Attachment 3

IOWA
CHRONIC CARE
CONSORTIUM

EXECUTIVE SUMMARY

Study Validates Use of Technology-Based Remote Monitoring Platform to Reduce Healthcare Utilization and Cost

Results from the Iowa Medicaid Congestive Heart Failure Population Disease Management Demonstration confirm that a population and technology based remote monitoring platform can greatly reduce the need for costly acute care services by involving patients in their care, improving care efficiencies and promoting healthy behaviors.

The demonstration included 266 Iowa Medicaid members and was conducted by Iowa Medicaid Enterprises (IME); the Iowa Chronic Care Consortium (ICCC), an Iowa based voluntary collaboration of public, private, academic and government organizations; and Pharos Innovations, a partner in the next generation of healthcare financial performance improvement through a device-free remote monitoring platform. It was launched to provide Iowa Medicaid with a cost-efficient, high quality, self-management support and care coordination program for its members with heart failure.

Results

Third-party validated results, compared to baseline, include:

- **66% enrollment after one year** for the extremely difficult to reach and retain Medicaid population
- **72% of Medicaid particpants reported the program helpful** to being in better communication with their physician
- **24% reduction in hospital admissions** – Compared to 22% *increase* for the matched cohort
- **22% total bed days decrease** – Compared to 33% *increase* for the matched cohort
- **Nearly $3 million savings** from reduced healthcare service utilization – Compared to $2 million *increase* for the matched cohort

Implications

Due to the demonstration's success, Iowa Medicaid has committed to expanding the length and reach of the program. This heart failure program met Iowa Medicaid's objectives of improving the medical stability of chronically ill members, increasing the number of members with medical homes, reducing avoidable health care costs to the Iowa Medicaid program, and providing a program that was well received by participants.

Iowa Medicaid Congestive Heart Failure Population Disease Management Demonstration

Evaluation Report

The Iowa Chronic Care Consortium (ICCC) in collaboration with the Iowa Medicaid Enterprise (IME) launched the Iowa Medicaid Congestive Heart Failure Population Disease Management Demonstration Project to improve the accessibility, capability, quality and efficacy of care to the target population through a collaborative and community-based self-management and care intervention plan. The project began with a patient engagement "go live" date of October, 2006. The intervention portion of the program ran through October, 2007.

Background

The Iowa Chronic Care Consortium (ICCC) was organized in 2001 to advance discussion in Iowa of new and innovative strategies that would address the care of Iowans with chronic disease. Iowa is a rural state with an aging population that has 60 of its 99 counties designated in whole or in part as health provider shortage areas (HPSAs). Iowans in remote parts of the state have limited access to timely intervention for chronic disease. During 2002, ICCC conducted a research review of chronic disease management models for effective deployment in Iowa. While ICCC focused interest on models applicable to several chronic diseases, its specific interest was on models that would serve individuals with congestive heart failure (CHF) and diabetes.

In 2003-05, ICCC partnered with a large Iowa-based health system to implement a case-managed telehealth demonstration project to improve the lives of patients with CHF. Over 350 patients participated in the year-long pilot and evaluation of the program revealed improvement in patient functionality, reduced hospital and ER visits and high participant satisfaction. Through a cost-avoidance analysis, it was estimated that the program saved providers, health plans, and consumers over $1 million.

With this successful pilot as a model, ICCC approached the Iowa Medicaid Enterprise to implement a similar intervention program, using a population-based approach, for members of Iowa Medicaid. The strategy was to engage up to 250 members who have CHF, and after a year, compare their health status with a similar group that did not participate in the program. The goal of the program was to reduce the cost burden to Iowa Medicaid through reduced hospitalizations and readmissions, and to improve the quality of life for their members by promoting improved self-management support.

Disease Burden

Congestive heart failure is a progressive chronic condition with mortality rates averaging 20% within one year of diagnosis and 50% within 5 years. For persons with a more advanced disease state, one year mortality is as high as 40% (*Cardiovascular Roundtable, 2000*). Hospitalization for CHF carries a significant economic burden and is an important determinant of successful clinical and patient self-management. In the 1999 Agency for Health Care Policy and Research (AHCPR) Publication No. 99-0046, congestive heart failure was listed as the fourth most common reason for hospital admissions. In 2003 hospitalization charges in Iowa for CHF totaled $79,030,349 (*Iowa Hospital Association 2003 In-Patient Discharge Data*). Eighty-six percent of the payments were covered through Medicare, 4% through Medicaid, and 10% through private payers. This represents inpatient hospitalizations only, and does not consider ER visits, outpatient services or physician visits.

