

## Telehealth Reduces Hospitalizations: Creates Secondary Improvements For Other Quality Measures



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The Centers for Medicare & Medicaid Services (CMS), in conjunction with Quality Insights of Pennsylvania, the lead Medicare Quality Improvement Organization (QIO) for home health across the country, launched a national quality improvement campaign in January 2007 aimed at reducing acute care hospitalization (ACH) in the home health setting. This campaign – supported by national stakeholders including the Remington Report – will focus on the use of twelve best practice interventions (related materials will be shared each month) to assist in reducing avoidable ACH to improve patients' quality of care. To learn more about the national campaign visit [www.homehealthquality.org](http://www.homehealthquality.org).

As we move forward in the campaign, we recognize that many home health agencies (HHAs) have already been aggressively working to reduce ACH, and some agencies have already made progress in reducing ACH. This is the story of one agency in Delaware that is using telehealth to reduce avoidable hospitalizations while creating secondary improvements as well.

Christiana Care Visiting Nurse Association joined a National Telehealth Value Study between July 2005 – November 2005. As one of 32 home health agencies participating in the national pilot, Christiana Care had no experience with telemonitors and was selected based on patient census, regional location, and type of agency (non-profit, for profit, hospital-based, etc.).

This VNA is a non-profit, home health care organization that has been in operation since 1922. The agency is also a member of the Wilmington, Delaware-based Christiana Care family of health services, one of the largest health care providers in the mid-Atlantic region.

### Why Did The Agency Decide To Participate In The Pilot?

Administration had been considering the implementation of telehealth since 1997, so they were ready to take action. The

*(more on next page)*

barrier in implementing earlier was the financial investment necessary for the purchase of the monitors. Another contributing factor for participation was the fact that the administration also felt the pilot would assist with their current efforts to reduce avoidable acute care hospitalizations (ACH), and improve patient self-management activities.

**Pilot Sample:** All Medicare patients who met certain criteria were invited to participate with telehealth. Their criteria excluded wound care and intravenous patients that required specific calendar day visits. Any other diagnoses were included. Patients were selected on a first come, first serve basis given that all other requirements were met.

**Pilot Control Group:** During the time of the study, agency officials also assessed the ACH rate for patients that did not use telemonitors, but would have been eligible. This set of patients was considered to be the control group. The patient's case mix weights were evaluated to ensure a similar mix of patients were included in the telehealth pilot group and the control group.

### Implementation

Gale Bucher, performance management coordinator and a registered nurse with Christiana Care, said implementing the telehealth system went smoothly despite expected growing pains. "Smooth implementation is really attributed to the strength and commitment of the telehealth team," Bucher noted. For example, staff had to determine the logistics for moving equipment, define and adhere to infection control standards, and create a central station nurse position.

Monitors used in the pilot were very compact, and simple to use. "Instead of providing printed messages for the patient, the monitor actually had a 'voice,'" Bucher said. Using monitors with a voice was found to be more patient friendly. It was also possible to program the system in different languages.

### Intervention Group Results

According to Bucher, quality outcomes from Christiana Care's participation in the pilot were extremely positive. The

acute care hospitalization (ACH) rate was 10 percent for the study group of 83 patients. This number compares with a CMS risk-adjusted predicted rate of 28 percent, Bucher said. "It was quite a dramatic difference," she noted. Emergent care issues also dropped during the pilot project. (All agency data in this article provided by Christiana Care's vendor, unless specifically noted otherwise.)

### Control Group Results

During the time of the study, agency officials also assessed the ACH rate for patients that did not use telemonitors but would have been eligible. The result? Those patients had a 20 percent ACH rate, twice that of the patients in the telehealth project.

### Post Pilot Program Telehealth Expansion

Based on these results – and after the study was completed – Christiana Care leadership decided to purchase 23 telehealth monitors in February 2006. Since the agency is divided into two geographical divisions, the southern Delaware agency office decided to use all diagnoses in selecting which patients would receive a telemonitor, and the northern Delaware office opted to focus on patients with congestive heart failure (CHF). Bucher said the agency's telehealth program was fully implemented in July 2006. "We had patients on monitors and continued to refine [telemonitoring] processes from February until that time," she added.

Patients are now selected for the telemonitoring program based upon their patient enrollment criteria, which emphasizes hospitalization risk assessment factors.

### Prescribed Visiting Patterns Assist The Process

When implementing the telehealth system, the agency obtained and used prescribed visiting patterns as part of the process. What does that mean? Bucher said when the home care agency opens a case, a physician confirms an order for a planned visit pattern. Typically the patterns are: two visits during the first week, two to three visits during week two, and one visit for week three. After that time, Bucher said the schedule continues with one visit every other week for weeks five through seven, and one to two "as needed" (prn) visits for the 60-day certification period. Approximately seven to eight visits are therefore "prescribed," she noted.

With telemonitoring, the agency also front loads visits, meaning four to five visits are clustered within the first two weeks. During that time, staff conducts intensive education with the patient so that patients can begin earlier to be more independent with their own self-monitoring and care, Bucher said.

Before implementing telehealth, Bucher said Christiana Care did not standardize the number of visits as described above. "It was different for every patient, and variable depending upon the clinician," she explained. With telemonitoring, agency staff has been able to react more quickly to changes in a patient's vital signs or symptoms. "The central monitoring nurse could see trends or abnormalities, and [schedule] the visit at that time," said Bucher. "We may see the patient on Tuesday and Thursday, but [his or her] blood pressure goes up on Wednesday. So we go see the patient on Wednesday – and that's made the difference in our clinical outcomes." (The central monitoring nurse is a new position for the agency.)

