



- BARBARA KERMODE-SCOTT -

BC initiative improves quality of care and life for congestive heart failure patients - Smart charts and chronic disease management

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Hospital manager Pat Harris was due to retire. He knew he'd been piling on the weight. He also realized his blood pressure was too high. When Harris started to become quite breathless climbing stairs and walking up hills, he decided it was time to do something about the extra pounds around his middle. He resolved to eat less and exercise more but whenever he tried to exercise he became tired very quickly. Harris resolved to try to quit cigarette smoking.

It never occurred to Harris that he should see a doctor about his symptoms. When he retired, he was disturbed that he still had no energy. Soon he began to feel breathless in the middle of the night. His ankles started to swell. He consulted his family physician. When the doctor diagnosed congestive heart failure, Harris was totally shaken.

Congestive heart failure... It's more common than you may think

Heart failure is a quite common condition that can often cause severe shortness of breath and fatigue and result in fluid buildup in the lungs. Approximately 400,000 Canadians are affected by congestive heart failure (CHF). CHF occurs when the heart is unable to pump blood with normal efficiency. CHF usually develops gradually. It also often occurs after a heart attack.

Heart failure is the most common cause of hospitalization in people over age 65 in North America. According to the Heart and Stroke Foundation of Canada (www.heartandstroke.ca) about 3,200 Canadians died of heart failure in 2001- more than 1,900 women and almost 1,300 men. According to a recent study in the Journal of the American Medical Association (JAMA, www.jama.ama-assn.org) both men and women have about a 50-50 risk of dying from heart failure within five years of diagnosis.

British Columbia Congestive Heart Failure Collaborative aims to reduce morbidity and mortality associated with heart failure...

A new British Columbia initiative is working to reduce the morbidity and mortality associated with heart failure. Grassroots family physicians are collaborating with the British Columbia (BC) Ministry of Health Services and CLINICARE Corporation of Calgary to evaluate the use of electronic medical records (EMR) to improve outcomes in heart failure. Those involved in this initiative believe this is the first private/public chronic disease management (CDM) system to improve patient outcomes and reduce the burden of chronic disease in BC.