National readmission rates for patients with CHF are high, averaging 21-25% at 30 days and nearly 50% at 6 months (*Cardiovascular Roundtable, 2000*). According to the Cardiovascular Roundtable, these hospital admissions are frequently avoidable. Factors contributing to preventable hospitalizations include noncompliance with medications, poor social support, inadequate hospital discharge instructions, inadequate follow-up, failure to receive or seek medical intervention, and side effects of medications.

Project Objectives

Six specific objectives were targeted for accomplishment through the demonstration project. These objectives are outlined in the project plan document as:

- To facilitate improvement in the medical stability of Iowa Medicaid members with CHF through reduced hospitalizations and ER visits
- To contribute to the containment of total medical costs for Iowa Medicaid members with CHF
- To improve overall access to care for Iowa Medicaid members with CHF by establishing medical homes for all participants
- To improve quality of life and care outcomes for Iowa Medicaid members with CHF through utilization of real time data
- To improve self-management for Iowa Medicaid members with CHF through care management and care coordination
- To ensure sustainability of this model of care for Iowa Medicaid members with CHF by finding alternate reimbursement solutions beyond grant funding.

Program Components

The Population

Participation criteria for the program was agreed upon prior to program initiation. IME required that there be equal opportunity statewide to participate. Available funds allowed the ICCC to enroll up to 250 members into the program. Anticipating that this population may be more challenging to engage than in a commercial population, the pool of eligible candidates needed to be at least 1,000 members. Eligible candidates were identified through Iowa Medicaid medical claims data. A detailed data request was developed and carefully documented to describe the eligible population. As a primary requirement, all candidates were identified through either a primary or secondary diagnosis of congestive heart failure. However, as the population was further filtered, there were not enough members that fit the "ideal" category of at least one hospital readmission within a 6 month period. So, three "risk pools" were identified, with enrollment efforts beginning with the highest risk category. The enrollment phase of the program began in October of 2006 and was capped at 266 members in April 2007. All but 20 participants were enrolled from the top two risk pools. All members received a minimum of six months participation.

This program was voluntary. All eligible members received a letter of invitation, followed by a phone call from a call center. If the member agreed to participate, they were able to access or "activate" into the program within a few days of acceptance. They were free to withdraw from the program at any time. Participants were disenrolled based on the following criteria:

1. Patient choice
2. Transfer to hospice
3. Transfer to a skilled nursing facility (long term)
4. Death

Of the members who were disenrolled, 62 chose to do so before receiving the "minimal intervention" (5 daily call-ins) and were not included within the intervention pool for evaluation purposes. Two hundred and four charts were included in the final evaluation. When ICCC grant funding for the program ended in October 2007, 198 members were active.

Age Demographics:

Through analysis of satisfaction surveys, (123 out of a possible 236 were returned) the age groups of the participants were as follows:

31-40 years old: 0.5%

41-50 years old: 13%

51-60 years old: 24.3%

Older than 60: 60.5%

The Intervention

The primary purpose of this program, named the Iowa Medicaid Heart Wise Tel-Assurance® Program, was to improve quality of life for participants and reduce avoidable health care utilization. The key intervention was daily self-monitoring of weight and symptoms that signaled early warning signs of worsening heart failure. The self-monitoring process was accomplished through the use of a low-cost, ubiquitous telephone linked to the Internet and software that is disease specific and provided gathered data to Iowa Medicaid nurse care coordinators. The system was deployed and developed in conjunction with Pharos Innovations®. Tel-Assurance® is a telephone-based system that collects and aggregates data then provides reports online and in real time. This system employs Interactive Voice Response (IVR) technology and is easily implemented.

Once the patient agreed to participate in the program, they were educated on how to call a toll-free number each day and report any clinical symptoms that they may have experienced within the past 24 hours. They simply choose either "yes =1" or "no=2" on their touch tone phone to reply to a pre-recorded list of seven questions. They were required to complete a daily weight before the call. (The program provided a scale for home use for participants who did not have one.) The Tel-Assurance® system captured this information in an electronic database which was monitored on a real-time basis by IME care coordinators. The care coordinators provided the following services when detecting "variances" from normal self-reports: education to promote self-management support; referral to providers for early warning signs of heart failure exacerbation; collaboration and care coordination with support services such as home health; and routine reporting and feedback to providers as requested. While the care coordinators focused on CHF symptoms, they were often asked to assist members with other health concerns. People who suffer from heart failure often have multiple chronic conditions, such as hypertension, diabetes and depression. Any one of these conditions can influence their overall health.

