospital to Home initiative, most participants decreased the number of locations visited for emergency department care to one or two, though two participants still visited three emergency departments during a six month period.
- **Most emergency department visits had multiple diagnoses associated with them.** The most common diagnoses recorded for emergency department visits after enrollment included: respiratory problems or asthma (31% of visits); pain either in general or in specific areas (18% of visits); stomach or gastrointestinal issues, such as abdominal pain, nausea, or diarrhea (17% of visits); substance use-related issues (14% of visits), and sexual health screening or treatment (11% of visits).

Clinic use decreased initially and then rebounded.

- **Clinic use decreased between the six months prior to enrollment (82 visits) and the six months after enrollment (57 visits).** Use of clinics, including both hospital and community clinics, then stayed consistent at 60 visits between seven and twelve months post-enrollment before increasing again to 76 visits after the first year. It is likely that as participants received more appropriate care and achieved greater housing and life stability after enrollment, their trust in clinic staff increased, previously untreated health needs emerged, “pent up” needs for preventative care were addressed, and use of specialized clinic services increased, all contributing to the increase in clinic visits over time after enrollment.



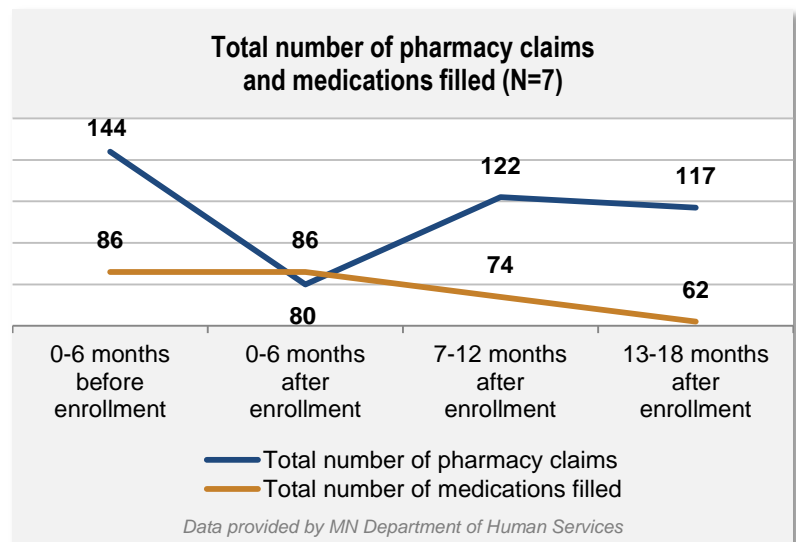
- **Individual participants had very different patterns of clinic use over time.** Four participants decreased their use of primary care clinics from the six months before enrollment to the six months after enrollment, while the remaining three participants increased their use of clinics in the first six months after enrollment. After enrollment, three participants had steady decreases in their use of primary care clinics while three participants had increases in clinic use and one participant showed very little change in clinic use over time. During the most recent six-month period for which medical claims data is available, individuals had between 3 and 27 primary care clinic visits (Median and Average = 14 visits).
- **Overall, participants tended to visit the same clinics repeatedly the longer they were enrolled in the initiative.** In the six months prior to enrollment, the seven participants visited 29 different primary care clinics. They visited 22 clinics in the first six months after enrollment. Twelve months after enrollment, the number dropped to 16 different clinics and eighteen months after enrollment the number rebounded slightly to 18 clinics. When paired with the increase in clinic visits during the same timeframe, this finding demonstrates that participants accessed care repeatedly at the same location over time.
- **Most clinic visits had multiple diagnoses associated with them.** The most common diagnoses recorded for clinic visits after enrollment included: mental health issues (63% of visits), pain (23% of visits), respiratory problems or asthma (22% of visits), substance use-related issues (16% of visits), and sexual health screening or treatment (15% of visits).

Five participants did not experience any inpatient hospital stays after enrollment.

- **Five participants experienced at least one inpatient hospital stay in the six months prior to enrollment, while only two participants have had hospital stays after enrollment.** Both of these participants had seven hospitalizations within the 21 months that they have been enrolled in the initiative and for which data are available.
- **Most inpatient hospital stays after enrollment lasted two days or less,** however, one participant was hospitalized for psychiatric care for a total of 72 days over three separate stays during a single six-month period.
- **Diagnoses associated with inpatient hospital stays included physical and mental health issues.** The reasons for inpatient hospital care after enrollment included issues during pregnancy, such as anemia and a viral infection; chronic systolic and diastolic heart failure; respiratory distress from asthma or pneumonia; acute kidney disease; and mental health issues.

Participants are accessing medications more consistently after enrollment.

- Overall, participants initially had far fewer total pharmacy claims after enrollment (80 claims) than they had prior to enrollment (144 claims). The number of claims increased between six and twelve months after enrollment (122 claims) and stayed relatively stable at 117 claims between twelve and eighteen months post-enrollment, which is still lower than the number of claims prior to enrollment.



