The Ottawa Heart Institute: It's good, but can we afford it?

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It is really a world-class institution", says Dr. Garth Dickinson. "And these aren't just public-relations buzzwords. The place is at the leading edge of certain types of research in the world. The institute is the one world-class component of medicine in the city of Ottawa. We should be proud of it."

Many physicians would agree with Dickinson, the director of emergency medicine at the Ottawa General Hospital. Many would also applaud the Ottawa Heart Institute's (OHI) efficient design and modern technology, and the impeccable reputation of Dr. Wilbert Keon, its founder, director-general and chief of surgery, and recent recipient of the Order of Canada.

But the OHI has its critics, too. Some physicians, hospital administrators and students of health care management harp on the escalating costs of high-technology cardiac care and the possible overuse of heart transplantations and aortocoronary bypass graft operations (ACBGs). They wonder if too much money and emphasis is going into the rescue side of heart disease and too little into prevention and health promotion. Do patients and their doctors get enough information to make an informed choice between surgery and medical therapy? Is heart surgery growing unchecked before it has been scientifically validated?

Heart surgery has become institutionalized in the Ottawa area. The rate at which ACBGs are performed on area residents is 20% higher than in Toronto, Hamilton or London, Ont. The OHI performs 800 bypasses a year on patients whose average age has risen from 55 years to 60 years in the past 10 years; 10% to 15% are repeat operations.

There's also the matter of cost. An ACBG costs about $14 500, not including hidden factors such as the training of highly skilled staff. The institute's $36-million annual budget and the millions it solicits each year from the public for equipment and development make it a major competitor for health care funds. And where there is a winner in the battle for scarce funds, there are also losers.

The institute's surgical orientation also pits it against some internists who believe that the powerful medical treatments that evolved in parallel with heart surgery — β-blockers and calcium channel antagonists for angina and thrombolytic therapy for myocardial infarction — are

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equally effective in most patients, and less costly.

"The institute was built on bypass surgery", the late Dr. Goodman Cohen, one of Ottawa's earliest cardiologists, said in an interview last year. The former chief of cardiology at the Ottawa Civic Hospital, he was the only physician in the capital to constantly protest what he saw as "excessive surgical intervention. High numbers of the procedure were needed to attract the money to expand the centre". Today, as before, those bypasses and the well-publicized cardiac transplants remain the OHI's bread and butter.

Although he acknowledged that surgical risks are now small, Cohen believed it morally wrong to perform surgery to correct a condition treatable with drugs. His concern was based on the intense trauma patient and family undergo during and after surgery. Dr. Donald Beanlands, chief of the institute's cardiology division, sees it differently: "Surgery, when possible, is more effective than medical care."

The controversy is primarily a "pills versus knives" debate, since most agree that the bypass operation usually relieves angina and increases cardiac functional capacity. And it may not always be the more expensive alternative. Beanlands points out that extended medical treatment can cost upwards of $4000 per year.

Cardiologist Dr. Thomas Graboys of Harvard University says there are few indications for bypass surgery. He thinks the procedure should be performed only on patients with unstable angina that can't be controlled medically, "those in the acute phases of a heart attack, or who have had a significant change in the pattern of their angina, which also can't be controlled medically". He believes 70% of bypass surgery is unnecessary.

Yet the popularity of the procedure continues to grow. In the US 180 000 ACBGs were performed in 1983 and there will be 300 000 this year; in Canada the figures are 6477 and approximately 10 000, respectively. And as more patients survive acute myocardial infarctions thanks to thrombolytic therapy, surgical caseloads will increase.[1]

Powerful forces in the health care system and in society favour heart surgery. Graboys cites "economics [especially in American hospitals], the [training of too many] cardiac surgeons, patient profiles, lifestyles, political power and many other 'nonclinical' factors such as a fear of sudden death and an urgency to have something done, a fix-it mentality".

Cohen agreed: "Pressure from the patient to 'do something' is high, and for many people pills just aren't dramatic enough. Taking medicines often doesn't seem like taking action."

"There is certainly glamour attached to the operation", says Jane Fulton, PhD, a health policy analyst with the University of Ottawa and coauthor of *Health Care in Canada*, a critical look at how scarce health care resources are dispensed in this country. Fulton, whose PhD thesis dealt with patients' choice of bypass surgery over drug therapy, discovered during interviews that patients "enjoy being able to tell their friends they're going for open-heart surgery". However, two-thirds said they never wanted to go through the experience again.

Perhaps bypass surgery was introduced too quickly. "It looked like a good idea almost from the first time it was tried", says Fulton. "It wasn't really evaluated before it was implemented. As with any disease, as soon as there is hope on the horizon in the form of a new therapy, everybody wants to try it. And once the momentum starts — well, we can see the industry that bypass surgery has become."