Program design recognized that rural (or urban) residents who are ill with limited mobility should not be disadvantaged in gaining access to needed medical services. Telephonic support allowed them to participate on a daily basis and for care coordinators to contact them whenever they experienced concerns or symptoms. This program was HIPAA compliant and required informed consent by the patient prior to participation.

Another important program design component was the utilization of current resources and expanded access by trained nurses. The IME care coordinators for the Heart Wise Tel-Assurance® Program were part of existing staff, and no additional staff was hired. Because of the IVR system, the staff was utilized in a very efficient and targeted manner. On any given day, they interacted with about 15-20% of the participants.

Depression has been recognized as a common and debilitating co-morbid condition to people with heart failure. For this project, the IVR system automatically screened every participant for depression, using the Patient Health Questionnaire-2 (PHQ-2) survey. Participants found to be at risk were then asked additional questions through the Patient Health Questionnaire-9 (PHQ-9) and triaged to follow-up care and referral as needed.

Finally, the combination of self-management support and care coordination was designed to reflect disease management components as defined by the Disease Management Association of America (DMAA). With the

exception of the depression assessments and follow-up, the one element (as recommended by DMAA) that was not implemented was the use of evidence-based guidelines. Although providers may have prescribed treatment following evidence-based guidelines, there were no set protocols for which to assure that the guidelines were followed.

There was significant administrative and clinical program support during the 12-month intervention timeframe. Each month, ICCC hosted a clinical team conference call with participation from ICCC, IME and Pharos Innovations. Pharos generated a monthly "dashboard" which included program data, such as the number of variances, (both "no call-in" and "clinical" variances), and the number of active, inactive and disenrolled participants, as well as the reasons for disenrollment. During the call, the care coordinators could also discuss questions, issues and challenges that they were experiencing in supporting the participants. This real-time learning provided tremendous value in perfecting the program and making program improvements along the way.

Program Evaluation

As an integral component of the program's planning and implementation, a comprehensive evaluation plan was developed by the project steering committee and certified through the Disease Management Purchasing Consortium. The plan was built around the Clinical Value Compass, a well-recognized evaluation tool developed by the Hitchcock Clinic. The Clinical Value Compass requires outcomes measurement in the areas of patient functionality, clinical outcomes, resource utilization (cost) and patient satisfaction. The evaluation was completed through the combined use of both primary data collection (i.e., gathering data from participants through questionnaire), and an independent analysis of secondary data from Medicaid claims data. Participant engagement (captured as no-call reports) and clinical intervention opportunities (captured as "clinical variances") were reported monthly by the vendor.

Evaluation measures for the project included:

Clinical Value Compass Measures And Evaluation Tools	
Satisfaction	Questionnaire (12 months.)
Clinical Improvement	Inpatient, Emergency Room episodes
Patient Functionality	Minnesota Living with Heart Failure Questionnaire (Baseline and program completion)
Cost	Medical claims data of Inpatient, ER, medications, physician office visits

Evaluation Methodology

Satisfaction survey questionnaires were developed using a 5-point Likert scale with 1 indicating strong disagreement and 5 indicating strong agreement. The questionnaires were sent out to all active participants, and to those who were disenrolled from the program. In an effort to gather feedback from those who were disenrolled, a targeted effort, using phone call follow-up, was made to all participants who were disenrolled.

Clinical improvement was measured by extracting data from medical claims for inpatient hospitalizations (for CHF as well as all-cause), total bed days, and ER visits. This was reported in terms of visits.

Patient functionality was measured on initial admission and at the end of the program, using the standardized tool Minnesota Living with Heart Failure Questionnaire (MLWHF).

Cost of care and financial impact was measured by extracting medical claims data for inpatient hospitalizations (for CHF as well as all-cause), ER visits, medication use (for all reasons) and physician office visits. This was reported as a dollar value based on data provided by IME.

Baseline Data and Matched Cohort Design

Retrospective claims data covering one year prior to intervention (i.e., October 2005 thru October 2006), were extracted to be used as baseline data. Two hundred and five enrollees were selected into the baseline evaluation database – 70 of which were male and 135 female. Eighteen of the initial participants were lost to observation prior to six months into the evaluation period.

