Beacon trial reduced readmissions of heart patients to 3% using home video conferences

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The Indiana Beacon project used this video-conferencing device to reduce readmissions in the test group.

A nurse version of Max Headroom was the key to reducing hospital readmissions to 3 percent among some of the sickest patients in Indianapolis.

Dr. Alan D. Snell, the chief medical informatics officer at St. Vincent Health in Indianapolis, said the focus of the Central Indiana Beacon Community project was a month of video conferences between nurses and people with congestive heart failure and chronic obstructive pulmonary disease. The goal was to keep these patients out of the hospital.

“A lot of hospitals don’t know how to address readmissions because so much [of what] determines readmissions happens outside the hospital walls,” he said.

Congestive heart failure is the most common discharge diagnosis among Medicare patients and total annual healthcare spending for treating the condition is about $28 billion.

Among a group of eight hospitals, the team recruited 150 patients for a trial and a control group. Follow-up with the control group was defined by each hospital participating in the program.

“They were to keep doing whatever they already do, which for some hospitals is nothing, maybe one call after 48 hours,” Snell said.

Each patient in the test group received a Health Guide the day he or she returned home from the hospital. A technician from Valued Relationships installed the system and connected the patient with the Nurse Contact Center’s first video conference before leaving.
The patient used the Health Guide to meet with a nurse up to six times over the next 30 days. The patient took daily measurements using a Bluetooth scale, a blood pressure cuff tethered to the device, and a Bluetooth pulse oximeter. This information was sent to the nurse in the contact center.

“We have set parameters for each patient, if this starts to fall out of bounds, [the] nurse gets an alert,” Snell said.

The patient also used the device’s touch screen to answer six questions every day. There were 17 videos embedded in the device that covered diabetes, diet, exercise and general health information. Depending on the answers given, a video is recommended to the patient. On the 31st day, a technician removed the device.

**Patient education works**

The results of the test were impressive.

“We found that our program reduced readmits to 3 percent versus [the] national average of 20 percent,” Snell said. “The rate in the control group was 15 percent, which is also lower than the national average.”

Snell said that 30 patients were lost to follow-up because of incorrect or disconnected phone numbers, which may be the reason for the lower readmission rate in the control group.

“You need to be managing a population and proactively identify the patients who are highest cost, highest risk and put the resources to them,” he said. “It’s a major cultural change and it’s gonna take a while to get there.”

The patient who has benefited the most from the program is a 53-year-old woman with nine chronic conditions, 11 admissions in 2011 and total hospital costs of $156,000 for that year.

“We enrolled her on Dec. 20 and seven months later, she had not been back to the hospital room,” Snell said.

Snell said that the woman had been labeled as noncompliant because she didn’t take her meds or keep appointments.

“Patient education has a long shelf life,” Snell said. “Once you have a mobile device in the home, you have the opportunity to push content to them and make sure they understand the disease process.”

*Getting health information in the patient’s home and collecting data for a nurse or doctor to review were the keys to success.*

Getting the right nurses on the conferencing team was key as well.
"We hired experienced nurses with cardiac care or intensive care experience," he said. "We needed good clinical acumen to recognize early deterioration."

**Changing the system without doctors**

When the Beacon team was initially talking with hospital executives about the program back in 2010, Snell said leaders were not paying attention to readmissions because penalties didn’t start until 2012.

Executives also thought nothing would change unless doctors were involved.

“I said, we can do this to assist the physician because we knew it was not conducive to put it inside a practice wall,” he said. "We would instruct the patient and give them their data to take with them."

One limitation of the system is the walled garden that the collected data live in. The team made a conscious decision not to spend grant money to build an interface to connect to all the EMR systems the hospitals were using. The Beacon team extracts data from their database and converts it into a PDF or faxes it to the doctors’ offices. A patient portal is in the works.

**After the grant**

St. Vincent Hospital used a **Beacon grant** to pay for the program. **Indiana Health Information Exchange** received a $16.1 million award to develop the three-year program.

As the team plans to scale up the program past the Beacon grant, they are looking at a prototype device that costs $50 and plugs into TV.

Snell said that once the Beacon grant expires, St. Vincent is going to create a remote patient-monitoring system to include between 400 and 500 patients.

The program will look for the sickest patients with the highest number of readmits and aggressively go after those patients.

Snell said that one nurse could handle up to 75 patients with help from a support staff.

“There’s no way you can scale up home-health nursing to that degree,” he said.