And the momentum becomes an institutional tradition. OHI internists and surgeons seem to concur easily about bypass surgery. As Dr. Brian Morton, a staff cardiologist, puts it: "We've worked with the same surgeons for years. We get along well. Our surgeons are very broad spirited."

Morton is also enthusiastic about coronary angioplasty, a procedure done by cardiologists rather than surgeons; its potential for replacing ACBG has yet to be determined, although the OHI did 700 of the procedures last year. Keon is confident that the selection process and the bypass operation itself have outgrown the need for clinical trials. "There never has been a controlled trial of a parachute", he observes.

Heart transplantation and artificial hearts have been even more strongly challenged than ACBGs. "The Massachusetts General Hospital has determined through a fairly tortuous process with the Board of Trustees that it isn't going to do transplants, that they aren't cost effective", says Fulton.

But community support for the OHI to continue with experimental and transplant surgery remains strong. "We have a population that is extremely emotionally attached to heart transplants", says Dr. Ralph Sutherland, a professor in the faculty of administration at the University of Ottawa and coauthor of *Health Care in Canada*. "The cost doesn't seem to matter. People find it intolerable to watch middle-aged men die because they don't get a heart, but tolerable to let teenagers die accidentally in cars."

Doesn't the role of the OHI, as an integral, highly sophisticated and expensive part of that industry, include critical assessment of all cardiac surgical procedures? No, says Carol Clemenhagen, president of the Canadian Hospital Association. "The OHI was set up to perform bypass surgery, to

be a cardiac care institute. I can think of several technologically advanced procedures, like carotid endarterectomy, that diffused widely before they were properly evaluated, and then years later were identified as perhaps not the most effective use of resources."

The institute's bypasses and other programs consume massive resources at the expense, some argue, of smaller hospitals in the community. "No, [the allocation of funds] isn't fair", says Brian Doyle, executive director of the 274-bed Riverside Hospital of Ottawa, which is less than 8 km from the OHI. "Here we are a bare-bones operation. And last summer the Ontario health minister sermonized about restraint and balancing hospital budgets. The next day she is passing out more money to the heart institute."

Though Doyle has mostly praise for the OHI, it bothers him

Search to prove value of bypass operation continues

Outside the Ottawa Heart Institute (OHI) and other cardiac surgery centres, the search continues for the profile of the patient who is likely to benefit more from an aortocoronary bypass graft (ACBG) than medical treatment. Evaluation of the bypass operation by controlled clinical trials has been laborious and inconclusive. There have been three major controlled trials: the European Coronary Surgery Study,[1] the US Veterans Administration (VA) Study[2] and the Coronary Artery Surgery Study (CASS).[3]

The first reported a clear advantage for surgically treated patients, but more than a decade later that gap is narrowing as surgical mortality accelerates.[4] The VA study found for surgery only in the most severely affected patients. The CASS study, which Dr. Wilbert Keon, director-general of the OHI, says was flawed by the inclusion of 700 low-risk patients, found no overall difference, but reported surgical benefit for a subgroup of patients with three-vessel disease and a low ventricular ejection fraction.[5]

Researchers from Duke University who studied patients with symptoms similar to those of patients in the European study found that bypass surgery offered no statistical advantage.[6] Current consensus, such as it is, holds that ACBG is indicated primarily in patients with chronic stable angina and impaired left ventricular function.

In the US, perhaps 50% of bypasses are "inappropriate" according to rigorous criteria.[7] Patients who refuse ACBG do well under medical treatment, with a 3% cardiac mortality after 9 years;[8] 50% of patients who accept a second opinion not to have a bypass have a prognosis as good as or better than that of patients who undergo the procedure.[9] Though these studies do not disprove the value of an ACBG performed for the right indications, the long-range value of the operation is still in question.

Many venous grafts occlude in 5 to 10 years — hence, the need for repeat surgery on older patients. Perhaps worse, atherogenesis in arteries fed by the bypassing veins is accelerated in comparison to those not bypassed or those in medically treated coronary patients.[10]

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that the institute "is almost a bottomless pit for money and resources".

He is also worried that the public has an incorrect view of the institute. "I think there is a perception, partly fostered by the OHI itself, that it is the only place in town to be treated for heart ailments. In fact, several other hospitals in the city are extremely capable of handling acute cardiac problems. After being treated at OHI some patients do not return to the referring doctors. I believe this is an irritant to some doctors."

Dr. Wallace Troup, an Ottawa cardiologist, concurs, noting that results of OHI angiograms often reach referring physicians too late for them to be involved in treatment decisions.

Local competition for patients and resources is only part of the issue. "The real message that needs to be gotten across is, 'What do we think about where enormous piles of health care resources go?' " says Fulton. "Do they really benefit most of the people most of the time? We need to think about the well-being of the people of this province, all of whom support the heart institute, but few of whom benefit from it."