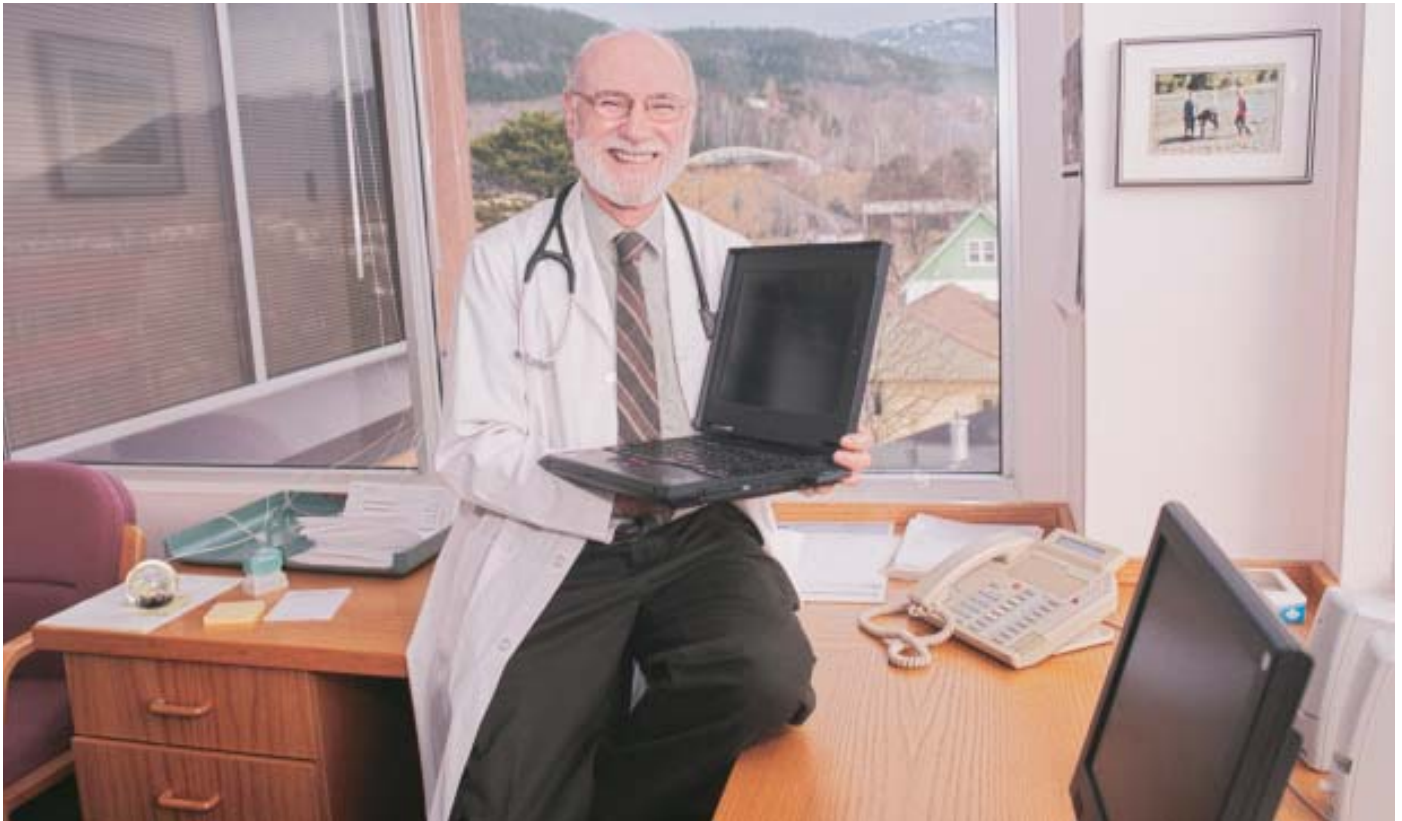
"It's a great idea," says Dr. William (Bill) Redpath, a family doctor in Terrace, in northern BC. "There's been good co-operation between the physicians, the government and CLINICARE on this initiative... It's actually been great fun."

The initiative has several goals, points out Dr. Redpath. Firstly the collaborative aims to build an infrastructure for chronic disease management in BC that will maximize the length and quality of life for patients with chronic disease. Secondly it hopes to satisfy patient and caregiver needs while maintaining or even decreasing the cost of care. It also aims to enable GP providers to deal with chronic diseases that were previously in the sole domain of specialists, and to improve communication and coordination between physicians and other caregivers. Patients will receive systematic follow-up and become increasingly active in monitoring and reporting on their own condition.

The whole basis of the collaborative is to be more proactive, to establish protocols in physicians' offices to keep CHF patients out of facilities, through prophylactic, pre-emptive management, he explains.

"We're very much more into prevention now. We're not just preventing heart failure by treating diabetes, obesity and hypertension. We're preventing heart failure patients from having the acute crises that take them into hospital, such as shortness of breath due to pulmonary edema."

The project first began when the BC health ministry started investigating a new chronic care model, using CHF as a sample chronic disease. According to the ministry, over 37,000 residents of British Columbia are impacted by heart failure. The total estimated cost (both primary and secondary diagnosis) of CHF in BC for the period 1995-2000 was in the range of \$85 million to \$96 million annually. The ministry's analysis suggested a CHF initiative - when implemented throughout the province - would realize a payback within 3 years due to decreased hospital costs. Health officials - including Alec Ferguson and Rosemary Gray - proposed piloting the initiative in the Vancouver Coastal and Northern Health Authorities in late 2002, as physicians in both locations were interested in participating. The idea was to look at population health not just patient health, with regular re-evaluation and adjustment of practice protocols as required, based on statistical analysis of documented treatments and outcomes. The health ministry firmly believed that a flowsheet was needed for each patient as part of the continuity of care in order to detail the individual's past history, visits, medications, progress, etc. Dr. Redpath approached CLINICARE and asked them to identify the costs to develop an electronic flowsheet or template for chronic disease management. They provided a quote for a SmartChart computerized medical record (CMR) solution, an electronic



Dr. William (Bill) Redpath

template for care that would record the patient's visit, weight, blood pressure, medications, etc. - and do much more. Dr. Redpath took that proposal to the Northern Health Authority in BC; the health authority agreed to fund the initiative.

