

Hospital to Home: Reducing Avoidable Hospital Emergency Department Visits While Improving Housing Stability and Health

**Outcome Report
December 2011**

Background

A relatively small group of people use a disproportionate amount of hospital emergency department and inpatient resources. This frequent usage results in avoidable health care expenses and ties-up emergency room resources unnecessarily. There is an urgent need to reduce costs by targeting the highest cost patients with alternative interventions.

The Hospital to Home initiative provides an alternative intervention. Guild Incorporated, Hearth Connection, Regions Hospital Departments of Emergency Medicine and Behavioral Health, and the Office of Performance Measurement and Quality Improvement within the Minnesota Department of Human Services partnered to implement the Hospital to Home pilot.

For the 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 were enrolled 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. A multi-disciplinary community health services team 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 and essentially serving as their health care home. These mobile outreach and engagement strategies build and sustain trusting relationships with participants and remove barriers to success.

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

Overview of evaluation

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

This is the second in a series of three reports. The first report provides background information about the initiative and the seven participants receiving services. This report focuses on the outcomes achieved by participants after approximately one year of enrollment.

For this report, Wilder Research analyzed existing medical claims data from the Department of Human Services, housing and life functioning data from Hearth Connection, and program and participant records from Guild Incorporated. Healthcare use data is only available through October 2010 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 program enrollment through October 2010.

Length of enrollment varies among participants. Twelve months of data is available for five participants post-enrollment, nine months worth of data are available for six participants, and all participants have six months worth of data. The results presented reflect these varying sample-sizes for each time interval.

Participant service use

Participants work voluntarily with a person-centered, mobile community health services team, which provides intensive case management and care coordination functions, including development of an integrated service plan and benefits advocacy. Participants were offered both voluntary, intensive case management services and rental assistance as part of an evidence-based model called permanent supportive housing.

- As of October 2010, the seven participants in the Hospital to Home initiative have been enrolled for between five and 14 months. Two of the seven Hospital to Home participants have been enrolled in the initiative for over one year.
- The level of participation among those enrolled in the initiative varies greatly. Participants received an average of between two and 13 contacts per month (median = 4 contacts per month). These contacts lasted from less than one minute to over four hours, with an average length of 48 minutes.
- The two most frequent types of service received by participants was intensive case management and medical nursing contacts, which when combined accounted for over 90 percent of contacts and over 319 total hours of service. Intensive case management includes assessing needs and developing a plan with the participant to meet his/her needs and preferences. Medical nursing contacts relate primarily to management of health conditions, assistance with medications, and referring to and on-going coordination with primary care providers.
- In addition to providing services directly to participants, staff also spent approximately 98 hours working on behalf of participants, including: negotiating with third parties, such as landlords or employers; trying to locate participants; and receiving case management supervision.

Participant outcomes: Changes in healthcare use

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 inpatient hospital admissions.

All participants decreased their use of emergency departments after enrolling in Hospital to Home.

- **Changes in emergency department use overall by participants:** The total number of emergency room visits by all participants decreased from 68 visits in the three months prior to enrollment to 38 visits three months after enrollment. Both the average and median numbers of visits decreased over time as well, ranging from nine visits prior to enrollment to five visits in the three months after enrollment to three visits in the six months after enrollment.
- **Changes in emergency department use for individual participants:** All seven participants decreased their use of emergency departments after enrolling in Hospital to Home. The decrease ranged from two fewer visits to 21 fewer visits per person (median of 8 fewer visits; average of 9 fewer visits).

In the most recent quarter, from July to October 2010, six of the seven participants decreased their emergency department use to two or fewer visits, including three participants with no emergency department visits.

- **Changes in emergency department locations:** The names of emergency department locations were available for most emergency department visits. Based on available records, the number of locations visited for emergency department care decreased from eight different locations before enrollment to four locations 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 three month period.

- **Diagnoses associated with emergency department visits:** The most common reasons for participants to visit the emergency department after enrollment included: respiratory problems or asthma (30%); pain either in general or in specific areas (15%); injuries, such as fractures, sprains, or contusions (15%); stomach or gastrointestinal issues, such as abdominal pain, nausea, or diarrhea (10%); and acute illnesses, such as sore throats, bacterial infections, or ear infections (6%).