- **The number of medications filled has decreased over time post-enrollment,** going from a total of 86 different medications each in the six months prior to enrollment and immediately following enrollment to 74 medications between six and twelve months post-enrollment and 62 medications between twelve and eighteen months post-enrollment. This combined with the increase in overall pharmacy claims after six months of enrollment demonstrates that participants are more consistently accessing the same medications over time.
- **Pharmacy claims over time for individual participants varied.** The number of pharmacy claims leveled off for most individual participants, though two participants had a relatively large increase in claims (20 to 21 more claims) after six months of enrollment, and one participant had only one pharmacy claim at any time point.

- **The number of pharmacies visited has remained relatively stable over time.** It has ranged from 19 locations prior to enrollment to between 15 and 17 locations in six-month intervals after enrollment.

Participant outcomes: Changes in participant stability

All participants moved into stable housing within three months of enrollment in Hospital to Home.

- Based on self-report, all participants were homeless for an average of 6.5 years at enrollment (median of 4 years), including between 14 months and 22 years of homelessness.
- Four participants moved into stable housing within one month of enrollment, two became housed within two months, and one within three months.
- As of October 2011, six of seven participants were living in apartments. Five of these participants remained stably housed in their apartments since enrollment, which is between 15 and 24 months of stable housing.
- Two participants experienced housing disruptions post-enrollment. One participant experienced a traumatic event in his/her apartment and chose to double-up with a partner for approximately two months before becoming rehoused. The other participant moved in with a family member for two months before transferring to a psychiatric facility, in which s/he had been living for four months as of October 2011.

Participants tended to have higher ratings of self-sufficiency in most domains after Hospital to Home enrollment.

The Arizona Self-Sufficiency Matrix assesses participants' self-reliance and the level of support they need in the following 15 domains: community involvement, education, employment, family relations, food, healthcare coverage, housing, income, legal issues, life skills, mental health, mobility, safety, and substance abuse. A lower score on the Matrix indicates lower self-sufficiency and a greater need for support while a higher score indicates greater self-sufficiency. The tool was administered initially by retrospectively reflecting on the participants' self-sufficiency at enrollment and was then re-administered every six months to track changes over time.

- Participants were rated very low in most domains when they were initially assessed.
- At the most recent assessment, participants tended to have higher ratings of self-sufficiency in nearly all of the domains.
- The largest changes in self-sufficiency ratings from baseline to follow-up were in housing and healthcare coverage. All participants moved from being homeless to being stably housed and all participants had adequate healthcare coverage at the time of the follow-up assessment despite two participants lacking healthcare at baseline.

- There were also notable increases in participant safety and family relations over time, both of which included all seven participants receiving a higher score at follow-up than at baseline.
- There were small decreases in the domains of substance abuse and legal issues between baseline and follow-up. Staff attribute these decreases to participants under-reporting at baseline and reporting more honestly at follow-up about both of these topics as their involvement with the initiative and trust with staff developed over time.

Six out of seven participants had no criminal charges after enrolling in Hospital to Home.

- According to Minnesota court records, six of the seven Hospital to Home participants have a criminal history. This criminal history can interfere with participants' ability to access stable housing and community services.
- Four participants' legal issues occurred more than a year prior to enrolling in the program, while two participants had legal issues within a year before enrolling in the program. Overall, there were 50 records of charges involving the six participants, though the number of records for individual participants ranged from one to 26. The majority of the charges before enrollment (60%) were for misdemeanors, over one-quarter were for gross misdemeanors, and seven charges were for felonies.
- As of October 2011, only one participant has had criminal charges since enrolling in Hospital to Home. All three of this participant's charges post-enrollment were misdemeanors for theft.

Participant outcomes: Connections between changes

Changes across healthcare systems

The average use of clinics was lower than the average use of emergency departments immediately following enrollment, but then average clinic use surpassed average emergency department use. As emergency department use decreased steadily, pharmacy use and clinic use both increased after six months of enrollment. This change reflects with the Hospital to Home goals of reducing unnecessary emergency department use through increased use of primary care clinics and aligning clinic use and medication access.

Changes in service use and healthcare use

Every participant was more likely to interact with Hospital to Home staff than to receive medical care at either an emergency department or clinic at each point in time after enrolling in the Hospital to Home initiative. The participants that had the lowest level of healthcare usage, particularly use of clinics and emergency departments, also tended to have the lowest level of contact with staff. It is likely that the participants with greatest healthcare usage are also the participants with the greatest service needs, and therefore, they are the people receiving the greatest dosage of services. This reflects the feature of the Hospital to Home initiative in which services are tailored, including the intensity of services, to participant need.