### Look At These (Dropping) Rates

ACH rates continue to improve for patients using telehealth systems. Specifically, the ACH rate for the patient base (278 patients), it was 26 percent in July 2006 and dropped to 19.6 percent in October 2006 and 14.6 percent in November 2006. (more on page 58)

Christiana Care ACH Rates (278 patients using telehealth)	
July 2006 .....	26%
October 2006.....	19.6%
November 2006.....	14.6%
<b>SOURCE:</b> Vendor Reports	

tober of the same year. More recently, in November 2006, the ACH rate was down to 14.6.

For 60 CHF patients using telehealth, the hospitalization rate was 20 percent, compared with a risk-adjusted reference of 30.1 percent, Bucher said. (The non-telemonitoring group with CHF had a hospitalization rate of 27.5 percent, compared with a risk-adjusted 37.1 percent.)

In addition to ACH reduction, the agency has also had some unexpected secondary improvements in areas such as dyspnea. Bucher said for all diagnoses, the agency has performed better – even month by month. For the year 2006, Christiana Care was at 67.5 percent on dyspnea, compared with a reference of 50.6 percent. For the CHF-specific group, the home health agency also improved on shortness of breath 58.5 percent of the time, compared with a reference of 47.1 percent.

The agency now has 75 telehealth monitors, and is almost at 100 percent utilization of monitors at any given time. (An additional 25 monitors have recently been purchased.) More than 500 patients to date have used telehealth through Christiana Care. Agency officials plan to work next on improving communications to and from the central monitoring nurse. “A lot of her time is spent contacting and interacting with nurse case managers as well as patients,” said Bucher. “We want to see if communication processes can be refined between case managers and the central station nurse to improve efficiency.”

In addition to the central monitoring nurse, the agency opted to create a specialized team of registered nurses for telehealth. The team meets regularly, resolves any issues with the system and discusses opportunities that come up. Agency leaders conduct intensive record reviews for patients that are hospitalized, and follow up by discussion with the team about what happened. “It’s their team, and their patients’ outcomes,” said Bucher, when asked about the decision to go with a specialized team. “They’re vested,” she added.

A specialized telehealth team also “can communicate the advantages of using telemonitors daily to patients,” Bucher

said. “We definitely have more patients on telemonitors when the team is in place.” The specialized team members also understand that there’s more to telehealth than just showing a patient how to use the monitor. Team members not only educate and monitor patients, but they also teach the patients self-management principles related to their health care.

Physical therapists (PTs) and occupational therapists (OTs) have also been involved in telehealth at Christiana Care, from the standpoint that the patient would receive those therapies as needed, in addition to telemonitoring. Telemonitoring provides more feedback for the whole team, in terms of vital signs and how the patients are doing, and PTs and OTs tap into that, Bucher explained.

### Measuring, Monitoring Success

How does the agency know the program is successful? As part of the ongoing monitoring system, the agency studies daily reports on hospitalization and emergent care (obtained from vendors). Leadership follows up on each of the hospitalized cases, and creates an action plan designed to go into effect when the patient comes home, Bucher said. “The plan [outlines] how we’re going to do things differently” to prevent future hospitalizations, she added.

Leadership also produces monthly dashboard reports for hospitalization, and emergent care, which are then shared with the agency’s Performance Improvement Committee. “We’re watching every month, as well as every day, those specific indicators,” said Bucher. “We aim to improve our efficiency, provide some standardization to our utilization, and visit patterns,” she added. There is currently some variability in utilization (8 to 10 visits for patients with heart failure, for example).

What’s next? Bucher said the agency is collaborating with Christiana Care’s hospitals in a telephonic program. The acute care hospitals use telephonic case management for heart failure patients. The HHA can make a referral to a hospital telephonic program, if continued monitoring is needed after skilled serv-

ices are completed in home care. “We can share very specific information with the telephonic case manager about what we see in the home, what the patient’s compliance and practice has been, and it helps give telephonic program staff a head start when they take over the case,” said Bucher. The referrals can go both ways. The telephonic program can identify patients that need more skilled care and make a referral to our home care telemonitoring program. Agency officials said they are hopeful they’ll be able to demonstrate good outcomes from this program as time goes on.

If the telephonic project is similar to the telehealth program, it’s almost certain Christiana Care will see some success. “Having access to daily patient information on vital signs and symptom management has helped us take a giant step forward in improving patient compliance and reducing unplanned hospitalization,” Bucher said. “But telemonitoring has also been an effective tool in identifying and evaluating new strategies to reduce ACH. With all of our strategies to reduce ACH, we’ve been able to make a difference,” she added. **RR**

*Data in this article was provided by Gale Bucher, RN, MSN, Christiana Care Visiting Nurse Association.*

*As mentioned at the start of this article, we will be sharing similar stories over the course of the next year. If your HHA has a story to tell about successfully reducing ACH, we would like to hear from you.*

*Please e-mail a summary of the story on how your agency reduced ACH to Donna Anderson at [danderson@wvmi.org](mailto:danderson@wvmi.org) or call her at (877) 346-6180, ext. 7706.*

*A list of the year’s best practice topics to be covered each month may be found online at: <http://www.homehealthquality.org/tab/what/interventionpackages/defaults.aspx>.*

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