"It was great," he says. "It was actually quite visionary of the Northern Health Authority to go ahead and authorize this."

"We're all set up now and have organized congestive heart failure clinics," he explains. "We have changed the way that we're doing things in the office. We now have about 100 congestive heart failure patients registered. Typically if you identify 100 individuals with heart failure there are probably another 100 in the community that you haven't identified... a lot of people are going around short of breath and with swollen ankles. They just think that it's normal for them."

The BC Collaborative has already helped break down some of the attitudes and misconceptions regarding CHF, and helped educate BC physicians regarding appropriate medications and doses for heart failure, he points out.

For instance, treatments for CHF have changed in recent years. Angiotensin-converting enzyme (ACE) inhibitors are now known to significantly reduce the risk of death. However, a report in the August issue of *Circulation: Journal of the American Heart Association*, suggests almost a third of heart failure patients in the United States face an increased risk of death because they do not receive an ACE inhibitor.
(<http://www.americanheart.org/presenter.jhtml?identifier=3023710>)

"There's lots of evidence now showing that ACE inhibitors and angiotensin receptor blockers make a dramatic difference to all the endpoints - morbidity, mortality, and readmission to hospital," stresses Dr. Redpath. "Beta blockers, once thought to be

contraindicated in heart failure, are dynamite in terms of their effectiveness... Now we know that if patients with heart failure are not on two or three drugs then they're not being treated. In fact some patients need to be on five or six drugs. Even 10 isn't unusual, because there are often so many other co-morbid conditions associated with heart failure."

The collaborative is already really making a difference in patients' lives, he adds. In addition to comprehensive medical care, patients receive counseling regarding their nutrition, lifestyle, and medications as well as referral to a physiotherapist/cardiac rehabilitation clinic. Patients are taught how to manage their own health and deal with their symptoms. For instance, they receive education regarding reducing salt intake and how to increase their diuretic if they have a sudden increase in weight due to increased fluid retention.

"I think every family doctor has found that patients are very enthusiastic about this," he says. "I've a markedly overweight patient who's quite inspired by it. He and his wife wax poetic about his heart failure care. He's had a couple of heart attacks and has diabetes and hypertension... I don't think it had occurred to him that he could do an exercise program but he just loves it."

Park Avenue Medical Centre, Terrace, British Columbia

Dr. Redpath and his 13 family physician colleagues at the Park Avenue Medical Centre in Terrace were able to collaborate with the BC government and CLINICARE to implement SmartCharts for chronic disease management because they had already converted their office to electronic medical records. Their computerized medical records already had much of the functionality and many of the applications needed to move forward with the CHF initiative.

Park Avenue Medical Centre runs:

- Practice Management Applications (PMA), such as billing, scheduling, patient registration)
- Electronic Medical Records (EMR), including computerized medical records, lab, prescription writing, patient handouts, image/document scanning
- CLINICARE EMR and PMA solutions run on an IBM pSeries F80 server
- Approximately 20 IBM PCs/laptops and 20 ASCII display stations
- A Windows terminal server.
- A Hewlett Packard ScanJet scanner
- 8 Optra E printers
- Nortel Firewall

The Terrace group practice serves a patient population of about 20,000 in northern British Columbia. The physicians moved from their original group practice office to a new facility in 1996. When they moved they took the opportunity to develop a “chartless” office with electronic medical records. They stored their existing charts in the basement of Park Avenue and installed computers in each office and examination room in the new clinic. Their staff was already accustomed to using computers for administrative processes like scheduling and billing. It didn’t take long for the physicians to become accustomed to using computers to access their patient charts, lab and x-ray results and prescribing data. They found the new computer system saved both physician and staff time, increased office space and eliminated problems deciphering illegible handwriting. They also enjoyed the remote connectivity to patient charts offered by log-in access from home or the Terrace Mills Memorial Hospital.