The baseline data were compared to data that were captured during the following year over which the disease management project was taking place. The project planners were aware of the fact that such comparison that is based solely on the participating population will not be adequate for the required evaluation. Therefore a plan was developed to identify a "matching cohort" of CHF patients as an additional method of a control group for the evaluation. Matching was achieved through the use of a "propensity scoring" method. Table 1 shows how the participants and the matched cohort compared on the variables that were used for matching. There are no statistically significant differences in the averages that are reported on Table 1, for individuals in the program and the matched cohort.

Table 1: Variables Used to Perform Propensity Score Matching and the Averages at Baseline

Variables	Cases (N=187)	Matched Cohort (N=187)
Gender (Percent males)	35.3%	33.3%
Percent with COPD	18.7%	15.1%
Percent with hypertension	59.4%	59.7%
Percent with diabetes	56.2%	57.0%
Percent with depression	23.5%	21.5%
Mean age	66.3	66.32
Mean inpatient admissions	0.55	0.60
Mean bed days	2.67	3.17
Mean HF related admissions	0.13	0.15
Mean HF bed days	0.59	0.84
Mean doctor visit	15.53	15.85
Mean ER visit	4.02	4.40
Mean ER visit for HF	0.57	0.72
Mean cost of drugs	$2,752.14	$3,027.49
Mean doctor office charges	$2,376.55	$2,732.86
Mean inpatient charges	$100,644.86	$143,371.85
Mean medical utilization charges	$105,773.55	$149,132.20

Findings

Patient Satisfaction

At the completion of the program (October 2007), a brief patient satisfaction survey was mailed to all active and disenrolled participants. Knowing that disenrolled participants may be less likely to return the survey, additional effort was made to encourage them to complete the survey. Of the eligible 236 participants, a total of 123 surveys were returned from active participants, and 6 surveys were returned from disenrolled participants. Results from the surveys indicated that the majority of participants were satisfied with the program.

Results are as follows:

Survey Question:	**Participant Responses**
Q.1 Overall, how satisfied are you with the Heart Wise Tel-Assurance® program?	63% were highly satisfied or very satisfied
Q.2 How confident are you that you can self-manage your heart failure symptoms and correctly take your medications?	73% were very confident or mostly confident

Q.3 How has your confidence level changed from before you began the program?	60% reported some improvement up to greatly improved.
Q.4 How valuable were the daily phone call-ins to you?	52% felt that the daily phone calls were of great or high value
Q. 6 How likely would you be to recommend the Heart Wise Tel-Assurance® program to others?	83.7% would recommend the program to others

Medical Home

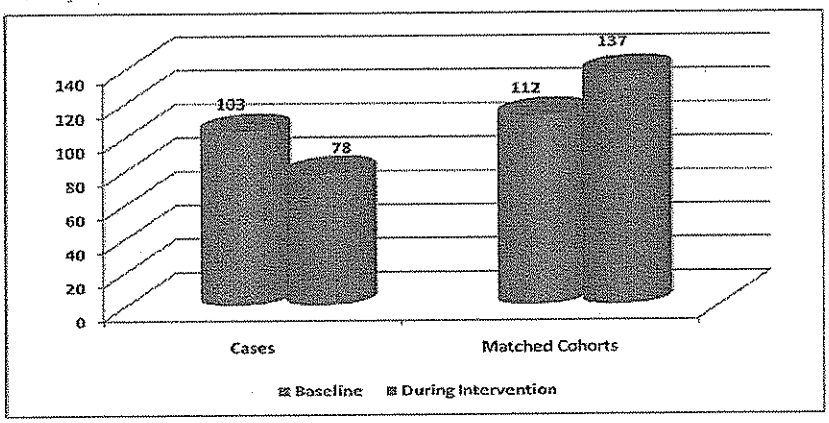
One of the key objectives for this program was to improve access to care for Iowa Medicaid members with CHF. This was measured through the number of members who reported that they had a medical home--defined for this project as a "regular provider." Before enrolling in the Heart Wise Tel-Assurance® program, 77.8% of members indicated that they used a regular provider. Of the initial 17.1% who had indicated that they did not have a regular provider, at the conclusion of the program 76% acknowledged that they now have a healthcare provider they consider their regular provider.

Participants were also asked about the value of the program in helping them to be in better communication with their provider. At the conclusion 71.5 % noted that the program was of moderate to great value in providing this support.

