

Modern Healthcare

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Chronic Illness Care
Web helps nurses manage patients
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73

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Four nurses juggle the care of 700 chronically ill patients in and around Sacramento, Calif. And their caseload could swell very soon.

Mercy Heart Institute, which employs the nurses as case managers, hopes to monitor at least 1,000 patients without hiring anyone else. But this development is just fine with the case managers. Same with most of the patients.

With the aid of a two-way Internet connection between nurses and patients, the heart institute's program on managing congestive heart failure allows nurses to monitor the current roster of patients more closely. It also allows patients to be added and frees nurses to focus on problem cases. Nurses flag those cases through daily patient feedback.

From simple monitors installed in their homes, patients enter vitals and answer questions posed by a case manager through an electronic connection. Measured against normal ranges and previous readings, the information confirms a stable situation or prompts immediate action.

The same type of online daily monitoring by Santa Clara County (Calif.) Individual Practice Association is capturing the attention of congestive heart failure patients identified as "challenging" -- they're lax in following instructions and regimens for preventing a medical tailspin.

The 55 patients chosen as prospects for the program last April had multiple hospitalizations and emergency room episodes to show for their lax compliance. About 80% now use the Internet-based program, which has greatly facilitated managing their conditions, says Lawrence Bonham, M.D., the practice association's chief executive officer. "It gets us in better touch with these patients," he says. "Prior to that, we didn't know who was stable and who wasn't."

Both healthcare organizations are testing the capabilities of Health Hero Network's system, which is designed to actively and cost-effectively manage chronically ill patients.

The Health Hero system includes:

- * A secure Internet-based data center.
- * A software package for case managers to compose care plans for individual patients.
- * A simple consumer-oriented "appliance" kept in patient homes. The device receives messages from case managers and sends them information on patients, such as weight gain and adherence to medication regimens.

The Mountain View, Calif.-based company is racing toward the next managed-care challenge as the cost of treating chronic illness increases as a percentage of total U.S. spending on healthcare.

In 1990 direct medical costs for people with chronic conditions totaled \$425 billion, 60% of the nation's medical-care costs. By 1995, direct medical costs had risen to \$470 billion, 70% of total U.S. medical-care expenses, according to the Robert Wood Johnson Foundation.

The American Heart Association estimated that spending on congestive heart failure in 1999 was \$20 billion, with \$15 billion resulting from hospitalization or nursing home care.

Before the Internet-based program was launched, Mercy Heart Institute, a division of Mercy Healthcare Sacramento, already had a thriving 2-year-old program of aggressive "telephonic surveillance," which had reduced rehospitalization of congestive heart failure inpatients by 79%, says Richard Miller, M.D., director of the institute and Mercy's care-management programs.

Miller says nurses were allowed to make some independent decisions on adjusting medications for congestive heart failure by following algorithms -- precise directions based on information provided by patients when nurses call them.

Though successful so far, the telephone-based case-management program is "quite labor-intensive" and limits a nurse's caseload to 150 to 200 patients, he says. Also, contact dwindles to a few times per month for patients who haven't had a hospital episode for a while. Case managers have to concentrate on recently discharged patients, following them three to four times per week.

A six-month pilot project at Mercy Heart Institute has shown, however, that most patients respond to instructions and requests for daily information in a two-way exchange with nurses communicating over the World Wide Web.

A small device called a Health Buddy was installed in the homes of 115 patients participating in the pilot. Nearly 90% of the patients complied with the daily routine, delivering daily electronic reports for case managers.

With the reports, nurses can scan all their cases and flag worrisome symptoms, medication questions and failure to follow doctors' orders. So instead of starting the day by trying to catch a water-weight gain -- a common sign that fluid is building up and diuretics aren't working -- nurses already knew the conditions of their patients and could concentrate on intervention rather than investigation.

The shift to personal contact for only high-risk cases and exceptions to normal readings meant that most patients talked less frequently with a caregiver. But that didn't generally make people feel neglected.

"Patients still feel equally if not more connected with the nurse, because they feel they're communicating every day instead of twice a month," Miller says.

Adds Bonham of Santa Clara County IPA: "Patients are happy with the process. Our patient-satisfaction surveys have come back strong; over 90% say they like it and it's easy to use."

The experience with daily reporting has shown that phone calls alone leave many problem situations undiscovered, says Miller.

"By reporting every day, we have long-term trends that we didn't have before," Bonham says.

In the first two weeks of daily feedback, Mercy already had detected unstable patients and "given them much more rapid treatment than they would have otherwise received," Miller says. The algorithms that nurses use were changed after the institute realized congestive heart failure patients experienced "daily fluctuation of three or four or five pounds. That was a real eye-opener."

The California test sites were at the forefront of aggressive care methods, but they didn't have the steady reporting to pick up subtle trends. Patients with congestive heart failure wait an average of five days after a change in symptoms before seeking care, Miller says. The daily monitoring "theoretically should shorten that five-day delay substantially."

Both organizations are researching the costs and outcomes of the Internet reporting program, and Mercy is converting all 700 patients to the system.

Calculating that it can handle 300 to 400 cases per nurse, the institute believes it can conservatively enroll 1,000 patients to be monitored by the four case managers, Miller says. The heart institute has implemented the program at three of the seven hospitals that make up Mercy Healthcare Sacramento and is starting the program at the remaining four, he says.

Santa Clara County IPA is aggressively identifying other candidates who have trouble following their care plans, Bonham says.

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