“We’ve not seen a downside to electronic medical records,” says Dr. Redpath. “We love our EMR. They’ve made our practice safer, and easier. They save hours in the day and are more enjoyable. They certainly save us money... the reasons for installing them are quite compelling. Afterward you see all sorts of other things that make life better.”

BC physicians can now access BC Health Ministry CDM Toolkit

Earlier this year the British Columbia Ministry of Health Services went live with its new web-based chronic disease management toolkit. This toolkit includes various functions to support optimal chronic disease management. It allows physicians to securely access a probabilistic list of patients with chronic conditions, such as congestive heart failure, diabetes, asthma and hypertension. It reports on the extent to which the care provided to these patients is consistent with the province’s clinical guidelines. It also provides an easy set of tools to help physicians and their care teams to better manage care for their patients with chronic diseases according to clinical best practices.

The CDM toolkit was developed and tested in consultation with BC family physicians to ensure that it meets the chronic care management needs of BC practitioners and can be easily incorporated into day-to-day practice management. Any licensed

BC physician registered with the BC Medical Services Plan can access the CDM Toolkit by registering to use the BC health ministry’s secure web site for practitioners.

(<https://healthnet.hnet.bc.ca/has/regagree/4614fil.pdf>)

SmartCharts now transfers data securely from Park Avenue to the BC Health Ministry’s CDM Toolkit in Victoria. CLINICARE has created the first production CDM solution exporting secure patient information in XML format to a provincial government standard CDM toolkit, according to president and CEO Dennis Niebergal. Basically the new Smart Fields technology combines new features in the SmartCharts with a chronic disease patient registry. Together, they allow comprehensive tracking and reporting of chronic disease treatments, as well as the electronic interface to the government’s toolkit. Physicians can log in to the government web site and seek information from the database on how their results (hospital re-admissions etc.) compare with the results of their colleagues province-wide.

“We’ve learned a number of things about our care,” says Dr. Redpath. “Our clinic’s pretty much up to goal.”

Over time the BC CDM initiative will look into developing CDM flowsheets for the care of patients with diabetes, arthritis, asthma and osteoporosis as well as CHF.

SmartCharts Technology for CDM management

The Terrace physicians went live with SmartCharts for Congestive Heart Failure at the Park Avenue Medical Clinic in December 2003.

“CLINICARE’s SmartCharts technology is deceptively powerful,” states Dr. Redpath. “We haven’t changed the way we dictate. Our typists’ jobs have not changed either. Only now we are tracking our treatment of chronic disease and measuring outcomes electronically.”

SmartCharts computerized medical records (CMR) v6.0 offer a great advance towards improved patient outcomes and fewer hospital admissions for patients with chronic diseases, suggests Niebergal. Chronic disease management is not a new concept, but it is entering a new age with the arrival of predictive modeling technologies, says Niebergal. Predictive modeling enables physicians to identify high-risk patients and adjust their behaviours before they become chronically ill - and chronically expensive - patients.

Initiatives like the BC CHF Collaborative can play an important role in reducing health care costs, he believes.

CLINICARE estimates that the chronic disease demographics for 1,000 GP patients are approximately:

100	10% have 1 chronic disease
100	5% have 2 chronic diseases
<u>175</u>	5% have 3.5 chronic diseases
<u>375</u>	chronic diseases per 1000 patients

In the long term, the number of patients with chronic diseases will have profound implications for the health care system, both increasing the demand for medical services overall and changing the nature of that demand, suggests Niebergal. According to the Canadian Institute for Health Information (CIHI), healthcare spending in Canada reached \$121.4 billion in 2003, he points out, adding that the current system is simply not sustainable.