"If you took the money for one heart transplant and put it into educating seventh graders to not begin smoking, the money would probably be much better spent", says Graboys, who is against giving new hearts to everyone who wants one. But, he adds, the operation has been a godsend in some ways. "If you have a 20-year-old child who develops a viral cardiomyopathy, a heart transplant can be critically important."

The press is partly responsible for the public popularity of heart transplantations, and thus the OHI. "Because there is a lot of glamour attached to the OHI", says Sutherland, "it catches the headlines and therefore enormous public and political support. In the process it manages to capture a great deal more financial support than I think it should get."

The public's unrealistic expectations are "very much the fault of the print media and sometimes television", says Fulton. "The public loves drama and it sells." The problem with sensationalizing things like the artificial heart is that it "tells people that success is the common event. The Jarvik-7 is not a proven treatment strategy." [Its use was recently banned in the US, but the OHI will continue to use it, at least for the time being — Ed.]

Much of the heart institute's power derives from patron support. "People with heart disease

are well-established", says Dickinson. "They are affluent, they are social leaders, and they are well-recognized members of the community."

Fulton points out that they also tend to be men in their highest-earning years who have an opportunity to pursue excessive lifestyles, including a high fat diet. "When they get coronary heart disease that is amenable to treatment and they benefit from a high-tech procedure, they become very grateful to the clinicians. And they donate lots of money."

Public, political and patron support gives the OHI much clout, but it would be powerless without its highly skilled staff. "The OHI, I have to admit, is a smooth operation", says Fulton. "Everyone functions really well together. Their chemistry works. They are an example to the rest of us of how, if we wanted to become advocates of some kind of human service, we should go about doing it."

"I'm not critical of them being empire builders", says Sutherland. "They have to compete. Empire building is a byproduct of specialization, but it's also a human trait." Problems arise, however, when "perspectives become so narrow we don't see the rest of the world".

"I think cardiologists and heart surgeons are strong people generally", says Fulton. "They're socialized in medical school to believe that what they're doing is in the best interests of patients. So they become powerful advocates for resources, starting the empire building quite by accident." Once the momentum starts, she adds, it is sustained by patients' worship of the clinicians and ultimately by patients' chequebooks.

The public profile of high-technology health care dominates almost all areas of care, making it hard for elected officials to make unpopular decisions that would force places like the OHI to sometimes go without. "The media are very interested in high-tech innovations, so it is hard for things that are less sexy, like mental health services and preventive programs, to win the needed attention of the public and health ministries", says Clemenhagen.

For Sutherland, the choice is simply between the exhilarating OHI and boring prevention programs. "Thousands of healthy Canadians who die every year on the job and in accidents could have been saved through prevention programs. I think we should be making more informed choices."

And sometimes it is hard to see the trees in the medical forest. Ethicist David Roy of the Clinical Research Institute of Montreal observes: "There is a danger that we become too reliant on high-tech fixes and that weeds grow high and thick on the much less exciting and untrodden path of primary prevention. The excitement can mask the fact that choices are being made, subtly and perhaps with dimmed awareness, but that choices are still being made."

But a trade-off in favour of prevention and health promotion could mean certain death for some heart victims. "It involves making a terrible judgement on what is the value of human life", says Fulton. "But we must understand the downside of the cost of surgery, and it is very simple. If a transplant consumes $40 000 of the provincial budget, 100 people don't get to consume $400 that might have a big impact on their health, too."

Heart surgery, as embodied in the OHI, is supported by public enthusiasm, influential physicians, and health care and research funding agencies. We can't do without it. But like all medical innovations it needs to be rationalized and assigned its proper place within the health care system.

Clemenhagen says Canada needs clearly defined health care objectives on a province-by-province basis. "Right now, Ontario and Quebec have some but they tend to be rather global and vague, so it's difficult to know if we're meeting the goals. We also need centres of research excellence to evaluate new technology quickly, feeding the results to policymakers who act on a system-wide basis. And finally, governments, particularly provincial ministries of health, need the courage and the ability to say no to certain options."

Fulton adds a further perspective: "All human services are bottomless pits for money. I think we need to have some sensitivity toward the people who have put their life's energy into solving heart disease and other cardiac problems as a source of human suffering. We can't not have the OHI. The public expectations and the peace of mind it brings people by just being there are so powerful that politicians wouldn't dare back off funding it. The challenge will be to allocate resources in a fair way, so that people whose health problems aren't as dramatic also have an improvement in the quality of their lives."

A recent development at the OHI may be a sign that preventive health care is beginning to take its place alongside surgery. Dr. William Dafoe, chief of the rehabilitation division, will head a 3-year, $300 000 project to establish a walk-in clinic to test blood lipids and provide nutritional advice. Perhaps that is an indication the furore over bypasses and transplants will one day subside, as fewer and fewer people become candidates for the operations by anyone's criteria.

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