Clinical Improvement

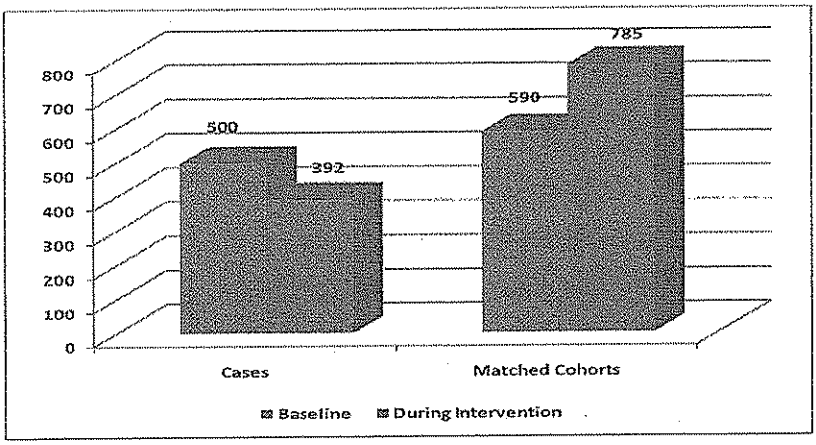
There were a number of noticeable changes that differentiated the participants from the individuals in the matched cohort that can be observed in the data that were gathered during the project period. Figure 1 depicts the changes in terms of inpatient admissions. The number of inpatient admissions of participating individuals declined over the two years, while among the non-participating cohort it increased dramatically. Although the differences in the number of admissions were only significant at $p < 0.10$, this is considered a substantively significant difference nevertheless.

Figure 1: Comparison of Inpatient Admissions between Participants and Matched Cohort before and During Program Participation



The difference between the cases and matched cohort during the program implementation year is even more dramatic in terms of total bed days (see Figure 2). Hence, not only were participants less likely to be admitted for inpatient care, but when they were, they spent less days hospitalized. This difference is statistically significant ($df=186$, $p < 0.05$).

Figure 2: Total Bed-Days



Patient Functionality (Quality of Life Assessment)

For this project, the Minnesota Living with Heart Failure survey was chosen as a measurement of patient functionality. The survey is standardized and well recognized as a quality of life assessment for this population.

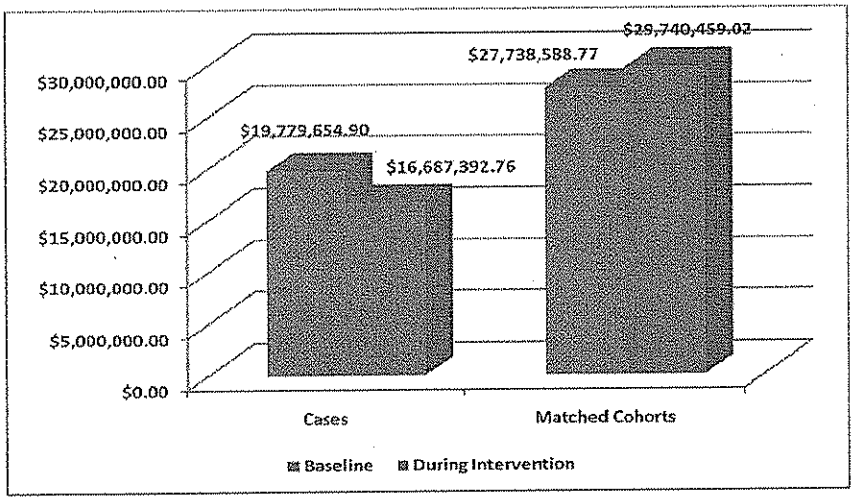
This survey asks 21 questions that allow the participant to rate the impact of a symptom or activity on their daily lives. Questions include physical symptoms, energy levels, depression and sexual function. They rate the impact on a scale of 1-5, with 1 being minimal impact and 5 being considerable impact.

The survey was administered both at baseline and at the completion of the program. There were 87 baseline surveys returned and 116 surveys returned at the completion of the program. These surveys were sent to all active participants as well as those who were disenrolled from the program. There were methodological challenges in the administration and follow-up of the surveys that prevent drawing conclusions. However, one observation can be made. Participant answers to all questions, both at baseline and post-program revealed low mean scores (as a group). In other words, their chronic condition did not appear to greatly affect their lives in a negative way. As congestive heart failure is a progressive disease, participant quality of life did not appear to deteriorate (they did not perceive their health as "worse") over the year. The tool was not administered to the matched cohort. Therefore, it is not known whether their quality of life may have changed over the course of the year of intervention for that group.