Conclusions

Effects on participant stability

- All participants have increased their individual functioning in multiple areas since enrolling in Hospital to Home. Specifically, participants quickly accessed stable housing, decreased their use of emergency departments, stabilized their use of primary clinics and pharmacies, and improved their self-sufficiency in the areas of personal safety, healthcare coverage, and family relations.
- The changes sought by the Hospital to Home initiative are significant, long-term, and consistent with the “triple aim” of better care, improved outcomes for people, and reduced costs of care. While this report summarizes many positive participant outcomes, it also touches on the complex issues facing these individuals, including the chronic health conditions, mental illness, and homelessness that made these individuals initially eligible for enrollment.
- It is important to recognize that even in the instances in which a couple of participants moved out of stable housing and/or increased their healthcare use after enrollment, they were still receiving tailored, mobile support services. This ensured that the periods of housing instability were shorter than before enrollment and that healthcare use was still less frequent than before enrollment, both of which indicate sustained improvements in overall health and life functioning.
- While the findings of this report are consistent with the goal of the initiative to decrease inpatient hospital admission by increasing preventative medical and mental health care and treatment, there is an acknowledgement that the participants have severe, chronic conditions that will require hospitalization at times. It may be that with increased stability in participants’ self-management of health issues and use of healthcare services, lingering medical issues can be diagnosed and treated appropriately to help facilitate improved health in the future.

Broader impacts on costs and resources

- Although actual cost-benefit analysis is outside of the scope of the current evaluation, estimates from the Minnesota Department of Human Services and the Minnesota HealthScores Cost of Care website indicate that a clinic visit costs, on average, about one-quarter of the cost of an emergency department visit.
- Because these participants do not have access to private insurance, the costs associated with these medical services are public costs. Based on the disproportionately high cost of emergency department visits, fewer public resources will be needed if overall emergency department visits decrease for conditions that are preventable or could be treated in a clinic.
- While the primary goals of Hospital to Home involve stabilizing the lives of the individuals served, the initiative also seeks to decrease avoidable emergency department use, which then helps to reduce unnecessary healthcare expenses.

- Patients receiving the right care in the right place, including primary care clinics, will free up other resources within emergency departments to allow them to better serve the patients in need of emergency care.

Core elements of Hospital to Home effectiveness

Hospital to Home initiative staff have identified three core elements of the model that are associated with the positive outcomes demonstrated in this report. These elements should continue to be evaluated and supported through resource allocations and policy initiatives.

- **Coordination across systems:** In a healthcare home model, there is a designated primary provider (i.e., personal physician or clinician) who is responsible for coordinating care across all elements of the healthcare system. In the Hospital to Home initiative, the healthcare home function is customized to fit the needs of a high-risk, mobile population which has multiple, complex conditions. Guild Incorporated's Community Health Services Team fulfills the care coordination function and essentially serves as the healthcare home for the participants. The Team, which includes nursing and mental health professionals, is responsible for collaborating with all known healthcare providers to assure planned and integrated care. Social determinants of health as well as physical and mental health conditions are addressed simultaneously.
- **Mobile services:** In this model, services follow the participant regardless of living arrangement, a feature of service delivery that is necessary to engage, build, and sustain relationships with participants over time. The Team goes to where the participant is (e.g., in-home, in-community, in a hospital, on-the-street, etc.), carefully tailoring services to fit diverse and distinctive needs, preferences, and individual goals. While most participants were stably housed throughout this evaluation period, the two participants who experienced housing changes, and even those who did not, had life transitions and service needs that required flexibility and mobility. This mobility allows for continuity of services and adjustment of service intensity as needs change.
- **Housing support:** The ability to get and keep people housed is at the foundation of managing chronic health conditions and achieving optimal health outcomes. Hospital to Home successfully connected participants to stable housing within three months of enrollment. The rental subsidies administered by Hearth Connection were essential to this result. Participants are expected to pay 30 percent of their income towards their housing. Combining this with a rental subsidy makes basic housing affordable and is key to breaking the cycle of homelessness. Once housed, continued support from the Team included forging relationships with landlords, monitoring living conditions, and intervening as needed to mitigate the risk of eviction. Without both the upfront and continued support, and on-going access to rental subsidy, participants would likely not be able to maintain their stable housing over time.

Future directions

- Consistent with the Outcome Report published in October 2011, this report summarizes many positive participant outcomes. Given the complexities of the population, however, it will take additional time before all of the initiative impacts can be seen.
- Continued evaluation of outcomes and measurement of the associated cost-benefits is needed to identify the longer-term benefits associated with the initiative. Guild Incorporated has been awarded grant funding from the Corporation for Supportive Housing (CSH) to support the current evaluation scope and reporting through 2013.
- Consistent with the findings in October 2011, the findings from this report support the need for expansion of the Hospital to Home model in order to determine if the outcomes can be replicated with a larger group of participants. Guild Incorporated has been awarded grant funds from Housing and Urban Development's (HUD) Supportive Housing Program (SHP), within the Ramsey County Continuum of Care, to support expansion to 18 additional participants. Enrollment will take place in late 2012.
- High-quality care transitions, within the collaborative care approach taken by the partners in this initiative, are essential to achieve and maintain the desired changes in healthcare use for this population. Timely and effective information flow, supported through Organized Health Care Arrangements, will support coordinated and continuous care.

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