Most participants decreased their use of primary clinics after enrolling in Hospital to Home.

- **Changes in clinic use overall by participants:** Clinic use tended to decrease between the three months prior to enrollment (70 visits) and the three months after enrollment (37 visits). The median number of visits decreased over time as well, from eight visits prior to enrollment to a steady decrease of six, four, three, and two visits during each subsequent three-month period post-enrollment.
- **Changes in clinic usage for individual participants:** Five participants decreased their use of primary care clinics during the first three months after enrollment. The decrease in use ranged from five fewer visits to 24 fewer visits (median of 7 fewer visits; average of 9 fewer visits). The remaining two participants increased their use of clinics between three and nine months after enrollment. Their use of clinics then decreased after nine months of enrollment.
- **Changes in clinic locations visited:** In the three months prior to enrollment, the seven participants visited 25 different primary care clinics. They visited 14 clinics in the first three months after enrollment. Twelve months after enrollment, the number dropped to six different clinics.
- **Diagnoses associated with clinic visits:** The diagnoses related to clinic visits were similar to those related to emergency department visits. For clinic visits after enrollment, the most common reasons included: respiratory problems or asthma (21%); pain (13%); injuries (12%); and mental health issues (11%).

Inpatient hospital stays were less frequent and shorter after enrolling in Hospital to Home.

- **Changes in inpatient hospital stays for individual participants:** Four of the seven participants experienced at least one inpatient hospital stay prior to enrollment in the initiative. Two participants had hospital stays after enrollment. One participant had one stay and one participant had three, all within the first six months after enrollment. The inpatient hospital stays after enrollment also tended to be shorter than those prior to enrollment.
- **Diagnoses associated with inpatient hospital stays:** The reasons for inpatient hospital care after enrollment included one participant who had issues during pregnancy, including anemia and a viral infection, and another who had chronic systolic and diastolic heart failure.

Pharmacy claims decreased immediately after Hospital to Home enrollment, and tended to level off.

- **Changes in pharmacy claims overall by participants:** Participants had one-third of the total pharmacy claims in the first three months after enrollment (33 claims) that they had in the three months prior to enrollment (99 claims). The number of claims increased during the three to six months after enrollment (47 claims) and stayed relatively stable in subsequent quarters (42-43 claims per period).
- **Changes in pharmacy claims for individual participants:** The number of pharmacy claims leveled off for most individual participants, though two participants had a relatively large increase in claims (10 to 12 more claims) after six months of enrollment, and one participant had no pharmacy claims at any time point.
- **Changes in the number of medications accessed:** The number of medications accessed also decreased immediately after enrollment, going from a total of 80 different medications in the three months prior to enrollment to 44 medications in the three months after enrollment. Participants then accessed 50 to 60 medications in three-month intervals thereafter.
- **Changes in pharmacy locations visited:** There was a decrease in the number of pharmacies visited from prior to enrollment (19 locations) to after enrollment (10 to 12 locations). All participants who used a pharmacy visited fewer locations after enrollment.

Participant outcomes: Changes in participant stability

Participants' housing stability and self-reliance are cornerstones of Hospital to Home. Safe, stable housing is a strong determinant of 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.

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

- Based on self-report, all participants were homeless for between 14 months and 22 years (median of 4 years; average of 6.5 years) at enrollment.
- As of October 2010, all participants are living in apartments.
- Four participants moved into their apartments within one month of enrollment, two moved within two months, and one within three months. Participants have lived in their apartments for between three and 13 months.

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 needed in 15 domains. A lower score on the Matrix indicates lower self-sufficiency and a greater need for support while a higher score indicates greater self-sufficiency.

- In the retrospective ratings of participants' self-sufficiency, participants were very low in most domains.
- At the most recent assessment, participants tended to have higher ratings of self-sufficiency in nearly all of the domains.
- The largest change in self-sufficiency ratings from baseline to follow-up was in housing. All participants moved from being homeless to being stably housed.
- There was also a large increase in participant safety over time, with all seven participants receiving a higher score at follow-up than at baseline.
- There were slight decreases in the domains of employment and food between baseline and follow-up. These decreases were due to individuals losing their food benefits or their jobs.