Cost of Care and Financial Implications

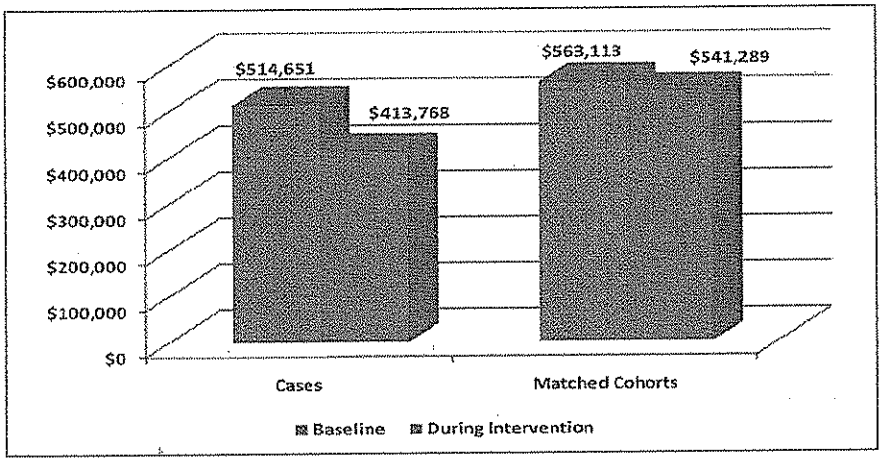
As noted in Figure 3 below, the participating CHF patients incurred less cost to Medicaid over the period of participation. In contrast, the cost incurred by non-participating CHF patients increased over the same period.

Figure 3: Total Charges for Medical Care Utilization



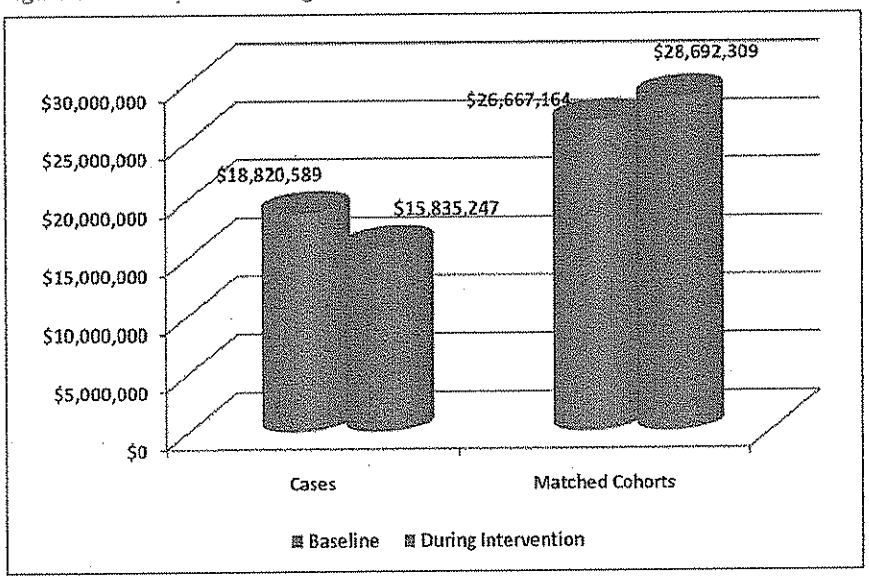
The overall cost savings that is observed in Figure 3 above is due to significant reductions in charges for hospital stays and total pharmaceutical charges (see Figure 4 and Figure 5).

Figure 4: Total Cost of Pharmaceuticals



Since the cost of pharmaceuticals for each group was at a statistically identical level during the baseline period (prior year to the program), one can therefore infer that the reduction in these averages among the participating individuals is the outcome of program participation.

Figure 5: Total Inpatient Charges



Heart failure-related inpatient charges and bed days also improved, though not to a level that was statistically significant. This is most likely due to the low total number of participants that needed inpatient care. Other outcome variables whose levels did change in the desired direction between the baseline and the intervention year included doctor visits and ER visits. The positive trend in these variables contributed to the overall reduction in healthcare expenses.

Depression Screening

Depression represents a significant co-morbid condition for person with heart failure. Based on this finding from previous ICCC demonstration projects, all participants in the Heart Wise Tel-Assurance® Program were routinely screened for depression. A PHQ-2 was administered via the Pharos IVR system at baseline and quarterly thereafter. The PHQ-2 is the depression questionnaire with the largest body of validation and clinical experience. If a participant scored "at risk" on the PHQ-2, a PHQ-9 was administered. In partnership with the Iowa Medicaid mental health provider, a protocol was developed for follow-up and referral. Risk levels were categorized as low, moderate and high. Members at moderate risk were followed by the care coordinators, and members at high risk were referred to the mental health provider for additional follow up. Of the 267 unique members screened, 47% were low risk, 40% were moderate risk and 23% were high risk and referred for further assistance.

