



## Is Internet-based disease management on the way?

**Michael O'Reilly**

For years the Internet has been delivering health information from professionals to patients, and now researchers in the US are attempting to see if the reverse is also possible.

In an experiment in disease management, an American company is looking at ways to extend the reach of physicians without having them leave their homes or offices. By using home computers and the Internet, researchers with LifeMasters Inc. ([www.lifemasters.net](http://www.lifemasters.net)) are investigating how communication technology can be used to manage a chronic disease.

"The main objective is to determine if the Internet and personal computer will help improve the quality of life of chronically ill patients, reduce hospitalizations and decrease health care costs," explained Casey Boggs, a spokesperson for LifeMasters.

The year-long study will examine 150 patients, aged between 75 and 90 years, who have congestive heart failure (CHF). The patients have been divided into 3 groups of 50 people. One is the control group, whose members receive traditional care. The second group uses a telephone-monitoring system that has already been established, and the third will employ the Internet.

Patients in the last group receive a computer, Internet access and training. They then enter vital signs and symptoms into their personal Web site every day. The information is monitored by a nurse, who notifies the patient's physician if any changes are noted.

The information flows both ways. Patients not only use the Web to enter daily vital signs such as systolic and diastolic blood pressure, heart rate, weight and symptom information, but they also receive coaching, medication reminders and encouragement elec-

tronically. Educational information, news stories and interaction with other CHF patients are also provided through the Web connection.

As with all electronic health information, LifeMasters' system uses state-of-the-art encryption to protect confidentiality. All interactions require password approvals and data are stored on a server at a secure location.

Managing chronic diseases such as CHF is an increasingly costly business in North America. Traditional techniques demand constant and ongoing contact with the health care system, either through regular visits to the family doctor or home-care visits by a nurse, and this adds to the cost. The LifeMasters' research is designed to examine if the Internet can provide the same level of care without the face-to-face contact.

"If the results of the study illustrate how the personal computer successfully helps physicians monitor their patients and improves outcomes and quality of care while saving money, even the most conservative physicians will take interest," says Boggs.

Preliminary results from the year-long study have not been released, but a similar study that employed telephone technology yielded impressive results. In that test, LifeMasters employed a group of CHF patients in San Francisco; health care expenditures were cut by 25.3% because the number of emergency hospitalizations was reduced.

In that study, patients made daily phone calls to a computerized voice-mail system. As with the Internet system, patients entered their systolic and diastolic blood pressure, heart rate, weight and symptom information using a touch-tone keypad. This information was transferred automatically to a computer, and then monitored by a nurse

who alerted the attending physician if a change occurred. The average daily compliance rate during the 1-year study was almost 86%.

Dr. Richard Moore, a San Francisco internist, uses the interactive voice-response system to monitor one of his patients. "Prior to enrolment in the program a year ago, this patient experienced 3 emergency hospitalizations in 12 months. [Since then] he has become an active participant in his own well-being and has not been hospitalized."

Researchers expect the new Internet application will prove even more beneficial. Not only is it easier to use and more interactive, but it also gives patients a host of additional options such as access to current information and connection with other patients.

Congestive heart failure currently costs the American health care system more than US\$20 billion annually in emergency room visits, hospital admissions and disease-related complications. It is the single largest cause of hospitalization for people older than 65, with about 400 000 new cases of CHF diagnosed annually in the US. These data add up to a huge medical bill, and one that it may be possible to reduce, thanks to the Internet.

Steven McGeady, a vice-president at Intel Corporation, which is supporting the Internet-based study, thinks physicians are only beginning to recognize the power of this new medium. "Internet-based disease management can improve the health and lifestyle of the chronically ill while lowering costs," he says. "The Internet and the PC link these patients into a network of support and care that goes far beyond what was possible previously."

These American researchers hope to show that logging on will not only save dollars, but lives as well. ☺