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.
- Only one participant has had criminal charges since enrolling in Hospital to Home. The three charges this participant has had since enrollment were all misdemeanors for theft.

Participant outcomes: Connections between changes

Changes across healthcare systems

The average use of clinics was equal to the average use of emergency rooms immediately following enrollment, but then average clinic use surpassed average emergency room use. This change aligns with the Hospital to Home goal of reducing unnecessary emergency department use through increased use of primary care clinics.

As clinic and emergency department use decrease, pharmacy use remains relatively stable. This may be an indication that participants are achieving stability in their medical care over time.

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 room or clinic at each point in time after enrolling in the Hospital to Home Program. The participants that had the lowest level of healthcare usage, particularly use of clinics and emergency rooms, 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 services 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

Effect on participant stability

- Healthcare use in general decreased for all participants after enrolling in Hospital to Home. Participants were especially likely to continue to decrease their use of emergency departments over time, while their use of clinics and pharmacies tended to level off shortly after enrollment.
- In the first three months, all participants improved their housing stability by moving from chronically homeless to securely housed. By achieving housing stability early in their enrollment, it is expected that participants will continue to achieve stability in other areas of their lives over time, including healthcare usage.
- While the goal of the initiative is 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 have been diagnosed and are being treated appropriately to help facilitate improved health in the future.
- All participants have increased their self-sufficiency in multiple areas since enrolling in Hospital to Home. It is likely that the largest changes - in housing and safety - will lead to further improvements in other areas of life functioning over time.

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. By decreasing the use of emergency departments for conditions that are fully preventable or could be treated in a clinic, fewer public resources will be needed.
- 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 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 concept 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 all participants were stably housed throughout this evaluation period, there were still 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 have maintained their stable housing over time.

Future directions

- The changes sought by the Hospital to Home initiative are significant and long-term. While this report summarizes many positive participant outcomes, it will likely take time before all of the initiative impacts can be seen.
- As staff work with participants over a longer period of time, they will be able to address emerging needs and delve deeper into creating stable and consistent healthcare relationships between participants and medical providers and building participants' ability to self-manage medical conditions.
- The findings from this report support the need for replication and expansion of the Hospital to Home model. In addition, there is a need to continue to evaluate outcomes and to measure the associated cost-benefits.
- Expansion can take place by identifying additional people who frequently use emergency departments and have chronic health conditions, serious and persistent mental illnesses, and long histories of homelessness and engaging them as a new cohort in this alternative intervention.
- Replication could occur by re-conceptualizing healthcare homes as transportable community resources that reach highly-mobile participants where they are located.

Acknowledgments

We would like to extend special appreciation to the individuals who contributed to this project and production of this report. Wilder Research would especially like to thank:

Beth Allen, R.N., Guild Incorporated
Brent Asplin, M.D., Former head of Regions Hospital Department of Emergency Medicine
Kate Bitney, Hearth Connection
Maddy Cohen, Regions Hospital
Louann Graham, Wilder Research
Kelby Grovender, Hearth Connection
Julie Grothe, Guild Incorporated
Shawntera Hardy, Regions Hospital
Nancy Hartzler, Wilder Research
Keith Henry, M.D., Regions Hospital
Richard Hooks Wayman, Hearth Connection
Kurt Isenberger, M.D., Regions Hospital
Richelle Jader, Regions Hospital
Laura Kadwell, Heading Home Minnesota
Vicki Kunerth, Minnesota Department of Human Services
Rhonda Martin, LICSW, Guild Incorporated
Alan Rodgers, Minnesota Department of Human Services
Grace Tangjerd Schmitt, Guild Incorporated
Jennifer Valorose, Wilder Research
Benjamin Van Hunnik, Hearth Connection
Bjorn Westgard, M.D., Regions Hospital



**Wilder
Research**

Information. Insight. Impact.

451 Lexington Parkway North
Saint Paul, Minnesota 55104
651-280-2700
www.wilderresearch.org

For more information

For more information about this report, contact Kristin Dillon at Wilder Research, 651-280-2656 or Julie Grothe at Guild Incorporated, 651-925-8481

Author: Kristin Dillon, Ph.D.
December 2011