Discussion

The value of this demonstration project is, in part, the efficient and effective use of clinical support staff to meet the needs of high risk Iowa Medicaid members who are unfamiliar with or unable to navigate the complex medical health care system. Through the use of Tel-Assurance®, the staff was able to monitor and proactively intervene with members who might otherwise have needed immediate or regular admittance to either the ER or hospital. In addition, through educational support, members were assisted in how to better self-manage their co-morbid health conditions. This is evidenced through the reduction in all-cause inpatient hospitalization, use of medications, and total medical costs.

There were some project assumptions that were both anticipated and addressed within this demonstration. They included:

Participant Adherence: It was anticipated that this population may be less adherent in self-reporting on a daily basis. The average "no-call" variance for a commercial population (and in a previous ICCC demonstration project) is approximately 10% each day. For the first several months of this project, the no-call variance was between 20%-30%. The care coordinators spent additional time contacting and communicating with patients, which greatly increased their workload. To address this issue, non-professional call center staff members were utilized to contact "no-call" patients and educate them on the importance of calling in on a regular basis. As the enrollment phase was completed and all participants were on "maintenance," the no-call variance stabilized at 20%, which continued to be above average to that of commercial populations.

Participant Compliance: Persons with congestive heart failure often have to take a multitude of medications, watch their lifestyle more closely and deal with other chronic conditions. In addition, depression may impact their compliance. In the Medicaid population, there are other socio-economic factors that could negatively influence

compliance. The "clinical variance" rate, as monitored through Tel-Assurance® is one way to assess for non-compliance. One of the chief causes for a clinical variance is weight gain. This is commonly due to either nutrition habits or medication management. The clinical variance rate for this population settled at about 15%, which is also higher than the commercial average. There were many anecdotal stories of the importance and benefit of contacting patients to address the variance, but this practice had a clear increase on the overall staff workload. However, by October of 2007 the clinical staff was far more confident in managing the variances, and they were reporting greatly decreased workloads for this project.

Disenrollment: It was anticipated that disenrollment would be high, partly because of members transitioning in and out of the Medicaid program, and because overall trends show that this population has difficulty remaining engaged in longer-term programs. Of the initial 300 members who agreed to participate in the program, 62 were disenrolled within the first week. By the end of the program, a total of 100 participants were disenrolled. Reasons varied and were documented. The disenrollment percentage of 30% is comparable to the normal expectation in community-based intervention programs.

Participant Pool: In previous projects, participants have been eligible for the program based on frequent hospitalizations and re-hospitalizations. This participant pool was different in two ways. The participants were generally younger in age (the previous projects included mostly participants on Medicare), and they were not frequently hospitalized. In fact, some had not been hospitalized for CHF within the previous year. As there was such a significant difference in overall healthcare costs between the intervention group and the matched cohort, it may be of value to consider the use of this intervention for "prevention" of exacerbations as well as "intervention" for those who required frequent medical care.

Limitations

As in any intervention of this kind, there were some limitations to this demonstration program.

Enrollment Challenges: Of the 1,980 letters of invitation that were sent to eligible participants, only 598 had documented telephone numbers. Without phones, the intervention could not be effective. In addition, there were a high number of inaccurate phone numbers listed within the Medicaid database. This caused some delay as well as extra cost for researching correct phone numbers. On the positive side, of the 598 who were able to be contacted, 300 agreed to participate. This "capture" rate was much higher than anticipated. During the program, five members (who had lost local phone service) were provided with telephones in order to allow them to keep participating in the program.

Use of Evidence-based Guidelines: For this demonstration, the "medical intervention" was limited to the care that was provided by the IME care coordinators. There was no infrastructure to provide additional outreach to

Iowa Medicaid providers to encourage medical treatment based on best practice guidelines for heart failure. For example, because of the "scatter" of providers across the state, there was no one medical director who could prescribe a protocol of diuretic therapy that the care coordinators could use in the event of weight gain. There was no encouragement to utilize the health care system in the most efficient means. As another example, the care coordinators related that despite their encouragement of patients to see their personal provider for medical care, the personal provider sometimes directed their patients to the ER, as opposed to being seen in their medical clinic.

Staff Workflow: Within months of the launch of this program, the IME care coordinators also became responsible for initiating a care coordination program for members with diabetes. While they continued to address the variances of the CHF patients, their attention was primarily on "reacting" to variances for CHF. There was no "general" education program for participants, so not all members received the same coaching or education. It is recommended that, with future programming, all members receive some level of health education, individualized health coaching and follow up.

Continued Evaluation: Finally, as positive as the outcomes appear at the end of one year of intervention, ICCC recognizes the limitations of an evaluation that is performed only at this point. Especially in a population with chronic disease it is important to continue to trend the health status of these individuals over time. IME has committed to continuing the program through their waiver program, and it is highly recommended that another evaluation of both the intervention and cohort groups be conducted by February 2009, or one year after this project's final evaluation.

Recommendations

The following additions are recommended for improving the value of the Heart Wise Tel-Assurance® program for the current and future participants.

- Tighten the program through institution of medical treatment guidelines and evaluation of provider adherence
- Develop a general health education and coaching program that accompanies the Tel-Assurance® Program
- Code the Minnesota Living with Heart Failure Surveys in a way that baseline and follow-up surveys can be individually tracked
- Based on the program satisfaction ratings, the improvement in clinical quality as well as cost reduction, continue to offer the program for all Iowa Medicaid members
- Expand the model to additional chronic conditions
- Deploy this program to Medicare beneficiaries in the state of Iowa
- Replicate the program in other states that are affected by managed care (Iowa is largely a fee-for-service state, even within its Medicaid program)

Conclusion

The Iowa Medicaid Congestive Heart Failure Population Disease Management Demonstration project, through the development of the Heart Wise Tel-Assurance® Program, was launched to assist the Iowa Medicaid Program in providing a cost-efficient, high quality self-management support and care coordination program for their members with congestive heart failure. Its objectives were to improve the quality of care to members, increase the number of members who have medical homes, reduce cost to the Iowa Medicaid program and increase the number of disease management programs that are available for members with chronic conditions. All of these objectives were successfully met as evidenced by the evaluation.

The results of the program evaluation, as presented above, indicate that the intervention had a number of significant positive effects on the participants. A sizeable majority of the participants indicated that they were highly satisfied in what they obtained through their participation. The independent Medicaid claims pattern analysis also indicated that there was a substantial reduction in inpatient hospitalization among the participants over the first year of program participation. In contrast, the matched cohort of CHF patients who did not participate in the program had an increased level of inpatient care during the program period as compared to the previous year. The reduced level of inpatient care translated into a substantial savings in inpatient charges. Given that the cost of inpatient care constitutes a major portion of the cost to Medicaid, the savings in terms of the overall healthcare cost for the participants, as compared to the non-participating matched cohort, was also evident.

The Medicaid Heart Wise Tel-Assurance® Program impacted the lives of about 200 of its members. There was a significant financial benefit for Iowa Medicaid, even given the small size of the project. This group represented a younger and "less-ill" population than typical CHF patients, yet there was a significant risk index as noted from the high number of co-morbid conditions, and their high health care utilization at baseline. Most importantly, they responded positively to the daily monitoring, care coordination and self-management support. Therefore, over more time and with a larger participant pool, the impact would likely be more dramatic.

Acknowledgements

The Iowa Chronic Care Consortium (ICCC) is a voluntary collaboration of public, private, academic and government organizations whose purpose is to develop capacity for the state of Iowa to effectively manage the most prevalent chronic diseases affecting people in Iowa and to improve the health and productivity of individuals through access to patient centered proactive strategies for chronic condition management where they live and work.

The ICCC board includes members representing the founding organizations: Iowa Farm Bureau Federation; Mercy Health Network; Iowa Health System; Des Moines University; and the Iowa United Autoworkers.

ICCC would like to recognize that the success of this project and the positive impact on health and the quality of people's lives has been accomplished through the hard work and dedication of the IME care coordinators and social workers, the clinical leadership of the Iowa Medicaid Enterprise, and the expert guidance and support from Pharos Innovations. The University of Iowa Public Policy Center was instrumental in the development of the evaluation plan and their guidance is greatly appreciated. Finally, the public health faculty at Des Moines University provided final evaluation design and analysis that enabled this project evaluation to meet the rigorous evaluation criteria for quality as certified by the Disease Management Association of America.

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As ICCC continues its mission to improve the health of those with chronic conditions, it is actively committed to replicating this program and to deploying chronic care condition improvement strategies with additional populations.

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